United States
Environmental Protection
Agency

Office of
Emergency and
Remedial Response

EPA/ROD/R07-92/059
September 1992

EPA

Superfund Record of Decision:

Farmers Mutual Cooperative, IA

NOTICE

The appendices listed in the index that are not found in this document have been removed at the request of the issuing agency. They contain material which supplement, but adds no further applicable information to the content of the document. All supplemental material is, however, contained in the administrative record for this site.

50272-101

REPORT DOCUMENTATION PAGE	1. REPORT NO. EPA/ROD/R07-92/059	2.	3. Recipient's Accession No.
4. Title and Subtitle SUPERFUND RECORD OF DECISION Farmers Mutual Cooperative, IA First Remedial Action - Final			5. Report Date 09/29/92 6.
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15. Supplementary Notes

PB93-964303

16. Abstract (Limit: 200 words)

The 6-acre Farmers Mutual Cooperative site is an active grain storage facility in Hospers, Sioux County, Iowa. Land use in the area is predominantly agricultural. The 643 residents of the City of Hospers obtain their drinking water from municipal water supplies and private wells. From 1908 to the present, the Farmers Mutual Cooperative Company (FMCC) used the site for the purchasing and storing of grain and agricultural chemicals, including pesticides and fertilizers. In addition, grain fumigation had been conducted onsite. In 1984, state investigations detected VOCs and herbicides in the ground water of three shallow city wells adjacent to the FMCC facility. In 1989, the state ordered FMCC to conduct an RI/FS, which showed ground water contamination was limited to the shallow wells and did not impact the deeper aquifer. The City of Hospers uses three deep aquifer wells and installed an additonal deep well to meet their water supply needs. Prior actions, including removal of bulk pesticides and further handling from FMCC, have been taken to prevent additional release of contaminants. This ROD addresses ground water contamination as a final remedial action for this site. The primary contaminants of concern affecting the ground water

(See Attached Page)

17. Document Analysis a. Descriptors

Record of Decision - Farmers Mutual Cooperative, IA
First Remedial Action - Final
Contaminated Medium: gw
Key Contaminants: VOCs (carbon tetrachloride), other organics (chloroform, herbicides)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) None	21. No. of Pages 30
	20. Security Class (This Page) None	22. Price

(See ANSI-Z39.18) *See Instructions on Reverse* OPTIONAL FORM 272 (4-77) (Formerly NTIS-35) Department of Commerce

Abstract (Continued)

are VOCs, including carbon tetrachloride; and other organics, including chloroform and herbicides.

The selected remedial action for this site includes natural attenuation of the ground water contaminant levels and monitoring to determine the effectiveness of the remedy and to ensure that the contaminant levels do not increase. The selected alternative provides a contingency remedy in the event use of the impacted aquifer for water supply is sought. The contingent remedy includes blending water from the upper and lower aquifers until MCLs have been achieved, testing the upper aquifer prior to its use, treating contaminated ground water for use as drinking water, or containing contaminants to enable use of the impacted aquifer without treatment. The estimated present worth cost range for this remedial action in $93,000 to $187,000, depending on the remedy used. O&M costs are not associated with this remedy.

PERFORMANCE STANDARDS OR GOALS: Chemical-specific ground water clean-up goals are based on SDWA MCLs and include carbon tetrachloride 0.005 mg/l, chloroform 0.1 mg/l, alachlor 0.002 mg/l, atrazine 0.003 mg/l.

RECORD OF DECISION

FOR

FARMERS MUTUAL COOPERATIVE COMPANY SITE

HOSPERS, IOWA

PREPARED BY:

IOWA DEPARTMENT OF NATURAL RESOURCES

September 24, 1992

RECORD OF DECISION

FARMERS MUTUAL COOPERATIVE COMPANY

HOSPERS, IOWA

DECLARATION

1.0 Site Name and Location

Farmers Mutual Cooperative Company Site
Hospers, Iowa

1.1 Statement of Basis and Purpose

This decision document presents the selected remedial action for the Farmers Mutual Cooperative Company site located in Hospers, Iowa. The remedial action was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) 42 U.S.C. Section 9601 et seq., and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) 40 C.F.R. Part 300.

This decision is based on the documents and information contained in the Administrative Record for the site. A copy of the Administrative Record is available for review in the Iowa Department of Natural Resources (DNR) Records Center in Des Moines, Iowa and in the City Hall in Hospers, Iowa.

The U.S. Environmental Protection Agency concurs with the selected remedy for this site.

1.2 Assessment of the Site

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Record of Decision, may present a current or potential threat to public health, welfare or the environment.

1.3 Description of the Remedy

In consultation with the U.S. Environmental Protection Agency (EPA), DNR has determined that no active remedial action, other than monitoring, is required unless the water from the impacted aquifer is used for drinking water by the City of Hospers or others. Natural attenuation is believed to be occurring and is a feasible and reasonable means of groundwater cleanup. Actions, including removal of bulk pesticide and fertilizer handling from the Farmers Mutual Coop facility in Hospers, have already been taken to prevent additional release of contaminants. Significant attenuation of some contaminants has already occurred. The residual contamination does not pose a significant threat to human health or the environment. However, groundwater contamination in excess of drinking water standards still exists. If a use of the impacted aquifer is sought prior to natural attenuation reducing contaminant levels below MCLs, contingency measures will be implemented as follows:

- Developing and implementing a blending program for the City of Hospers, including test pumping and sampling of the shallow wells prior to their use;

- Conducting any additional monitoring required of the City of Hospers due to use of shallow wells in the impacted aquifer; and

- Implementing measures to reduce contaminant levels, if necessary to meet MCLs, including:

    - Treatment of water from the impacted aquifer for use as drinking water, or

    - Containment of contaminants to enable use of the impacted aquifer without treatment.

The selected response action constitutes final action for this site.

1.4 Statutory Determinations

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable for this site. However, because treatment of the principal threats of the site was not found to be practicable, this remedy does not satisfy the statutory preference for treatment as a principal element of the remedy.

Because this remedy will result in hazardous substances remaining on-site above health-based levels, a review will be conducted within five years after commencement of remedial actions to ensure that the remedy continues to provide adequate protection of human health and the environment.

9-29-92

MORRIS KAY, REGIONAL ADMINISTRATOR — DATE
ENVIRONMENTAL PROTECTION AGENCY, REGION VII

Concurred:

for 9/25/92

ALLAN STOKES, ADMINISTRATOR — DATE
IOWA DNR, ENVIRONMENTAL PROTECTION DIVISION

DECISION SUMMARY

2.0 Site Name, Location, and Description

The Farmers Mutual Cooperative Company (FMCC) site is located in the Northwest 1/4 of the Southeast 1/4 of Section 3, Township 95 North, Range 43 West, Sioux County, in the City of Hospers in northwestern Iowa (Figure 1). The 6-acre site is located on the northwest corner of the city just east of the Floyd River. The City of Hospers had a 1990 population of 643. The surrounding region is primarily agricultural. Water supplies in this region of the state are obtained largely from shallow unconsolidated aquifers. Larger supplies are obtained from deposits of sand and gravel in current stream valleys and in buried channels from past streams. Smaller supplies can be obtained from shallow wells in glacial drift. Large quantities of groundwater are available from the Dakota bedrock aquifer. The rural water district serving the area obtains water from shallow and deep sand-and-gravel aquifers.

2.1 Site History and Enforcement Activities

The FMCC facility began operation in 1908 and has undergone several expansions since then. The FMCC facility was purchased by the Farmers Cooperative Elevator Association of Sheldon, Iowa (the Coop) in 1989. The FMCC facility is typical of many such farm cooperatives throughout the state. In addition to buying and storing of grain, agricultural chemicals, including fertilizers and pesticides, have been sold at the FMCC facility and custom applied. Related to grain storage, grain fumigation has been conducted. The Coop recently removed all bulk chemicals from their Hospers facility.

The FMCC site has been investigated due to the presence of herbicides and volatile organic compounds (VOCs) in groundwater at the site. Groundwater contamination related to the FMCC site was first identified in 1984 from samples collected by the State from three shallow wells which were then used for water supply by the City of Hospers, Iowa. These wells are located adjacent to the FMCC facility. Subsequent sampling of soils and groundwater was conducted by the State, results of which demonstrated that the FMCC facility was a source of these contaminants. The City of Hospers has since been prohibited from using the three shallow wells. The City had three deep Dakota Aquifer wells which were not impacted by the site and installed an additional deep well to meet their water supply needs. However, water from the deep wells has high mineral content. The shallow well water was previously blended with the deep well water to provide a more palatable drinking water.

The FMCC, in cooperation with the DNR and EPA, has been conducting investigations of the site since 1984. In August of 1986 the DNR ordered FMCC to conduct a remedial investigation/feasibility study of the site. The site was proposed for the National Priorities List (NPL) in June of 1988 and became a final NPL site in August of 1990. Phase 1 investigations were completed by FMCC in 1986 and involved installation and sampling of four monitoring wells, surface water sampling, and soil sampling at suspected contaminant source areas. Phase 2 investigations were completed in 1989 and consisted of installation of three additional monitoring wells, sampling of all monitoring wells and the three shallow city wells, and an aquifer pumping test. Phase 3 investigations were completed in 1990 and involved installation of ten additional monitoring wells and comprehensive sampling of all monitoring wells and the three shallow city wells. Phase 4 investigations were completed in 1992 and involved installation and sampling of four monitoring wells and thirteen soil borings in an area previously identified as having very high levels of herbicides in groundwater. Figure 2 is a site map showing monitoring well and soil sampling locations. The DNR has also conducted a related investigation to identify potential contaminant sources not located on Coop property and to determine the extent and magnitude of carbon tetrachloride contamination in groundwater.

