5HS-11

SEP 30 1988

Mr. Gary Klingbiel
Wausau City Hall
407 Grant Street
Wausau, Wisconsin 54401

Dear Mr. Klingbiel:

Enclosed please find a copy of the U.S. Environmental Protection Agency's (U.S. EPA) Proposed Plan for Remedial Action at the Wausau Groundwater Contamination Site.

You should also be receiving the Phased Feasibility Study (PFS) Report from Warzyn Engineering, Inc. today. Please attach this document to the PFS report so that both documents are available for public viewing.

Thank you for your assistance on this matter. Please contact me at (312) 886-0399 if you have any questions.

Sincerely,

Margaret M. Guerriero
Wausau Project Manager

Enclosure

cc: M. Owens, WDNR

SEP 30 1988

5HS-11

Mr. Gary Gisselman
Marathon County Public Library
400 First Street
Wausau, Wisconsin 54401

Dear Mr. Gisselman:

Enclosed please find a copy of the U.S. Environmental Protection Agency's (U.S. EPA) Proposed Plan for Remedial Action at the Wausau Groundwater Contamination Site.

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Sincerely,

Margaret M. Guerriero
Wausau Project Manager

Enclosure

cc: M. Ownes, WDNR

Wausau interim FS

PROPOSED PLAN FOR REMEDIAL ACTION

Wausau Ground Water Contamination Site
Wausau, Wisconsin

PURPOSE

This proposed plan has been prepared as a supplement to the September 1988 public comment draft Phased Feasibility Study (PFS) for the Wausau Ground Water Contamination Site. It is made available with the PFS and other documents in the administrative record for public review and comment.

Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), requires U.S. EPA to issue a "Proposed Plan" and make such plan available to the public for comment. This document satisfies that requirement in that it:

- Describes the remedial alternatives analyzed for this phase of the project;
- Identifies the preliminary decision on a preferred alternative, explaining the rationale for the preference; and
- Solicits community involvement in the selection of a remedy for this phase of the project.

SITE DESCRIPTION

The City of Wausau is located in Marathon County, along the Wisconsin River, in the north-central region of Wisconsin. The City provides drinking water for approximately 33,000 people. In the summer of 1982, the City first detected Volatile Organic Chemicals (VOCs) in three of the six municipal supply wells (CW6, CW3, CW4). Levels in the wells exceeded U.S. EPA advisory levels for safe drinking water. Contaminants found include: trichloroethylene (TCE), tetrachloroethylene (PCE), trans-1,2-dichloroethylene (DCE), and toluene.

After discovering the problem the City began blending clean water with contaminated water to dilute VOC concentrations while meeting demand. At the same time, the City, with support of the Wisconsin Department of Natural Resources (MDNR), made several attempts to mitigate the problem and locate the contaminant source. Monitoring wells were installed in the Wausau area and unsuccessful attempts were made to aerate the water by modifying the water treatment process. The City also applied for, and was granted, a U.S. EPA cooperative agreement through the Agency's Drinking Water Research Division. The agreement provided for the design and construction of a stripping tower to effectively aerate the water.

However, VOC concentrations in the supply wells were steadily increasing and by early 1984, "water at the tap" exceeded recommended levels. The increased concentrations made it impossible to supply clean water and still meet demand. In the spring of 1984, the City of Wausau and WDNR asked U.S. EPA for emergency assistance. The U.S. EPA Emergency Response Group took action to install temporary activated carbon filters on one of the supply wells, which then provided clean water until the air stripper was completed. The City purchased a second air stripper which was also installed at the water treatment plant, insuring the capability to supply clean water to the residents.

Water demand has increased since the air strippers were installed. As a result, water production from CW6 will be diverted to the air strippers prior to city-wide distribution. Previously, CW6 production had been pumped to waste, creating a groundwater divide near Bos Creek, helping to protect CW7 and CW9 from contamination. With CW6 being used as a supply well, this divide is expected to disappear.

