United States
Environmental Protection
Agency

Office of Public Affairs
Region 5
77 W. Jackson Boulevard
Chicago, IL 60604

Illinois Indiana
Michigan Minnesota
Ohio Wisconsin

U.S. EPA Recommends Cleanup Plan

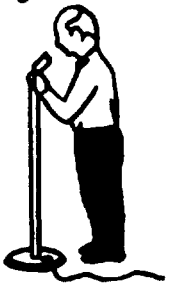
City Disposal Corporation Landfill Site
Dunn Township, Wisconsin

May 1992

This fact sheet provides...

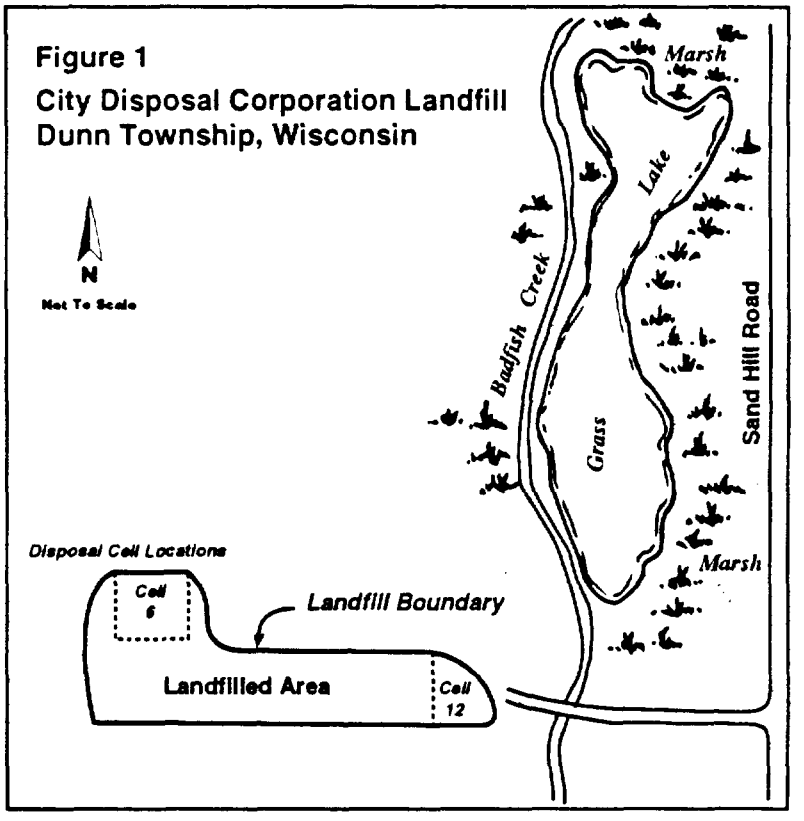
- A brief history of the site.
- A summary of the Remedial Investigation.
- A summary of the Feasibility Study.
- A summary of the cleanup alternatives considered for the site.
- A summary of the recommended cleanup alternative.
- Information on how the public can participate in choosing the final cleanup plan for the site.
- Information on how to learn more about the site.

Public Meeting



U.S. EPA is sponsoring a meeting for residents of the Town of Dunn and the surrounding communities. U.S. EPA will present information concerning the Feasibility Study, explain the recommended cleanup plan, and accept your comments. WDNR and Wisconsin Division of Health representatives will also be present at the meeting.

Date: June 3, 1992
Time: 7 p.m.
Place: Dunn Town Hall
4156 County Trunk
Highway B
McFarland, WI



INTRODUCTION

The U.S. Environmental Protection Agency (U.S. EPA), in cooperation with the Wisconsin Department of Natural Resources (WDNR), has completed a study of the City Disposal Corporation Landfill site. This study is called a **Remedial Investigation/Feasibility Study (RI/FS)** and was conducted by the **potentially responsible parties (PRPs)** liable for contamination at the site, under U.S. EPA and WDNR supervision. The RI was conducted to determine the nature and extent of on-site contamination and to estimate the risks posed to human health and the environment. The FS examined site-wide cleanup alternatives. After developing and evaluating various cleanup options, or remedial alternatives, U.S. EPA is proposing a remedy to address buried wastes in the landfill and ground-water contamination in the area of the landfill. (Words in **boldfaced** print are defined in the glossary.)

(continued on page 4)

Summary of the Recommended Alternative

U.S. EPA's recommended cleanup plan for the source of contamination at the City Disposal site, Alternative S3, includes:

- Extracting and flaring **methane** gas generated by the landfill through trenches and extracting and flaring the **volatile organic compounds (VOCs)** from the two most contaminated areas in the landfill (Cells 6 and 12) through wells (see Figures 2 and 3).
- Capping the landfill with a clay cover over most of the landfill (Cover B) and a clay cover and a synthetic membrane (Cover C) over the two most contaminated areas of the landfill (see Figures 4 and 5).
- Institutional controls.