2.2 Highlights of Community Participation

A Proposed Plan for the FMCC site was released to the public in May 1991. A public comment period was held from May 2, 1991, through July 15, 1991. A public meeting was held in Hospers on May 21, 1991, which was attended by about 30 people. The 1991 Proposed Plan recommended a groundwater pump-and-treat action to enable the City of Hospers to regain use of their shallow wells. Additional work to pinpoint herbicide contamination for possible source control action and to determine the extent of residual volatile organic contamination was also recommended. Due to requests from the City of Hospers and the Coop, the public comment period was extended twice. The City of Hospers commented that they preferred that the Coop help them obtain another water supply instead of spending money to cleanup the shallow groundwater contamination. In response to this comment, the Record of Decision (ROD) for the site was delayed pending completion of the proposed additional investigations. This decision was made because no significant risks were identified other than use of the shallow aquifer for water supply and, since immediate use of the impacted groundwater was no longer being contemplated, it was deemed prudent to delay the final decision until information from the additional investigations was available.

Another Proposed Plan, which incorporated data which was not available in the previous Proposed Plan, was released to the public on August 25, 1992. Based on the additional data a different remedy, natural attenuation, became a viable alternative. This Proposed Plan and supporting information were made available to the public in the administrative record, a copy of which was maintained at the Hospers City Hall and the DNR Records Center in the Wallace Building, Des Moines, Iowa. The notice of availability of these documents and time and location for the public meeting were published in the Siouxland Press on August 25, 1992. Fact sheets which summarized site activities, indicated the proposed remedy, gave the location of the Administrative Record, and indicated the public meeting time and location were mailed to 23 parties, including 6 media companies. A public meeting was held on September 3, 1992, at the Hospers City Hall in which about 50 people attended. At this meeting representatives from the DNR, the EPA, and the Iowa Department of Health described the site and the proposed remedy and addressed comments and questions. A response to the comments received at the public meetings and other comments received during the public comment period, which ended on September 23, 1992, are included in the Responsiveness Summary, which is part of this Record of Decision.

2.3 Scope and Role of Response Actions

The selected response action addresses the principal threat of groundwater contamination. The contaminated groundwater is the principal threat at this site because of potential direct ingestion of water containing contaminants above health-based levels. The purpose of this response action is to allow natural attenuation to reduce contaminant levels in groundwater to below health-based levels and to ensure that people do not ingest water above health-based standards due to residual contamination in the meantime. The response actions selected in this ROD address all principal threats posed by this site and are intended to constitute final remedial action for the site.

2.4 Summary of Site Characteristics

The following is a summary of site characteristics based on the results from the remedial investigations:

- The site is underlain by a shallow sand and gravel aquifer which is locally productive and was previously used for water supply by the City of Hospers. The City now obtains water from the deeper Dakota Aquifer. Glacial till and shale units separate the shallow sand and gravel aquifer from the

Dakota aquifer. The till and shale retard movement of groundwater thus protecting the Dakota Aquifer from contaminants in the shallow aquifer.

- Flow in the shallow aquifer is to the southwest at approximately two feet per day with discharge to the nearby Floyd River. Upgradient and downgradient sampling of the Floyd River have revealed no significant impact due discharge of groundwater from the site.

- Groundwater contamination has been found in the shallow aquifer in a relatively small area between the Coop and the Floyd River (see Figure 3). Table 1 summarizes groundwater sampling information.

- Sampling to date has revealed no area with levels of soil contaminants which warrant soil remediation (see Table 2).

- All grain storage facilities where carbon tetrachloride was used as a grain fumigant are likely sources of groundwater contamination. Carbon tetrachloride was used as a grain fumigant until it was banned for this use in 1986. Carbon tetrachloride is the primary volatile organic contaminant associated with the site.

- The levels of VOCs (carbon tetrachloride in particular) in groundwater samples have declined substantially in recent years. The investigation by DNR has shown that residual levels of VOCs are small and limited in extent. The diminished nature of VOC contamination is likely attributed to natural attenuation. Figure 4 shows areas of carbon tetrachloride contamination in groundwater in 1985 and 1991.

- Elevated levels of herbicides have been found throughout most of the site. A groundwater sample from a temporary well-point north of Warehouse #5 (GW-1 in Figure 2) revealed very high levels of herbicides, indicative of a contaminant source area. However, follow-up soil sampling in this area failed to identify any significant soil contamination. Another likely herbicide source area is the area near the office and Warehouse #1 (see Figure 2). Otherwise, monitoring results suggest that herbicide contamination is from diverse sources throughout the site.

- The Coop has recently taken action to prevent further release of herbicides to groundwater at the site. Bulk fertilizer and bulk pesticides are no longer available at the Hospers facility and no application of these products will be conducted out of the Hospers facility.

2.5 Summary of Site Risks

Contaminants found in the groundwater include volatile organic compounds associated with grain fumigation (carbon tetrachloride and chloroform) and common herbicides (Atrazine, Bladex, Dual, Lasso, Sencor, and Treflan). Carbon tetrachloride and Atrazine have frequently been found in groundwater at concentrations in excess of federal Maximum Contaminant Levels (MCLs) for safe drinking water. Carbon tetrachloride, chloroform, and Lasso are classified as B2 carcinogens; meaning there is sufficient evidence of carcinogenicity in animals but inadequate evidence of carcinogenicity in humans. All three have been found at concentrations associated with more than a one-in-a-million cancer risk. Carbon tetrachloride was found to pose the greatest risk; not only from drinking water, but also from inhalation of volatilized carbon tetrachloride during showering.

A Baseline Risk Assessment was prepared by the DNR and subsequently modified by EPA to incorporate new information. Results from the Baseline Risk Assessment are summarized in Table 3. Various current and future exposure scenarios were evaluated and unacceptable non-cancer and cancer risks were identified for exposure to groundwater from City Well #9, based on all data from that well, and exposure to water from the three shallow City wells, based on data collected when the

City wells were actively used. In both of these scenarios the risk was largely due to carbon tetrachloride. Recent information has shown a substantial reduction in carbon tetrachloride levels in groundwater. Carbon tetrachloride may no longer present a significant problem in the shallow City wells; however, this will be confirmed by test pumping of the City wells prior to their use. Contaminated soils were found to potentially pose minimal risks.

The Iowa Department of Public Health has conducted a Health Assessment of the FMCC site under a cooperative agreement with the U.S. Public Health Service, Agency for Toxic Substances and Disease Registry. They concluded that the site is a public health concern because of the risk to health from the exposure to hazardous substances via direct ingestion, inhalation from secondary household use, and dermal contact of groundwater. They did not identify public health concerns from on-site surface and sub-surface soils, off-site surface water, or the food chain.

It should be emphasized that currently there is no exposure to the contaminated groundwater and that the DNR will continue to enforce the Safe Drinking Water Act MCLs to ensure that drinking water of acceptable quality is provided by the city.

2.6 Description of Alternatives

Below is a description of the four remedial action alternatives (RAAs) which were considered for this site.

RAA 1 - No (Additional) Action

This RAA would involve no additional action to clean up groundwater at the site. Previous actions taken to mitigate contamination problems associated with the site, which are common components of all the RAAs, include:

- Discontinued use of the three shallow city wells in 1988.
- Placement of the site on the state *Registry of Hazardous Waste or Hazardous Substance Disposal Sites* (final placement pending). This action will prevent sale or significant change in use of the property without approval by the DNR. Notice of this listing will be recorded on the property deed.
- Elimination of bulk pesticide handling facilities to prevent further release of herbicides.
- Discontinued use of carbon tetrachloride as a grain fumigant in 1986.
- Natural attenuation of contaminants (e.g., dilution and biological breakdown) resulting in reduced contaminant concentrations.

There are essentially no costs associated with this alternative. These activities have all been completed, except the State registry listing.

RAA 2 - Natural Attenuation and Monitoring with Drinking Water Contingency

In addition to actions included in RAA 1, this RAA would involve use of existing monitoring wells to determine the effectiveness of natural attenuation in reducing contaminant levels in groundwater. A monitoring program would be developed which defines the location, frequency, monitoring parameters, and criteria for termination of the program. In addition, this alternative would have a

contingency in the event the City of Hospers desires to regain use of the impacted aquifer for a drinking water supply. For the City of Hospers, compliance with MCLs would have to be achieved in the water distribution system with a blending program which is acceptable to the DNR and EPA. Additional contingency action (i.e., treatment or containment) may be required only if an acceptable blending program cannot be developed. In any event, additional contingency action (beyond blending) will not be required if blending equal portions of shallow and deep well water yields water in which the site contaminants meet MCLs. The appropriate contingency measures would also apply to any private water supply which utilized the impacted aquifer. Contingency measures would be:

- Developing and implementing a blending program for the City of Hospers, including test pumping and sampling of the shallow wells prior to their use;
- Conducting any additional monitoring required of the City of Hospers due to use of shallow wells in the impacted aquifer; and
- Implementing measures to reduce contaminant levels, if necessary to meet MCLs, including:
    - Treatment of water from the impacted aquifer for use as drinking water, or
    - Containment of contaminants to enable use of the impacted aquifer without treatment.

