

FIVE-YEAR REVIEW REPORT

**Second Five-Year Review Report
For
Arsenic Trioxide Superfund Site
Southeastern North Dakota**

June 2003

Prepared by:

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LIST OF ACRONYMS

ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
EPA	United States Environmental Protection Agency
ESD	Explanation of Significant Difference
FS	Feasibility Study
MCL	Maximum Contaminant Level
NCP	National Oil and Hazardous Substance Contingency Plan
NDSDH	North Dakota State Department of Health
NDSDHCL	North Dakota State Department of Health and Consolidated Laboratories
NPL	National Priorities List
O&M	Operation and Maintenance
PRP	Potentially Responsible Party
PWSS	Public Water System Supervision Program
RA	Remedial Action
RI	Remedial Investigation
ROD	Record of Decision
SDWA	Safe Drinking Water Act

EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency (EPA) Region VIII has conducted a second five-year review of the remedial actions implemented at the Arsenic Trioxide Superfund Site (the Site) in southeastern, North Dakota. The purpose of the five-year review is to determine whether the remedy at the Site remains protective of human health and the environment. Remedial actions were taken to address arsenic concentrations in groundwater, which serves as the primary drinking water source in the region. The occurrence of arsenic in groundwater is attributed to both the historical use of arsenic-based grasshopper bait and naturally occurring sources.

Five-year reviews are required because contaminants remain at the Site above levels that allow for unrestricted use and unlimited exposure. The first five-year review was completed in January 1999. This second five-year review was expedited in response to the recently finalized Arsenic Rule, which lowered the Safe Drinking Water Act Maximum Contaminant Level for arsenic from 0.05 mg/L to 0.01 mg/L. Treatment of arsenic-containing groundwater to provide drinking water is a key component of the remedy.

The remedy for the Arsenic Trioxide Site included expansion of three water treatment plants and associated distribution systems to provide safe drinking water to municipal and rural households that were using treated and untreated groundwater with elevated arsenic concentrations. Other remedy components included monitoring of the source water aquifer; sampling of private wells outside the contamination boundaries; and institutional controls to increase public participation in the project, restrict private supply well use within the project area and propose new state regulations requiring water quality monitoring of new wells within the project area. The remedy was considered fully implemented and operational in 1993.

The assessment of this second five-year review is that the remedy is operating consistent with the requirements of the Record of Decision, subsequent Explanation of Significant Difference and the EPA-approved remedy designs. However, the remedy may no longer be protective of human health and the environment because one of the treatment plants (City of Lidgerwood) is not currently able to produce drinking water that meets the new arsenic MCL, which became effective in February 2002 and will become enforceable in January 2006. A second treatment plant (City of Wyndmere) may not be able to achieve this standard at full capacity.

Other identified issues include a need for increased public awareness of the Site health issue and availability of the remedy, a need to assess if actions are warranted at other communities located within the Site boundaries where actions were not previously required under the old arsenic standard, and a need to re-evaluate the background arsenic concentration in groundwater.

The recommended follow-up actions are: 1) EPA and the State Agency should identify the need for and evaluate alternatives for improving the Lidgerwood and Wyndmere water treatment systems, 2) EPA and the State should establish programs to increase public awareness of the Site issues and promote further public participation in the remedy, 3) EPA and the State should investigate the water quality of other potentially affected communities and rural residents and 4) EPA should re-evaluate the background arsenic concentration in groundwater using improved scientific methods.

FIVE-YEAR REVIEW SUMMARY FORM

SITE IDENTIFICATION			
Site name (from WasteLAN):		Arsenic Trioxide Superfund Site	
EPA ID (from WasteLAN):		NDD980716963	
Region: VIII	State: ND	City/County: Richland, Ransom & Sargent Counties	
SITE STATUS			
NPL status: ☐ Final ☒ Deleted ☐ Other (specify) _____			
Remediation status (choose all that apply): ☐ Under Construction ☒ Operating ☐ Complete			
Multiple OUs? * ☒ YES ☐ NO		Construction completion date: <u>06/93</u>	
Has site been put into reuse? ☒ YES ☐ NO			
REVIEW STATUS			
Lead agency:		☒ EPA ☐ State ☐ Tribe ☐ Other Federal Agency _____	
Author name:		Rebecca Thomas	
Author title:		Project Manager	Author affiliation: U.S. EPA
Review period: **		06/20/02 to 05/30/03	
Date(s) of site inspection:		09/4/02 to 09/6/02	
Type of review:		☒ Statutory _____ ☐ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion	
Review number:		☐ 1 (first) ☒ 2 (second) ☐ 3 (third) ☐ Other (specify) _____	
Triggering action:			
☐ Actual RA Onsite Construction at OU # _____ ☐ Actual RA Start at OU # _____ ☐ Construction Completion ☐ Previous Five-Year Review Report ☒ Other (specify) <u>Finalization of the Arsenic Rule which changed the SWDA MCL for arsenic</u>			
Triggering action date (from WasteLAN):			
Due date (five years after triggering action date):			

* ["OU" refers to operable unit.]

** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

FIVE-YEAR REVIEW SUMMARY FORM (CONTINUED)**Issues:**

Item No.	Issue	Affects Current Protectiveness of Remedy	Affects Future Protectiveness of Remedy
1	Arsenic MCL has been revised from 50 ug/l to 10 ug/l.	Yes	Yes
2	The new arsenic MCL may prompt additional affected residents to connect to the rural water system.	Yes	Yes
3	Lidgerwood treatment plant is currently not achieving the revised standard for Arsenic.	Yes	Yes
4	Wyndmere treatment plant may not achieve revised standard when operated at full capacity.	Potentially	Potentially
5	Communities located within the boundaries of the Superfund Site, for which action was not necessary under old arsenic standard, may now require an action to achieve new standard.	Potentially	Potentially
6	The background concentration estimated in the remedial investigation is greater than the revised arsenic standard. The background concentration of arsenic should be re-evaluated based on improved scientific methods.	No	No

Recommendations and Follow-up Actions:

Item No.	Issue	Recommendation for Follow Up	Party Responsible
1	Arsenic MCL has been revised from 50 µg/L to 10 µg/L.	Identify and evaluate alternatives for improving or replacing Lidgerwood and or Wyndmere treatment plants.	EPA & NDS DH
2	The new arsenic MCL may prompt additional affected residents to connect to the rural water system.	Increase public awareness of new arsenic MCL and promote further public participation in the remedy.	EPA & NDS DH
3	Lidgerwood treatment plant is currently not achieving the revised standard for Arsenic.	Address under Item 1 above.	EPA & NDS DH
4	Wyndmere treatment plant may not achieve revised standards when operated at full capacity.	Address under Item 1 above.	EPA & NDS DH
5	Communities located within the Superfund Site, for which action was not necessary under old arsenic standard, may now require an action to achieve new standard.	Investigate water quality of potentially affected communities and rural residents.	EPA & NDS DH
6	The background concentration estimated in the remedial investigation is greater than the revised arsenic standard. The background concentration of arsenic should be re-evaluated based on improved scientific methods.	Re-evaluate background arsenic concentration in groundwater.	EPA & NDS DH

Protectiveness Statement(s):

The remedy as designed, constructed and operated may no longer be protective because the arsenic MCL has been lowered (effective February 2002; enforceable January 2006). In order to assure that the remedy is protective, the EPA and NDS DH should work together to complete the follow-up actions listed above and ensure that the improvements or modifications are made as necessary to provide residents living within the boundaries of the Superfund Site with water that meets the new arsenic MCL.

Other Comments:

**Arsenic Trioxide Superfund Site
Richland, Ransom, and Sargent Counties, North Dakota
Second Five-Year Review Report**

I. Introduction

The U.S. Environmental Protection Agency (EPA) Region VIII has conducted a second five-year review of the remedial actions implemented at the Arsenic Trioxide Superfund Site (the Site) in southeastern North Dakota. The Site is composed of 20 townships located in portions of Richland, Ransom, and Sargent Counties, including the cities of Lidgerwood, Wyndmere and Milnor. Remedial actions taken to address arsenic concentrations in groundwater, which serves as the primary water source in the region, are the focus of this five-year review.

The purpose of the five-year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of the review are documented in the five-year review report. In addition, the five-year review report identifies deficiencies found during the review, if any, and identifies recommendations to address them. This second five-year review was conducted from July 2002 through May 2003. MFG, Inc., an EPA contractor, supported EPA in the preparation of this review.

This review is required by statute. The EPA must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA 121(c), as amended, states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The NCP, Part 300.430(f)(4)(ii) of the Code of Federal Regulations (CFR), states:

If a remedial action is selected that results in hazardous substances, pollutants or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is the second five-year review of the Arsenic Trioxide Superfund Site. The initial five-year review, completed on January 19, 1999, identified that a second five-year review would be required prior to January 2004. This second five-year review was expedited in response to the recently finalized Arsenic Rule (effective February 22, 2002) which lowered the Safe Drinking Water Act (SDWA) Maximum Contaminant Level (MCL) for arsenic from 0.05 mg/L to 0.01 mg/L. Issues associated with the revised MCL are considered in this five-year review to ensure that the previous remedial actions continue to provide protection of human health and the environment.

II. Site Chronology

Table 1. Chronology of Site Events

Date	Event
1930s and early 1940s	Arsenic-laced bait used throughout North Dakota to combat grasshopper infestations
1979	Routine water quality monitoring identified elevated arsenic levels in the drinking water supply at Lidgerwood and Wyndmere
1979 to early 1980s	State ordered Lidgerwood to take actions to meet the arsenic MCL (0.05 mg/L). Wyndmere plant meeting MCL
October 1981	Site proposed for the National Priorities List (NPL)
September 1983	Site listed on the NPL
December 1985	State issued Final Remedial Investigation (RI)
July 1986	State completed Final Feasibility Study (FS)
1986	City of Lidgerwood completed new water treatment plant
September 1986	ROD issued by EPA identifies expansion of Richland Rural Water Users (RRWU) treatment plant or construction of a new treatment plant and new distribution system as the selected remedy (Operable Unit 1)
Winter 1986	EPA conducted emergency response actions which included installing a clay cap over a former bait-mixing station and installation of point-of-use treatment units in rural residences on private wells
March 1987	EPA awarded Cooperative Agreement to NDS DH to study design and capacity issues at Richland Rural, Lidgerwood and Wyndmere water treatment plants
February 1988	EPA amended the ROD to include improvements to the Lidgerwood and Wyndmere treatment plants (Operable Unit 2)
August 1989	EPA awarded Cooperative Agreement to NDS DH for remedial action at the Richland Rural treatment plant
August 1989	Construction initiated at the Lidgerwood and Wyndmere plants
January 1990	Modifications to the Lidgerwood and Wyndmere treatment plants completed
July 1990	Construction initiated at Richland Rural treatment plant
July 1990	Water quality monitoring program established
January 1991	Post-construction performance period successfully completed for Lidgerwood plant. City of Lidgerwood assumed O&M responsibility for the plant
March 1991	Post-construction performance period successfully completed for Wyndmere plant. City of Wyndmere assumed O&M responsibility for the plant
September 1991	EPA and State amended the Superfund State Contract to extend the distribution system from the expanded RRWU plant to the City of Milnor (OU1, Phase 2).
September 1991	Expansion of the Richland Rural plant completed

Date	Event
August 1992	Richland Rural distribution system to Milnor completed
September 1992	EPA issued an Explanation of Significant Differences to ROD for the Milnor addition (OU1, Phase 2).
June 1993	Final inspection of Remedial Action construction at Milnor
June 1993	Remedial Action Completion and Project Closeout
July 1993	Southeast Water Users (formerly Richland Rural Water Users) assumed O&M responsibility for the Richland plant
July 1996	Site removed from NPL
January 1999	First five-year review completed

III. Background

Location and Setting

The Arsenic Trioxide Superfund Site is located in southeastern North Dakota (Figure 1). It covers approximately 20 townships (approximately 568 square miles), encompassing portions of Richland, Ransom, and Sargent counties. The Site area is sparsely populated and predominantly comprised of farmland with a few small cities, including Lidgerwood, Wyndmere and Milnor. At the time of the RI (mid-1980s), the population living within the boundaries of the Site was estimated at approximately 4,500 people. A comparison of population estimates for Richland, Ransom, and Sargent counties in 1985 and 2001 (U.S. Census Bureau website, 2002) indicates the total population for the three counties decreased by approximately 8.5 percent during this period. This population change is considered indicative of the population change in residents living within the Site boundary during the same period.

The site topography consists primarily of low rolling hills and flat plains. Groundwater aquifer systems within the Site include shallow glacial drift aquifers, located approximately three to 150 feet below ground surface, and the Dakota Sandstone aquifer, located approximately 200 to 1,000 feet below ground surface.

Arsenic is present in groundwater at concentrations above the drinking water MCL in four separate regions (Figure 1). Included in these regions are the communities of Lidgerwood, Wyndmere and Milnor and private homes and farms in unincorporated areas. Groundwater with elevated arsenic levels appears to be limited to the upper, unconfined glacial drift aquifers and does not extend into the deeper sandstone unit. The upper aquifer is a commonly used drinking water source in the region.

Site History

During the 1930s and early 1940s, arsenic-laced bait was used extensively throughout North Dakota to combat grasshopper infestations. The bait, which included arsenic trioxide, sodium arsenate, Paris Green and other arsenic compounds, was commonly applied to farm fields. Unused materials were often buried or dumped in pits and low-lying areas.

Routine water quality monitoring of municipal water supplies by the North Dakota State Department of Health (NDS DH) in 1979 identified elevated arsenic levels at Lidgerwood. These levels exceeded the existing MCL of 0.05 mg/L designated by the EPA under the SDWA and were determined to be a health risk by the State and EPA. The State ordered Lidgerwood to act appropriately to provide drinking water that met the MCL for arsenic, and in response, Lidgerwood constructed a new water treatment plant by 1986. The raw water supply for Wyndmere was also identified as exceeding the MCL for arsenic.

However, the existing Wyndmere treatment plant was found effective in reducing the arsenic to below the MCL so no additional immediate action was required.

The Site was initially proposed for the National Priorities List (NPL) in October 1981. Final listing of the Site on the NPL occurred on September 8, 1983.

Additional sampling of public and private water wells in the surrounding communities and rural areas was performed by NDS DH through a Remedial Investigation/Feasibility Study (RI/FS) overseen by EPA between 1982 and 1986. The investigation included collection and analysis of 704 samples from 558 groundwater supply locations. Test results identified widespread occurrence of arsenic in groundwater (Figure 1) that was attributed to both the use of arsenic-based grasshopper bait and naturally occurring sources (glacial tills in the unconfined aquifer zones were found to contain arsenic and were identified as possible sources to groundwater). The background ground water arsenic level was estimated in the RI to be 0.025 mg/L. It was estimated that approximately 330,000 pounds of arsenic bait may have been applied to the study area, although no specific disposal sites and only one likely contaminant source area, a bait mixing area near Wyndmere, were identified.

Data from the RI and a Health Risk Assessment performed by NDS DH estimated that 748 people in 278 homes were subject to increased health risk due to exposure to arsenic above the MCL in water supplies. All represented rural residents using private wells. In response, EPA instituted an emergency response action in 1986 to address the immediate health impacts of the arsenic contaminated groundwater. The response action consisted of installing point-of-use treatment units on one tap per affected household. The response action also included closure of the approximately one-acre former bait mixing area near Wyndmere by installing a clay cap over the site.

IV. Remedial Actions

EPA issued a Record of Decision (ROD) for the Site on September 26, 1986. The selected remedy was:

- Provide treated water to affected rural residents by expanding the existing Richland Rural (now Southeast Water Users) water distribution system to additional residents within Richland's existing service boundaries and construct a new water treatment and distribution system (or expand and extend the Richland system) to affected residents outside of Richland's service boundaries;
- No action for individuals using water from the Lidgerwood and Wyndmere systems due to effective removal of arsenic by the towns' treatment systems;
- Continue monitoring of groundwater through quarterly monitoring of the Lidgerwood and rural systems, annual monitoring of the Wyndmere system, annual monitoring of the glacial aquifer systems and random annual sampling of private wells outside of the existing contamination boundaries; and
- Further investigate institutional controls during final design and implement those that are feasible and implementable.

The scope of the rural water system design was to "provide water that attains and exceeds the SDWA MCL of 0.05 mg/L arsenic by removing arsenic to the background concentration of 0.025 mg/L."

After the ROD was signed, several issues developed that pertained to the remedy. Lidgerwood requested that construction of its water treatment plant and replacement of its distribution system be considered as part of the Response Action, and therefore, reimbursable. In addition, the Lidgerwood treatment plant did not operate correctly after its initial six months of operation in summer 1986. Wyndmere requested that

expansion of its treatment plant capacity to cover periods of high demand, during which it must bypass its plant with untreated water high in arsenic, be considered as part of the overall Remedial Action for the Site.

In April 1987, a Cooperative Agreement (CA) was awarded to the State to study the Lidgerwood and Wyndmere plants, to determine the extent of the repairs necessary to correct problems at the Lidgerwood plant and to verify the Wyndmere plant's capacity problem. Subsequently, an Amendment to the ROD was signed on February 5, 1988. It provided for reimbursement from Superfund to Lidgerwood for allowable costs associated with its treatment plant construction, modification of the Lidgerwood plant, and expansion of the Wyndmere plant to provide additional storage capacity through addition of a new storage reservoir and minor modifications to the plant. At that time, EPA designated the Richland Rural water treatment system as Operable Unit 1 (OU1) and the Lidgerwood and Wyndmere plants as OU2.