SCOPE OF THIS REMEDY

The recommended alternative for this phase of the Wausau project will address the immediate concern of the contaminated groundwater affecting CW6. This is an interim remedy, and is not intended to clean up the entire site. The final remedy will address the entire site.

ALTERNATIVES ANALYZED

Alternative 1: No Action

Estimated Construction Cost:	$0
Estimated Annual O&M Costs:	$0
Estimated Implementation Timeframe:	None

Under this alternative, no response action would be taken at this time to protect the uncontaminated municipal wells as well as reduce the amount of time that CW6 draws in contaminants. Water from CW6 will continue to be treated by the air strippers prior to distribution.

Alternative 2: North Extraction Well

Estimated Construction Cost:	$432,000
Estimated Annual O&M Costs:	$ 82,000
Estimated Implementation Timeframe:	2 Months to Start

Under this alternative, an extraction well would be placed north of Bos Creek but south of CW6. Pumping at 1000 gpm, the extraction well would draw out contaminated water which would be treated and then discharged directly into the Wisconsin River. (Treatment is discussed later in

this section.) Pumping may be discontinued when the final remedy is implemented at Wausau, or Alternative 2 could be incorporated into the final remedy.

Alternative 3: South Extraction Well

Estimated Construction Cost:	$422,000
Estimated Annual O&M Costs:	$ 80,800
Estimated Implementation Timeframe:	2 Months to Start

Under Alterative 3; an extraction well would be placed south of Bos Creek on Marathon Electric property. Also projected to pump at the rate of 1000 gpm, the south well would draw out contaminated water which would be treated and then discharged directly into the Wisconsin River (treatment is discussed later in this section). As with Alternative 2, pumping of the south extraction well could be discontinued after implementation of the final remedy at Wausau, or could be incorporated into the final remedy.

Alternative 4: North and South Extraction Wells

Estimated Construction Cost:	$853,000
Estimated Annual O&M Costs:	$140,000
Estimated Implementation Timeframe:	6 Months

Alternative 4 is essentially a combination of Alternatives 2 and 3. As inferred, one extraction well would be placed to the north of Bos Creek and one extraction well would be placed south of Bos Creek. Extracted groundwater would be treated and discharged to the Wisconsin River. Again, pumping could be discontinued after implementation of the final remedy, or one or both wells could be incorporated into the final remedy.

TREATMENT

Removal of contaminants from the extracted groundwater may be accomplished through the use of air stripping. Either an active (force-air) or passive (cascade) system will be required. The forced-air stripper, the same technology now treating City water prior to distribution, would remove a higher percentage of volatile contaminants than the passive cascade system. However, discharge limits for TCE have been calculated and effluent from either system is not projected to exceed discharge limits.

THE PREFERRED ALTERNATIVE

Based upon the evaluation of the nine criteria, the preferred alternative is Alternative 3, with a provision to implement Alternative 4 if necessary. Alternative 3 includes installation of an extraction well south of Bos Creek, treatment for removal of VOCs, and discharge to the

Wisconsin River. In addition to the southern extraction well, Alternative 4 includes a second extraction well north of Bos Creek. If, after monitoring the performance of the southern extraction well, it is determined that an additional well is needed to achieve the remedial action goals, a second extraction well will be installed north of Bos Creek.

Based on new information or public comments, U.S. EPA, in consultation with the State of Wisconsin, may modify the preferred alternative or select another of the response actions presented in this plan. The public therefore, is encouraged to review and comment on all of the alternatives identified in this Proposed Plan. The PFS report should be consulted for more information on these alternatives.

ALTERNATIVE EVALUATION MATRIX

The following nine criteria were used to select a preferred alternative for the Wausau site:

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

2. Compliance with ARARs addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements (ARARs) of other environmental statutes and/or provide grounds for invoking a waiver.

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

4. Reduction of Toxicity, Mobility, or Volume is the anticipated performance of the treatment technologies a remedy may employ.