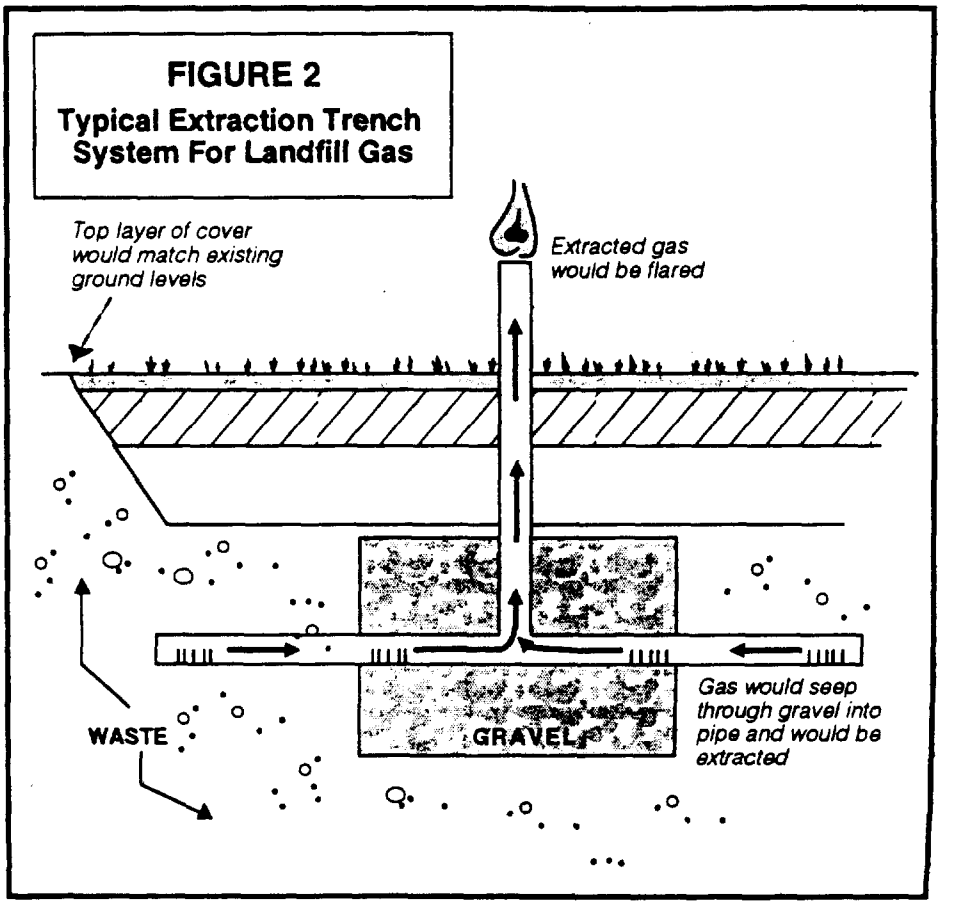
U.S. EPA's recommended cleanup plan for the contaminated ground water at the City Disposal site is Alternative GW5 which includes:

- Extracting the contaminated ground water and treating it by chemical oxidation.

This means that the extracted ground water would be mixed with oxidizing chemicals (such as hydrogen peroxide). Oxidation would be further encouraged by exposing the mixture to an energy source such as ultraviolet light. This would turn the VOCs into carbon dioxide and chlorides in the treated water which would then be discharged to Badfish Creek in accordance with State surface-water discharge standards.

- Discharging the treated (or cleansed) water to Badfish Creek.
- Ground-water monitoring.
- Institutional controls.

FIGURE 2
Typical Extraction Trench System For Landfill Gas



Scope and Role of Response Action

No past response actions have been conducted by U.S. EPA at the site. The cleanup alternative recommended by U.S. EPA is anticipated to be the final remedy for the site. Through extracting and treating gases from the landfill, capping the landfill, and extracting and treating the ground water with chemical oxidation, the remedy treats the principal threat and satisfies U.S. EPA's preference for treatment.