Additional water quality monitoring between 1986 and February 1990 identified groundwater with elevated arsenic concentrations near the town of Milnor. Milnor is located within the boundary of the Site and a number of City residents obtained their drinking water from shallow groundwater with elevated arsenic levels. In addition, private local water supply companies which provided water from deeper zone wells to the residents of Milnor informed the State that they planned to discontinue service which would force most Milnor residents to depend on shallow zone wells for their drinking water needs. At the recommendation of the Bureau of Reclamation, which was tasked by EPA and the State to investigate the issue, EPA elected to extend the distribution system from the Richland Rural water treatment plant to serve the residents of Milnor. This action was identified in an Explanation of Significant Differences (ESD) dated September 25, 1992. Because the expansion involved a second phase expansion of the Richland Rural treatment system (OU1), the Milnor expansion was designated as OU1, Phase 2.

With these modifications, the primary components of the sitewide remedy included:

- Expansion of the Richland Rural water treatment plant and its associated distribution system to provide safe drinking water to households within Milnor and rural areas within the Site;
- Expansion and modification of the Lidgerwood water treatment plant to increase treatment capability and storage capacity and, thereby, provide safe drinking water to households within Lidgerwood;
- Expansion and modification of the existing Wyndmere water treatment plant to increase treatment capability and storage capacity and, thereby, provide safe drinking water to households within Wyndmere;
- Monitoring of the treatment plants, monitoring of the glacial aquifer systems and monitoring of private wells; and
- Institutional controls to encourage public participation in the project and restrict private water supply well use.

Remedy Implementation

The primary remedy components were implemented through construction and/or expansion of the Lidgerwood, Wyndmere and Richland Rural water treatment plants and distribution systems between 1986 and 1992. Details of remedy implementation at each plant are described below.

Lidgerwood Treatment System

Construction of the Lidgerwood treatment plant was initially completed in 1986 in response to a directive from the State. The plant was constructed as a conventional aeration, detention and filtration plant designed to oxidize (through aeration and addition of chlorine/potassium permanganate) and remove iron

and manganese by precipitation and filtration with co-precipitation and removal of arsenic. Following filtration, chlorine is added to inhibit microbial growth and provide residual disinfection.

Following construction, the plant proved difficult to operate and frequently produced water of unacceptable quality. Plant performance was evaluated by the Bureau of Reclamation between 1988 and 1989. Based on this evaluation the Bureau recommended expansion of the treatment building, addition of a 23,000-gallon potable water storage reservoir, automation of the backwash system and several operational changes.

The recommended plant modifications were implemented between August 1989 and January 1990. Following construction the plant was subjected to a one-year operational test to demonstrate that the plant had achieved the design criteria. The operational test, which included treated water quality monitoring in accordance with a monitoring program developed by the NDSDH, indicated the plant was able to consistently reduce arsenic concentrations from approximately 0.13 – 0.16 mg/L in the source water to approximately 0.02 – 0.03 mg/L following treatment.

Wyndmere Treatment System

In 1987, the NDSDH investigated concerns expressed by Wyndmere that the existing treatment plant (an oxidation, precipitation and filtration system) had inadequate capacity to meet periods of high water demand. Based on their findings EPA amended the ROD to address the capacity issue. Remedial measures initially included modifications to increase treatment capacity and the addition of a 50,000 gallon potable water storage tank. However, once plant operations resumed, problems were experienced in the backwash cycle. Installation of a separate backwash system for the filters was planned, but in-plant testing prior to construction indicated that addition of a post-chlorination system rather than the backwash system was warranted.

The initial modifications to increase plant capacity and add the storage tank were implemented between August 1989 and January 1990. Additional activities related to the backwash filters and the post-chlorination unit were completed between April 1990 and January 1991.

Following the initial construction modifications, the plant was subjected to a one-year operational test to demonstrate that the plant had achieved the design criteria. The operational test, which included treated water quality monitoring in accordance with a monitoring program developed by the NDSDH, indicated the plant was able to consistently reduce arsenic concentrations from approximately 0.085 mg/L in the source water to 0.002 mg/L following treatment.

Richland Rural Water Treatment System

Construction to expand the Richland Rural water treatment plant and distribution system began in 1990. During construction, approximately 300 miles of water distribution pipeline were placed, seven additional water storage reservoirs were added, three additional water supply wells were drilled and the treatment system was approximately doubled in size. Construction in all areas outside of Milnor was completed by September 1991.

Construction to add Milnor to the distribution system began in September 1991. During the summer of 1992, a 135,000-gallon drinking water reservoir and distribution system to approximately 300 homes and businesses were added before construction was completed in September 1992. Final testing, construction restoration, and drilling of an additional well were completed by June 1993.

Institutional Controls

In 1993, NDSDH prepared a review document identifying institutional controls (ICs) for the site that were feasible and implementable. The following ICs were proposed by NDSDH:

1. Initiate economic incentives to maximize public participation in the rural water supply project.
2. Restrict public water supply well use within the project area.

3. Propose to require water quality monitoring of new wells within the project area.

NDSDH indicated that economic incentives (IC No. 1) were used to reduce the cost to implement the remedy. These incentives included a design/construction grant from the EPA's CERCLA program and a reduction in the initial rural water membership fee from \$250 to \$50. The economic incentives were provided during the remedial action as a limited time offer to encourage participation in connecting to the rural water district. These incentives were not intended to continue following completion of the remedial action.

Restrictions on public water supply well use within the project area (IC No. 2) were determined to already be in place through the state's enforcement of the SDWA, which requires public water systems to discontinue use of wells that exceed an MCL or provide treatment to achieve compliance. In addition to requiring compliance with the SDWA, NDSDH indicated that it would require each public water system (PWS) within the project area to annually monitor for the presence of arsenic contamination for the life of the project. The frequency of monitoring was later reduced to once every three years in accordance with SDWA regulations.

In addition to the public water supply well restriction, the IC document indicated that the municipalities of Lidgerwood, Wyndmere and Milnor require that all city residents connect to the respective municipal water system. This requirement is imposed through city ordinances that restrict the use of private water supply wells for domestic consumption. Irrigation and other non-consumptive uses are not restricted. An example Milnor ordinance is appended to the IC document. However, Section 4 of the ordinance indicates that the connection requirement only applies for buildings located within 200 feet of the city water main. It was not clear how many buildings might be excluded by the 200 feet limit.

For IC No. 3, NDSDH proposed an amendment to the North Dakota Administrative Code (NDAC) Section 33-18 Water Well Construction and Water Well Pump Installation requiring all newly constructed wells completed by North Dakota certified drilling contractors within the project area be subject to at least one analytical test of the groundwater for arsenic prior to consumptive use. This proposal was not accepted.

Other groundwater monitoring activities identified in the ROD were not implemented, as groundwater monitoring was not deemed necessary to evaluate the effectiveness of the primary component of the remedy, to provide drinking water that meets the arsenic standard.

Remedy Operation and Maintenance

No long-term operation and maintenance (O&M) requirements have been identified for the clay cap installed at the former bait-mixing site or the point-of-use treatment systems. These were interim measures used prior to selection and implementation of the remedy, and therefore, they are not subject to long-term O&M.

Long-term O&M of the treatment plants is performed by the respective operators: City of Lidgerwood for the Lidgerwood treatment plant, City of Wyndmere for the Wyndmere treatment plant and Southeast Water Users (formerly Richland Rural Water Association) for the Richland Rural water treatment plant.

The primary activities associated with O&M of the treatment and distribution systems include:

- Water supply well operation and maintenance;
- Routine treatment plant process monitoring and quality control;
- Distribution system operation and maintenance; and
- Water quality reporting to the NDSDH.

A water quality monitoring program based on SDWA requirements for water treatment plants was approved by EPA and the NDSDH in July 1990. The program included three-year monitoring

requirements; inorganic chemical sampling and analytical requirements; approved laboratory guidelines; and reporting, public notification and record keeping requirements. Water quality monitoring results for the treatment plants were appended to their respective Remedial Action Reports, and these results were found to confirm that each plant had achieved the ROD objective of reducing human exposure to arsenic-contaminated groundwater and was in compliance with the SDWA MCL for arsenic.

Each plant currently monitors water quality in accordance with an O&M plan developed by the NDS DH and approved by EPA specifically for their plant. Responsibility for O&M of the Lidgerwood treatment plant was assumed by the City of Lidgerwood in February 1991. Responsibility for O&M of the Wyndmere treatment plant was assumed by the City of Wyndmere in March 1991. Responsibility for O&M of the Richland Rural treatment plant was assumed by the Southeast Water Users in July 1993. Each of these entities provided an O&M financial assurance plan to ensure that each plant is sufficiently funded to continue O&M.

In addition, the NDS DH routinely monitors community drinking water supply systems for compliance with SDWA MCLs. Yearly treatment plant inspections and testing have demonstrated that the treatment and distribution systems for Lidgerwood, Wyndmere and Richland Rural have met the SDWA requirements. Copies of the most recent inspection reports and monitoring data, as provided by the NDS DH, are included as Attachment 2.

Since the last five-year review in 1999, the annual costs associated with operation and maintenance of the water treatment plants are as follow:

Table 2. Summary of O&M Costs

System	2000	2001
Richland Rural System ⁽¹⁾	\$254,400 ⁽²⁾ /\$154,000 ⁽³⁾	\$264,400 ⁽²⁾ /\$166,700 ⁽³⁾
Lidgerwood	\$25,000 ⁽⁴⁾	\$20,300
Wyndmere	\$30,400	\$37,700

Notes: ⁽¹⁾ O&M costs for the Richland system are for delivery of treated water to affected residents within the Site boundary, including delivery of treated water to the Milnor distribution system.

⁽²⁾ Includes long-term debt.

⁽³⁾ Excludes long-term debt.

⁽⁴⁾ Costs were higher in 2000 than 2001 due to one time equipment replacement cost.

The original estimate of routine annual O&M costs for the Richland system included in the 1986 ROD was approximately \$72,000 (\$35,000/yr for service to affected residents living within Richland's existing service area and \$37,000/yr for affected residents living outside Richland's existing service area). The O&M costs estimated in the ROD correspond to approximately \$212,000/yr in 2002 dollars, based on current USEPA guidance for evaluating cost estimates, which recommends use of constant dollars (no adjustment for inflation) and a 7% discount rate (USEPA, 2000).

The actual O&M costs for the Richland system include costs for delivery of treated water to the Milnor distribution system. In addition, the 2001 O&M costs include cost associated with providing water service to the Town of Havana, which is located within the Superfund Site boundary but previously obtained water from another source. Because these components were not included in the original ROD cost estimates, the actual O&M costs and the ROD estimates cannot be directly compared. However, the actual costs appear to be generally consistent with the ROD estimates, allowing for the additional service components.

The 1986 ROD amendment provided for the reimbursement of a portion of the capital costs associated with construction and subsequent repair of the Lidgerwood treatment plant and improvement of the Wyndmere

treatment plant. O&M costs for these facilities are not included under the Superfund program but have been included for informational purposes.

V. Progress Since First Five-Year Review

No recommendations or follow-up actions for protectiveness were noted in the first Five-Year Review Report.

VI. Five-Year Review Process

This is the second five-year review of the Arsenic Trioxide Superfund Site.

Administrative Components

The Arsenic Trioxide Site five-year review team was lead by Rebecca Thomas, the EPA five-year review project manager, and included technical staff from EPA and it's contractor, MFG, Inc. Victor Ketellaper of EPA is the project manager for the Arsenic Trioxide Site and Rob Henneke of EPA acted as the Community Involvement Coordinator for the Site.

The review was initiated in July 2002 and included the following components:

- Community Involvement,
- Local Interviews,
- Document Review,
- Data Review,
- Site Inspection and
- Five-Year Review Report Development and Review

The schedule for the review extended through May 2003.

Community Involvement

During the weeks of July 22, 2002 and July 29, 2002, a notice was placed in the local newspapers to inform the local communities that a five-year review was being conducted. The notice summarized the site issues and directed the public on how to obtain additional information and submit their questions or comments regarding the review to EPA. The notice was published in the following publications:

- The Fargo Forum (legal notice only),
- Wahpeton Daily News,
- Richland County News-Monitor,
- Lisbon County Gazette, and
- Milnor Teller

Two comments were received from the public in response to the public notices. One comment was received from a rural water user concerning the protectiveness of the remedy and the high cost to connect to the rural water district. The second comment was a request for a copy of the final 5-year review.

Interviews were conducted with various parties connected to the Site in July 2002. The following individuals with NDSDH, Lidgerwood, Wyndmere and the Southeast Water Users systems were interviewed by MFG, Inc.:

1. David Glatt, North Dakota Department of Health, Chief Environmental Health, interviewed 7/15/02;
2. Jack Long, North Dakota Department of Health, Director Municipal Facilities interviewed 7/15/02;
3. Larry Thelen, North Dakota Department of Health, Manager Division of Municipal Facilities, interviewed 7/15/02;
4. Joel Heitkamp, Southeast Water Users, General Manager, interviewed 7/15/02;
5. Glenn Lueck, City of Lidgerwood, Water Treatment Plant Manager, interviewed 7/16/02;
6. Bob Fust, City of Lidgerwood, Mayor, interviewed 7/16/02; and
7. Bob Bucholz, City of Wyndmere, Water Treatment Plant Manager, interviewed 7/17/02.

In June 2003, a notice will be placed in the same local newspapers listed to announce that the five-year review has been completed and that copies of the report are available for the public to review at the EPA Superfund Records Center in Denver, CO and the city library in Lidgerwood, ND.

Document Review

In preparing this five-year review report, the following documents were reviewed:

- Record of Decision, 1986
- Approval of Supplemental Remedial Action, Cities of Lidgerwood and Wyndmere, 1988
- Modification Design Report Lidgerwood Water Treatment Plant, 1989
- Site Remedial Action Report Lidgerwood Water Treatment Plant, 1991
- Site Remedial Action Report Wyndmere Water Treatment Plant, 1991
- Explanation of Significant Difference, 1992
- Remedial Action report for Operable Unit I and Close Out Report, 1993
- Revised Institutional Controls Document, 1993
- Five-year Review, 1999

Full reference citations are included in Attachment 3 for each of the documents reviewed.

Applicable drinking water regulations were also reviewed to identify changes since development of the remedy (ROD and ESD).

Data Review

The remedy provides for on-going monitoring of the quality of treated water produced by the treatment plants. This monitoring is being performed by the State, which has primacy for the Public Water System Supervision (PWSS) program and includes enforcement for compliance with MCLs. EPA, Region VIII's Water Management Division provides oversight of the NDSDH's PWSS program.

In preparing this five-year review report, data from the NDSDH's routine treated water quality analyses for the Lidgerwood, Wyndmere and Richland systems were reviewed. Arsenic concentrations in the treated water samples are listed in Table 3. Complete reports and laboratory results for the analyses are included in Attachment 2.

Table 3. Summary of Arsenic Concentrations in Treated Water

Treatment Plant	Sample Date	Arsenic Concentration Mg/L
Lidgerwood	7/27/94	0.019
	8/31/98	0.0257
	6/26/01	0.0311
Wyndmere	7/27/94	0.0102
	8/31/98	0.0105
	6/26/01	0.00721
Richland (Southeast Water)	7/27/94	0.0076
	8/31/98	0.00582
	6/26/01	0.00648

The purpose of this monitoring is to confirm that the water treatment plants are producing water that meets the SDWA MCLs. Monitoring is performed and reported every three years in accordance with SDWA requirements.

Arsenic concentrations in the treated water for each treatment plant meet the currently enforceable MCL for arsenic of 0.05 mg/L.

Site Inspection

EPA's project manager performed a site inspection on September 4 – 6, 2002. During the site inspection, the project manager met with water system officials; inspected the Wyndmere, Southeast Water Users and Lidgerwood water treatment systems; and inspected the former bait mixing station that was capped with clay during the response action.

The former bait mixing area was located and inspected. The site was found to be well vegetated and the groundwater monitoring wells were locked and appeared to be in good condition. Based on the inspection, the cap area may no longer be free draining and ponding of water on the cap could occur. However, the grading of the cap area was difficult to determine due to the vegetation on the site (see photos in Attachment 5).

The Wyndmere water treatment system was inspected. This system treats groundwater using permanganate followed by sand filters. Finished water quality is reported to achieve the new arsenic MCL (0.01 mg/L) when the system is operated at 60 percent of design capacity. It was not determined if the current demand was being met by operating at 60 percent of design capacity. The system appeared to be well operated and maintained. However, during the visit the water treatment plant was not operating due to a communications failure (telephone service had been interrupted) between the water treatment plant and the level indicators in the storage tanks. The representatives of the water system were interested in the possibility of connecting to the rural water district (Southeast Water Users system), but were concerned that the rural water district would not be able to meet the water demand of this community.

The Southeast Water Users system was inspected. This system treats groundwater by permanganate addition followed by green sand filtration to remove arsenic, iron and manganese. Chlorine and fluoride are added prior to distribution. The new arsenic standard is achieved by this water system. Source wells for this system were inspected. The wells are within a wellhead protection area managed by the rural water district.

The rural water system believes it is able to provide water to communities that will not be able to meet the new arsenic standard. An engineering study that evaluates options for providing water from the rural water district to these communities was provided to EPA prior to this meeting.

In addition to municipalities, individual rural users can elect to be connected to the system. The cost to rural water users is the cost of installation of the water line (estimated cost of \$4.00 per foot) and a \$700 membership fee. This may be too costly for users that require a long distance from the pipeline to the home. During the implementation of the remedy, EPA provided financial assistance such that the cost to new rural water users to connect to the system was \$50. If EPA assistance was available to provide a low cost connection fee at this time, the district expects about 100 households to take advantage of such an offer. The rural water district allows anyone to fill bottles of water for no charge at the water treatment plant.