5. Short-term Effectiveness involves the period of time needed to achieve protection and any adverse impact on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.

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

7. Cost includes capital and operation and maintenance costs.

8. State Acceptance indicates whether, based on its review of the PFS and Proposed Plan, the State of Wisconsin concurs, opposes, or has no comment on the preferred alternative.

9. Community Acceptance will be assessed in the Record of Decision following a review of the public comments received on the PFS report and the Proposed Plan.

Each alternative was evaluated against these nine criteria. A summary of the alternative evaluation matrix is presented in Table 1. A discussion of how the preferred alternative compares to the other alternatives is presented under the following section.

COMPARISON OF ALTERNATIVES

1. Overall Protection of Human Health and the Environment: Alternatives 2 and 4 provide a slightly greater reduction in the period of exposure to contaminant residuals in City Well 6. However, Alternatives 3 and 4 require the least amount of time to purge the aquifer of contaminants. Alternatives 3 and 4 also provide the best control on minimizing migration of contaminants to the east well field.

The long-term risks associated with the well field contamination are similar for Alternatives 2, 3, and 4. Although Alternative 4 purges the aquifer faster, Alternatives 2 and 3 provide similar protection because CW6 is treated prior to distribution to consumers.

The No Action alternative (1) provides no protection against eastward migration of contaminants, and requires the longest period of time for purging the aquifer. This results in contaminants reaching CW6 for a much longer period of time.

2. Compliance with ARARs: All applicable or relevant and appropriate requirements under Federal and State environmental regulations are met by Alternatives 2, 3, and 4. Alternative 1 would not comply with Wisconsin NR 140 requirements for response where groundwater quality standards are exceeded.

3. Long-term Effectiveness: Each of the alternatives would achieve long-term effectiveness as a result of aquifer purging. However, the time required to achieve this goal varies for each alternative. Alternatives 2, 3, and 4 require similar timeframes, with 2 and 4 being slightly faster (as discussed above). Alternative 1 would require a much longer time period for aquifer purging.

4. Reduction of Toxicity, Mobility or Volume: None of the alternatives achieve reduction in toxicity, mobility, or volume. Treatment of purged water (under Alternatives 2, 3 and 4) will consist of volatilizing contaminants using an air stripper of other approved means.

5. Short-term Effectiveness: Alternatives 2 and 4 provide the shortest time for the reduction of contaminant levels reaching CW6. However, Alternative 2 requires the longest time for purging the aquifer. In addition, under Alterative 2, contaminants are drawn away from the source before capture. This results in further contamination

of the southern part of the affected area. Furthermore, Alterative 2, provides the least effective protection against eastward contaminant migration from the source area. While Alternative 4 requires the shortest time for purging the aquifer of contaminants, Alternative 3 requires substantially less time for purging than Alternative 2. Both Alternatives 3 and 4 provide the best protection against eastward contaminant migration.

The No Action alternative (1), provides no protection for eastward migration and no protection to the well field if City Well 6 must be shut down for any length of time. Under Alternative 1, contaminants will reach the supply well for the longest period of time, and purging of the aquifer will only occur through pumping of the supply well.

6. Implementability: Each of the alternatives are easily implemented and require conventional and readily available materials.

7. Cost: Alternatives 2 and 3 have virtually identical costs, while Alternative 4 would be twice as costly. Alternative 1 has no associated costs.

8. State Acceptance: The State has expressed favor for Alternative 3 with the provision for implementation of Alternative 4 if needed. The State and EPA will work together in determinating whether Alternative 3 is achieving the objectives for this action.

9. Community Acceptance: The community has not at this time expressed a preference for any alternative. Evaluation of this criterion will be revisited once the public comment period has ended. A discussion of this will be included in the Record of Decision (ROD) for this action.

SUMMARY OF COMPARISON

Under Alternative 1 (no action), contaminants would be purged only through pumping of CW6. Neither control of eastward contaminant migration nor protection from further west side contamination would be achieved. This alternative is not consistant with the objectives for the interim response action at the site and is therefore not considered a viable option for the site.