The estimated present worth cost of this alternative is $93,000 (without the contingency) and it would take about 3 months to begin implementation. The estimated present worth cost is $187,000 if a blending program for the City of Hospers is implemented and would take about 6 months to begin implementation. If measures to reduce contaminant levels are necessary, the cost and implementation time could be as much as for RAA 3.

RAA 3 - Natural Attenuation with Containment of Contaminants

This alternative would involve pumping contaminated groundwater and passing it through a granular activated carbon (GAC) treatment unit. The objective of this alternative would be to minimize the area of groundwater contamination and prevent untreated discharge of contaminants to the Floyd River. It is also effective in removing volatile organic compounds such as carbon tetrachloride and chloroform. Extraction wells would be located and sized to draw in contaminated groundwater from primary contaminant source areas. This could include use of one or more of the three shallow city wells or installation of new wells. Treated water would be discharged directly to the river, used for irrigation and/or used for subsurface infiltration to facilitate flushing of contaminants from the groundwater system.

The present worth of this alternative is roughly estimated to be $600,000; including $103,000 initial capital cost and $41,000/year for operation and maintenance over a 20 year period. It is estimated that it would take about one year to begin implementation of this RAA.

RAA 4 - In-Situ Bioremediation

This RAA would involve enhancing natural biological degradation of contaminants. In-situ bioremediation would involve providing nutrients to microbes which are used to digest the target contaminants. Existing microbes may be available or microbes which are specially acclimated to the target contaminants may be injected into the ground. Nutrients (e.g., nitrogen, phosphorous, and oxygen) would be injected into the ground via water. The system would be closely monitored.

Treatability studies would have to be conducted to determine the cost and effectiveness of bioremediation.

The present worth cost of this alternative is estimated to range from $1,000,000 to $2,000,000. There are many uncertainties regarding this alternative making the cost difficult to estimate and thus very rough. It is estimated that it would take about two years to begin implementation of this RAA.

2.7 Summary of Comparative Analysis of Alternatives

A comparative analysis of each alternative against the following nine criteria has been made. These nine criteria are categorized into three groups: threshold criteria, primary balancing criteria, and modifying criteria. The threshold criteria must be satisfied for an alternative to be eligible for selection. The primary balancing criteria are used to weigh major tradeoffs among alternatives. The modifying criteria are take into account the public comment on the Proposed Plan and the support agency concurrence. A glossary of the nine criteria follows.

Glossary of Evaluation Criteria

Threshold Criteria:

Overall Protection of Human Health and Environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) addresses whether or not a remedy will meet all of the ARARs of other Federal and State environmental statutes and/or provide grounds for invoking a waiver.

Primary Balancing Criteria:

Long-Term Effectiveness and Permanence refers to the magnitude of residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.

Reduction of Toxicity, Mobility, or Volume through Treatment is the anticipated performance of the treatment technologies that may be employed in a remedy.

Short-Term Effectiveness refers to the speed with which the remedy achieves protection, as well as the remedy's potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.

Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement the chosen solution.

Cost includes capital and operation and maintenance costs. Present worth costs are based upon capital costs plus the present sum necessary for operation and maintenance over a given period and a discount rate of 5% (before taxes and after inflation).

Modifying Criteria:

Support Agency Acceptance indicates whether the EPA concurs with the preferred alternative.

Community Acceptance will be addressed in the *Record of Decision* of the public comments received on the *Remedial Investigation/Feasibility Study* and the *Proposed Plan.*

Overall Protection of Human Health and the Environment

All four alternatives provide adequate protection of human health and the environment. RAAs 2, 3, and 4 would provide the highest level of protection because all provide for use of groundwater from the impacted aquifer in the near future. RAAs 1, 2, and 3 would rely on natural attenuation which would result in contaminants remaining in groundwater for a longer period than RAA 4 (assuming RAA 4 could be effectively implemented). RAAs 2 and 3 would ensure that unsafe human exposure would not occur in the meantime. With RAA 1 unsafe human exposure to groundwater contaminants could occur if the groundwater is used for water supply prior to natural attenuation significantly reducing contaminant levels. With RAA 1 and 2 contaminants would discharge naturally to the river, although no significant impact is anticipated.

Compliance with ARARs

The primary regulations which would be ARARs for this site are the federal Safe Drinking Water Act which contains Maximum Contaminant Levels (MCLs) and proposed MCLs, state groundwater cleanup rules, and federal/state wastewater discharge requirements. All RAAs would ultimately comply with state groundwater cleanup rules which require "use of best available technology and best management practices (BAT/BMP) as long as it is reasonable and practical to remove all contaminants, and in any event until water contamination remains below the action level for any contaminant". Natural attenuation is considered to be BAT/BMP for this site.

RAA 1 would likely not be able to attain the drinking water MCL in the near future for at least Atrazine. RAAs 2 and 3 would ensure that MCLs are achieved for drinking water by blending, treatment, or contaminant containment measures. Wastewater discharge requirements would be applicable only to RAA 3 and possibly RAA 2. Treatment would be provided, if necessary to meet wastewater discharge requirements. RAA 4 would comply with all ARARs if bioremediation proves to provide effective treatment for attaining MCLs.

Long-Term Effectiveness and Permanence

All RAAs would provide the same degree of long-term effectiveness and permanence because natural attenuation has been determined to be effective at this site.

Short-Term Effectiveness

RAA 1 would do nothing for short-term use of the impacted aquifer. Use of the shallow aquifer for water supply by the City of Hospers would be most likely achieved in the short-term with RAA 2 or 3. RAA 4 would likely take an extended period of time to implement and thus would be unlikely to provide significant short-term benefits. Construction activities for any of the RAAs are not expected to result in any significant adverse impact to human health or the environment.

Implementability

RAAs 1 and 2 are the easiest to implement since they may not involve active cleanup. RAA 3 would be relatively easy to implement since it involves proven technologies. RAA 4 would be the most difficult to implement since the effectiveness of bioremediation is not proven for this site. RAA 4 would thus involve a considerable amount of testing prior to implementing the action. The nature of this site with disperse occurrence of contaminants at only moderate to low concentrations would likely make bioremediation difficult to implement effectively.

Cost

The estimated cost of each alternative is provided under the description of each alternative. It should be noted that cost estimates have a low level of accuracy at this stage and are intended primarily for relative comparisons between alternatives.

Support Agency Concurrence

The EPA is support agency for this site and supports the choice of action.

Community Acceptance

The public comments are described in the Responsiveness Summary which is Part 3 of this Record of Decision.

2.8 The Selected Remedy

The selected remedy is Alternative 2, Natural Attenuation and Monitoring with Drinking Water Contingency. This remedy recognizes that natural attenuation is a reasonable and feasible means of groundwater cleanup. Recent data shows that natural attenuation is occurring at the site. A substantial reduction in VOC contamination of groundwater by natural attenuation has already been demonstrated. VOC contamination of groundwater is no longer believed to be a significant problem. Herbicide contamination of groundwater persists above drinking water standards, especially for the herbicide Atrazine. However, despite reasonable efforts to pinpoint the source of herbicide contamination, no significant source has been identified which could be otherwise remediated. Containment of contaminated groundwater is possible. However, without drinking water use, containment would result in no significant benefit. Therefore, natural attenuation has been determined to be an acceptable means of groundwater remediation.

A monitoring program will be established to determine the effectiveness of natural attenuation and to ensure that the magnitude and extent of contamination does not increase. The monitoring program will utilize existing monitoring wells. A monitoring plan will be developed which identifies monitoring locations, frequency, and parameters and criteria for modification and termination of the program.

The selected alternative provides a contingency in the event use of the impacted aquifer for water supply is sought, particularly by the City of Hospers. The City of Hospers previously blended water from its shallow and deep wells. The objective of the contingency with respect to the Hospers' Water Supply would be to provide a water supply which is roughly comparable to their past water supply when shallow and deep well waters were blended. The contingency will assure that compliance with MCLs for contaminants associated with the site will be achieved in the Hospers' water distribution system. If blending program is developed which meets the approval of the DNR and EPA, no additional contingency action will be required. If an acceptable blending program which meets MCLs cannot be developed, then additional actions will be required (i.e., treatment or containment). In any

event, if blending of equal portions of shallow and deep well waters yields water which meets MCLs, no additional contingency (beyond blending) will be required. Appropriate contingency measures would also apply to any private water supply impacted by site contaminants. In summary, contingency measures would include the following.

- Developing and implementing a blending program for the City of Hospers, including test pumping and sampling of the shallow wells prior to their use;
- Conducting any additional monitoring required of the City of Hospers due to use of shallow wells in the impacted aquifer; and
- Implementing measures to reduce contaminant levels, if necessary to meet MCLs, including:
    - Treatment of water from the impacted aquifer for use as drinking water, or
    - Containment of contaminants to enable use of the impacted aquifer without treatment.