The point-of-use treatment units provided during implementation of the remedy were discussed. The reported experience was that these systems were not effective, particularly if the pretreatment softening step malfunctioned. Due to this technical issue and the fact that the units were intended as an interim measure and not a component of the remedy, it is unlikely that any of these systems are functioning.

The rural water system officials expressed concerns that communities may be able to obtain funds from several sources to upgrade their water treatment systems to meet the new arsenic standard. This could result in a greater expenditure of federal funds than connecting these systems to the rural water district. It was recommended that the different agencies within the federal government coordinate funding of these projects to assure that the lowest cost alternative is implemented at these communities, resulting in an overall savings to the federal government.

The Lidgerwood system was inspected. This system treats groundwater with permanganate followed by sand filtration. The water is chlorinated prior to distribution. As currently operated, the new arsenic standard is not achieved. Lidgerwood applied for and was accepted as a test site under the EPA's Office of Research and Development program to evaluate cost effective treatment technologies for small public water supplies to achieve the new arsenic standard. However, acceptance of a test site does not guarantee that a demonstration project will be initiated. A vendor must propose to conduct a demonstration at Lidgerwood in order for testing to occur at this facility.

During the site inspection in September 2002, the system appeared to be well maintained. Many of the concerns expressed by the operator were maintenance items and not related to the facility achieving the new arsenic MCL.

Connecting this system to the rural water district was discussed. The primary objection was that rural water district would not be able to provide adequate fire flows.

Interviews

MFG, Inc. contacted officials with the NDSDH, Lidgerwood, Wyndmere and the Richland Rural system for interviews. In addition, a concerned citizen contacted the EPA RPM. Eight interviews were completed.

The primary concern or comment made by most of the individuals contacted pertained to the new arsenic MCL that will become enforceable in January 2006. Overall, awareness of the new MCL was relatively high.

Summary of Interview Highlights

Jack Long, Chief of Environmental Health at NDSDH, expressed concern that one or more of the treatment plants will likely not be able to meet the new MCL and that it may not be possible to easily modify the plants to meet the new standard. He also expressed concern that the revised standard may not be protective enough and stated that EPA should revise its remedy to ensure the citizens of southeastern North Dakota have a safe drinking water supply. Additionally, Mr. Long indicated it would be appropriate to investigate the public and private drinking water systems in areas surrounding the Superfund Site boundary, as well as follow-up with all citizen that elected to

use point-of-use water treatment systems in lieu of connecting to the public systems because their decision may have been based on the old MCL.

Joel Heitkamp, General Manager at Southeast Water Users, indicated he believes that the Site boundary is not broad enough. He has made a request to NDSDH to expand the water supply distribution area to include several surrounding communities that he believes will not be able to meet the new MCL. Southeast Water Users recently completed a grant-funded study of options for providing treated water to these areas, including Lidgerwood and Wyndmere. Mr. Heitkamp forwarded a copy of this study to the EPA project manager.

Mr. Glenn Lueck, Water Treatment Plant Manager at the City of Lidgerwood, indicated that their treatment plant is in very poor condition (roof is falling off), and it has experienced a steady decline in performance with arsenic concentrations in the treated water steadily increasing from 0.017 to 0.031 mg/L. Mr. Lueck indicated that the arsenic standard is very low and that it will be expensive for Lidgerwood to comply with it. He also indicated that Lidgerwood has applied to participate in an EPA-sponsored pilot program for communities impacted by the revised MCL and is waiting to hear if it has been accepted.

Mr. Bob Bucholz, Water Treatment Plant Manager for the City of Wyndmere, reported that the Wyndmere treatment plant is able to produce water with an arsenic concentration of about 0.007 mg/L if the plant is operated at a flow rate of 60-70 gpm. This is significantly lower than the original design flow rate for the plant of 100 gpm. Mr. Bucholz indicated that the plant might have future problems with manganese, if pending changes in that standard are made. In addition, he indicated a general desire by the Town Council and residents to receive treated water from the Richland Rural system because the Richland water is softer and generally of better quality than the water produced by the City of Wyndmere.

Mr. Darrell Jelanick, a concerned citizen, contacted the EPA RPM to express concern that the tap fees were too high for the rural water district and were not affordable to most families in the area. Mr. Jelanick also pointed out that many homes were not connected at the time of the cleanup because older folks owned them. Now younger families are purchasing the homes and would like to be able to connect to the rural water supplier. Mr. Jelanick also indicated that the point-of-use treatment systems supplied as an interim measure are no longer functioning.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

The review of documents, data, ARARs, interviews and the results of the site inspection indicate that overall the remedy is functioning as intended by the ROD, as modified by the ESD. Specifically, the treatment plants are producing water that meets the currently enforceable MCL for arsenic and the treated water is distributed to the affected residents.

The City of Lidgerwood plant operator reports that the plant performance for arsenic removal is declining, and the City of Wyndmere plant operator reports that the plant cannot achieve the new arsenic standard at full capacity. It is unclear, based on the currently available data, if these reported operational limitations could be corrected by changes to plant operational procedures or other plant adjustments.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?

The SDWA MCL for arsenic applicable to Community Water Systems (CWS) was revised from 0.05 mg/L to 0.01 mg/L effective February 22, 2002. The new MCL will become enforceable January 23, 2006.

Treatment data indicate that the Richland Rural treatment plant will be able to achieve the revised MCL under its existing operating conditions. The Wyndmere treatment plant will be able to achieve the revised MCL under its existing operating conditions, but may not be able to achieve this standard at full capacity. The Lidgerwood treatment plant will not meet the revised MCL without modification or replacement.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no other information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed, the site inspection and interviews, the remedy is currently operating and functioning as intended by the ROD, as modified by the ESD. However, the SDWA MCL for arsenic was lowered from 0.05 mg/L to 0.01 mg/L effective February 2002, and the new MCL will become enforceable in January 2006. One of the treatment plants included in the remedy will not be able to achieve the new arsenic MCL. Therefore, follow-up actions will be required to ensure on-going protectiveness of the remedy.

VIII. Issues

Based on the information collected during the second five-year review report, the following issues were identified:

Table 4. Issues Identified

Item No.	Issue	Affects Current Protectiveness of Remedy	Affects Future Protectiveness of Remedy
1	Arsenic MCL has been revised from 50 ug/l to 10 ug/l.	Yes	Yes
2	The new arsenic MCL may prompt additional affected residents to connect to the rural water system.	Yes	Yes
3	Lidgerwood treatment plant is currently not achieving the revised standard for Arsenic.	Yes	Yes
4	Wyndmere treatment plant may not achieve revised standard when operated at full capacity.	Potentially	Potentially
5	Communities located within the boundaries of the Superfund Site, for which action was not necessary under old arsenic standard, may now require an action to achieve new standard.	Potentially	Potentially
6	The background concentration estimated in the remedial investigation is greater than the revised arsenic standard. The background concentration of arsenic should be re-evaluated based on improved scientific methods.	No	No

IX. Recommendations and Follow-Up Actions**Table 5. Recommendations and Follow-Up Actions**

Item No.	Issue	Recommendation for Follow Up	Party Responsible
1	Arsenic MCL has been revised from 50 µg/L to 10 µg/L.	Identify and evaluate alternatives for improving or replacing Lidgerwood and or Wyndmere treatment plants.	EPA & NDS DH
2	The new arsenic MCL may prompt additional affected residents to connect to the rural water system.	Increase public awareness of new arsenic MCL and promote further public participation in the remedy.	EPA & NDS DH
3	Lidgerwood treatment plant is currently not achieving the revised standard for Arsenic.	Address under Item 1 above.	EPA & NDS DH
4	Wyndmere treatment plant may not achieve revised standards when operated at full capacity.	Address under Item 1 above.	EPA & NDS DH
5	Communities located within the Superfund Site, for which action was not necessary under old arsenic standard, may now require an action to achieve new standard.	Investigate water quality of potentially affected communities and rural residents.	EPA & NDS DH
6	The background concentration estimated in the remedial investigation is greater than the revised arsenic standard. The background concentration of arsenic should be re-evaluated based on improved scientific methods.	Re-evaluate background arsenic concentration in groundwater.	EPA & NDS DH

EPA should address the above listed items in conjunction with NDS DH and the local communities. Evaluations related to the treatment plants should be performed in a timely fashion such that the selected improvements or modifications may be completed and demonstrated prior to the January 2006 enforcement date for the new arsenic MCL.

X. Protectiveness Statement

The remedy as designed, constructed and operated may no longer be protective because the arsenic MCL has been lowered (effective February 2002; enforceable January 2006). In order to assure that the remedy is protective, the EPA and NDS DH should work together to complete the follow-up actions listed above and ensure that the improvements or modifications are made as necessary to provide residents living within the boundaries of the Superfund Site with water that meets the new arsenic MCL.

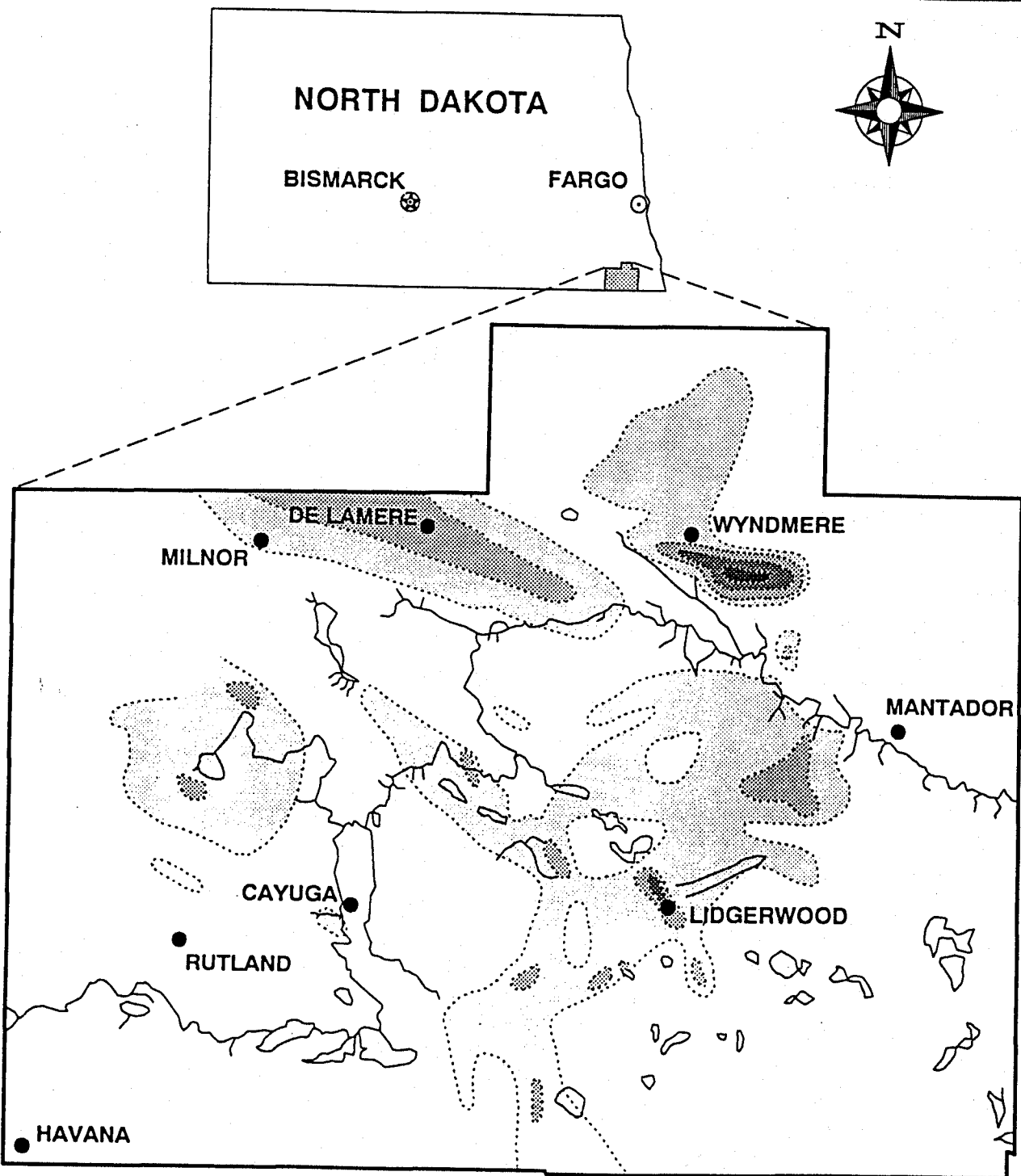
XI. Next Review

This Site requires ongoing five-year reviews in accordance with CERCLA §121(c). The next five-year review for the Arsenic Trioxide Site is to be completed by May 2008, five years from the date of completion of this review.

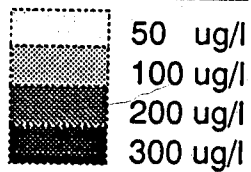
ATTACHMENTS

ATTACHMENT 1

SITE FIGURES



Arsenic Levels



0 2 4 6
SCALE IN MILES

FIGURE 1
NORTH DAKOTA ARSENIC TRIOXIDE SUPERFUND
SITE MAP

ATTACHMENT 2

INSPECTION REPORTS AND MONITORING DATA



NORTH DAKOTA DEPARTMENT OF HEALTH
Environmental Health Section

Location:
1200 Missouri Avenue
Bismarck, ND 58504-5264

Fax #:
701-328-5200

Mailing Address:
P.O. Box 5520
Bismarck, ND 58506-5520

TO: Dan Pastor - MFG, Inc

Fax #: 303-447-1836

Phone: 303-447-1823

FROM: Larry Thelen - NDDH

Fax #: (701) 328-5200

Phone: (701) 328-5211

DATE: 7/15/02

Number of pages following: 31

Remarks:

Dani

Attached is the information you requested. It should be in the following order for each system: Inspection report, VOC results, IOC results, and Secondary results. Please contact me if you have any questions.

Larry

Environmental Health
Section Chief's Office
701-328-5150

Environmental
Engineering
701-328-5188

Municipal
Facilities
701-328-5211

Waste
Management
701-328-5166

Water
Quality
701-328-5210

Darin



NORTH DAKOTA DEPARTMENT OF HEALTH

Environmental Health Section

Location:
1200 Missouri Avenue
Bismarck, ND 58504-5264

Fax #:
701-328-5200

Mailing Address:
P.O. Box 5520
Bismarck, ND 58508-5520

June 11, 2001

Mayor and City Council
c/o Dorothy W. Haase, City Auditor
P.O. Box 398
Lidgerwood, ND 58053-0398

Dear Ladies and Gentlemen:

On May 30, 2001, a representative of the Department of Health conducted a routine inspection of the following:

COPY

<u>X</u>	Drinking water source (<u>well(s)</u> , spring(s), surface water, consecutive user)
<u>X</u>	Water treatment plant
<u>NA</u>	Chemical addition equipment, Ground Water
<u>X</u>	Water distribution and storage system
<u>X</u>	Wastewater collection system
<u>X</u>	Wastewater treatment facility
<u> </u>	Other _____

If any defects are noted in the enclosed inspection report, corrective action is required within the time line designated. In addition, when corrective action is completed, you must notify this department in writing.

If any violation of the Safe Drinking Water Act and/or Clean Water Act have occurred within the last twelve months, they are discussed in the general remarks section of the inspection report along with appropriate action to be taken by the system.

It is the intent of the department representative to complete a comprehensive inspection. However, factors such as time constraints, appropriate testing, and accessibility may limit the detection of all defects in the system(s).

Please contact Darin Billing, the department representative who conducted the inspection at (701) 328-6624 or me at (701) 328-6622, if you have any questions regarding the inspection or the enclosed report.

Sincerely,

Ralph Riedinger

Ralph Riedinger
Administrator of Inspection Program
Division of Municipal Facilities

RR:sw
Enclosure
cc: Richland County Health Department

Environmental Health
Section Chief's Office
701-328-5150

Air
Quality
701-328-5188

Municipal
Facilities
701-328-5211

Waste
Management
701-328-5166

Water
Quality
701-328-5210

**North Dakota Department of Health
DIVISION OF MUNICIPAL FACILITIES
BISMARCK, NORTH DAKOTA**

DATE OF SURVEY: May 30, 2001
PLACE: Lidgerwood, North Dakota
OBJECTIVE: Routine Inspection of Water and Wastewater Systems
INTERVIEWS: Glen Lueck

DEFECTS, CORRECTIVE ACTIONS, TIME LINES, AND REFERENCES:

Water System

No defects were noted at this time.

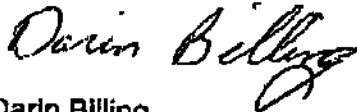
Wastewater System

No defects were noted at this time.

REMARKS:

I appreciate the time and cooperation shown to me by Glen Lueck during the recent inspection. If you have any questions or concerns, please contact me at (701) 328-6624.

Respectfully submitted,



Darin Billing
Environmental Engineer
Division of Municipal Facilities

DB:sw



NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF MUNICIPAL FACILITIES
SURVEY OF COMMUNITY WATER SYSTEM
SFN 13898 (3/87)

OWNER OF WATER SYSTEM City of Lidgerwood

ADDRESS _____ TELEPHONE _____

OPERATOR OF WATER SYSTEM Glen Lueck

ADDRESS _____ TELEPHONE _____

INTERVIEWED Glen

WATER SUPPLY

SOURCE- WELL... (✓) NO. 2 SURFACE... ()

SPRING... () NO. _____ RURAL WATER... ()

WELL PROTECTION- ADEQUATELY DRAINED... (✓) POORLY DRAINED... ()

CONTAMINATION SOURCE <100 FT... YES () NO (✓)

WELL IN PIT... YES () NO (✓)

ADEQUATE SANITARY SEAL... YES (✓) NO ()

SCREENED VENT... YES (✓) NO ()

WELL HOUSE LOCKED... YES (✓) NO ()

CROSS-CONNECTIONS... YES () NO (✓)

WATER METER... YES (✓) NO ()

SAMPLING TAP... YES (✓) NO ()

PRESSURE GAUGE... YES (✓) NO ()

HUMIDITY CONTROL... YES (✓) NO ()

ADEQUATE PAINTING... YES (✓) NO ()

ADEQUATE RECORDS MAINTAINED... YES (✓) NO ()

WATER STORAGE

ELEVATED... 1 NO. 50,000 GALS.