FIGURE 3
Typical Extraction Well For Landfilled VOCs

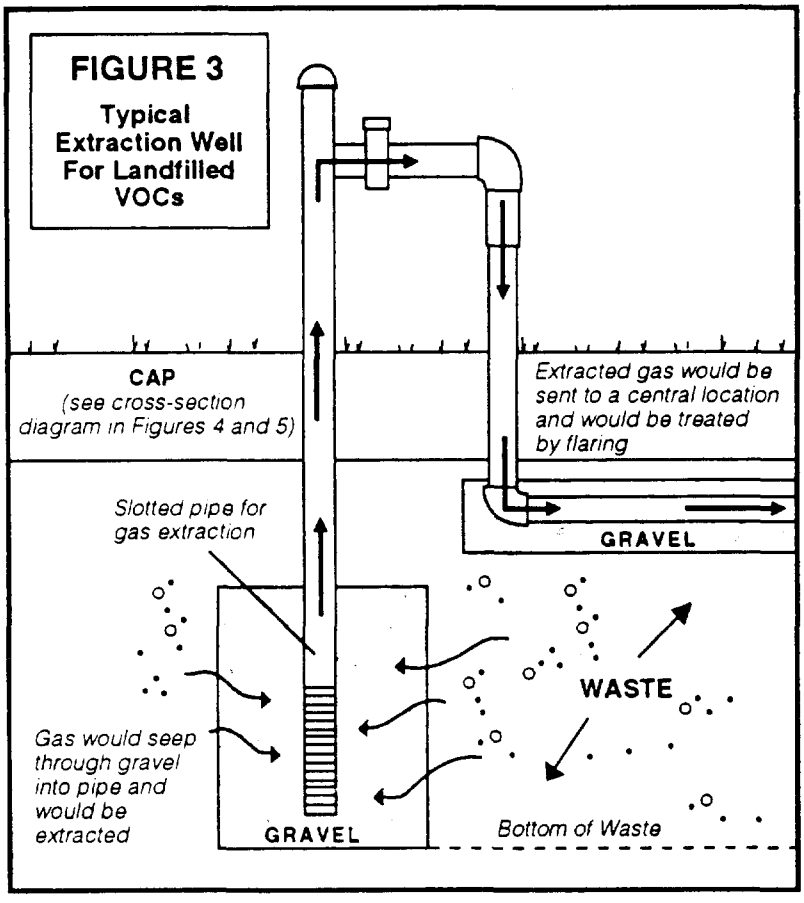


FIGURE 4
Cross-Section of Cover B

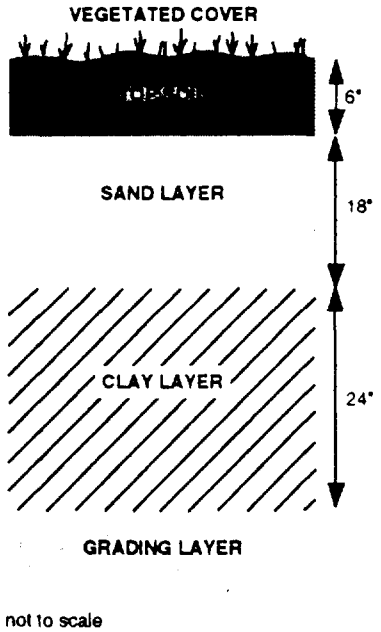
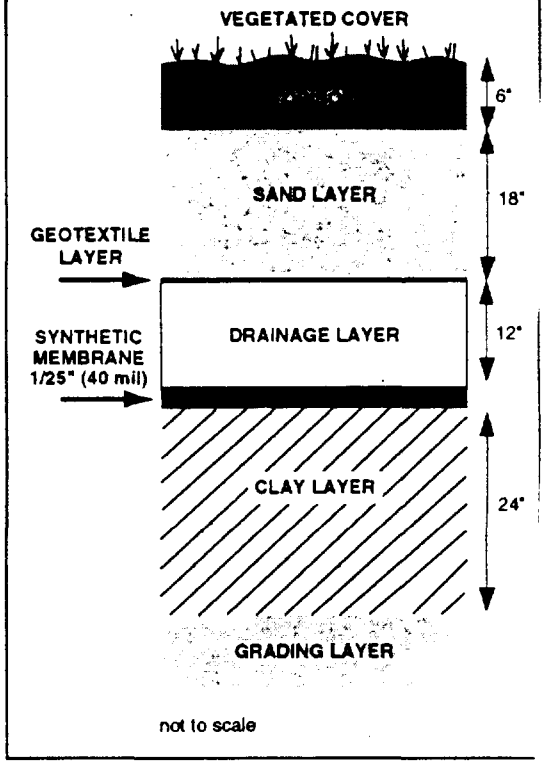


FIGURE 5
Cross-Section of Cover C



U.S. EPA is required by law to publish this Proposed Plan and make it available for public review and comment. This is required by Section 117(a) of the **Comprehensive Environmental Response, Compensation, and Liability Act of 1980** (**CERCLA**). Before reaching a final decision on how the site contamination will be addressed, U.S. EPA will hold a public meeting and public comment period to accept comments from residents, local officials, agency representatives, PRPs, and others interested in the site. U.S. EPA, in consultation with WDNR, may then modify the recommended alternative or select another alternative based on new information or comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here. For more detailed information concerning the site, the Administrative Record is also available for review (see "Information Repositories/Administrative Record File" on the back page).

U.S. EPA welcomes public comment on the Proposed Plan and on the FS. A 30-day public comment period will be held from May 18 to June 18, 1992. During this time, you are encouraged to send written comments to U.S. EPA (see the section entitled "Public Comment Invited"). In addition, U.S. EPA will hold a public meeting at 7 p.m. on June 3, 1992 at the Dunn Town Hall. Oral and written comments on the cleanup plan will be accepted during the meeting. U.S. EPA will consider all comments before making a final decision on how to clean up the site.

This document will highlight the key results of the RI/FS, describe the alternatives considered for site cleanup, and outline the U.S. EPA recommended remedy. The City Disposal FS resulted in the evaluation of four alternatives for cleaning up the landfill, or "source" of the contamination, and five alternatives for cleaning up the ground water.