2.9 Statutory Determinations

Under its legal authorities, EPA's primary responsibility at Superfund sites is to undertake remedial actions that achieve adequate protection of human health and the environment. In addition, section 121 of CERCLA established several other statutory requirements and preferences. These specify that, when complete, the selected remedial action for this site must comply with applicable or relevant and appropriate (ARARs) environmental standards established under Federal and State environmental laws unless a statutory waiver is justified. The selected remedy also must be cost-effective and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practical. Finally, the statute includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous wastes as their principal element. The following sections discuss how the selected remedy meets these statutory requirements.

Protection of Human Health and the Environment

The selected remedy protects human health and the environment by ensuring that water supplies will not contain site contaminants above MCLs. Natural attenuation will eventually result in a reduction of site contaminants below MCLs. In the meantime, measures (i.e., blending, treatment, and/or containment) will be taken, if necessary, to ensure that MCLs are not exceeded in drinking water supplies due to site contaminants. The site not been shown to cause any significant adverse impact on the environment.

Compliance with Applicable or Relevant and Appropriate Requirements

The following ARARs apply to the selected remedy:

If groundwater which has been impacted by the site is used for water supply, drinking water must meet the following Maximum Contaminant Levels (MCLs) under the Federal Safe Drinking Water Act (SDWA):

Carbon Tetrachloride	0.005 mg/l
Chloroform	0.100 mg/l
Alachlor	0.002 mg/l
Atrazine	0.003 mg/l

The selected alternative would comply with state groundwater cleanup rules which require "use of best available technology and best management practices (BAT/BMP) as long as it is reasonable and practical to remove all contaminants, and in any event until water contamination remains below the action level for any contaminant". Action levels are Lifetime Health Advisory Levels for non-carcinogens and the one-in-a-million cancer risk for carcinogens. Natural attenuation is considered to be BAT/BMP for this site for the following reasons.

- Investigations have shown that natural attenuation has already caused a major reduction in carbon tetrachloride contamination. Carbon tetrachloride may no longer exceed MCLs in the City wells, although this cannot be positively demonstrated without active pumping of the City wells.

- Persistent levels of herbicides, particularly Atrazine (Aatrex) and Dual (Metalochlor), have been found in site groundwater. This could be the result of continued releases of these contaminants and/or a subsurface source (e.g., contaminated soils resulting from a past spill(s)). The Coop has taken measures to prevent releases in recent years which suggests that much of the herbicide contamination found in groundwater is the result of past releases. No significant source of herbicide contamination has been found in site soils, despite reasonable efforts to identify such sources. Without knowledge of the source(s) of contamination, natural attenuation is the most reasonable means of ultimate groundwater remediation.

- Prevention of additional releases will be assured by the Coop's elimination of handling of bulk chemicals at the site.

- Levels of herbicides in groundwater are relatively low. Only Atrazine is consistently found above MCLs.

Wastewater discharge requirements in accordance with the National Pollutant Discharge Elimination System (NPDES) program as administered by the DNR, may be applicable if the contingency involves discharge of wastewater. If so, treatment will be provided as necessary to meet NPDES discharge requirements.

Cost-Effectiveness

The selected remedy is cost effective because it has been determined to provide overall effectiveness proportional to its cost, with the net present value being approximately $93,000 (without the contingency). The selected remedy is the least costly of remedies that were judged to provide equal protection of human health.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

The DNR and the EPA have determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a cost-effective manner for the Farmers Mutual Coop Site. Of those alternatives that are protective of human health and the environment and comply with ARARs, DNR and EPA have determined that this selected remedy

provides the best balance in terms of long-term effectiveness and permanence, reduction in toxicity, mobility or volume achieved through treatment, short-term effectiveness, implementability, and cost. DNR and EPA also considered the statutory preference for treatment as a principal element, and considered input from the community.

All the alternatives evaluated would be protective of human health and the environment on a long-term basis. Because no liquid wastes or highly toxic wastes have been identified at the site, the additional benefit to be gained from RAA 3 and RAA 4 over RAA 2 in ensuring the protection of human health and the environment are marginal.

The selected remedy, natural attenuation, does not reduce mobility of site contaminants unless the contingency action is triggered and containment methods are implemented. However, the selected remedy does reduce toxicity and volume of site contaminants by allowing biodegradation to continue to occur within the impacted aquifer. This reduction in site contaminants will be monitored until health based levels in ground water are reached and sustained for a period of time. In addition, a reduction of contaminant volume would occur if the contingency action is triggered and treatment such as use of activated carbon is implemented.

All four alternatives have a high degree of long-term effectiveness because, with or without treatment, natural attenuation will continue to occur as long as contaminants are present in the ground water.

RAA 1 provides no short-term effectiveness because it does not allow for use or treatment of the impacted aquifer. Use of the shallow aquifer as a water supply by the City of Hospers would be most likely achieved in the short-term with RAA 2 or 3. RAA 4 would likely take an extended period of time to implement and thus would be unlikely to provide significant short-term benefits. Construction activities for any of the RAAs are not expected to result in any significant adverse impact to human health or the environment.

For these reasons, the selected alternative provides the best balance of trade-offs with respect to these criteria.

Preference for Treatment as a Principal Element

The selected remedy reduces toxicity and volume of contaminants in ground water, the principal threat at the site, by allowing natural attenuation to occur. The contingency action requires that the mobility of site contaminants be reduced by containment methods or, alternately, requires that the volume of contaminated media be reduced by treatment, such as use of activated carbon. The selected remedy and contingency utilize treatment as a principal element.

2.10 Documentation of Significant Changes

The Proposed Plan for the Farmers Mutual Cooperative Company site was released for public comment August 25, 1992. The Proposed Plan identified Remedial Action Alternative 2, Natural Attenuation with a Drinking Water Contingency as the preferred alternative. The Iowa DNR reviewed all comments received during the public comment period. Upon review of these comments, it was determined that no significant changes to the remedy, as it was identified in the Proposed Plan, were necessary.

TABLE 1
SUMMARY OF GROUNDWATER DATA
Hospers City Wells

Chemical	Number of Samples	Percent of Samples with Chemical Detected	Percent of Samples Above Drinking Water Standard	(1) Drinking Water Standard (ppb)	Average Level in Samples w/ Chemical Detected (ppb)	Maximum Level Detected (ppb)
Carbon Tetrachloride	28	64%	54%	5	22.0	66.0
	7	43%	29%		10.0	17.0
Chloroform	27	59%	0%	100	1.4	4.0
	7	43%	0%		0.9	2.0
Alachlor (Lasso)	27	67%	22%	2	1.9	11.0
	7	14%	0%		1.6	1.6
Atrazine (Aatrex)	27	96%	44%	3	7.9	40.0
	7	71%	43%		3.5	7.9
Cyanazine (Bladex)	27	81%	0%	10	0.6	1.7
	7	29%	0%		0.7	1.1
Metolachlor (Dual)	27	96%	7%	100	23.0	200.0
	7	71%	0%		7.8	22.0
Metribuzin (Sencor)	27	81%	0%	200	1.1	3.9
	7	29%	0%		0.8	1.0
Trifluralin (Treflan)	0	--	--	5	--	--
	4	0%	0%		--	--

NOTE: Unshaded Values: 1984 through Jan. 1988; City wells actively used.
Shaded Values: Nov. 1988 to present; City wells not in use.

(1) Drinking Water Standard refers to Federal MCL if one exists, or Lifetime Health Advisory if not.

TABLE 1
SUMMARY OF GROUNDWATER DATA (Cont.)
Monitoring wells #1 - 4

Chemical	Number of Samples	Percent of Samples with Chemical Detected	Percent of Samples Above Drinking Water Standard	(1) Drinking Water Standard (ppb)	Average Level in Samples w/ Chemical Detected (ppb)	Maximum Level Detected (ppb)
Carbon Tetrachloride	20	70%	55%	5	61.0	250.0
	8	38%	38%		17.0	27.0
Chloroform	20	60%	0%	100	4.3	20.0
	8	38%	0%		1.3	1.6
Alachlor (Lasso)	18	39%	0%	2	0.6	0.7
	11	0%	0%		--	--
Atrazine (Aatrex)	18	89%	44%	3	3.7	11.0
	11	73%	55%		5.6	10.0
Cyanazine (Bladex)	18	50 %	0%	10	0.9	3.1
	11	9%	0%		0.2	0.2
Metolachlor (Dual)	18	78%	0%	100	2.5	5.7
	11	73%	0%		19.0	64.0
Metribuzin (Sencor)	18	61%	0%	200	1.3	3.4
	11	18%	0%		0.2	0.3
Trifluralin (Treflan)	0	--	--	5	--	--
	7	0%	0%		--	--

ppb = parts per billion

NOTE: Unshaded values: 1984 - Jan.1988; City wells actively used.
Shaded values: Nov.1988 - 1990; City wells not in use.

(1) Drinking Water Standard refers to Federal MCL if one exists or Lifetime Health Advisory if not.