GROUND LEVEL... 1 NO. 150,000 GALS.

UNDERGROUND... NO. _____ GALS.

CLEARWELL... 1 NO. 33,000 GALS.

OTHER... NO. _____ GALS.

ADEQUATE OVERFLOW... YES (✓) NO ()

SCREENED... YES (✓) NO ()

SPLASH PAD... YES (✓) NO ()

ADEQUATE VENT... YES (✓) NO ()

SCREENED... YES (✓) NO ()

TURNED DOWN... YES (✓) NO ()

ADEQUATE ACCESS COVER... YES (✓) NO ()

ACCESS COVER/SAFETY CAGE LOCKED... YES (✓) NO ()

COMMENTS Tower painted last year

CHLORINATION

COMPOUND- GAS (✓) OTHER _____

SOURCE- TON () 150 (✓) FEED RATE _____ PPD

SEPARATE CHLORINE ROOM... YES (✓) NO ()

ALL OPENINGS SEALED... YES (✓) NO ()

CHLORINE ROOM LOCKED... YES (✓) NO ()

DOOR OPENS TO OUTSIDE... YES (✓) NO ()

EXTERIOR ELECTRICAL SWITCH... YES (✓) NO ()

CHLORINATOR VENT SCREENED... YES (✓) NO ()

ADEQUATE VENTILATION... YES (✓) NO ()

PLATFORM SCALE... YES (✓) NO ()

WRENCH ON CYLINDER VALVE... YES (✓) NO ()

ALL CYLINDERS CHAINED TO WALL... YES (✓) NO ()

CAPS ON EXTRA CYLINDERS... YES (✓) NO ()

AMMONIA BOTTLE AVAILABLE... YES (✓) NO ()

PROPER VACUUM FEED SYSTEM... YES (✓) NO ()

CHEMICALS STORED IN ROOM... YES () NO (✓)

DPD CHLORINE TEST KIT... YES (✓) NO ()

ADEQUATE RECORDS MAINTAINED... YES (✓) NO ()

RESIDUAL- FREE _____ MG/L TOTAL _____ MG/L

WATER DISTRIBUTION

AVERAGE DAILY USAGE _____ GPD

ADEQUATE WATER SALESMAN... YES () NO ()

HYDRANTS ROUTINELY FLUSHED... YES () NO ()

NUMBER OF TIMES FLUSHED PER YEAR _____

FLUORIDATION/SEQUESTERING

FLUORIDATION PRACTICED... YES (✓) NO ()

SEQUESTERING PRACTICED... YES () NO ()

ADEQUATE BACKFLOW PREVENTION... YES () NO ()

FLUORIDE CHEMICAL USED Acid

PERSON MAKING SURVEY

DEPARTMENT

DISTRIBUTION

WHITE - DEPARTMENT
YELLOW - COMMUNITY

TITLE

DATE



SURVEY OF IRON AND MANGANESE REMOVAL WATER TREATMENT PLANT
STATE DEPARTMENT OF HEALTH AND CONSOLIDATED LABORATORIES
WATER SUPPLY AND POLLUTION CONTROL
 SFN 8347 (5-89)

Owner of Plant <u>City of Lidgerwood</u>			Telephone No.
Address		City	State
Operator of Plant <u>Glen Lueck</u>		Telephone No.	
Address		City	State
Interviewed <u>Glen</u>		Zip	

PRETREATMENT EQUIPMENT

Aeration ☐ None ☒ Tray ☐ Spray	Oxidation ☒ Potchlorination ☒ Potassium Permanganate ☐ Other	Operation Of Potassium Permanganate Mixer ☐ Constant ☐ When Plant Runs ☐ Periodically ☒ When Chemical Is Added ☐ Other
Potassium Permanganate Feed Before Filter for Supersaturation ☒ Yes ☐ No		Detention Before Filter Drain ☒ Yes ☐ No Sludge Removal ☒ Yes ☐ No Proper Access Cover ☒ Yes ☐ No

FILTRATION EQUIPMENT

Filters ☐ Pressure ☒ Gravity ☐ Other Number <u>4</u>	Pressure Filters Air Release ☐ Yes ☐ No Access Manhole ☐ Yes ☐ No Air Wash ☒ Yes ☐ No	Sample Taps Before Potassium Permanganate Feed ☒ Yes ☐ No Before Filtration ☒ Yes ☐ No Between Anthracite and Media ☐ Yes ☒ No Halfway Down Media ☐ Yes ☐ No Effluent ☒ Yes ☐ No
Water Color Above Filter <u>Brown</u>		

BACKWASH

Cycle Determined By ☒ Loss Of Head ☐ Gallons Treated ☒ Time ☐ Other	Head Loss and Flow Gauges ☒ Yes ☐ No Source of Backwash Water <u>Chilled</u>	Backwash, Overflow, & Drain Pipes Above Level of Sump ☐ Yes ☐ No	Disposal of Backwash Water ☐ Sanitary Sewer ☐ Sludge Beds ☐ Lagoon ☒ Retention & Recovery ☐ Other
--	---	---	---

MISCELLANEOUS

Chlorine & Chemical Rooms Separate ☐ Yes ☒ No	Adequate Chemical Storage Area ☒ Yes ☐ No	Backflow Preventors ☒ Yes ☐ No	Are Adequate Records Being Maintained ☒ Yes ☐ No
Flow Meter ☒ Influent ☒ Effluent	Test Kit ☒ Yes ☐ No	Humidity Control ☐ Yes ☐ No	Plant Locked ☒ Yes ☐ No
Painting OK ☒ Yes ☐ No			

COMMENTS

Darin Billing
 Person Making Survey
ND DH
 Department

Env. Eng.
 Title
5-30-01
 Date

WHITE COPY - DEPARTMENT

YELLOW COPY - FACILITY

North Dakota Department of Health
Chemistry Division

Page: 1

Original Report Date: 11/ 6/01

Report Date: 11/ 6/01

Log Number: 01-S2016 System: 3900567 LIDGERWOOD CITY OF

Date Collected: 10/16/01
Date Received: 10/17/01
City: LIDGERWOOD
Site: WATER PLANT TAP ON 6" LINE
Facility ID #:

Time Collected: 11:35
Time Received: 9:00
Sample Point: 101

Collected By: LVECK
Sample Type: ROUTINE
Comments:

Approved By: Mike Bon

Organic

Parameter	Result	Units	Analysis		Evaluation	MCL (mg/L)	Method of Analysis	Method Reference	Analyst
			Date	Time					

Volatile Organic Compounds									
1,1,1-Trichloroethane	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.20	GC/MS	524.2	Jim Q
1,1,2-Trichloroethane	< 0.0005	mg/l	10/26/01	5:02	Satisfactory	0.005	GC/MS	524.2	Jim Q
1,1-Dichloroethylene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.007	GC/MS	524.2	Jim Q
1,2,4-Trichlorobenzene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.07	GC/MS	524.2	Jim Q
1,2-Dichloroethane	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.005	GC/MS	524.2	Jim Q
1,2-Dichloropropane	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.005	GC/MS	524.2	Jim Q
Benzene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.005	GC/MS	524.2	Jim Q
Carbon Tetrachloride	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.005	GC/MS	524.2	Jim Q
Chlorobenzene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.1	GC/MS	524.2	Jim Q
cis-1,2-Dichloroethylene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.07	GC/MS	524.2	Jim Q
Dichloromethane	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.005	GC/MS	524.2	Jim Q
Ethylbenzene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.7	GC/MS	524.2	Jim Q
o-Dichlorobenzene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.6	GC/MS	524.2	Jim Q
p-Dichlorobenzene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.075	GC/MS	524.2	Jim Q
Styrene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.1	GC/MS	524.2	Jim Q
Tetrachloroethylene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.005	GC/MS	524.2	Jim Q
Toluene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	1	GC/MS	524.2	Jim Q
trans-1,2-Dichloroethylene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.1	GC/MS	524.2	Jim Q
Trichloroethylene	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.005	GC/MS	524.2	Jim Q
Vinyl Chloride	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	0.002	GC/MS	524.2	Jim Q
Xylenes (Total)	< 0.0005	mg/l	10/25/01	5:02	Satisfactory	10	GC/MS	524.2	Jim Q

Additional Comments/Remarks

sent 11/7/01
BB

North Dakota Department of Health
Chemistry Division

Page: 2

Original Report Date: 11/ 6/01

Report Date: 11/ 6/01

Log Number: 01-S2016 cont'd System: 3900567 LIDGERWOOD CITY OF

Units: ug/L = micrograms per liter or part per billion (ppb)
mg/L = milligrams per liter or part per million (ppm)
> = greater than
< = less than

Statement: This analysis includes chemical content only,
and does not determine the bacterial quality of the water.

For further information contact:
North Dakota Department of Health
Division of Municipal Facilities, Box 5520, Bismarck, ND 58502-5520.
Drinking Water Program, (701) 328-5211.

North Dakota Department of Health
Chemistry Division

Page: 1

Original Report Date: 7/31/01

Report Date: 7/31/01

Log Number: 01-S949

System: 3900567 ~~LIDGERWOOD CITY OF~~

Date Collected: 6/26/01
Date Received: 6/28/01
City: LIDGERWOOD
Site: WATER PLANT TAP ON 6" LINE
Facility ID #:

Time Collected: 11:00
Time Received: 10:18
Sample Point: 101

Collected By: JEREMIAH BARTZ
Sample Type: ROUTINE
Comments:

Approved by:

Mike Bort

Organic

Approved by:

Mike Bort

Inorganic

Parameter	Result	Units	Analysis		Evaluation	MCL	Method of	Method	Analyst
			Date	Time		(mg/L)	Analysis	Reference	
Inorganic Chemicals									
Antimony (Sb)	< 0.001	mg/l	6/29/01	15:30	Satisfactory	0.006	ICP-MS	200.8	Mike
Arsenic (As)	0.0311	mg/l	6/29/01	15:30	Satisfactory	0.05	ICP-MS	200.8	Mike
Barium (Ba)	0.00794	mg/L	6/29/01	15:30	Satisfactory	2	ICP-MS	200.8	Mike
Beryllium (Be)	< 0.001	mg/l	6/29/01	15:30	Satisfactory	0.004	ICP-MS	200.8	Mike
Cadmium (Cd)	< 0.001	mg/l	6/29/01	15:30	Satisfactory	0.005	ICP-MS	200.8	Mike
Chromium (Cr)	0.00515	mg/l	6/29/01	15:30	Satisfactory	0.1	ICP-MS	200.8	Mike
Fluoride (F)	1.33	mg/l	6/29/01	10:28	Satisfactory	4.0	Electrode	SM 4500F-C Diane	
Mercury (Hg)	< 0.0002	mg/l	7/11/01	8:00	Satisfactory	0.002	Vapor Gen.	245.1	Carol
Nickel (Ni)	0.00411	mg/L	6/29/01	15:30	Satisfactory	0.1	ICP-MS	200.8	Mike
Selenium (Se)	0.00149	mg/l	6/29/01	15:30	Satisfactory	0.05	ICP-MS	200.8	Mike
Thallium (Tl)	< 0.001	mg/l	6/29/01	15:30	Satisfactory	0.002	ICP-MS	200.8	Mike

Organic Chemicals

2,4-D	< 0.0001	mg/l	7/ 5/01	8:00	Satisfactory	0.07	GC	515.1	Amy
Alachlor	< 0.0002	mg/L	7/ 5/01	13:00	Satisfactory	0.002	GC	525.2	Eric
Atrazine	< 0.0001	mg/L	7/ 5/01	13:00	Satisfactory	0.003	GC	525.2	Eric
Chlordane	< 0.0002	mg/L	7/ 5/01	13:00	Satisfactory	0.002	GC	525.2	Eric
Dalapon	Analysis not performed				Not reportable-QC failure				
Dinoseb	< 0.0001	mg/L	7/ 5/01	8:00	Satisfactory	0.007	GC	515.1	Amy
Endrin	< 0.00001	mg/l	7/ 5/01	13:00	Satisfactory	0.002	GC	525.2	Eric
Heptachlor	< 0.00004	mg/L	7/ 5/01	13:00	Satisfactory	0.0004	GC	525.2	Eric
Heptachlor Epoxide	< 0.00002	mg/L	7/ 5/01	13:00	Satisfactory	0.0002	GC	525.2	Eric
Lindane	< 0.00002	mg/l	7/ 5/01	13:00	Satisfactory	0.0002	GC	525.2	Eric
Methoxychlor	< 0.0001	mg/l	7/ 5/01	13:00	Satisfactory	0.04	GC	525.2	Eric
Pentachlorophenol	< 0.00002	mg/L	7/ 5/01	8:00	Satisfactory	0.001	GC	515.1	Amy

sent 8/3/01
BB

North Dakota Department of Health
Chemistry Division

Page: 2

Original Report Date: 7/31/01

Report Date: 7/31/01

Log Number: 01-S949 cont'd System: 3900567 LIDGERWOOD CITY OF

Parameter	Result	Units	Analysis Date	Time	Evaluation	MCL (mg/L)	Method of Analysis	Method Reference	Analyst
Ficloram	< 0.0001	mg/L	7/ 5/01	9:00	Satisfactory	0.5	GC	515.1	Amy
Silvex (2,4,5-TP)	< 0.00009	mg/l	7/ 5/01	8:00	Satisfactory	0.05	GC	515.1	Amy
Simazine	< 0.00007	mg/L	7/ 5/01	13:00	Satisfactory	0.004	GC	525.2	Eric
Toxaphene	< 0.001	mg/l	7/ 5/01	13:00	Satisfactory	0.003	GC	508	Eric

Unregulated Compounds

Sulfate as (SO4)	385.	mg/L	6/28/01	17:00			IC	300.0	Diane
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Additional Comments/Remarks

VOC's not reportable due
to instrument failure.

Units: ug/L = micrograms per liter or part per billion (ppb)
mg/L = milligrams per liter or part per million (ppm)
> = greater than
< = less than

Statement: This analysis includes chemical content only,
and does not determine the bacterial quality of the water.

For further information contact:
North Dakota Department of Health
Division of Municipal Facilities, Box 5520, Bismarck, ND 58502-5520.
Drinking Water Program, (701) 328-5211.

North Dakota Department of Health
Chemistry Division

Page: 1

Original Report Date: 7/10/01

Report Date: 7/10/01

Log Number: 01-S950

System: 3900567 ~~LIDGERWOOD CITY OH~~

Date Collected: 6/26/01
Date Received: 6/28/01
City: LIDGERWOOD
Site: LUEACK RES HARD WATER TAP
Facility ID #:

Time Collected: 10:45
Time Received: 10:18
Sample Point: 950

Collected By: JEREMIAH BARTZ
Sample Type: ROUTINE
Comments:

Approved by:

Mike Bon

Inorganic

Parameter	Result	Units	Analysis Date	Analysis Time	Evaluation	MCL (mg/L)	Method of Analysis	Method Reference	Analyst
Secondary Contaminants									
Dissolved Solids(C)-Total	1030	mg/L			Average		Calculated		Calculated
pH	5.88		6/28/01	15:00			Electrode	150.1	Aaron
Chloride	57.8	mg/L	7/ 3/01	17:00	Fairly Low		IC	100.0	Diane
Iron (Fe)	< 0.01	mg/L	7/ 5/01	10:06	Satisfactory		ICP	200.7	Carol
Manganese (Mn)	< 0.01	mg/L	7/ 5/01	10:06	Satisfactory		ICP	200.7	Carol
Aluminum (Al)	< 0.05	mg/L	7/ 9/01	10:41			ICP	200.7	Carol
Silver (Ag)	< 0.001	mg/L	6/29/01	11:49			ICP-MS	200.8	Mike
Zinc (Zn)	0.0226	mg/L	6/29/01	11:49			ICP-MS	200.8	Mike

Other Compounds and/or Characteristics

Conductivity	1490	umhos/cm	6/28/01	15:00			Wtstn Brdg	120.1	Aaron
Hardness Total (as CaCO3)	481.	mg/L			Very High		Calculated		Calculated
Alkalinity (CaCO3)(Total)	403.	mg/L	6/28/01	15:00	Average		Calculated		Aaron
Calcium (Ca)	138.	mg/L	7/ 5/01	10:06			ICP	200.7	Carol
Magnesium (Mg)	33.1	mg/L	7/ 5/01	10:06			ICP	200.7	Carol
Sodium (Na)	168.	mg/L	7/ 5/01	10:06	High		ICP	200.7	Carol
Potassium (K)	16.8	mg/L	7/ 5/01	10:06			ICP	200.7	Carol
Carbonate (CO3)	< 1	mg/L	6/28/01	15:00			Auto Titr.	310.1	Aaron
Bicarbonate (HCO3)	492.	mg/L	6/28/01	15:00			Auto Titr.	310.1	Aaron
Hydroxide (OH)	< 1	mg/L	6/28/01	15:00			Titration	310.1	Aaron
Hardness (Total)	28.	gr/gal					Calculated		Calculated
Percent Sodium	42.0	%					Calculated		Calculated
Sodium Adsorption Ratio	3.33						Calculated		Calculated

sent 8/3/01
BB

North Dakota Department of Health
Chemistry Division

Page: 2

Original Report Date: 7/10/01

Report Date: 7/10/01

Log Number: 01-S950 cont'd System: 3900567 LIDGERWOOD CITY OF

=====

This water may prove harmful to individuals on sodium-restricted diets. Please consult your family doctor.