Note that the numbering of the alternatives in this Proposed Plan differs from the numbering of the alternatives in the FS.

For the source cleanup alternatives:

Proposed Plan	**FS**
Alternative S1	Alternative I
Alternative S2	Alternative V
Alternative S3	Alternative VI
Alternative S4	Alternative VII

For the ground-water cleanup alternatives:

Proposed Plan	**FS**
Alternative GW1	Alternative 0
Alternative GW2	Alternative 7
Alternative GW3	Alternative 8
Alternative GW4	Alternative 9
Alternative GW5	Alternative 10

A full description of the alternatives evaluated for cleaning up the source can be found on pages 7 to 9 of this document.

A full description of the alternatives evaluated in this document for cleaning up the ground water can be found on pages 10 and 11 of this document.

The U.S. EPA recommended cleanup option includes active landfill gas extraction trenches, extraction of contaminants from Cells 6 and 12 through extraction wells, capping the landfill with clay over most of the landfill and clay and a synthetic membrane over Cells 6 and 12 (the most contaminated portion of the landfill), contaminated ground-water extraction, treatment of extracted ground water by chemical oxidation, discharge of treated ground water to Badfish Creek, long-term ground-water monitoring, and institutional controls. A detailed description of this alternative may be found on pages 2 and 3.

BACKGROUND

The City Disposal site occupies 38 acres of land west of Sand Hill Road in the Town of Dunn, Wisconsin (see Figure 1). The site is also known by local residents as the Sand Hill Dump, the Blatterman Farm Dump, and the City Disposal Corporation Landfill. The City Disposal site is located in an area that is predominantly agricultural, approximately seven miles south of Madison. To the south of the site lies an area of wooded lowlands, and to the southwest is a residential subdivision within the Town of Oregon. Badfish Creek is located approximately 300 feet east of the site and receives runoff from City Disposal. The creek is a man-made drainage channel into which the City of Madison discharges its treated wastewater. Grass Lake, a habitat for sand hill cranes and other wildlife species, is located approximately 700 feet northeast of the site.

The landfill is approximately 24 acres. The landfill volume is approximately 700,000 cubic yards. Waste

landfilled at the site was comprised of household waste, industrial waste, and general construction waste and debris. The industrial waste included solvents from the plastic fabrication industry, mixtures of lubrication oil and water, and paint waste.

The site, which had been divided into areas called cells, was first licensed and utilized from 1966 to 1977. Originally owned by the Blatterman family, the property was leased by City Disposal Corporation, and later Acme Services, Inc., before being purchased by the current PRPs in May 1981.

The discovery of VOCs in the on-site ground water prompted WDNR to propose City Disposal for placement on the National Priorities List (NPL). The NPL is a federal roster of uncontrolled or abandoned hazardous waste sites which are eligible for investigation and cleanup under the Superfund program. The RI began in November 1988, with the RI report completed in January 1992. The FS report was completed in March 1992. Both reports are included in the Administrative Record File and are available for review at the information repository listed in this Proposed Plan.

REMEDIAL INVESTIGATION (RI)

The RI identified the nature and extent of contamination by collecting and analyzing air, soil, ground water, surface water, and sediment at and near the site. The sampling results were evaluated to determine how contaminants at the site moved from the landfill into the surrounding environment, as well as to assess the risks associated with these contaminants to human health and the environment. The final RI results and conclusions were announced in an RI report and a November 1991 U.S. EPA fact sheet.

The results of the RI indicate that:

- Many of the VOCs, **semi-volatile organic compounds (semi-volatiles)**, and metal contaminants detected in ground water near the landfill were found to be at levels above Federal and State drinking-water standards;
- Of the VOCs detected at the site, **methylene chloride, methyl ethyl ketone, tetrahydrofuran, toluene, vinyl chloride,** and **xylenes** were found in the highest concentrations at the site, specifically in the ground water **downgradient** of Cells 6 and 12;
- Contamination of ground water has been detected approximately 500 feet downgradient from Cells 6 and 12;
- Ground water beneath the landfill, and particularly beneath Cell 12, shows significantly higher levels of contamination than in the surrounding areas;
- Ground water flows from the site in a north/northeast direction from Cell 12 and north from Cell 6;
- Sampling and analysis of private drinking wells closest to the site indicate that the landfill has not affected these wells;
- The surface soil in and near the landfill contain high concentrations of VOCs and semi-volatiles;
- Some soil samples indicate occurrences of VOCs next to and beneath the landfill;
- Records indicate that liquid industrial wastes were poured into Cell 12 and mixed with solid-form waste; and
- Containers (drums) were not found in the landfill cells during the investigation.

SUMMARY OF SITE RISKS

During the RI/FS, an evaluation was conducted to estimate the health or environmental problems that could result if the contamination at the site was not cleaned up. This evaluation is commonly referred to as a baseline risk assessment. In conducting this assessment, the focus was on the health effects that could result from exposure to landfill gases, contaminated ground water, and contaminated soils.