TABLE 1
SUMMARY OF GROUNDWATER DATA (Cont.)
Monitoring Wells #5 - 31 and well-points #1 - 10

Chemical	Number of Samples	Percent of Samples with Chemical Detected	Percent of Samples Above Drinking Water Standard	(1) Drinking Water Standard (ppb)	Average Level in Samples w/ Chemical Detected (ppb)	Maximum Level Detected (ppb)
Carbon Tetrachloride	37	19%	16%	5	12.0	25.0
Chloroform	37	14%	0%	100	29.2	47.0
Alachlor (Lasso)	32	19%	3%	2	0.9 (2)	1.2 (2)
Atrazine (Aatrex)	32	75%	53%	3	5.8 (3)	17.0 (3)
Cyanazine (Bladex)	32	19%	3%	10	2.7	11.0
Metolachlor (Dual)	32	78%	9%	100	17.7 (3)	132 (3)
Metribuzin (Sencor)	32	19%	0%	200	2.6	11.0
Trifluralin (Treflan)	16	0%	0%	5	--	--

NOTE: All data collected since Nov. 1988.

ppb = parts per billion

(1) Drinking Water Standard refers to Federal MCL if one exists, or Lifetime Health Advisory if not.

(2) Maximum level of Alachlor of 35 ppb in one sample excluded. (Sample believed to be in error.)

(3) Results from three samples collected in close proximity in the suspected herbicide hotspot area are not included because results were significantly higher than other samples. Atrazine ranged from 25 ppb to 170 ppb and Dual ranged from 860 ppb to 18,000 ppb in these three samples.

TABLE 2
SUMMARY OF SOIL DATA

COMPOUND	NORMAL[a] APPLICATION RATE (MG/KG)	MAXIMUM CONCENTRATION (MG/KG)	95% UCL[b] 0 - 2 Ft. (MG/KG)	95% UCL[b] 0 - 12 Ft. (MG/KG)
Carbon Tetrachloride	---	0.013	0.0094	0.0082
Alachlor (Lasso)	0.86	0.23	0.10	0.093
Atrazine (Aatrex)	0.60	10.0	1.04	0.67
Cyanazine (Bladex)	0.96	2.6	0.29	0.23
Metolachlor (Dual)	1.26	4.0	0.78	0.52
Metribuzin (Sencor)	0.25	0.5	0.11	0.0096
Trifluralin (Treflan)	0.90	56.0	3.55	2.17

a - Normal application rate calculated based on product label information, uniform mixing in a 6-inch soil layer and a soil density of 114 lb/ft^3.

b - 95% UCL = the upper confidence limit of the average concentration which has a 95% degree of certainty.

TABLE 3
SUMMARY OF SITE RISKS

POPULATION[a]	MEDIUM	EXPOSURE PATHWAY	NON-CANCER RISK[b]		CAN-CER RISK[c]
Off-Site Future Residents	Groundwater, City Well 3	Ingestion	0.2		$5X10^{-5}$
		Dermal Contact-Shower		0.002	$2X10^{-7}$
		Inhalation-Shower	---		$5X10^{-8}$
		Total Risk	0.2		$5X10^{-5}$
	Groundwater, City Well 9	Ingestion	2.0		$1X10^{-4}$
		Dermal Contact-Shower		0.09	$4X10^{-8}$
		Inhalation-Shower	---		$1X10^{-4}$
		Total Risk	2.0		$2X10^{-4}$
	Groundwater, City Well 10	Ingestion	0.5		$6X10^{-5}$
		Dermal Contact-Shower		0.02	$8X10^{-7}$
		Inhalation-Shower	---		$2X10^{-5}$
		Total Risk	0.5		$8X10^{-5}$
Off-Site and On-Site Future Residents	Groundwater, During Pumping (1984 - 1988)	Ingestion	2.0		$1X10^{-4}$
		Dermal Contact-Shower		0.1	$4X10^{-8}$
		Inhalation-Shower	---		$1X10^{-4}$
		Total Risk	2.0		$2X10^{-4}$
	Groundwater, During Non-Pumping (1988 - 1991)	Ingestion	0.2		$3X10^{-5}$
		Dermal Contact-Shower		0.007	$6X10^{-7}$
		Inhalation-Shower	---		$1X10^{-5}$
		Total Risk	0.2		$4X10^{-5}$
On-Site Future Residents	Soil	Incidental Ingestion	0.002		$3X10^{-7}$
		Dermal Contact		0.3	$4X10^{-5}$
		Total Risk	0.3		$4X10^{-5}$
On-Site Current Workers	Soil	Incidental Ingestion	0.0004		$5X10^{-8}$
		Dermal Contact		0.2	$2X10^{-5}$
		Total Risk	0.2		$2X10^{-5}$

a - Current on-site populations are considered to be adult employees working at or near the site. Future on-site populations include potential residents living near the site. Future off-site populations include site workers and other residents of the community.

b - Non-cancer risks are shown as dimensionless values. Values less than 1 indicated that the risk on non-carcinogenic injury is low; above 1 indicates some degree of non-carcinogenic risk or concern.

c - Cancer risk values represent an upper-bound estimate of additional cancers which could result from lifetime exposure of the population to site contaminants by the medium shown. For example $2X10^{-4}$ means that 2 individuals in a population of 10,000 could develop cancer as a result the assumed exposure. In the Superfund evaluation of risk, a risk greater than $1X10^{-4}$ is considered to be unacceptable. A risk less than $1X10^{-6}$ (1 in a million) is preferred.