This water is classified C3-S1 for irrigation.
Contact your county agent for more information.

The Langelier saturation index at 10 C is -0.23
This may indicate a potentially corrosive water.

Units: ug/L = micrograms per liter or part per billion (ppb)
mg/L = milligrams per liter or part per million (ppm)
> = greater than
< = less than

Statement: This analysis includes chemical content only,
and does not determine the bacterial quality of the water.

For further information contact:
North Dakota Department of Health
Division of Municipal Facilities, Box 5520, Bismarck, ND 58502-5520.
Drinking Water Program, (701) 328-5211.



NORTH DAKOTA DEPARTMENT OF HEALTH

Environmental Health Section

Location:

1200 Missouri Avenue
Bismarck, ND 58504-5264

Fax #:

701-328-5200

Mailing Address:

P.O. Box 5520
Bismarck, ND 58506-5520

May 28, 2002

Mayor and City Council
c/o Rochelle Huseeth, City Auditor
P.O. Box 220
Wyndmere, ND 58081-0220

Dear Ladies and Gentlemen:

On May 23, 2002, a representative of the Department of Health conducted a routine inspection of the following:

COPY

<u> X </u>	Drinking water source (well(s), spring(s), surface water, consecutive user)
<u> X </u>	Water treatment plant
<u> NA </u>	Chemical addition equipment for treatment of well water
<u> X </u>	Water distribution and storage system
<u> X </u>	Wastewater collection system
<u> X </u>	Wastewater treatment facility
<u> </u>	Other _____

If any defects are noted in the enclosed inspection report, corrective action is required within the time line designated. In addition, when corrective action is completed, you must notify this department in writing.

If any violation of the Safe Drinking Water Act and/or Clean Water Act have occurred within the last twelve months, they are discussed in the general remarks section of the inspection report along with appropriate action to be taken by the system.

It is the intent of the department representative to complete a comprehensive inspection. However, factors such as time constraints, appropriate testing, and accessibility may limit the detection of all defects in the system(s).

Please contact Darin Billing, the department representative who conducted the inspection at (701) 328-6624 or me at (701) 328-6622, if you have any questions regarding the inspection or the enclosed report.

Sincerely,

Ralph Riedinger
Administrator of Inspection Program
Division of Municipal Facilities

RR:sw
Enclosure

cc: Richland County Health Department

Environmental Health
Section Chief's Office
701-328-5150

Air
Quality
701-328-5188

Municipal
Facilities
701-328-5211

Waste
Management
701-328-5166

Water
Quality
701-328-5210

**North Dakota Department of Health
DIVISION OF MUNICIPAL FACILITIES
BISMARCK, NORTH DAKOTA**

DATE OF SURVEY: May 23, 2002
PLACE: Wyndmere, North Dakota
OBJECTIVE: Routine Inspection of Water and Wastewater Systems
INTERVIEWS: Robert Bucholz

DEFECTS, CORRECTIVE ACTIONS, TIME LINES, AND REFERENCES:

Water System

1. **DEFECT:** The elevated water storage reservoir is not protected against climbing.

CORRECTIVE ACTION: Measures shall be taken to limit access to elevated storage reservoirs and reservoir sites. Such measures may include the installation of heavy gauge screen, planks, or other materials on each reservoir support to a height of approximately 10 feet; keeping safety cages on ladders locked; and providing a fence with a locked gate around each reservoir site. Consult with your insurance carrier for additional requirements or information.

TIME LINE: This defect shall be corrected within 30 days from the date of this report.

REFERENCES: Department of Health Policy 94-205-R96, 98; Recommended Standards for Water Works, 1997 Edition, 7.0.4.

Wastewater System

1. **DEFECT:** Erosion is evident on the dikes of the wastewater stabilization ponds.

CORRECTIVE ACTION: Where dike erosion is taking place; riprap, seeding, or other measures shall be taken to prevent further damage and the possibility of the eventual loss of the dike. The maintenance of proper grass cover and the placement of riprap will prevent erosion and discourage the presence of burrowing animals by denying them protective cover.

TIME LINE: This defect shall be corrected immediately.

REFERENCES: Department of Health Policy 94-308-R96, 98; Recommended Standards for Wastewater Facilities, 1997 Edition, 93.417; Water Environment Federation, MOP/11 Operation of Wastewater Treatment Plants, Chapter 13, page 172; Water Environment Federation, Wastewater Treatment Skill Training Package, Chapter 5, page 116.

2. **DEFECT:** The wastewater stabilization pond fence is inadequate.

CORRECTIVE ACTION: All wastewater stabilization ponds are to be completely enclosed with an adequate fence to keep out livestock and discourage trespassing. A 42 in. (1.1 m), three strand, barbed wire fence is considered to be the minimum acceptable. Fencing shall not obstruct maintenance vehicle traffic on top of the dikes.

TIME LINE: This defect shall be corrected within 30 days from the date of this report.

REFERENCES: Department of Health Policy 94-302-R98; Recommended Standards for Wastewater Facilities, 1997 Edition, 93.51; Water Environment Federation, MOP/11 Operation of Wastewater Treatment Plants, Chapter 13, page 179.

Other

1. **DEFECT:** The water distribution, wastewater treatment and wastewater collection system operator is not properly certified.

CORRECTIVE ACTION: All applicable water and/or wastewater systems shall be in compliance with operator certification requirements. A properly certified operator shall be in direct responsible charge of the system.

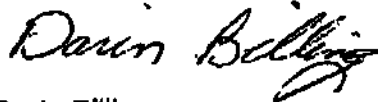
TIME LINE: This defect shall be corrected within 90 days from the date of this report.

REFERENCES: Department of Health Policy 94-501; North Dakota Century Code, Chapter 23-26-08.

REMARKS:

I appreciate the time and cooperation shown to me by Robert Bucholz during the recent inspection. If you have any questions or concerns, please contact me at (701) 328-6624.

Respectfully submitted,



Darin Billing
Environmental Engineer
Division of Municipal Facilities

DB:sw



North Dakota Department of Health
Division of Municipal Facilities
Survey of Community Water System
SFN 13898 (6/01)

Owner of Water System <u>City of Wyndmere</u>	Address	Telephone
Operator of Water System <u>Robert Buchholz</u>	Address	Telephone
Interviewed <u>Robert</u>		

Water Supply Source - Well ☒ No. <u>2</u> Surface ☐ () Spring ☐ () No. <u> </u> Rural Water ☐ () Well Protection - Adequately Drained ☒ () Poorly Drained ☐ () Contamination Source < 100 FL ☐ Yes () No (☒) Well in Pit ☐ Yes () No (☒) Adequate Sanitary Seal ☐ Yes (☒) No () Screened Vent ☐ Yes (☒) No () Well House Locked ☐ Yes (☒) No () Cross-Connections ☐ Yes () No (☒) Water Meter ☐ Yes (☒) No () Sampling Tap ☐ Yes (☒) No () Pressure Gauge ☐ Yes (☒) No () Humidity Control ☐ Yes (☒) No () Adequate Painting ☐ Yes (☒) No () Adequate Records Maintained ☐ Yes (☒) No ()	Chlorination Compound - Gas () Other <u> </u> Source - Ton () 150 () Feed Rate <u> </u> PPD Separate Chlorine Room ☐ Yes (☒) No () All Openings Sealed ☐ Yes (☒) No () Chlorine Room Locked ☐ Yes (☒) No () Door Opens To Outside ☐ Yes (☒) No () Exterior Electrical Switch ☐ Yes (☒) No () Chlorinator Vent Screened ☐ Yes (☒) No () Adequate Ventilation ☐ Yes (☒) No () Platform Scale ☐ Yes (☒) No () Wrench On Cylinder Valve ☐ Yes (☒) No () All Cylinders Chained To Wall ☐ Yes (☒) No () Caps On Extra Cylinders ☐ Yes (☒) No () Ammonia Bottle Available ☐ Yes (☒) No () Proper Vacuum Feed System ☐ Yes (☒) No () Chemicals Stored In Room ☐ Yes () No (☒) DPD Chlorine Test Kit ☐ Yes (☒) No () Adequate Records Maintained ☐ Yes (☒) No () Residual - Free <u> </u> MG/L Total <u> </u> MG/L
---	--

Water Storage Elevated ☐ <u>1</u> No. <u>50,000</u> Gallons Ground Level ☐ No. <u> </u> Gallons Underground ☐ No. <u> </u> Gallons Clearwell ☐ <u>1</u> No. <u>50,000</u> Gallons Other ☐ No. <u> </u> Gallons Adequate Overflow ☐ Yes (☒) No () Screened ☐ Yes (☒) No () Splash Pad ☐ Yes (☒) No () Adequate Vent ☐ Yes (☒) No () Screened ☐ Yes (☒) No () Turned Down ☐ Yes (☒) No () Adequate Access Cover ☐ Yes () No () Access Cover/Safety Cage Locked ☐ Yes () No ()	Water Distribution Average Daily Usage <u>50,000</u> GPD Adequate Water Salesman ☐ <u>ADT</u> Yes () No () Hydrants Routinely Flushed ☐ Yes (☒) No () Number of Times Flushed Per Year <u> </u> Fluoridation/Sequestering Fluoridation Practiced ☐ Yes (☒) No () Sequestering Practiced ☐ Yes () No (☒) Adequate Backflow Prevention ☐ Yes () No () Fluoride Chemical Used <u>Acid</u>
---	--

Comments 1) Water tower less need to be protected against climbing
2) Operator not properly certified for distribution system

Person Making Survey <u>Darin Billings</u>	Title <u>Env. Eng.</u>
Department <u>ND D H</u>	Date <u>5-23-02</u>

Distribution White - Department
Yellow - Community



SURVEY OF IRON AND MANGANESE REMOVAL WATER TREATMENT PLANT
 STATE DEPARTMENT OF HEALTH AND CONSOLIDATED LABORATORIES
 WATER SUPPLY AND POLLUTION CONTROL
 SFN 8347 (5-89)

Owner of Plant <i>City of Wyndmere</i>			Telephone No.
Address	City	State	Zip
Operator of Plant <i>Robert Bucholtz</i>			Telephone No.
Address	City	State	Zip
Interviewed <i>Robert</i>			

PRETREATMENT EQUIPMENT

Aeration ☐ None ☒ Tray ☐ Spray	Oxidation ☒ Prechlorination ☐ Potassium Permanganate ☐ Other _____	Operation Of Potassium Permanganate Mixer <i>NA</i> ☐ Constant ☐ When Plant Runs ☐ Periodically ☐ When Chemical is Added ☐ Other _____
Potassium Permanganate Feed Before Filter for Supersaturation ☐ Yes ☒ No <i>NA</i>		Detention Before Filter Drain ☒ Yes ☐ No Sludge Removal ☒ Yes ☐ No Proper Access Cover ☒ Yes ☐ No

FILTRATION EQUIPMENT

Filters ☐ Pressure ☒ Gravity ☐ Other _____ Number <i>2</i>	Pressure Filters Air Release ☐ Yes ☐ No Access Manhole ☐ Yes ☐ No Air Wash ☐ Yes ☐ No	Sample Taps Before Potassium Permanganate Feed ☐ Yes ☐ No Before Filtration ☐ Yes ☐ No Between Anthracite and Media ☐ Yes ☐ No Halfway Down Media ☐ Yes ☐ No Effluent ☒ Yes ☐ No
Water Color Above Filter <i>Brownish</i>		

BACKWASH

Cycle Determined By ☒ Loss Of Head ☐ Gallons Treated ☐ Time ☐ Other _____	Head Loss and Flow Gauges ☒ Yes ☐ No Source of Backwash Water <i>Finished</i>	Backwash, Overflow, & Drain Pipes Above Level of Sump ☒ Yes ☐ No	Disposal of Backwash Water ☒ Sanitary Sewer ☐ Detention & Recovery ☐ Sludge Beds ☐ Other _____ ☐ Lagoon
---	--	--	---

MISCELLANEOUS

Chlorine & Chemical Rooms Separate ☒ Yes ☐ No	Adequate Chemical Storage Area ☒ Yes ☐ No	Backflow Preventors ☒ Yes ☐ No	Are Adequate Records Being Maintained ☒ Yes ☐ No
Flow Meter ☒ Influent ☒ Effluent	Test Kit ☒ Yes ☐ No	Humidity Control ☒ Yes ☐ No	Plant Locked ☒ Yes ☐ No
Painting OK ☒ Yes ☐ No			

COMMENTS

Darin Billing

Person Making Survey

ADDH

Department

Env. Eng.

Title

5-23-02

Date

North Dakota Department of Health
Chemistry Division

Page: 1

Original Report Date: 11/ 6/01

Report Date: 11/ 6/01

Log Number: 01-S2022 System: 3901043 WYNDMERE CITY OF

Date Collected: 10/16/01 Time Collected: 13:30 Collected By: BUCHHOLD
Date Received: 10/17/01 Time Received: 9:00 Sample Type: ROUTINE
City: WYDMERE Sample Point: 101 Comments:
Site: RESERVOIR HOUSE ROSE BIBB SAMPLE TAP
Facility ID #:

Approved by:

Mike Bon

Organic

Parameter	Result	Units	Analysis Date	Time	Evaluation	MCL (mg/L)	Method of Analysis	Method Reference	Analyst
Organic Chemicals									
Dalapon	< 0.001	mg/L	10/26/01	8:00	Satisfactory	0.2	GC	552	Amy

Volatile Organic Compounds

1,1,1-Trichloroethane	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.20	GC/MS	524.2	Jim Q
1,1,2-Trichloroethane	< 0.0005	mg/l	10/26/01	21:37	Satisfactory	0.005	GC/MS	524.2	Jim Q
1,1-Dichloroethylene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.007	GC/MS	524.2	Jim Q
1,2,4-Trichlorobenzene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.07	GC/MS	524.2	Jim Q
1,2-Dichloroethane	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.005	GC/MS	524.2	Jim Q
1,2-Dichloropropane	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.005	GC/MS	524.2	Jim Q
Benzene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.005	GC/MS	524.2	Jim Q
Carbon Tetrachloride	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.005	GC/MS	524.2	Jim Q
Chlorobenzene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.1	GC/MS	524.2	Jim Q
cis-1,2-Dichloroethylene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.07	GC/MS	524.2	Jim Q
Dichloromethane	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.005	GC/MS	524.2	Jim Q
Ethylbenzene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.7	GC/MS	524.2	Jim Q
o-Dichlorobenzene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.6	GC/MS	524.2	Jim Q
p-Dichlorobenzene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.075	GC/MS	524.2	Jim Q
Styrene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.1	GC/MS	524.2	Jim Q
Tetrachloroethylene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.005	GC/MS	524.2	Jim Q
Toluene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	1	GC/MS	524.2	Jim Q
trans-1,2-Dichloroethylene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.1	GC/MS	524.2	Jim Q
Trichloroethylene	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.005	GC/MS	524.2	Jim Q
Vinyl Chloride	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	0.002	GC/MS	524.2	Jim Q
Xylenes (Total)	< 0.0005	mg/l	10/25/01	21:37	Satisfactory	10	GC/MS	524.2	Jim Q

sent 11/7/01

BB

North Dakota Department of Health
Chemistry Division

Page: 2

Original Report Date: 11/ 6/01

Report Date: 11/ 6/01

Log Number: 01-S2022 cont'd System: 3901043 WYNDMERE CITY OF

Parameter	Result	Units	Analysis		Evaluation	MCL (mg/L)	Method of Analysis	Method Reference	Analyst
			Date	Time					

Additional Comments/Remarks

Units: ug/L = micrograms per liter or part per billion (ppb)
mg/L = milligrams per liter or part per million (ppm)
> = greater than
< = less than

Statement: This analysis includes chemical content only,
and does not determine the bacterial quality of the water.

For further information contact:
North Dakota Department of Health
Division of Municipal Facilities, Box 5520, Bismarck, ND 58502-5520.
Drinking Water Program, (701) 328-5211.