The potential routes of exposure evaluated were: inhalation of landfill emissions; ingestion of and direct skin contact with soil; ingestion of ground water and dairy milk; inhalation of VOCs while showering; ingestion of, inhalation of, and direct skin contact with

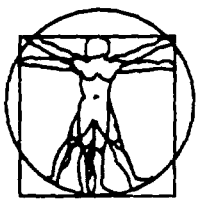
(continued on page 7)

EVALUATING THE CLEANUP ALTERNATIVES

U.S. EPA considers the following nine criteria when it evaluates cleanup alternatives like those developed in the FS. The first seven criteria have been used to evaluate the cleanup alternatives for this site. State acceptance has been considered during the development of the Proposed Plan; community acceptance will be evaluated after the public comment period.

THRESHOLD CRITERIA

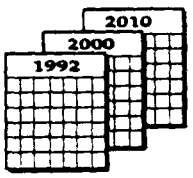
- **Overall protection of human health and the environment** addresses whether a remedy provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.



- **Compliance with applicable or relevant and appropriate requirements (ARARs)** addresses whether a remedy will meet all of the ARARs of other Federal and State environmental laws and/or justifies a **waiver**.

BALANCING CRITERIA

- **Long-term effectiveness and permanence** refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met.



- **Reduction of toxicity, mobility, and volume through treatment** is the anticipated performance of the treatment technologies a remedy may employ.

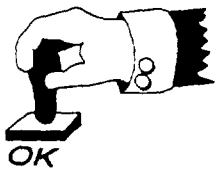
- **Short-term effectiveness** addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until cleanup goals are achieved.

- **Implementability** is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

- **Cost** includes estimated **capital** and operation and maintenance (O&M) costs, also expressed as **present net worth (PNW)** costs.

MODIFYING CRITERIA

- **State acceptance** reflects aspects of the recommended alternative and other alternatives that the support agency favors or objects to, and any specific comments regarding State ARARs or the proposed use of waivers. The Proposed Plan should address views known at the time the plan is issued but should not speculate. The assessment of State concerns may not be complete until after the public comment period on the FS and Proposed Plan is held.



- **Community acceptance** summarizes the public's general response to the alternatives described in the Proposed Plan and in the FS, based on public comments received. Like State acceptance, evaluations under this criterion usually will not be completed until after the public comment period is held.

Of these nine criteria, the final cleanup action must meet the threshold criteria of protecting human health and the environment and complying with ARARs. If a proposed remedy meets these two criteria, it is evaluated against first the balancing criteria and then the modifying criteria in order to arrive at a final recommended alternative.

ground water; ingestion of and direct skin contact with contaminated soils; and ingestion of, inhalation of and direct skin contact with leachate. (Leachate is created when water mixes with waste.)

The contaminants of concern were VOCs, semi-volatiles, and metals found in ground water near the landfill.

In order to protect human health and the environment, U.S. EPA must make various conservative assumptions when assessing risks. At this site, U.S. EPA assumed that people may locate homes in an area where the ground water is contaminated and place wells into that water for their personal use. It is a U.S. EPA policy to use this assumption, which is called the future residential land use scenario, when estimating risk.

It is important to note that health risk estimates were based on the assumption that people would use contaminated ground water at the site for drinking and bathing. The RI has shown that the ground water contaminated by this site has not reached any private wells.

To assess the non-cancerous risks posed by a site, U.S. EPA calculates a Hazard Index. A site Hazard Index of less than or equal to one indicates that the site chemical does not pose a significant non-cancerous risk. A Hazard Index greater than one indicates that the site poses potential health risks.

The Hazard Index for people living on the site drinking contaminated ground water is 4,000. This Hazard Index of 4,000 indicates that there is an increased chance of adverse health effects posed by the site to a person living at the site who drinks contaminated ground water.

For risks of cancer, the baseline risk assessment estimated that a person living at the site, drinking contaminated ground water every day for 30 years could have an additional risk of developing cancer by one in 50 over his/her lifetime. This is in addition to that person's risk of developing cancer from day to day activities not related to the site.

The goal of U.S. EPA and WDNR is to clean up this site to the probability of a person developing cancer by one in one million as a result of a lifetime of exposure to remaining site contaminants.

State and Federal standards were used to determine the cleanup goals for contaminated ground water at this site. These standards are considered protective of human health and the environment.

Actual or threatened releases of hazardous substances from this site, if not addressed by the recommended alternative or one of the other active measures considered, may present an imminent and substantial endangerment to public health, welfare, or the environment.

FEASIBILITY STUDY (FS)

The FS considers alternatives to protect human health and the environment from site contaminants. The criteria used to evaluate remedial alternatives are described in the section entitled "Evaluating the Cleanup Alternatives."

REMEDIAL ACTION GOALS

The Superfund goal of the remedy selection process is to select remedies that are protective of human health and the environment, that maintain protection over time, and that minimize untreated waste. Specific goals for remedial action at the City Disposal site are:

- Protect the public from direct contact with landfill waste and gases;
- Prevent the release of contamination from the landfilled waste into the soil and ground water; and
- Restore the contaminated ground water to its beneficial use as a drinking-water source by achieving State ground-water standards.