Although Alternatives 2, 3, and 4 provide similar results when evaluated against the nine criteria, there are some important differences. Alternative 2 provides the least amount of time in which contaminants will continue to reach the supply Well (CW6) but it requires the longest time for aquifer purging. Under Alternative 4, the amount of time for contaminants to migrate to City Well 6 is the same, however, Alternative 4 requires the least amount of purge time. Alternative 3 has an intermediate time associated with both these factors. Alternative 2

provides less protection against eastward migration than Alternatives 3 and 4, and it results in moving contamination from the source area further into the aquifer before capture by the extraction well.

These two factors, in addition to requiring the longest purge time of the three action alternatives, makes Alternative 2 the least attractive. Between Alternatives 3 and 4, the purge time and costs are the major differences. Because City Well 6 is acting as a contaminant barrier well in the well field, and the water is treated to safe drinking levels, the small difference in purge time between Alternatives 3 and 4 is not considered to cause any additional health risk. Therefore, because Alterative 4 is twice as costly without providing addition protection, Alternative 3 is considered the cost-effective alternative.

At this time, Alternative 3, with a provision to implement Alternative 4 if necessary, is believed to provide the best balance of trade-offs among alternatives with respect to the criteria used to evaluate remedies. Based on the information available at this time, EPA and the State of Wisconsin believe the preffered alterative would be protective, would attain ARARs, would be cost-effective, and would not be inconsistent with the final remedy at the site. The final remedy will attempt to utilize permanent solutions and alternate treatment technologies or resource recovery technologies to the maximum extent practicable.

COMMUNITY INVOLVEMENT

The proposed plan for the Wausau site is meant to provide interested parties with a summary of remedial alternatives analyzed in the phased feasibility study (PFS) and the rationale for selecting the preffered interim alterative for the site. The Agency requests that the public provide comments on the alternatives discussed in the proposed plan and the PFS, not just on the preferred alterative. The public should utilize the PFS and other pertinent documents in the administrative record, as they provide a more detailed description of the interim alternatives contemplated for the Wausau site.

All documents developed and released to the public are available for public inspection and copying at the following locations:

Wausau City Hall
407 Grant Street
Wausau, WI 54401-4783

Marathon County Public Library
400 First Street
Wausau, WI 54401

The public comment period will run from October 3 to October 24, 1988. Written comments will be accepted during this time, and will

be addressed in the Responsiveness Summary of the ROD document. All comments should be directed to:

Georgette Nelms	Margaret Guerriero
Community Relations Coordinator	Remedial Project Manager
Office of Public Affairs	(312) 886-0399
(312) 353-8685	

AT

U.S. EPA, Region V
230 South Dearborn
Chicago, Illinois 60604

Toll Free Number: 1 (800) 621-8431

EPA will hold a public meeting on October 17, 1988 to discuss the proposed interim remedial alternative for the Wausau site. Oral comments can be entered into the record during the public meeting. A transcript of the meeting will be made and entered into the files at the administrative record repositories listed above. Selection of an interim remedial alterative to be implemented at the Wausau Well Field will not be made until after the public comment period has concluded.