North Dakota Department of Health
Chemistry Division

Page: 1

Original Report Date: 7/31/01

Report Date: 7/31/01

Log Number: 01-S953 System: 3901043 WYNDMERE CITY OF

Date Collected: 6/26/01 Time Collected: 13:30 Collected By: JEREMIAH BARTZ
Date Received: 6/28/01 Time Received: 10:18 Sample Type: ROUTINE
City: WYNDMERE Sample Point: 101 Comments:
Site: RESERVOIR HOUSE ROSE BIRD SAMPLE TAP
Facility ID #:

Mike Bon

Mike Bon

Approved by: _____ Approved by: _____
Organic Inorganic

Parameter	Result	Units	Analysis Date	Time	Evaluation	MCL (mg/L)	Method of Analysis	Method Reference	Analyst
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Inorganic Chemicals

Antimony (Sb)	< 0.001	mg/L	6/29/01	15:30	Satisfactory	0.006	ICP-MS	200.8	Mike
Arsenic (As)	0.00721	mg/L	6/29/01	15:30	Satisfactory	0.05	ICP-MS	200.8	Mike
Barium (Ba)	0.0364	mg/L	6/29/01	15:30	Satisfactory	2	ICP-MS	200.8	Mike
Beryllium (Be)	< 0.001	mg/L	6/29/01	15:30	Satisfactory	0.004	ICP-MS	200.8	Mike
Cadmium (Cd)	< 0.001	mg/L	6/29/01	15:30	Satisfactory	0.005	ICP-MS	200.8	Mike
Chromium (Cr)	0.00688	mg/L	6/29/01	15:30	Satisfactory	0.1	ICP-MS	200.8	Mike
Fluoride (F)	1.41	mg/L	6/29/01	10:28	Satisfactory	4.0	Electrode	SM 4500F-C	Diane
Mercury (Hg)	< 0.0002	mg/L	7/11/01	8:00	Satisfactory	0.002	Vapor Gen.	245.1	Carol
Nickel (Ni)	0.00778	mg/L	6/29/01	15:30	Satisfactory	0.1	ICP-MS	200.8	Mike
Selenium (Se)	0.00201	mg/L	6/29/01	15:30	Satisfactory	0.05	ICP-MS	200.8	Mike
Thallium (Tl)	< 0.001	mg/L	6/29/01	15:30	Satisfactory	0.002	ICP-MS	200.8	Mike

Organic Chemicals

2,4-D	< 0.0001	mg/L	7/ 5/01	8:00	Satisfactory	0.07	GC	515.1	Amy
Alachlor	< 0.0002	mg/L	7/ 5/01	13:00	Satisfactory	0.002	GC	525.2	Eric
Atrazine	< 0.0001	mg/L	7/ 5/01	13:00	Satisfactory	0.003	GC	525.2	Eric
Chlordane	< 0.0002	mg/L	7/ 5/01	13:00	Satisfactory	0.002	GC	525.2	Eric
Dalapon	Analysis not performed Not reportable-QC failure								
Dinoseb	< 0.0001	mg/L	7/ 5/01	8:00	Satisfactory	0.007	GC	515.1	Amy
Endrin	< 0.00001	mg/L	7/ 5/01	13:00	Satisfactory	0.002	GC	525.2	Eric
Heptachlor	< 0.00004	mg/L	7/ 5/01	13:00	Satisfactory	0.0004	GC	525.2	Eric
Heptachlor Epoxide	< 0.00002	mg/L	7/ 5/01	13:00	Satisfactory	0.0002	GC	525.2	Eric
Lindane	< 0.00002	mg/L	7/ 5/01	13:00	Satisfactory	0.0002	GC	525.2	Eric
Methoxychlor	< 0.0001	mg/L	7/ 5/01	13:00	Satisfactory	0.04	GC	525.2	Eric
Pentachlorophenol	< 0.00002	mg/L	7/ 5/01	8:00	Satisfactory	0.001	GC	515.1	Amy

sent 8/3/01

BB

North Dakota Department of Health
Chemistry Division

Page: 2

Original Report Date: 7/31/01

Report Date: 7/31/01

Log Number: 01-8953 cont'd System: 3901043 WYNDMERE CITY OF

Parameter	Result	Units	Analysis		Evaluation	MCL (mg/L)	Method of Analysis	Method Reference	Analyst
			Date	Time					
Picloram	< 0.0001	mg/L	7/ 5/01	8:00	Satisfactory	0.5	GC	515.1	Amy
Silvex (2,4,5-TP)	< 0.00005	mg/l	7/ 5/01	8:00	Satisfactory	0.05	GC	515.1	Amy
Simazine	< 0.00007	mg/L	7/ 5/01	13:00	Satisfactory	0.004	GC	525.2	Eric
Toxaphene	< 0.001	mg/l	7/ 5/01	13:00	Satisfactory	0.003	GC	508	Eric

Unregulated Compounds

Sulfate as (SO4)	256.	mg/L	6/28/01	17:00			IC	300.0	Diane
------------------	------	------	---------	-------	--	--	----	-------	-------

Additional Comments/Remarks

VOC's not reportable due
to instrument failure.

Units: ug/L = micrograms per liter or part per billion (ppb)
mg/L = milligrams per liter or part per million (ppm)
> = greater than
< = less than

Statement: This analysis includes chemical content only,
and does not determine the bacterial quality of the water.

For further information contact:
North Dakota Department of Health
Division of Municipal Facilities, Box 5520, Bismarck, ND 58502-5520.
Drinking Water Program, (701) 328-5211.

North Dakota Department of Health
Chemistry Division

Page: 1

Original Report Date: 7/11/01

Report Date: 7/13/01

Log Number: 01-S954

System: 3901043 WYDMERE CITY OF

Date Collected: 6/26/01
Date Received: 6/28/01
City: WYDMERE
Site: CITY HALL BARRROOM SINK
Facility ID #:

Time Collected: 13:00
Time Received: 10:18
Sample Point: 950

Collected By: JEREMIAH BARTZ
Sample Type: ROUTINE
Comments:

Approved by:

Mike Bon

Inorganic

Parameter	Result	Units	Analysis Date	Time	Evaluation	MCL (mg/L)	Method of Analysis	Method Reference	Analyst
Secondary Contaminants									
Dissolved Solids (C)-Total	897.	mg/L			Satisfactory		Calculated		
pH	6.66		6/28/01	15:00			Electrode	150.1	Aaron
Chloride	28.6	mg/L	7/12/01	17:00	Fairly Low		IC	300.0	Diane
Iron (Fe)	0.225	mg/L	7/ 5/01	10:06	Satisfactory		ICP	200.7	Carol
Manganese (Mn)	< 0.01	mg/L	7/ 5/01	10:06	Satisfactory		ICP	200.7	Carol
Aluminum (Al)	< 0.05	mg/L	7/ 5/01	10:41			ICP	200.7	Carol
Silver (Ag)	< 0.001	mg/L	6/29/01	11:49			ICP-MS	200.8	Mike
Zinc (Zn)	0.0253	mg/L	6/29/01	11:49			ICP-MS	200.8	Mike

Other Compounds and/or Characteristics

Conductivity	1280	umhos/cm	6/28/01	15:00			Wctn Brdg	120.1	Aaron
Hardness Total (as CaCO3)	642.	mg/L			Very High		Calculated		Calculated
Alkalinity (CaCO3) (Total)	300.	mg/L	6/28/01	15:00	Average		Calculated		Aaron
Calcium (Ca)	147.	mg/L	7/ 5/01	10:06			ICP	200.7	Carol
Magnesium (Mg)	66.7	mg/L	7/ 5/01	10:06			ICP	200.7	Carol
Sodium (Na)	95.2	mg/L	7/ 5/01	10:06	Average		ICP	200.7	Carol
Potassium (K)	9.1	mg/L	7/ 5/01	10:06			ICP	200.7	Carol
Carbonate (CO3)	< 1	mg/L	6/28/01	15:00			Auto Titr.	310.1	Aaron
Bicarbonate (HCO3)	610.	mg/L	6/28/01	15:00			Auto Titr.	310.1	Aaron
Hydroxide (OH)	< 1	mg/L	6/28/01	15:00			Titration	310.1	Aaron
Hardness (Total)	37.	gr/gal					Calculated		Calculated
Percent Sodium	24.0	%					Calculated		Calculated
Sodium Adsorption Ratio	1.63						Calculated		Calculated

sent 8/3/01

BB

North Dakota Department of Health
Chemistry Division

Page: 2

Original Report Date: 7/13/01

Report Date: 7/13/01

Log Number: 01-S954 cont'd System: 3901043 WYNDMERE CITY OF

This water is classified C3-S1 for irrigation.
Contact your county agent for more information.

The Langelier saturation index at 10 C is -0.12
This may indicate a potentially corrosive water.

Units: ug/L = micrograms per liter or part per billion (ppb)
mg/L = milligrams per liter or part per million (ppm)
> = greater than
< = less than

Statement: This analysis includes chemical content only,
and does not determine the bacterial quality of the water.

For further information contact:
North Dakota Department of Health
Division of Municipal Facilities, Box 5520, Bismarck, ND 58502-5520.
Drinking Water Program, (701) 328-5211.



NORTH DAKOTA DEPARTMENT OF HEALTH

Environmental Health Section

Location:
1200 Missouri Avenue
Bismarck, ND 58504-5264

Fax #:
701-328-6200

Mailing Address:
P.O. Box 5520
Bismarck, ND 58506-5520

October 19, 2001

Southeast Water Users District
c/o Joel Heitkamp, Manager
202 Main Street
P.O. Box 10
Mantador, ND 58058

Dear Mr. Heitkamp:

On October 9, 2001, a representative of the Department of Health conducted a routine inspection of the following:

COPY

<u> X </u>	Drinking water source (<u>well(s)</u> , spring(s), surface water, consecutive user)
<u> X </u>	Water treatment plant
<u> NA </u>	Chemical addition equipment for treatment of well water
<u> X </u>	Water distribution and storage system
<u> NA </u>	Wastewater collection system
<u> NA </u>	Wastewater treatment facility
<u> </u>	Other _____

If any defects are noted in the enclosed inspection report, corrective action is required within the time line designated. In addition, when corrective action is completed, you must notify this department in writing.

If any violation of the Safe Drinking Water Act and/or Clean Water Act have occurred within the last twelve months, they are discussed in the general remarks section of the inspection report along with appropriate action to be taken by the system.

It is the intent of the department representative to complete a comprehensive inspection. However, factors such as time constraints, appropriate testing, and accessibility may limit the detection of all defects in the system(s).

Please contact Darin Billing, the department representative who conducted the inspection at (701) 328-6624 or me at (701) 328-6622, if you have any questions regarding the inspection or the enclosed report.

Sincerely,

Ralph Riedinger
Administrator of Inspection Program
Division of Municipal Facilities

RR:sw
Enclosure

cc: Richland County Health Dept.

Environmental Health
Section Chief's Office
701-328-5150

Environmental
Engineering
701-328-5188

Municipal
Facilities
701-328-5211

Waste
Management
701-328-5166

Water
Quality
701-328-5210

**North Dakota Department of Health
DIVISION OF MUNICIPAL FACILITIES
BISMARCK, NORTH DAKOTA**

DATE OF SURVEY: October 9, 2001
PLACE: Southeast Water Users District
OBJECTIVE: Routine Inspection of a Water System
INTERVIEWS: Lyle Prochnow and Brad Hejtmanek

DEFECTS, CORRECTIVE ACTIONS, TIME LINES, AND REFERENCES:

Water System

1. **DEFECT:** The water storage reservoir vent is not screened.

CORRECTIVE ACTION: Vents on water storage reservoirs shall be protected against the entrance of birds, animals, insects, rainwater, surface water, dust, and other sources of contamination. All vents shall be fitted with a noncorrodible screen covering. Elevated reservoir vents shall have an overlapping cover or open downward. Ground level structures shall have a vent that terminates in an inverted "J" configuration with the opening 24 to 36 inches above the roof or ground.

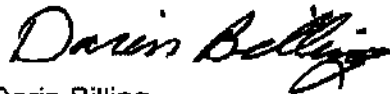
TIME LINE: This defect shall be corrected immediately.

REFERENCES: Department of Health Policy 94-210-R98; Recommended Standards for Water Works, 1997 Edition, 7.0.9.

REMARKS:

I appreciate the time and cooperation shown to me by Lyle Prochnow and Brad Hejtmanek during the recent inspection. If you have any questions or concerns, please contact me at (701) 328-6624.

Respectfully submitted,



Darin Billing
Environmental Engineer
Division of Municipal Facilities

DB:sw



North Dakota Department of Health
Division of Municipal Facilities
Survey of Community Water System
SFN 13898 (6/01)

Owner of Water System <i>S. E. Water Users</i>	Address	Telephone
Operator of Water System <i>Joel Heitkamp</i>	Address	Telephone
Interviewed <i>Lyle Prochman & Brad Heitkamp</i>		

Water Supply Source - Well ☒ No. <u>5</u> Surface ☐ Spring ☐ No. <u> </u> Rural Water ☐ Well Protection - Adequately Drained ☒ Poorly Drained ☐ Contamination Source < 100 Ft. ☐ Yes ☒ No ☐ Well In Pit ☐ Yes ☒ No ☐ Adequate Sanitary Seal ☐ Yes ☒ No ☐ Screened Vent ☐ Yes ☒ No ☐ Well House Locked ☐ Yes ☒ No ☐ Cross-Connections ☐ Yes ☒ No ☐ Water Meter ☐ Yes ☒ No ☐ Sampling Tap ☐ Yes ☒ No ☐ Pressure Gauge ☐ Yes ☒ No ☐ Humidity Control ☐ Yes ☒ No ☐ Adequate Painting ☐ Yes ☒ No ☐ Adequate Records Maintained ☐ Yes ☒ No ☐	Chlorination Compound - Gas ☒ Other ☐ Source - Ton () 150 ☒ Feed Rate <u> </u> PPD Separate Chlorine Room ☐ Yes ☒ No ☐ All Openings Sealed ☐ Yes ☒ No ☐ Chlorine Room Locked ☐ Yes ☒ No ☐ Door Opens To Outside ☐ Yes ☒ No ☐ Exterior Electrical Switch ☐ Yes ☒ No ☐ Chlorinator Vent Screened ☐ Yes ☒ No ☐ Adequate Ventilation ☐ Yes ☒ No ☐ Platform Scale ☐ Yes ☒ No ☐ Wrench On Cylinder Valve ☐ Yes ☒ No ☐ All Cylinders Chained To Wall ☐ Yes ☒ No ☐ Caps On Extra Cylinders ☐ Yes ☒ No ☐ Ammonia Bottle Available ☐ Yes ☒ No ☐ Proper Vacuum Feed System ☐ Yes ☒ No ☐ Chemicals Stored In Room ☐ Yes ☒ No ☐ DPD Chlorine Test Kit ☐ Yes ☒ No ☐ Adequate Records Maintained ☐ Yes ☒ No ☐ Residual - Free <u> </u> MG/L Total <u> </u> MG/L
Water Storage Elevated ☐ No. <u> </u> Gallons Ground Level ☐ No. <u> </u> Gallons Underground ☒ No. <u>1,700,000</u> Gallons Clearwell ☐ No. <u> </u> Gallons Other ☐ No. <u> </u> Gallons Adequate Overflow ☐ Yes ☒ No ☐ Screened ☐ Yes ☒ No ☐ Splash Pad ☐ Yes ☒ No ☐ Adequate Vent ☐ Yes ☒ No ☐ Screened ☐ Yes ☒ No ☐ Turned Down ☐ Yes ☒ No ☐ Adequate Access Cover ☐ Yes ☒ No ☐ Access Cover/Safety Cage Locked ☐ Yes ☒ No ☐	Water Distribution Average Daily Usage <u> </u> GPD Adequate Water Salesman ☐ Yes ☒ No ☐ Hydrants Routinely Flushed ☐ Yes ☒ No ☐ Number of Times Flushed Per Year <u> </u> Fluoridation/Sequestering Fluoridation Practiced ☐ Yes ☒ No ☐ Sequestering Practiced ☐ Yes ☒ No ☐ Adequate Backflow Prevention ☐ Yes ☒ No ☐ Fluoride Chemical Used <u>Acid</u>
Comments <u>1) Receiver B needs a new vent screen</u> <u> </u> <u> </u> <u> </u>	
Person Making Survey <u>Dan Billing</u> Department <u>NDH</u>	Title <u>Env. Eng</u> Date <u>10-9-01</u>

Distribution White - Department
Yellow - Community



SURVEY OF IRON AND MANGANESE REMOVAL WATER TREATMENT PLANT
 STATE DEPARTMENT OF HEALTH AND CONSOLIDATED LABORATORIES
 WATER SUPPLY AND POLLUTION CONTROL
 SFN 8347 (5-89)

Owner of Plant <u>South East Water Users</u>			Telephone No.
Address		City	State Zip
Operator of Plant <u>Joel Weitzkamp</u>			Telephone No.
Address		City	State Zip
Interviewed <u>Lyle Prochnow + Brad Hegtmanek</u>			

PRETREATMENT EQUIPMENT

Aeration ☒ None ☐ Tray ☐ Spray	Oxidation ☐ Prechlorination ☒ Potassium Permanganate ☐ Other _____	Operation Of Potassium Permanganate Mixer ☐ Constant ☐ When Plant Runs ☐ Periodically ☐ When Chemical is Added ☐ Other _____
Potassium Permanganate Feed Before Filter for Supersaturation ☒ Yes ☐ No		Detention Before Filter Drain ☐ Yes ☒ No Sludge Removal ☐ Yes ☐ No Proper Access Cover ☐ Yes ☐ No

FILTRATION EQUIPMENT

Filters ☒ Pressure ☐ Gravity ☐ Other _____ Number <u>5</u> Water Color Above Filter _____	Pressure Filters Air Release ☒ Yes ☐ No Access Manhole ☐ Yes ☐ No Air Wash ☒ Yes ☐ No	Sample Taps Before Potassium Permanganate Feed ☒ Yes ☐ No Before Filtration ☐ Yes ☒ No Between Anthracite and Media ☒ Yes ☐ No Halfway Down Media ☒ Yes ☐ No Effluent ☒ Yes ☐ No
---	---	---

BACKWASH

Cycle Determined By ☐ Loss Of Head ☐ Gallons Treated ☐ Time ☐ Other _____	Head Loss and Flow Gauges ☒ Yes ☐ No Source of Backwash Water <u>Finished</u>	Backwash, Overflow, & Drain Pipes Above Level of Sump ☒ Yes ☐ No	Disposal of Backwash Water ☐ Sanitary Sewer ☐ Detention & Recovery ☐ Sludge Beds ☐ Other _____ ☒ Lagoon
--	--	---	---