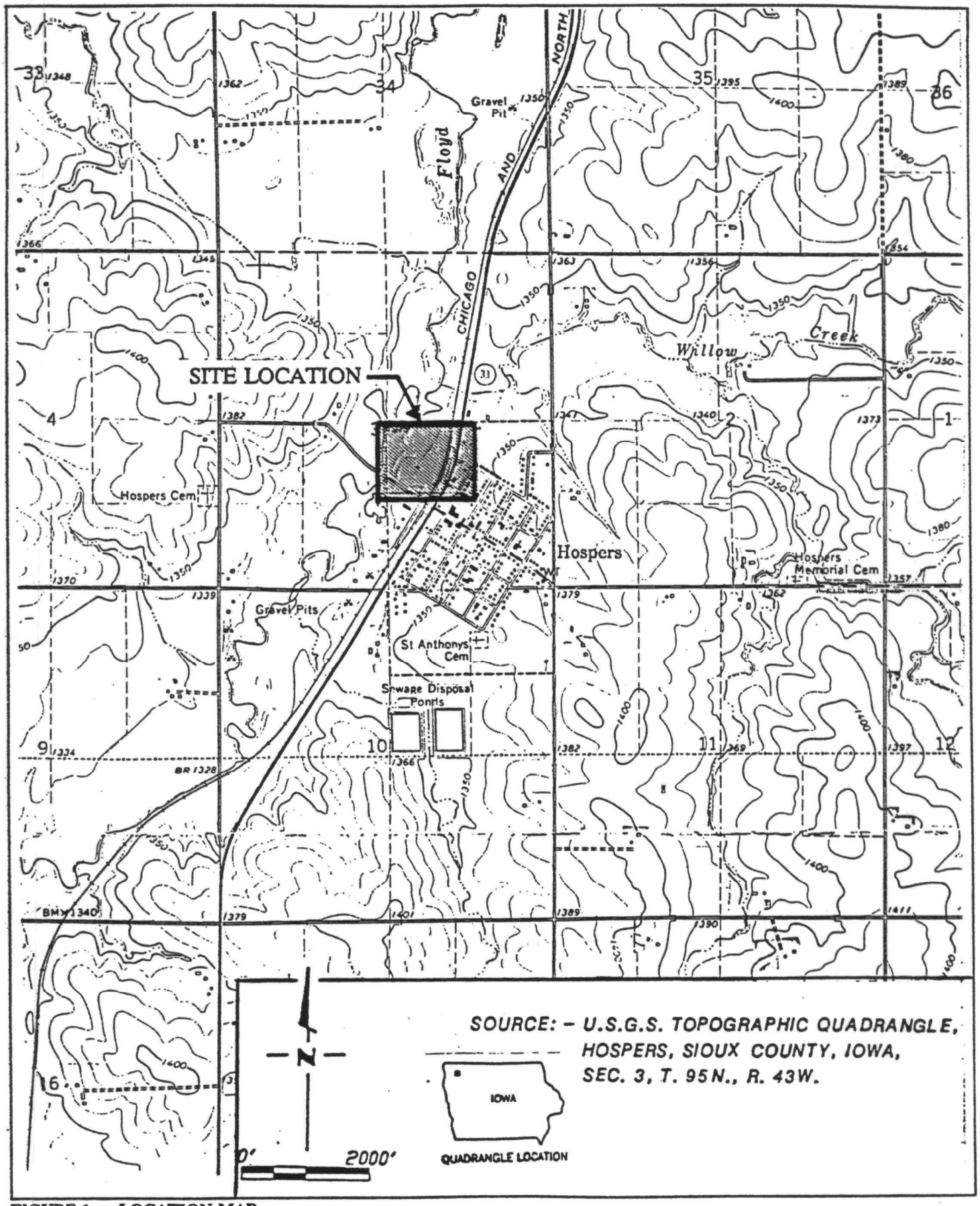

FIGURE 1 LOCATION MAP

POOR QUALITY ORIGINAL

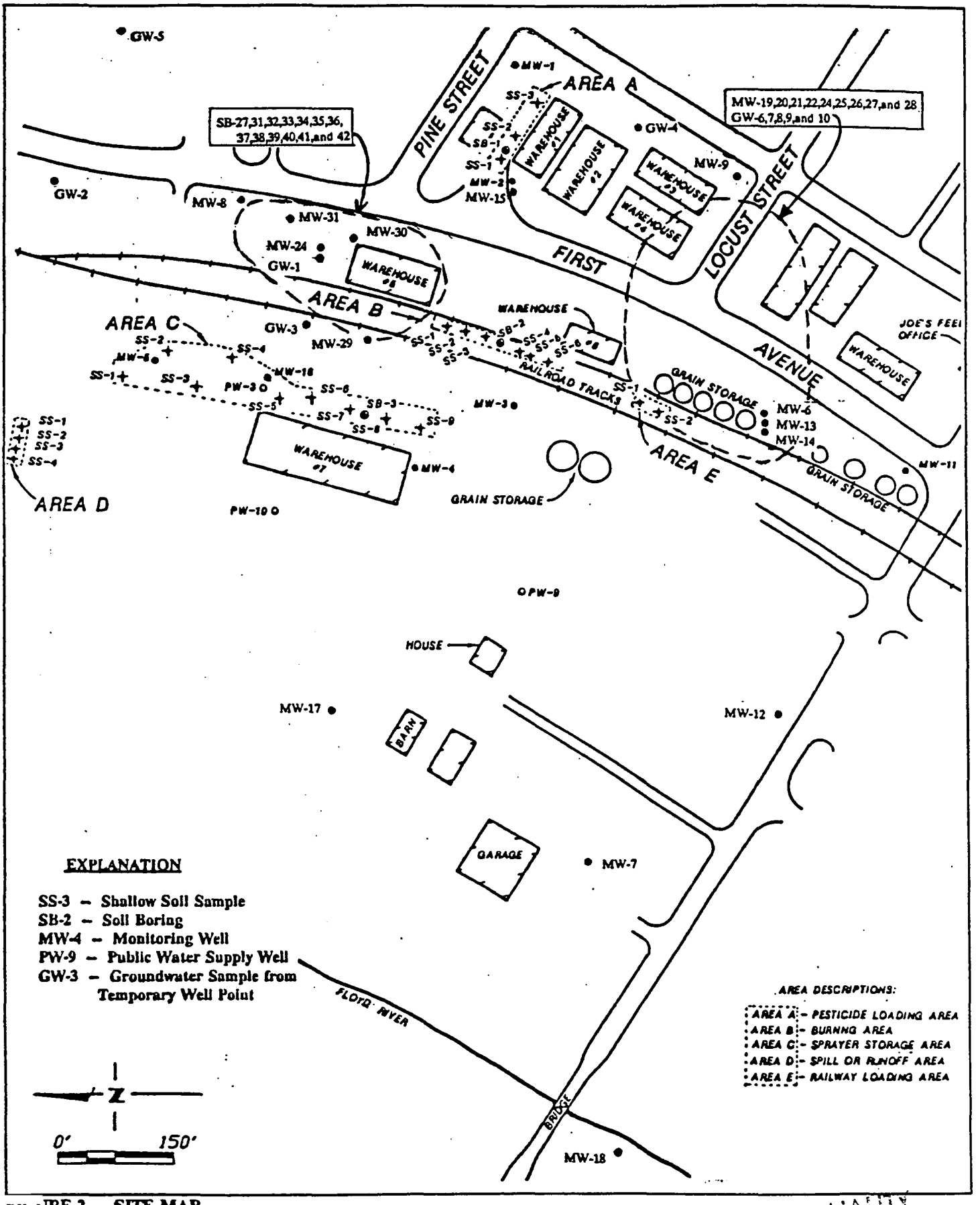

FIGURE 2 SITE MAP

POOR QUALITY ORIGINAL

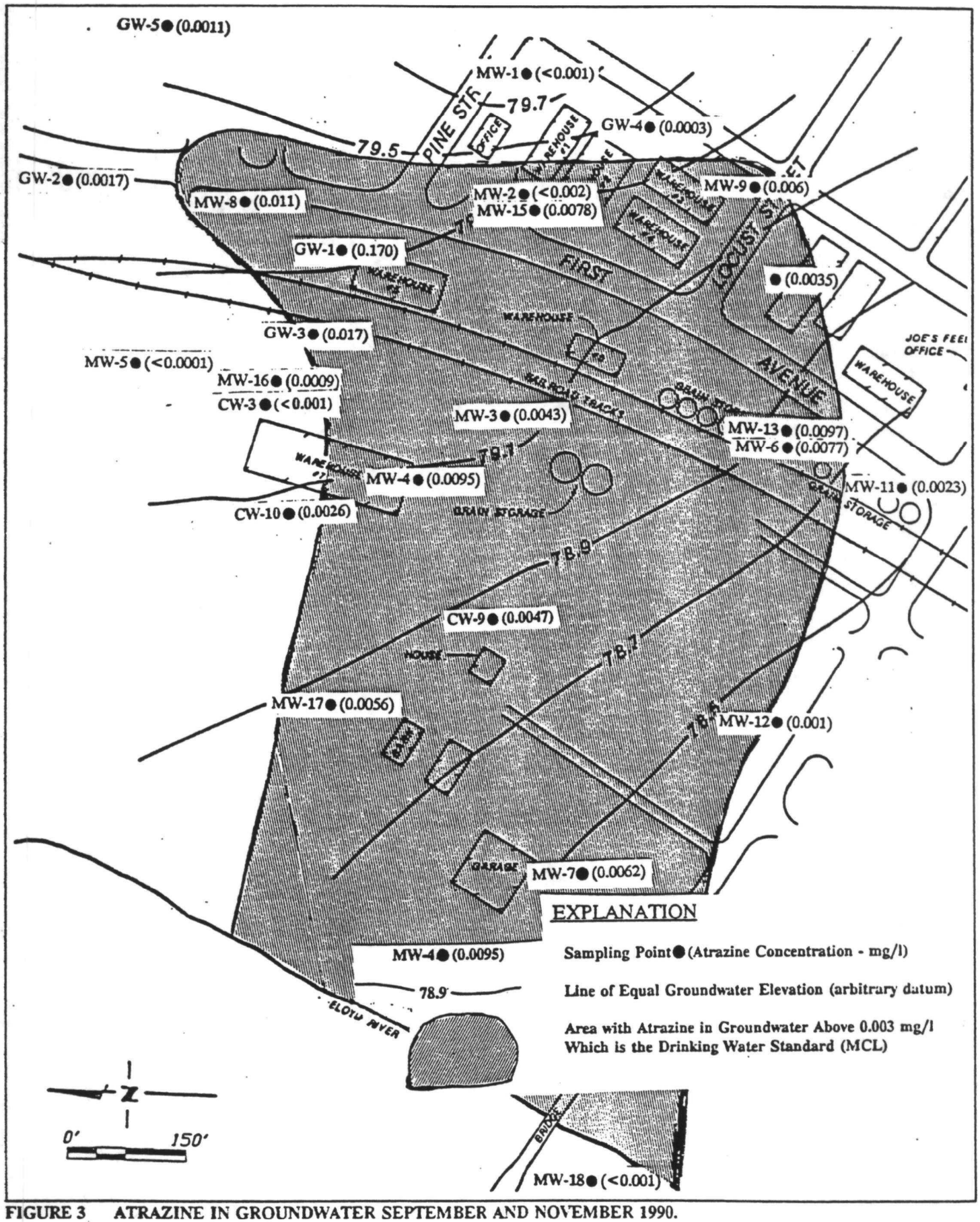

FIGURE 3 ATRAZINE IN GROUNDWATER SEPTEMBER AND NOVEMBER 1990.