TABLE 1

SUMMARY OF ALTERNATIVES EVALUATION
PHASED FEASIBILITY STUDY
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Evaluation Factor	Alternative 1 No Action	Alternative 2 Northern Extraction Well	Alternative 3 Southern Extraction Well	Alternative 4 North and South Extraction Well
Short-Term Effectiveness	No additional protection of community and workers is required. Production Well CW6 draws in contaminants from west side plume indefinitely. VOC removal at water treatment plant provides protection of water consumers.	Risk to workers during implementation addressed by standard personal protection. Risks to community considered minimal. Production Well CW6 draws in contaminants from northern one-third of west side plume. VOC removal at water treatment plant provides protection of water consumers.	Risk to workers during implementation addressed by standard personal protection. Risks to community considered minimal. Production Well CW6 draws in contaminants from northern one-half of west side plume. VOC removal at water plant provides protection of water consumers.	Risks to workers during implementation addressed by standard personal protection. Risks to community considered minimal. Production Well CW6 draws in contaminants from northern one-third of west side plume. VOC removal at water plant provides protection of water consumers.
	Period of exposure to trace contaminants in treated water from west side plume is longest.	Period of exposure to trace contaminants in treated water is shortest similar to Alternative 4).	Period of exposure to trace contaminants slightly longer than Alternatives 3 or 4.	Period of exposure to trace contaminants in treated water is shortest (similar to Alternative 2).
	Requires longest time for purging aquifer due to lack of active remediation.	Requires longest time for purging aquifer among action alternatives.	Requires intermediate time for purging aquifer among action alternatives (substantially less than Alternative 2).	Requires shortest time for purging aquifer among action alternatives.
	Contaminants drawn away from source by production wells.	Contaminants drawn away from source before capture.	Contaminants captured near source area.	Contaminants captured near and away from source area.
	Migration of contaminants to east well field is likely.	Provides protection against eastward contaminant migration.	Provides best protection against eastward contaminant migration.	Provides best protection against eastward contaminant migration.
Long-Term Effectiveness	Could achieve MCLs and State groundwater standards on west side due to long term purging by municipal Production Wells CW6, (west side) and CW3 (east side).	Can achieve MCLs and State groundwater standards on west side due to purging by Production Well CW6 and northern extraction well.	Can achieve MCLs and State groundwater standards on west side due to purging by Production Well CW6 and southern extraction well.	Can achieve MCLs and State groundwater standards on west side due to purging by Production Well CW6 and two extraction wells.

TABLE 1 (Continued)

SUMMARY OF ALTERNATIVES EVALUATION
PHASED FEASIBILITY STUDY
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Evaluation Factor	Alternative 1 No Action	Alternative 2 Northern Extraction Well	Alternative 3 Southern Extraction Well	Alternative 4 North and South Extraction Well
		High capacity well and discharge system are reliable. Repair or replacement in relatively short time is feasible, should failure occur.	High capacity well and discharge system are reliable. Repair or replacement in relatively short time is feasible, should failure occur.	High capacity well and discharge system are reliable. Repair or replacement in relatively short time is feasible, should failure occur.
		Long term management consists of monitoring water levels, water quality, discharge quantity, and routine maintenance.	Long term management consists of monitoring water levels, water quality, discharge quantity, and routine maintenance.	Long term management consists of monitoring water levels, water quality, discharge quantity, and routine maintenance.
Reduction of Toxicity, Mobility, Volume	None	None	None	None
Implementability	Technical feasibility not relevant, because no additional technologies are used.	Well, treatment and discharge are conventional and readily constructed. Potential future actions are not precluded. System effectiveness and performance are readily monitored.	Well, treatment and discharge are conventional and readily constructed. Potential future actions are not precluded. System effectiveness and performance are readily monitored.	Well, treatment and discharge are conventional and readily constructed. Potential future actions are not precluded. System effectiveness and performance are readily monitored.
	Not administratively feasible because public water supply is threatened with long-term contamination.	Coordination between U.S. EPA and WDNR for plan review and approval. Coordination with local agencies is required. Coordination with PRP group may be required. No apparent administrative difficulties.	Coordination between U.S. EPA and WDNR for plan review and approval. Coordination with local agencies is required. Coordination with PRP group may be required. No apparent administrative difficulties.	Coordination between U.S.EPA and WDNR for plan review and approval. Coordination with local agencies is required. Coordination with PRP group may be required. No apparent administrative difficulties.
	No additional services required.	Required technologies and services are available. Off-site services including POTW and sanitary landfill may be required, and are considered available.	Required technologies and services are available. Off-site services including POTW and sanitary landfill may be required, and are considered available.	Required technologies and services are available. Off-site services including POTW and sanitary landfill may be required, and are considered available.