MISCELLANEOUS

Chlorine & Chemical Rooms Separate ☐ Yes ☐ No	Adequate Chemical Storage Area ☐ Yes ☐ No	Backflow Preventors ☐ Yes ☐ No	Are Adequate Records Being Maintained ☐ Yes ☐ No
Flow Meter ☐ Influent ☐ Effluent	Test Kit ☐ Yes ☐ No	Humidity Control ☐ Yes ☐ No	Plant Locked ☐ Yes ☐ No
Painting OK ☐ Yes ☐ No			

COMMENTS

Darin Billing
 Person Making Survey

WDDH

Department

Env. Eng.
 Title

10-9-01

Date

North Dakota Department of Health
Chemistry Division

Page: 1

Original Report Date: 11/ 6/01

Report Date: 11/ 6/01

Log Number: 01-S2015 System: 3901068 ~~SOUTHEAST WATER USERS DISTRICT~~

Date Collected: 10/16/01

Time Collected: 10:45

Collected by: PROCHNOW

Date Received: 10/17/01

Time Received: 9:00

Sample Type: ROUTINE

City: MANTADOR

Sample Point: 101

Comments:

Site: OLD WTP SAMPLE TAP ON NORTH WALL

Facility ID #:

Approved by: Mike Bon

Organic

Parameter	Result	Units	Analysis Date	Time	Evaluation	MCL (mg/L)	Method of Analysis	Method Reference	Analyst
Volatile Organic Compounds									
1,1,1-Trichloroethane	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.20	GC/MS	524.2	Jim Q
1,1,2-Trichloroethane	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.005	GC/MS	524.2	Jim Q
1,1-Dichloroethylene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.007	GC/MS	524.2	Jim Q
1,2,4-Trichlorobenzene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.07	GC/MS	524.2	Jim Q
1,2-Dichloroethane	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.005	GC/MS	524.2	Jim Q
1,2-Dichloropropane	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.005	GC/MS	524.2	Jim Q
Benzene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.005	GC/MS	524.2	Jim Q
Carbon Tetrachloride	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.005	GC/MS	524.2	Jim Q
Chlorobenzene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.1	GC/MS	524.2	Jim Q
cis-1,2-Dichloroethylene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.07	GC/MS	524.2	Jim Q
Dichloromethane	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.005	GC/MS	524.2	Jim Q
Ethylbenzene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.7	GC/MS	524.2	Jim Q
o-Dichlorobenzene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.6	GC/MS	524.2	Jim Q
p-Dichlorobenzene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.075	GC/MS	524.2	Jim Q
Styrene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.1	GC/MS	524.2	Jim Q
Tetrachloroethylene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.005	GC/MS	524.2	Jim Q
Toluene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	1	GC/MS	524.2	Jim Q
trans-1,2-Dichloroethylene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.1	GC/MS	524.2	Jim Q
Trichloroethylene	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.005	GC/MS	524.2	Jim Q
Vinyl Chloride	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	0.002	GC/MS	524.2	Jim Q
Xylenes (Total)	< 0.0005	mg/l	10/25/01	1:43	Satisfactory	10	GC/MS	524.2	Jim Q

Additional Comments/Remarks

sent 11/7/01
BB

North Dakota Department of Health
Chemistry Division

Page: 2

Original Report Date: 11/ 6/01

Report Date: 11/ 6/01

Log Number: 01-S2015 cont'd System: 3901068 SOUTHEAST WATER USERS DISTRICT

Units: ug/L = micrograms per liter or part per billion (ppb)
mg/L = milligrams per liter or part per million (ppm)
> = greater than
< = less than

Statement: This analysis includes chemical content only,
and does not determine the bacterial quality of the water.

For further information contact:
North Dakota Department of Health
Division of Municipal Facilities, Box 5520, Bismarck, ND 58502-5520.
Drinking Water Program, (701) 328-5211.

North Dakota Department of Health
Chemistry Division

Page: 1

Original Report Date: 7/31/01

Report Date: 7/11/01

Log Number: 01-8951

System: 3901068

~~SOUTHEAST WATER USERS DISTRICT~~

Date Collected: 6/26/01

Time Collected: 12:00

Collected By: JEREMIAH BARTZ

Date Received: 6/28/01

Time Received: 10:18

Sample Type: ROUTINE

City: MANTADOR

Sample Point: 101

Comments:

Site: OLD WTP SAMPLE TAP ON NORTH WALL

Facility ID #:

Mike Bon

Mike Bon

Approved by: _____

Approved by: _____

Organic

Inorganic

Parameter	Result	Units	Analysis Date	Time	Evaluation	MCL (mg/L)	Method of Analysis	Method Reference	Analyst
Inorganic Chemicals									
Antimony (Sb)	< 0.001	mg/L	6/29/01	15:30	Satisfactory	0.005	ICP-MS	200.8	Mike
Arsenic (As)	0.00648	mg/L	6/29/01	15:30	Satisfactory	0.05	ICP-MS	200.8	Mike
Barium (Ba)	0.202	mg/L	6/29/01	15:30	Satisfactory	2	ICP-MS	200.8	Mike
Beryllium (Be)	< 0.001	mg/L	6/29/01	15:30	Satisfactory	0.004	ICP-MS	200.8	Mike
Cadmium (Cd)	< 0.001	mg/L	6/29/01	15:30	Satisfactory	0.005	ICP-MS	200.8	Mike
Chromium (Cr)	0.00312	mg/L	6/29/01	15:30	Satisfactory	0.1	ICP-MS	200.8	Mike
Fluoride (F)	1.35	mg/L	6/29/01	10:28	Satisfactory	4.0	Electrode	SM 4500F-C	Diane
Mercury (Hg)	< 0.0002	mg/L	7/11/01	8:00	Satisfactory	0.002	Vapor Gen.	245.1	Carol
Nickel (Ni)	0.00142	mg/L	6/29/01	15:30	Satisfactory	0.1	ICP-MS	200.8	Mike
Selenium (Se)	< 0.001	mg/L	6/29/01	15:30	Satisfactory	0.05	ICP-MS	200.8	Mike
Thallium (Tl)	< 0.001	mg/L	6/29/01	15:30	Satisfactory	0.002	ICP-MS	200.8	Mike

Organic Chemicals

2,4-D	< 0.0001	mg/L	7/ 5/01	8:00	Satisfactory	0.07	GC	515.1	Amy
Alachlor	< 0.0002	mg/L	7/ 5/01	13:00	Satisfactory	0.002	GC	525.2	Eric
Atrazine	< 0.0001	mg/L	7/ 5/01	13:00	Satisfactory	0.003	GC	525.2	Eric
Chlordane	< 0.0002	mg/L	7/ 5/01	13:00	Satisfactory	0.002	GC	525.2	Eric
Dalapon	Analysis not performed		Not reportable-GC failure						
Dinoseb	< 0.0001	mg/L	7/ 5/01	8:00	Satisfactory	0.007	GC	515.1	Amy
Endrin	< 0.00001	mg/L	7/ 5/01	13:00	Satisfactory	0.002	GC	525.2	Eric
Heptachlor	< 0.00004	mg/L	7/ 5/01	13:00	Satisfactory	0.0004	GC	525.2	Eric
Heptachlor Epoxide	< 0.00002	mg/L	7/ 5/01	13:00	Satisfactory	0.0002	GC	525.2	Eric
Lindane	< 0.00002	mg/L	7/ 5/01	13:00	Satisfactory	0.0002	GC	525.2	Eric
Methoxychlor	< 0.0001	mg/L	7/ 5/01	13:00	Satisfactory	0.04	GC	525.2	Eric
Pentachlorophenol	< 0.00002	mg/L	7/ 5/01	8:00	Satisfactory	0.001	GC	515.1	Amy

sent 8/3/01

BB

North Dakota Department of Health
Chemistry Division

Page: 2

Original Report Date: 7/31/01

Report Date: 7/31/01

Log Number: 01-S951 cont'd System: 3901068 SOUTHEAST WATER USERS DISTRICT

Parameter	Result	Units	Analysis		Evaluation	MCL (mg/L)	Method of Analysis	Method Reference	Analyst
			Date	Time					
Picloram	< 0.0001	mg/L	7/ 5/01	8:00	Satisfactory	0.5	GC	515.1	Amy
Silvax (2,4,5-TP)	< 0.00005	mg/l	7/ 5/01	8:00	Satisfactory	0.05	GC	515.1	Amy
Simazine	< 0.00007	mg/L	7/ 5/01	13:00	Satisfactory	0.004	GC	525.2	Eric
Toxaphene	< 0.001	mg/l	7/ 5/01	13:00	Satisfactory	0.003	GC	508	Eric

Unregulated Compounds

Sulfate as (SO4)	27.	mg/L	5/28/01	17:00			IC	100.0	Diane
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Additional Comments/Remarks

VOC's not reportable due
to instrument failure.

Units: ug/L = micrograms per liter or part per billion (ppb)
mg/L = milligrams per liter or part per million (ppm)
> = greater than
< = less than

Statement: This analysis includes chemical content only,
and does not determine the bacterial quality of the water.

For further information contact:
North Dakota Department of Health
Division of Municipal Facilities, Box 5520, Bismarck, ND 58502-5520.
Drinking Water Program, (701) 328-5211.

North Dakota Department of Health
Chemistry Division

Page: 1

Original Report Date: 7/10/01

Report Date: 7/10/01

Log Number: 01-8952

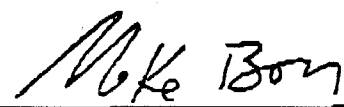
System: 3901068

~~SOUTHEAST WATER USERS DISTRICT~~

Date Collected: 6/26/01
Date Received: 6/28/01
City: MANTADOR
Site: MAIN OFFICE SAMPLE TAP
Facility ID #:

Time Collected: 11:30
Time Received: 10:18
Sample Point: 950

Collected By: JEREMIAH BARTZ
Sample Type: ROUTINE
Comments:

Approved by: 

Inorganic

Parameter	Result	Units	Analysis Date	Analysis Time	Evaluation	MCL (mg/L)	Method of Analysis	Method Reference	Analyst
Secondary Contaminants									
Dissolved Solids (C) - Total	256.	mg/L			Fairly Low		Calculated		Calculated
pH	6.78		6/28/01	15:00			Electrode	150.1	Aaron
Chloride	4.30	mg/L	7/ 3/01	17:00	Low		IC	300.0	Diane
Iron (Fe)	< 0.01	mg/L	7/ 5/01	10:06	Satisfactory		ICP	200.7	Carol
Manganese (Mn)	< 0.01	mg/L	7/ 5/01	10:06	Satisfactory		ICP	200.7	Carol
Aluminum (Al)	< 0.05	mg/L	7/ 9/01	10:41			ICP	200.7	Carol
Silver (Ag)	< 0.001	mg/L	6/29/01	11:49			ICP-MS	200.8	Mike
Zinc (Zn)	0.109	mg/L	6/29/01	11:49			ICP-MS	200.8	Mike

Other Compounds and/or Characteristics

Conductivity	454.	umhos/cm	6/28/01	15:00			Wtstn Bxdg	120.1	Aaron
Hardness Total (as CaCO3)	292.	mg/L			Average		Calculated		Calculated
Alkalinity (CaCO3) (Total)	197.	mg/L	6/28/01	15:00	Fairly Low		Calculated		Aaron
Calcium (Ca)	76.1	mg/L	7/ 5/01	10:06			ICP	200.7	Carol
Magnesium (Mg)	14.9	mg/L	7/ 5/01	10:06			ICP	200.7	Carol
Sodium (Na)	< 3	mg/L	7/ 5/01	10:06	Low		ICP	200.7	Carol
Potassium (K)	2.3	mg/L	7/ 5/01	10:06			ICP	200.7	Carol
Carbonate (CO3)	< 1	mg/L	6/28/01	15:00			Auto Titr.	310.1	Aaron
Bicarbonate (HCO3)	240.	mg/L	6/28/01	15:00			Auto Titr.	310.1	Aaron
Hydroxide (OH)	< 1	mg/L	6/28/01	15:00			Titration	210.1	Aaron
Hardness (Total)	15.	gr/gal					Calculated		Calculated
Percent Sodium	2.5	%					Calculated		Calculated
Sodium Adsorption Ratio	0.08						Calculated		Calculated

sent 8/3/01

BB

North Dakota Department of Health
Chemistry Division

Page: 2

Original Report Date: 7/10/01

Report Date: 7/10/01

Log Number: 01-S952 cont'd System: 3901068 SOUTHEAST WATER USERS DISTRICT

This water is classified C2-S1 for irrigation.
Contact your county agent for more information.

The Langelier saturation index at 10 C is -0.83
This may indicate a potentially corrosive water.

Units: ug/L = micrograms per liter or part per billion (ppb)
mg/L = milligrams per liter or part per million (ppm)
 > = greater than
 < = less than

Statement: This analysis includes chemical content only,
and does not determine the bacterial quality of the water.

For further information contact:
North Dakota Department of Health
Division of Municipal Facilities, Box 5520, Bismarck, ND 58502-5520.
Drinking Water Program, (701) 328-5211.

ATTACHMENT 3
DOCUMENTS REVIEWED

Documents Reviewed:

Bureau of Reclamation, 1989, Modification Design Report, Lidgerwood (North Dakota) Water Treatment Plant, June 1989.

City of Lidgerwood, 1991, Draft Superfund Site Remedial Action Report, Lidgerwood Water Treatment Plant Modification, Arsenic Trioxide Superfund Site, Lidgerwood, North Dakota, March 1991.

City of Wyndmere, 1991, Draft Superfund Site Remedial Action Report, Wyndmere Water Treatment Plant Modification, Arsenic Trioxide Superfund Site, Wyndmere, North Dakota, March 1991.

U.S. Environmental Protection Agency, 1986, Superfund Record of Decision: North Dakota Arsenic Trioxide Site, September 26, 1986.

U.S. Environmental Protection Agency, 1988, Approval of Supplemental Remedial Action, Cities of Lidgerwood and Wyndmere, North Dakota, Arsenic Trioxide Superfund Site, February 5, 1988.

U.S. Environmental Protection Agency, 1992, Superfund Program Information Notice, Arsenic Trioxide Superfund Site, Southeastern North Dakota, September 1992.

U.S. Environmental Protection Agency, 1992, Explanation of Significant Differences, Arsenic Trioxide Site, September 25, 1992.

U.S. Environmental Protection Agency, 1993, Remedial Action Report for Operable Unit I (OUI) and Close Out Report for the North Dakota Arsenic Trioxide Superfund Site, June 30, 1993.

U.S. Environmental Protection Agency, 1999, Five-year Review (Type I), Arsenic Trioxide Superfund Site, Richland, Ransom, and Sargent Counties, North Dakota, January 19, 1999.

ATTACHMENT 4
INTERVIEW RECORDS

INTERVIEW RECORD

Site Name: Arsenic Trioxide Superfund Site		EPA ID No.:	
Subject: Second Five-Year Review		Time: 10:20	Date: 7/15/02
Type: ☒ Telephone ☐ Visit ☐ Other Location of Visit:		☐ Incoming ☒ Outgoing	
CONTACT MADE BY:			
Name: D. Pastor		Title: Senior Engineer	Organization: MFG, Inc.
INDIVIDUAL CONTACTED:			
Name: L. David Glatt		Title: Chief Environmental Health	
		Organization: North Dakota Department of Health	
Telephone No.: (701) 328-5152		Street Address: P.O. Box 5520	1200 Missouri Ave
Fax No.: (701) 328-5200		City, State, Zip: Bismarck, ND	58504-5264
E-Mail Address:			
Summary Of Conversation			
1. Are you aware of any departmental (NDS DH) concerns regarding the Arsenic Trioxide Superfund Site or its remedy operations? If so, please detail. Yes, the new arsenic MCL for drinking water is a concern. The remedy is no longer effective because some cities will not be able to comply with the new MCL using their current treatment technology.			
2. Have water quality analyses and routine monitoring for the three treatment plants identified any violations of the ARARs identified in the ROD? Not aware of any violations under the current MCLs. See Jack Long (Director of Municipal Facilities) for data regarding compliance and results of inspections.			
3. Have there been any complaints, violations or other incidents associated with the treatment plants or distribution systems? Not aware of any. See Jack.			
4. Do you feel informed about the activities at the site and progress made in the last five years? Yes.			
5. Do you have any comments, suggestions, or recommendations regarding the site's long-term management? If so, what types of future problems do you think either (1) could occur; or (2) would concern you at this site? Under the new MCL, one or more municipal water systems will need to be upgraded to provide continued compliance.			
Other Comments:			
Has had communication with EPA regarding the long term effectiveness of the remedy.			

INTERVIEW RECORD

Site Name: Arsenic Trioxide Superfund Site		EPA ID No.:	
Subject: Second Five-Year Review		Time: 1:30	Date: 7/15/02
Type: ☒ Telephone ☐ Visit ☐ Other Location of Visit:		☒ Incoming ☐ Outgoing	
CONTACT MADE BY:			
Name: D. Pastor		Title: Senior Engineer	Organization: MFG, Inc.
INDIVIDUAL CONTACTED:			
Name: Jack Long		Title: Director Municipal Facilities	
Telephone No.: (701) 328-5222		Organization: North Dakota Department of Health	
Fax No.: (701) 328-5200		Street Address: P.O. Box 5520 1200 Missouri Ave	
E-Mail Address:		City, State, Zip: Bismarck, ND 58504-5264	
Summary Of Conversation			
1. Are you aware of any departmental (NDS DH) concerns regarding the Arsenic Trioxide Superfund Site or its remedy operations? If so, please detail. Department is concerned that the new standard does not provide an adequate safety factor (10 ppb was a compromise) – may need greater protection. It may not be possible to modify the existing treatment plants to meet the new MCL, which would leave a portion of the population at risk. Further, residents may not have adequate access to information about the new standard. It is possible that some residents may have elected to not be connected to the drinking water system because the arsenic concentrations in their well were slightly above or below the old MCL of 50 ppb. Will these residents be allowed to reevaluate this decision based on the new lower MCL? 2. Have water quality analyses and routine monitoring for the three treatment plants identified any violations of the ARARs identified in the ROD? Not aware of any. 3. Have there been any complaints, violations or other incidents associated with the treatment plants or distribution systems? Aside from a few concerns about the arsenic levels, not aware of any complaints. 4. Do you feel informed about the activities at the site and progress made in the last five years? Well informed by counterparts at the Division. 5. Do you have any comments, suggestions, or recommendations regarding the site's long-term management? If so, what types of future problems do you think either (1) could occur; or (2) would concern you at this site? Water systems have and continue to be properly managed to meet the previous MCL of 50 ppb. Cannot be managed as currently configured to meet the new MCL. Existing system cannot be easily modified to meet the new MCL – will need substantial changes to the treatment processes . Other Comments: The original remedy included distribution of point of use treatment systems. Not sure adequate follow-up has been performed to ensure that these systems are being maintained. Also, there are communities that were not included in the Superfund site based on the old MCL. These communities will now be affected by the new standard. – see attached email message			

Pastor, Dan -- MFG, Inc.