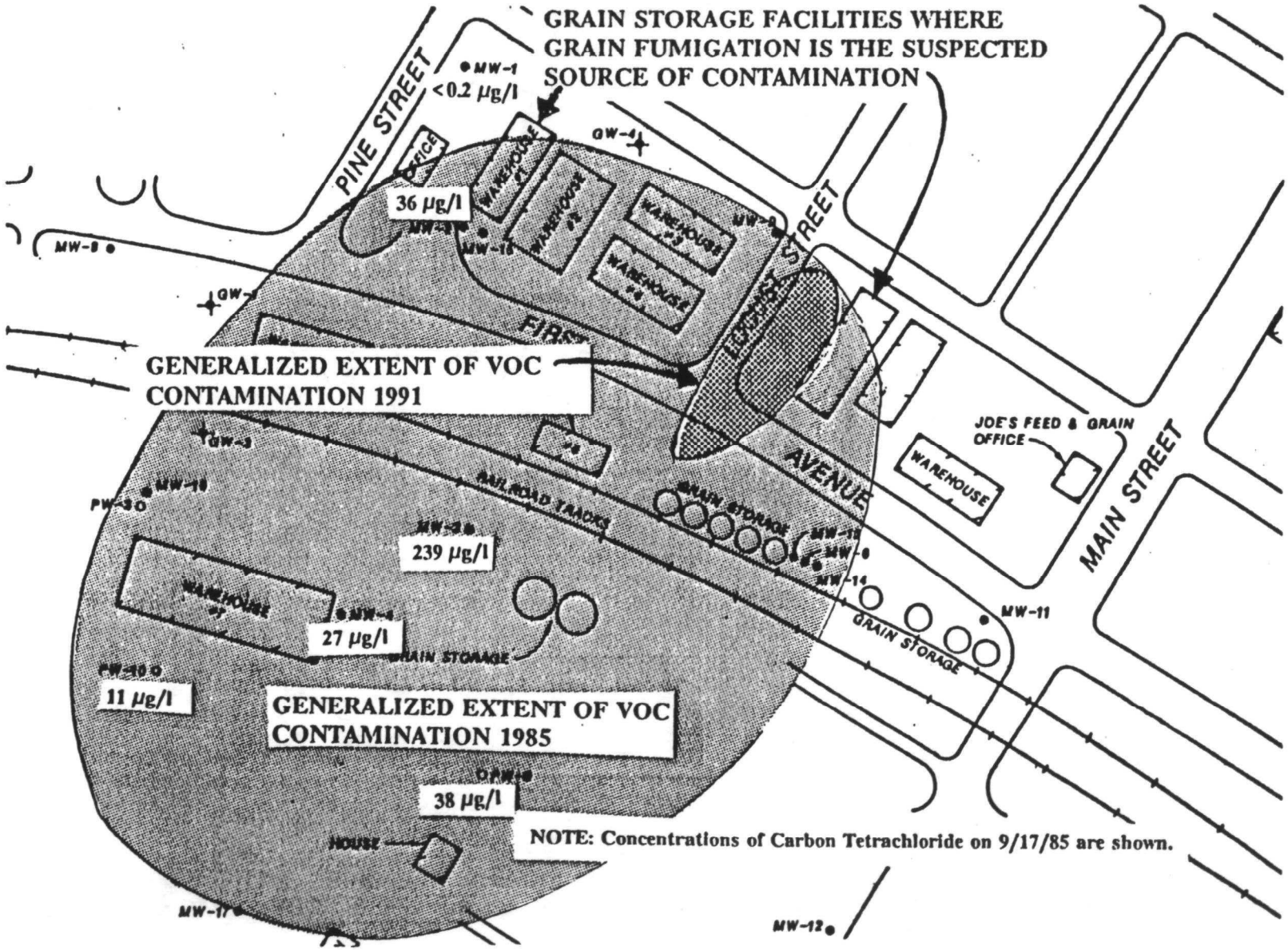

FIGURE 4 GENERALIZED EXTENT OF CARBON TETRACHLORIDE CONTAMINATION 1985 AND 1991.

RESPONSIVENESS SUMMARY

3.0 Comments from the May 1991 Public Meeting

A Proposed Plan for the Farmers Mutual Cooperative Company site was released for public comment on May 1, 1991. The Proposed Plan recommended a pump-and-treat groundwater alternative for containment of groundwater contamination. A public meeting on the Proposed Plan was held on May 21, 1991, in Hospers, Iowa. Questions from the May 21, 1991, public meeting are summarized below.

1. **Question:** Does the Record of Decision represent a point when no further input regarding the project will be considered?

   Response: No, the Record of Decision can be modified based on additional information.

2. **Question:** If allowed to rest would the aquifer ever dissipate the chemicals?

   Response: Yes, assuming there are not additional releases of contaminants. In fact, evidence suggests that significant dissipation of carbon tetrachloride has already occurred.

3. **Question:** What is done with the carbon filter material when it is replaced and could this result in just transferring the problem to someplace else?

   Response: The spent carbon can be incinerated or disposed of in an appropriate landfill. If incinerated the contaminants would be destroyed. If landfilled, the landfill would be required to have proper controls to prevent further problems.

4. **Question:** With more stringent drinking water standards in the future, how long will the shallow wells be useable and is the cost of the proposed remediation worth it?

   Response: The proposed carbon treatment will remove many of the types of contaminants which will likely be regulated in the future. Extensive testing of the groundwater from the shallow aquifer has not revealed other contaminants other than those being addressed. Therefore, continued use of the shallow aquifer in the future appears possible. In the Superfund evaluation of alternatives, costs are only used for relative comparison of alternatives.

5. **Question:** Does the City have to use the shallow wells after the remedial action begun?

   Response: No, the proposed action puts no requirements on the City.

6. **Question:** Who will pay for the cost of the proposed remedial action?

   Response: The potentially responsible party(ies) will be asked to conduct, and pay for, the proposed action. If they refuse or are not able to, Superfund will finance 90% of the cost with the remaining 10% from the State in which case EPA can take cost recovery action against the potentially responsible party(ies) and recover up to three times the actual cost.

3.1 Written Comments on the 1991 Proposed Plan

Comment letters were received from the Farmers Cooperative Elevator Association (the Coop) and the City of Hospers during the 1991 public comment period. The comment period was extended twice in response to

requests from the City and the Coop. The comment letters received from the City and the Coop during the 1991 comment period are summarized below.

Comments from the Farmers Cooperative Elevator Association:

7. **Comment:** Explain why RAA 2 (Continued Monitoring) does not comply with applicable or relevant and appropriate requirements (ARARs).

   Response: At the time the 1991 Proposed Plan was released, the DNR considered the proposed pump-and-treat action to be the best available technology for dealing with what was classified as a "significant risk" under the state's rules (567 IAC 133). These rules call for use of best available technology and best management practices to cleanup groundwater in cases of a significant risk. A "significant risk" is defined as the presence of a contaminant in groundwater above an action level which clearly existed at the site. It was also believed at that time that the proposed pump-and-treat action was the best technology available to enable the City to regain use of their shallow wells and was action which could reasonably be accomplished. In light of the fact that groundwater had previously been used for a municipal water supply and would likely still be used for a water supply if not for the site contamination, the federal drinking water Maximum Contaminant Levels (MCLs) were deemed to be applicable. MCLs are federal health-based drinking water standards. RAA 2 simply would not meet MCLs in the near future to facilitate use of the impacted aquifer as a water supply and therefore did not comply with ARARs.

8. **Comment:** Explain how RAA 3 would have greater short-term and long-term effectiveness than RAA 2.

   Response: RAA 3 was considered to have greater short-term effectiveness because it enabled the City to regain use of their shallow wells within a relatively short period of time while RAA 2 did not. It has since been recognized that RAAs 2 and 3 have comparable long-term effectiveness.

9. **Comment:** Explain how the costs of the various remedial action alternatives were weighed in the process of proposing a remedy in light of a comment at the public meeting that a cost-benefit analysis is not used to determine if a cleanup action is needed.

   Response: Relative costs are used as a factor in selection of a remedy from those alternatives which meet the threshold criteria of overall protection of human health and the environment and compliance with ARARs.

10. **Comment:** The Coop agrees in principal with the City of Hospers to work with the City to locate additional water supplies for the City if the pump-and-treat alternative is not selected.

Comments from the City of Hospers on the 1991 Proposed Plan are summarized below:

11. **Comment:** The proposed pump-and-treat alternative would be expensive and would have an adverse economic effect on the City as well as the Coop.

12. **Comment:** The additional water supply the City would receive upon implementation of the pump-and-treat alternative would satisfy only a minority of the City's needs with the City still relying on the high iron and sulfate deep well water.

13. **Comment:** The City is the only user of the impacted aquifer.

14. **Comment:** The City agrees in principal with the Coop to work together to find an alternate, more usable source of water for the City, if the Coop is not required to implement the proposed pump-and-treat alternative.

3.2 Decision on the 1991 Proposed Plan

In response to the City of Hospers general lack of support for the proposed pump-and-treat alternative and preference to work with the Coop to find another water supply, the decision was made to delay the Record of Decision until after the additional investigations, which were also proposed in the 1991 Proposed Plan, were completed. With the City's apparent lack of interest in regaining use of the shallow aquifer, the immediacy of site remediation no longer existed. It was deemed prudent to consider information from the proposed additional investigations before making a final decision. Also, based on comments received, another alternative involving an alternate water supply for the City appeared to be a possibility which needed further study.

3.3 Development of the August 1992 Proposed Plan

Another Proposed Plan was released in August 1992. This Proposed Plan incorporated the results of the additional investigations which had been recommended in the 1991 Proposed Plan. Major findings and significant changes since the 1991 Proposed Plan was released are summarized below:

- Additional evidence of substantial declines of carbon tetrachloride levels in groundwater was obtained.
- A significant source of herbicide contamination of soils was not identified despite substantial efforts to locate such a source for potential source control actions.
- The Coop removed all bulk chemical handling facilities from the Hospers facility in the summer of 1992.
- The City and the Coop were not able to find a mutually agreeable, alternate water supply for the City.

A new Proposed Plan was prepared incorporating the new information and was released in August of 1992. The proposed remedy includes natural attenuation and monitoring of groundwater with a contingency should the City of Hospers (or others) desire to use the impacted aquifer for water supply. This contingency would provide a blending program for the City of Hospers similar to what the City previously had. Additional action would be required if a satisfactory blending program is not possible.