CLEANUP ALTERNATIVES FOR THE SOURCE - (S)

Alternative S1: *No Action*

The Superfund program requires that a "no-action" alternative be considered at every site. This no-action alternative does, however, include State-required installation of active gas extraction trenches spaced throughout the entire landfill. WDNR regulations require that landfill gas controls be installed in landfills that have a volume greater than 500,000 cubic yards. These trenches would allow the methane gas to be collected which would then be flared on site (see Figure 2).

This alternative would cost $365,300 in initial capital costs, $42,500 in annual operation and maintenance

(O&M) costs for the first two years, and $10,200 annually for the 28 years thereafter for a total of $587,700 over 30 years in present net worth (PNW) costs.

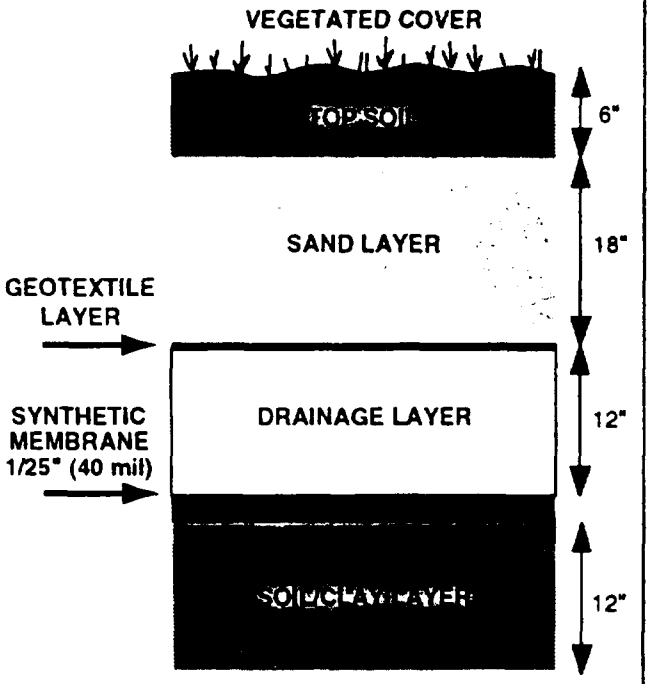
NOTE: All costs are estimates.

Alternative S2: ***Active Gas Extraction Trench and Flaring; Active Gas Extraction Through Wells; Capping the Landfill with Cover A; and Institutional Controls (Land-Use Restrictions)***

This alternative includes the extraction trenches described in Alternative S1, as well as extraction through wells. Gas extraction wells would be installed in Cells 6 and 12. These wells would allow more aggressive collection of VOCs in the ground to be collected from Cells 6 and 12. The VOCs would also be flared on site. Flare emissions would be subject to State air emission standards. The landfill would be capped with Cover A, which consists of a grading layer, a 1-foot clay layer or compacted soil, a synthetic membrane, a 1-foot drainage layer of sand and gravel, a layer of fabric that allows drainage (referred to as a geotextile layer), and a 2-foot vegetated top layer (see Figure 6).

FIGURE 6

Cross-Section of Cover A



not to scale

The cover would be subject to State solid waste landfill closure requirements. Cover A would not comply with these regulations. Capping the site would help prevent direct contact with the waste and would stop water (rain, etc.) from getting into the landfill thereby mixing with the waste and carrying the contamination into the ground water.

A wall would also be constructed around Cells 6 and 12 by extending the synthetic membrane into a 6-foot trench dug around the cells. The wall (called an air intrusion cutoff wall) would make the gas extraction more effective and would reduce the potential for air to get into the waste thereby reducing the risk of spontaneous combustion. Although unlikely, spontaneous combustion can occur when air is mixed with explosive landfill gases, such as methane, within the waste.

This alternative would also incorporate fencing, grading the landfill to allow for drainage, vegetating the disturbed areas, monitoring the air and ground water, and restricting land use.

The cost of this alternative would be $3.4 million in initial capital costs, $91,000 in annual O&M costs for the first five years, and $21,300 annual O&M costs for the 25 years thereafter, for a total of $3.9 million over 30 years in PNW costs.

Alternative S3: ***Active Gas Extraction Trench and Flaring; Active Gas Extraction Through Wells; Capping the Landfill with Covers B and C; and Institutional Controls (Land-Use Restrictions)***

U.S. EPA's Recommended Alternative

This alternative is similar to Alternative S2, however, a different cap would be used. With this alternative, all cells except Cells 6 and 12 would be capped with Cover B which consists of a grading layer, a 2-foot clay layer, and a 2-foot vegetated top layer (see Figure 4). Cells 6 and 12 would then be capped with Cover C which consists of a grading layer, a 2-foot clay layer, a synthetic membrane, a 1-foot drainage layer of sand and gravel, a geotextile layer, and a 2-foot vegetated top layer (see Figure 5). Covers B and C would comply with the State solid waste closure requirements.