From: Long, Jack G. [jlong@state.nd.us]
Sent: Friday, July 26, 2002 12:53 PM
To: 'Dan.Pastor@mfgenv.com'; 'ketellapper.victor@epamail.gov'
Cc: Glatt, Dave D.; Thelen, Larry J.; Long, Jack G.
Subject: ARSENIC TRIOXIDE SITE - FIVE YEAR REVIEW

Dan:

In response to your contact of last week, I would like to again relay my concerns regarding the public health of the citizens of Southeastern North Dakota. When the EPA first designated the area as a Superfund site, the rationale for doing so was based, in large part, on a then existing arsenic standard for drinking water of 50 ug/l. Providing drinking water to the end users in the area with an arsenic level of less than 50 ug/l was the ultimate goal of the project. This was accomplished in a variety of ways. In certain cases public water system treatment facilities were built or modified to remove arsenic to a level below 50 ug/l and protective of public health. In some situations other sources of drinking water were obtained for residents of the area. And finally, some rural homes were provided point-of-use water treatment units to meet the standard of 50 ug/l. Since the time in which that decision was made, new EPA science has determined that 50 ug/l is in fact not protective of public health and is actually five times the acceptable level of the new standard of 10 ug/l. Furthermore there was considerable scientific pressure to set the new standard even lower at 5 or 3 ug/l. Given these facts, we feel it is essential for the EPA and you, as their contractor, to consider not only the original study communities but all public and private water systems in the area for review. Quite possibly the majority of the citizens of Southeastern North Dakota have been lulled into a false sense of security by the EPA's assurances that any arsenic levels of less than 50 ug/l are acceptable and protective. It is our position that the EPA has a responsibility to inform the citizens of the area of the potential threat they expose themselves to daily and to provide remedy for ensuring a safe and plentiful drinking water supply to them. Besides the original three public water systems you are planning to contact as part of your five year review, additional systems of the area should be included. Other contacts might include the cities of Hankinson, Rutland, Havana, Forman, Gwinner, Milnor, Oakes, and Cogswell along with all the private citizens who opted to retain the point-of-use water treatment units based on removal of arsenic to a level of less than 50 ug/l. Finally, please accept that the list I have provided you is not meant to be an all inclusive list of all potential affected systems in and around the area but rather a starting point for ensuring the public health safety of the citizens of that impacted area of the state.

Sincerely,

Jack Long, P.E.
Director
Division of Municipal Facilities

7/26/2002

INTERVIEW RECORD

Site Name: Arsenic Trioxide Superfund Site		EPA ID No.:	
Subject: Second Five-Year Review		Time: 10:45	Date: 7/15/02
Type: ☒ Telephone ☐ Visit ☐ Other Location of Visit:		☐ Incoming ☒ Outgoing	
CONTACT MADE BY:			
Name: D. Pastor		Title: Senior Engineer	Organization: MFG, Inc.
INDIVIDUAL CONTACTED:			
Name: Larry Thelen		Title: Manager Div of Municipal Facilities	Organization: North Dakota Department of Health
Telephone No.: (701) 328-5257	Street Address: P.O. Box 5520	1200 Missouri Ave	
Fax No.: (701) 328-5200	City, State, Zip: Bismarck, ND	58504-5264	
E-Mail Address:			
Summary Of Conversation			
1. Are you aware of any departmental (NDS DH) concerns regarding the Arsenic Trioxide Superfund Site or its remedy operations? If so, please detail. Yes, Lidgerwood will not meet the new standard. Wyndmere and Rural system will likely meet new standard. 2. Have water quality analyses and routine monitoring for the three treatment plants identified any violations of the ARARs identified in the ROD? No. Will provide copies of recent inspection reports and water quality data from 2001 test (most recently available). 3. Have there been any complaints, violations or other incidents associated with the treatment plants or distribution systems? Have had discussions with Lidgerwood regarding process operations and how plant will meet new standard with current equipment. 4. Do you feel informed about the activities at the site and progress made in the last five years? No. Has personally not had much direct involvement. Site was previously handled by Water Quality Division. 5. Do you have any comments, suggestions, or recommendations regarding the site's long-term management? If so, what types of future problems do you think either (1) could occur; or (2) would concern you at this site? Rural system is the best maintained system, and all of the systems are currently meeting management requirements. Other Comments: No other comments.			

INTERVIEW RECORD

Site Name: Arsenic Trioxide Superfund Site		EPA ID No.:	
Subject: Second Five-Year Review		Time: 8:20	Date: 7/15/02
Type: ☒ Telephone ☐ Visit ☐ Other Location of Visit:		☐ Incoming ☒ Outgoing	
CONTACT MADE BY:			
Name: D. Pastor		Title: Senior Engineer	Organization: MFG, Inc.
INDIVIDUAL CONTACTED:			
Name: Joel Heitkamp		Organization: Southeast Rural Water System	
Title: Manager			
Telephone No.: (701) 242-7432	(701) 242-7722	Street Address: 202 Main St.	Box 10
Fax No.:		City, State, Zip: Mantador, ND	58058
E-Mail Address:			
Summary Of Conversation			
1. What is your overall impression of the project (general sentiment)? The Site boundary is not broad enough, and a request has been made to State Health to expand water supply coverage to the towns of Oakes and Lamar. These towns have central municipal supply with minimal treatment and likely do not meet the arsenic standards. 2. Are the treatment plant and distribution systems functioning as expected? How well are the systems performing? The Rural system currently meets the new standard and is running well. Source water As concentrations are typically 10 ppb and system routinely treats to 6-7 ppb or less. Is aware that Lidgerwood will not meet the new standard. 3. What do the source water and treated water monitoring data show? Are there any trends in the data? Steady source water and treated water levels. No trends in the data. 4. Have there been any changes in the treatment processes since the plant was upgraded? If so, were they related to changes in source water quality? Currently add polyphosphate as a corrosion inhibitor for lead/copper. Performed \$1.5 million in improvement to increase storage capacity and install parallel pipelines. 5. Do you have any recommendations for adjusting plant operations to improve performance? No, plant is currently working well. Would have to be modified if standard is changed again. 6. Do you have any comments, suggestions, or recommendations regarding the project? Lidgerwood plant is in poor condition. Recommends expanding Rural system rather than upgrading multiple city treatment plants. 7. Other Comments Recently completed a grant-funded study of treatment options for Hankinson, Lidgerwood, Wyndmere, Oakes, and Lamar that concluded that expansion of the Rural system was best alternative. This has been forwarded to State and EPA-Washington as an alternative for addressing drinking water quality on a regional basis. Will forward a copy of the study to Victor Ketellaper (EPA project manager).			

INTERVIEW RECORD

Site Name: Arsenic Trioxide Superfund Site		EPA ID No.:	
Subject: Second Five-Year Review		Time: 10:30	Date: 7/16/02
Type: ☒ Telephone ☐ Visit ☐ Other Location of Visit:		☐ Incoming ☒ Outgoing	
CONTACT MADE BY:			
Name: D. Pastor		Title: Senior Engineer	Organization: MFG, Inc.
INDIVIDUAL CONTACTED:			
Name: Glenn Lueck		Title: Water Treatment Plant Manager	Organization: City of Lidgerwood
Telephone No.: (701) 538-4451		Street Address:	
Fax No.:		City, State, Zip:	
E-Mail Address:			
Summary Of Conversation			
1. What is your overall impression of the project (general sentiment)? Overall, the treatment plants provide a good solution and people are generally happy. With respect to the Lidgerwood plant, engineers familiar with the local construction practices should have been used. 2. Are the treatment plant and distribution systems functioning as expected? How well are the systems performing? Treatment system has experienced a steady decline in performance and arsenic levels in the treated water are increasing. Having problems producing clear water due to clogging of under drains and roof is in very poor condition (falling off). No problems with distribution system. 3. What do the source water and treated water monitoring data show? Are there any trends in the data? Arsenic levels in the source water are steady. Arsenic levels in the treated water have steadily increased from 17 ppb to 30 ppb. 4. Have there been any changes in the treatment processes since the plant was upgraded? If so, were they related to changes in source water quality? No changes in the overall process. Have been changing reagent dosing rates to counteract declining performance. Water demand has remained generally steady, aside from periodic seasonal peaks (current high summer demand). 5. Do you have any recommendations for adjusting plant operations to improve performance? Plant needs to be rebuilt. It is falling apart and current process cannot be modified to meet new MCL. 6. How would you characterize local public awareness of the new arsenic MCL? What is their level of concern? People in town are fairly aware of the new standard. Some are surprised and believe it is too low. Overall, people are not too concerned. 7. Other Comments Think new arsenic standard is too low and it will be expensive to comply with it. Lidgerwood has applied to participate in an EPA pilot program through the State. Waiting to hear if accepted.			

INTERVIEW RECORD

Site Name: Arsenic Trioxide Superfund Site		EPA ID No.:	
Subject: Second Five-Year Review		Time: 9:50	Date: 7/16/02
Type: ☒ Telephone ☐ Visit ☐ Other Location of Visit:		☐ Incoming ☒ Outgoing	
CONTACT MADE BY:			
Name: D. Pastor		Title: Senior Engineer	Organization: MFG, Inc.
INDIVIDUAL CONTACTED:			
Name: Bob Fust		Title: Mayor	Organization: City of Lidgerwood
Telephone No.: (701) 538-4541		@ Lumber yard	Street Address:
Fax No.:		City, State, Zip:	
E-Mail Address:			
Summary Of Conversation			
1. What is your overall impression of the project (general sentiment)? EPA built the plant and now it is considered not good enough. Quite a bit of money will be required to upgrade the plant to meet the new standard. Community should not have to pay this cost. 2. Are the treatment plant and distribution systems functioning as expected for your community? Treatment plant is falling apart. Plant should have been constructed of different materials and is susceptible to moisture problems (dehumidifier cannot keep up and building materials starting to degrade). Distribution system is good - replaced all cast iron lines with new PVC. 3. Does the quality of water delivered meet your expectations? Yes, given the available resources, plant works O.K. Have periodic episodes of colored water because plant is only attended by a part-time operator. 4. Does the quantity of water delivered meet your expectations? Yes, City has plenty of water 5. Do you have any recommendations to improve the water and/or the treatment and delivery systems? Not qualified to recommend improvements. However, any improvements should be financed by EPA. 6. How would you characterize local community awareness of the new arsenic MCL? People are aware of the arsenic issue. They are concerned about cost but also concerned about arsenic.			

INTERVIEW RECORD

Site Name: Arsenic Trioxide Superfund Site		EPA ID No.:	
Subject: Second Five-Year Review		Time: 10:30	Date: 7/17/02
Type: ☒ Telephone ☐ Visit ☐ Other Location of Visit:		☒ Incoming ☐ Outgoing	
CONTACT MADE BY:			
Name: D. Pastor		Title: Senior Engineer	Organization: MFG, Inc.
INDIVIDUAL CONTACTED:			
Name: Bob Bucholz		Title: Water Treatment Plant Manager	Organization: City of Wyndmere
Telephone No.: (701) 439-2412		Street Address:	
Fax No.:		City, State, Zip:	
E-Mail Address:			
Summary Of Conversation			
1. What is your overall impression of the project (general sentiment)? Plant does a pretty decent job for its size, but EPA should have made it bigger. 2. Are the treatment plant and distribution systems functioning as expected? How well are the systems performing? The plant was designed to reduce arsenic levels to below 10 ppb at a flow rate of 100 gpm. However, plant must be operated at 60 to 70 gpm to meet this level of treatment. 3. What do the source water and treated water monitoring data show? Are there any trends in the data? Arsenic concentrations in the source water have increased slightly from 50 to 52/55 ppb over the last 5 years. Arsenic concentrations in the treated water depend on the plant flow rate – typically 6.9 ppb at 60 gpm and over 10 ppb at 100 gpm. Source water is very hard – high calcium. 4. Have there been any changes in the treatment processes since the plant was upgraded? Any changes in water demand? No changes in the process. Water demand has remained steady – town population of 500 has not changed much in the five years. 5. Do you have any recommendations for adjusting plant operations to improve performance? Could build new plant. Water is very corrosive and City has had a problem with water corroding copper pipes. Have approximately 10 to 12 breaks per year in the distribution system piping. Otherwise, distribution system is O.K. 6. How would you characterize local public awareness of the new arsenic MCL? What is their level of concern? People in town are fairly aware of the new standard. Some are surprised and believe it is too low. Overall, people are not too concerned by the arsenic issue. 7. Do you have any comments, suggestions, or recommendations regarding the project? Plant will have a future problem w/ manganese if pending changes in that standard are made. Would be nice to switch the City over to Rural Water system – they have softer, better quality water. This would be the preference of the local residents and the Town Council. Wyndmere can't afford to produce water of this quality given its current source.			

INTERVIEW RECORD			
Site Name: Arsenic Trioxide Superfund Site		EPA ID No.:	
Subject: Second Five-Year Review		Time:	Date:
Type: ☒ Telephone ☐ Visit ☐ Other		☐ Incoming ☒ Outgoing	
Location of Visit:			
Contact Made By:			
Name: Victor Ketellapper		Title: RPM	Organization: EPA
Individual Contacted:			
Name: Darrell Jelanick		Title: Homeowner	
Telephone No.: 701-538-4371		Organization:	
Fax No.:		Street Address:	
E-Mail Address:		City, State, Zip:	
Summary Of Conversation			
Darrell Jelanick contacted me in response to the advertisement EPA placed in local newspapers regarding the 5-year review study at the arsenic trioxide site. He was concerned that farms that were not connected to rural water system during the construction of the remedy are not able to afford to do this now due to the high tap fees. Many homes were not connected at the time of the cleanup. Now young families are purchasing these farms, and would like to be able to connect to the rural water supplier. Also, the point of use treatment systems supplied as an interim measure, are no longer functioning.			

ATTACHMENT 5
SITE VISIT PHOTOS

**Site Visit Photos
Arsenic Trioxide Superfund Site
Five Year Review
September 4-6, 2002**

**Prepared by
Victor Ketellapper, USEPA**

Site Visit Photos
Arsenic Trioxide Superfund Site



Photo 1: Wyndmere Water Treatment Plant Building



Photo 2: Wyndmere Underground Water Storage Tank

Site Visit Photos
Arsenic Trioxide Superfund Site



Photo 3: Inside Wyndmere Water Treatment Plant



Photo 4: Inside Wyndmere Water Treatment Plant

Site Visit Photos
Arsenic Trioxide Superfund Site



Photo 5: Wyndmere Filters



Photo 6: Wyndmere Water Treatment Plant-Filters

Site Visit Photos
Arsenic Trioxide Superfund Site



Photo 7: Clay Cap in Wyndmere that covers area which arsenic trioxide was mixed. Cap is located between the railroad tracks, power lines, and trees.



Photo 8: Southeast Water Users Rural Water System Wells

Site Visit Photos
Arsenic Trioxide Superfund Site



Photo 9: Underground Water Storage Tank Southeast Water Rural Water System



Photo 10: Water Treatment Plant Green Sands Filters, Southeast Water Rural Water System

Site Visit Photos
Arsenic Trioxide Superfund Site



Photo 11: Water Treatment Plant Green Sand Filters, Southeast Water Rural Water System



Photo 12: Water Treatment Plant, Southeast Water Rural Water System

Site Visit Photos
Arsenic Trioxide Superfund Site



Photo 13: Water Treatment Plant Green Sand Filters, Southeast Water Rural Water System



Photo 14: Water Treatment Plant, Southeast Water Rural Water System

Site Visit Photos
Arsenic Trioxide Superfund Site



Photo 15: Southeast Water Rural Water System office building



Photo 16: Lidgerwood Water Treatment Plant Building

Site Visit Photos
Arsenic Trioxide Superfund Site



Photo 17: Lidgerwood Water Treatment Plant Filters



Photo 18: Lidgerwood Water Treatment Plant Filters

Site Visit Photos
Arsenic Trioxide Superfund Site



Photo 19: Lidgerwood Water Treatment Plant



Photo 20: Lidgerwood Water Treatment Plant Contact Basins

Site Visit Photos
Arsenic Trioxide Superfund Site



Photos 21 and 22: Lidgerwood Water Treatment Plant, Permanganate and Fluoride Chemical Feed



Photo 23: Lidgerwood Water Treatment Plant

Site Visit Photos
Arsenic Trioxide Superfund Site



Photo 24: Lidgerwood Water Treatment Plant, Sludge Storage Tank



Photo 25: Lidgerwood Water Tank