TABLE 1 (Continued)

SUMMARY OF ALTERNATIVES EVALUATION
PHASED FEASIBILITY STUDY
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Evaluation Factor	Alternative 1 No Action	Alternative 2 Northern Extraction Well	Alternative 3 Southern Extraction Well	Alternative 4 North and South Extraction Well
Cost	No direct monetary cost	Capital $432,000 1st year O&M $105,000 Subsequent Annual O&M $82,000 5-Year Present Worth $760,000 Discount Rate 10%	Capital $422,000 1st Year O&M $105,000 Subsequent Annual O&M $81,000 5-Year Present Worth $750,000 Discount Rate 10%	Capital $853,000 1st year O&M $169,000 Subsequent Annual O&M $140,000 5-Year Present Worth $1,400,000 Discount Rate 10%
Compliance with ARARs	MCLs achieved for municipal water supply.	MCLs achieved for municipal water supply.	MCLs achieved for municipal water supply.	MCLs achieved for municipal water supply.
	Likely does not comply with NR 140 requirements for response to groundwater contamination.	Likely complies with NR 140 requirements for response to groundwater contamination.	Likely complies with NR 140 requirements for response to groundwater contamination.	Likely complies with NR 140 requirements for response to groundwater contamination.
	MCLs and State groundwater standards may be achieved in aquifer in long term.	MCLs and State groundwater standards could be achieved in aquifer in long term.	MCLs and State groundwater standards could be achieved in aquifer in long term.	MCLs and State groundwater standards could be achieved in aquifer in long term.
		Effluent standards can be met for contaminants in discharge.	Effluent standards can be met for contaminants in discharge.	Effluent standards can be met for contaminants in discharge.
		Other identified action-specific ARARs related to design, review and approval, construction and monitoring can be met.	Other identified action-specific ARARs related to design, review and approval, construction and monitoring can be met.	Other identified action-specific ARARs related to design, review and approval, construction and monitoring can be met
Overall Protection of Human Health and Environment	MCLS are met by VOC removal at City water treatment plant.	MCLs are met by VOC removal at City water treatment plant.	MCLs are met by VOC removal at City water treatment plant.	MCLs are met by VOC removal at City water treatment plant.
	Period of exposure to trace residual VOCs (after treatment) is maximized.	Provides greatest reduction in period exposure from west side Production Well CW6.	Provides substantial reduction in period of exposure from west side Production Well CW6.	Provides greatest reduction of period of exposure from west side Production Well CW6.
	Continued migration from source to west side and east side well fields.	Contaminants drawn away from source prior to capture.	Contaminants removed form aquifer near source area.	Contaminants removed from aquifer near source area.

TABLE 1 (Continued)

SUMMARY OF ALTERNATIVES EVALUATION
PHASED FEASIBILITY STUDY
WAUSAU WATER SUPPLY NPL SITE
WAUSAU, WISCONSIN

Evaluation Factor	Alternative 1 No Action	Alternative 2 Northern Extraction Well	Alternative 3 Southern Extraction Well	Alternative 4 North and South Extraction Well
	No source area control.	Some potential for contaminant migration to east well field.	Best source area control, minimizing migration to east well field.	Best source area control, minimizing migration to east well field.
	Requires most time to purge contaminants from aquifer by sole reliance on City supply wells.	Reduces time required to purge contaminants from aquifer.	Substantially reduces time required to purge contaminants from aquifer.	Requires least time to purge contaminants from aquifer.
	Likely would not comply with ARARs.	Complies with identified ARARs.	Complies with identified ARARs.	Complies with identified ARARs.
State and Community Acceptance	Likely not acceptable to the State. Specific concerns or preferences to be addressed in the Record of Decision.	Specific concerns or preferences to be addressed in the Record of Decision.	Specific concerns or preferences to be addressed in the Record of Decision.	Specific concerns or preferences to be addressed in the Record of Decision.

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