USE THIS SPACE TO WRITE YOUR COMMENTS

Your input on the recommended cleanup plan for the City Disposal Corporation Landfill site is important to U.S. EPA. Comments provided by the public are valuable in helping U.S. EPA select a final remedy for the site.

You may use the space below to write your comments, then fold and mail. Comments must be postmarked by June 18, 1992. If you have questions about the comment period, please contact Susan Pastor at (312) 353-1325 or through U.S. EPA's toll-free number at: 1-800-621-8431.

Name _____

Address _____

City _____

State _____ Zip _____

City Disposal Corporation Landfill Site

Public Comment Sheet

Fold on Dashed lines, Staple, Stamp, and Mail

Name_____

Address _____

City_____

State_____ Zip _____

Place
Stamp
Here

Susan Pastor (P-19J))
Community Relations Coordinator
Office of Public Affairs
U.S. EPA, Region 5
77 W. Jackson Boulevard
Chicago, IL 60604

The cost of this alternative would be $3.4 million in initial capital costs, $91,000 in annual O&M costs for the first five years, and $21,300 in annual O&M costs for the 25 years thereafter, for a total of $3.9 million over 30 years in PNW costs.

Alternative S4: ***Active Gas Extraction Trench and Flaring; Active Gas Extraction Through Wells; Capping the Landfill; and Institutional Controls (Land-Use Restrictions)***

This alternative is similar to Alternatives S2 and S3, except a third style of cap would be used. The entire landfill would be capped with Cover B which consists of a grading layer, a 2-foot clay layer, and a 2-foot vegetated top layer (see Figure 4).

The cost of this alternative would be $3.1 million in initial capital costs, $91,000 in annual O&M costs for the first five years, and $21,300 in annual O&M costs for the 25 years thereafter, for a total of $3.6 million over 30 years in PNW costs.

EVALUATION OF SOURCE CLEANUP ALTERNATIVES

1. Overall Protection of Human Health and the Environment

Alternative S1 would not provide protection of human health and the environment since the landfill would remain uncapped and the potential risks to human health would not be addressed. Since Alternative S1 does not meet this criterion, Alternative S1 cannot be selected; therefore it will not be further evaluated. With Alternatives S2, S3, and S4, capping the site would protect human health from threats posed by direct contact with wastes by providing a barrier to direct exposure. Capping the site would reduce the amount of water (rain, etc.) getting into the landfill which carries the contaminants into the ground water. This would reduce the amount of contaminants getting into the ground water. All of the alternatives include control of landfill gas.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

All of the remaining alternatives would achieve air emission standards by collecting and flaring extracted landfill gases. State regulations for solid waste landfill closure require the use of a minimum 2-foot thick clay layer as a barrier to water infiltration. Alternative S2 does not meet this State requirement, and a Federal waiver of the State requirement would not be granted. Alternative S2 uses a synthetic membrane as a substitute for one foot of the 2-foot clay minimum. For this reason, Alternative S2 cannot be selected, so it will not be further evaluated. Alternatives S3 and S4 meet all State solid waste landfill cap requirements.

3. Long-Term Effectiveness and Permanence

Alternatives S3 and S4 include reliable caps that would eliminate direct contact with the waste and reduce the amount of water entering the landfill. While Alternative S4 includes only the 2-foot clay cap over the entire landfill, Alternative S3 includes a 2-foot clay cap over the entire landfill, and the addition of a synthetic membrane over Cells 6 and 12. The synthetic membrane would provide a more effective barrier from water entering the most contaminated cells of the landfill.

4. Reduction of Toxicity, Mobility or Volume Through Treatment

Alternatives S3 and S4 use active landfill gas removal and more aggressive extraction of VOCs from Cells 6 and 12 by using gas extraction wells. The extracted methane and VOCs would be treated by flaring, thus reducing the toxicity and amount of contaminants in the landfilled waste.

5. Short-Term Effectiveness

Alternatives S3 and S4 could pose risks to the community and workers by additional truck traffic in the area. Additionally, dust produced during construction could pose a threat to the community. However, dust control measures would be used to reduce this potential threat. Workers would also be exposed to the waste and VOCs during construction. Worker exposure to waste and VOCs would be minimized by the use of protective equipment. It is expected to take approximately four months to construct the cap in Alternative S4 and six months in Alternative S3.

6. Implementability

The gas extraction and capping systems in Alternatives S3 and S4 would use established technologies and are, therefore, implementable. Installation and maintenance of the synthetic membrane in Alternative S3 would require greater attention and skill, but is still implementable.

7. **Cost**

Alternative S1 involves a capital cost of $365,300, O&M costs ranging from $10,200 to $42,500, and a PNW of $587,700.

Alternative S2 involves a capital cost of $3.4 million, O&M costs ranging from $21,300 to $91,000, and a PNW of $3.9 million.