3.4 Comments from the September 3, 1992, Public Meeting

A public meeting on the August 1992 Proposed Plan was held on September 3, 1992, in Hospers with about 50 people attending. The following is a summary of the comments and questions which were received at the September 3, 1992, public meeting:

15. **Question:** Could the landfill affect the groundwater in the area? (Note: a former open dump is located about a half mile north of the site and an operating sanitary landfill is located about three miles north of the site.)

    Response: It is highly unlikely that the landfill(s) could affect the site. Groundwater flow from the landfills would typically be to the Floyd River. There are monitoring wells on the north side of the site which do not show contamination.

16. **Question:** Is the City tied to this Superfund decision?

Response: No, the Superfund decision makes no requirements of the City. The proposed action does provide the City with the option of regaining use of the shallow wells similar to before DNR restrictions, if the City so chooses.

17. **Question:** Have the City and the Coop cooperated with the DNR and EPA on this project and have they spent a lot of money for which they will not be reimbursed?

Response: The City and the Coop have been very cooperative. The Coop has been the only potentially responsible party involved in the project and has incurred significant costs for investigations and related work which will not be reimbursed.

18. **Question:** Has action been required which wasn't necessary?

Response: In retrospect on a project of this magnitude some things certainly would have been done differently. However, overall there has been a logical progression of what has been done and most of the information which has been collected has been useful.

19. **Question:** Can Superfund action include provisions for alternate water sources?

Response: Superfund response actions have at times included provisions for alternate water supplies. The decision as to whether an alternate supply of water is provided or the contaminated aquifer is restored for future use depends on a number of factors, including:

- the degree, extent and types of contaminants in the aquifer;
- the technical feasibility of treating those contaminants to health-based levels or of containing those contaminants so as not to contaminate the water supply;
- the current availability of other water supply sources; and
- the relative costs of providing an alternate supply versus treating the contaminated water.

Contaminant levels at the site have declined in recent years and are expected to continue to do so due to on-going natural processes and because activities at the Coop which likely contributed to groundwater contamination have been discontinued. Agricultural chemicals such as the ones found at the site are readily treated by proven methods. An alternate water supply which could be developed less expensively than restoring the impacted aquifer has not been identified. For these reasons, restoration of the impacted aquifer is the preferred remedial action.

20. **Question:** How long will it take for the aquifer to clean itself?

Response: Accurate prediction of the time for natural attenuation to reduce contaminant levels below drinking water standards is not possible since the source(s) of contaminants has not been pinpointed.

21. **Comment:** The current deep well water may be considered safe and acceptable from a regulatory standpoint, but it not considered to be a good quality water by the community.

22. **Question:** Is the site still contaminated and who makes that determination?

Response: Using the federal MCLs as a criterion for contamination, groundwater at the site likely remains contaminated. This determination will be made by DNR and EPA based on compliance with MCLs.

23. **Question:** If Superfund money is used, could recovery of these costs place such a burden on a business as to put it out-of-business?

Response: In cost recovery actions, EPA goes through a fairly rigorous process to determine how much debt the PRP can assume and how payments could be arranged.

24. **Question:** Is the City of Hospers or the Coop responsible for cleanup of the contamination?

Response: Potentially responsible parties (PRPs) are responsible for Superfund site cleanups. For this site, the Coop is the only PRP which has been named to date.

25. **Question:** Why would you spend all of this money and decide not to do a cleanup?

Response: It was hoped that a source(s) of contamination could be identified which could be directly dealt with. However, after extensive investigations no such source has been identified and the decision was made that enough investigation had been done and it was time to decide what to do with the site based on available data. The proposed remedy involving natural attenuation was determined to be the best overall means of remediation identified. Also, the proposed remedy may involve actions which would more commonly be perceived as "cleanup" as part of the contingency.

26. **Question:** Was DNR premature in shutting down the city's shallow wells, forcing the City to use high-sulfate water?

Response: The DNR shut down the shallow wells because of contamination in the wells which could have caused violations of drinking water MCLs. Sulfate, on the other hand, does not have a primary, health-based MCL. Sulfate does have a secondary MCL, based on aesthetics, which is not enforceable.

27. **Question:** Are there any sites comparable to this site which have cleaned themselves up?

Response: There are not any comparable sites in Iowa which have any more information than this site. However, there is evidence of declining nitrate contamination in groundwater, particularly when it has be the result of a major spill of fertilizer.

28. **Question:** Is there any reason to believe that the source of Atrazine contamination is unknown? If you can't find the source, can you determine who is responsible for the contamination?

Response: The zone of Atrazine contamination of groundwater has been well defined and the general direction of groundwater flow has been established. With this information it is clear that the Coop is a source of the contamination, although the specific source areas on Coop property have not been identified.

29. **Question:** If carbon tetrachloride was easy to get rid of, why can't an inexpensive aeration process be used?

Response: Aeration was considered in the Feasibility Study, but aeration does not remove herbicides whereas, carbon filtration would remove the herbicides and carbon tetrachloride and was thus deemed more economical.

30. **Question:** Why weren't the wells tested for these chemicals when they were installed in 1981?

Response: That was not common practice at the time.

31. **Question:** In general, do many shallow wells have acceptable quality water?

Response: Yes, most do have good quality water.

32. **Question:** Why was Hospers selected for the initial well sampling which identified the problems?

Response: Hospers was one of 58 communities which were selected for sampling based on likelihood of contamination. Proximity to the Coop and elevated nitrate levels were factors used in selection of susceptible water supplies.

33. **Question:** Why wasn't nitrate contamination evaluated as part of the Superfund effort?

Response: Nitrate in groundwater was considered to be a fairly common and naturally-occurring contaminant. There was not the concern for nitrate that there was for the synthetic organic compounds. This is not meant to suggest that nitrate is not important.

34. **Question:** Since Superfund is funded by a tax on the petrochemical industry and the contamination is the result of the petrochemical industry's products, why can't Superfund money be used (without cost recovery) or the manufacturer be made liable for the solution to the contamination?

Response: The Superfund program is not set up that way. Superfund law places liability on those who are responsible for the release of contaminants.

3.6 Written Comments on the 1992 Proposed Plan

In addition to the comments received at the public meeting, comment letters were received the City of Hospers, the Farmers Cooperative Elevator Association, and one private party. The City's comments are summarized below.

35. **Comment:** The City is concerned about the use of the shallow wells and wants to be sure that adequate testing of the shallow wells is conducted prior to their return to service, and they want to be sure that they are not responsible for the cost of this testing.

Response: The Proposed Plan calls for "development and implementation of a blending program for the City of Hospers, including test pumping and sampling of shallow wells prior to their use." The intent is to have a testing plan which addresses the types of concerns expressed by the City. The itemized provisions regarding the testing which were submitted by the City will be considered in development of this plan. However; if the City desires action beyond what is required by the DNR and EPA, such action would be at the City's expense.

36. **Comment:** The City commented that they opposed a Record of Decision before testing the shallow wells.

Response: The outcome of the testing should have no bearing on the selected alternative. Therefore, a delay of the Record of Decision is not necessary. The intent of the testing is not to show if use of the shallow wells is feasible; rather, it is to show how they can be effectively utilized at lowest cost. The selected alternative has contingency measures built-in to cover any possible outcome of the

testing with respect to site contaminants. The proposed contingency action is intended to enable the City to regain use the shallow wells, comparable to their use prior to restrictions by the State, until such time as the levels of contaminants associated with the site are reduced to below drinking water standards by natural attenuation. If blending with half deep well water and half shallow well water does not result in acceptable levels of the site contaminants, then additional action (e.g.treatment) will be taken to reduce levels of the site contaminants so that acceptable blending is possible. Any additional action will not place additional cost requirements on the City.

The following is a summary of comments received from the Coop:

37. **Comment:** The Coop generally supports the selection of RAA 2 calling for natural attenuation with the drinking water contingency.

38. **Comment:** With respect to the contingency, the Coop does not feel that the Record of Decision should attempt to specify the elements of a blending program.

    Response: There is no intent to specify the elements of the blending program other than to establish a criterion for determining when additional action (beyond blending) may be required. In this respect, the objective of a blending approach would be to provide a water supply to the City which is comparable to what the City had before the shallow wells were restricted by the DNR. If a blending program is developed which is acceptable to the DNR and EPA, then no additional contingency action (beyond blending) will be required. If not, then additional contingency action would be required (i.e., treatment or containment). In any event, if blending equal portions of shallow and deep well waters yields water which meets MCLs for site contaminants, then no additional contingency action beyond blending will be required.

39. **Comment:** The Coop does not believe that testing is necessary prior to issuance of the Record of Decision.

40. **Comment:** The Coop feels that costs for certain actions suggested by City should not be the responsibility of the Coop.

    Response: This is an issue which will be addressed after the ROD is issued. The DNR and EPA will determine which costs are appropriate.

41. **Comment:** The Coop should not be required to initiate a blending program until the City has requested one.

    Response: There will be no requirement for a blending program until the City formally requests one.

The following is a summary of the pertinent comments from the letter received from the private party.

42. **Comment:** The least expensive alternative was endorsed.

43. **Comment:** Relatively high levels of nitrates are a natural and normal occurrence in shallow groundwater in Northwest Iowa.