Alternative S3 involves a capital cost of $3.4 million, O&M costs ranging from $21,300 to $91,000, and a PNW of $3.9 million.

Alternative S4 involves a capital cost of $3.1 million, O&M costs ranging from $21,300 to $91,000 and a PNW of $3.6 million.

8. **State Acceptance**

The State of Wisconsin supports the recommended alternative for the waste disposal area of the City Disposal site.

9. **Community Acceptance**

This will be addressed in the **Record of Decision (ROD)** after public comment on the FS and this Proposed Plan are received.

CLEANUP ALTERNATIVES FOR THE GROUND WATER - (GW)

Alternative GW1: ***No Action***

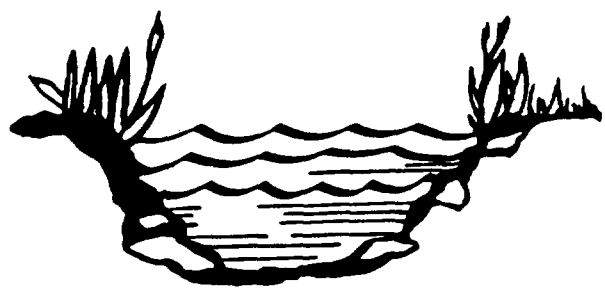
The Superfund program requires that a "no-action" alternative be considered at every site. This no-action alternative assumes that nothing would be done to address any human health or environmental concerns. However, State-required ground-water monitoring would occur and institutional controls would be implemented.

The cost of this alternative would be $114,200 in O&M costs and $2.4 million in PNW costs for ground-water monitoring.

Note: All costs are estimates.

Alternative GW2: ***Ground-Water Extraction; Air Stripping with Activated Carbon Treatment of Ground Water; Catalytic Oxidation of Air Emissions; Discharge to Badfish Creek; Ground-Water Monitoring; and Institutional Controls***

Contaminated ground water would be extracted through a series of wells to remove contaminants from the ground water to achieve State ground-water quality standards, thereby restoring the ground water to beneficial use as a drinking-water source and to prevent further movement of contaminated ground water off site. The extracted contaminated ground water would then be treated with air strippers. Air strippers work by forcing air through water contaminated with VOCs. VOCs evaporate upon exposure to air, leaving the water with substantially reduced levels of contamination. Metals would be removed from contaminated ground water by precipitation prior to air stripping. Precipitation works by adding a chemical to the water containing the metal. The chemical combines with the metal forming a solid which can then be filtered out. The precipitation would be disposed of in accordance with State and Federal waste-disposal regulations. After the water is treated with the air strippers, it would also be filtered with activated carbon filters. The air released after the air stripping process would be treated with catalytic oxidation prior to being released into the air to meet State air emission standards. Catalytic oxidation works by exposing the contaminants in the air to a material (referred to as a catalyst) that allows the contaminants to be burned at lower temperatures. This causes a chemical reaction to take place in the air rendering the contaminants harmless.



After the water has been treated, or cleansed, to meet State surface-water discharge standards, it would be discharged to Badfish Creek. Ground-water extraction and treatment would continue until State ground-water standards are met. Then, ground-water monitoring would continue for 30 years. Institutional controls, such as ground-water and land-use restrictions, would also be implemented.

For the purpose of estimating the cost of these alternatives, it was assumed that the extraction and treatment system would be operated for 20 years and the remaining contamination would require an additional 20 years to clean itself naturally.

The cost of this alternative would be $2.7 million in initial capital costs and $1.3 million in annual O&M costs for a total of $20 million over 40 years in PNW costs.

Alternative GW3: ***Ground-Water Extraction; Air Stripping with Activated Carbon Treatment of Air Emissions; Discharge to Badfish Creek; Ground-Water Monitoring; and Institutional Controls***

Contaminated ground water would be extracted as described in Alternative GW2. The contaminated water would then be treated with air stripping as described in Alternative GW2. With this alternative, however, the air from the air stripping process would be filtered through activated carbon to remove the contaminants from the air as opposed to catalytic oxidation, as in GW2, before being released. This would meet State air emission standards. Alternative GW3 also differs from Alternative GW2 in that the treated water would not be filtered through activated carbon.

Metals would be removed prior to air stripping, the treated water would then be discharged to Badfish Creek, and ground-water monitoring and institutional controls would be implemented as described in Alternative GW2.

This alternative would cost $2.1 in initial capital costs and $1.1 million in annual O&M costs for a total of $16.8 million over 40 years in PNW costs.

Alternative GW4: ***Ground-Water Extraction; Above-Ground Biological Treatment; Discharge to Badfish Creek; Ground-Water Monitoring; and Institutional Controls***

Contaminated ground water would be extracted as described in Alternative GW2. The extracted ground water would then be treated with an above-ground biological system. This system would work by using micro-organisms to break down the contaminants. Supplements would need to be added to sustain the micro-organisms.

Metals would be removed prior to biological treatment, the treated water would be discharged to Badfish Creek, and ground-water monitoring and institutional controls would also be implemented as described in Alternative GW2.

This alternative would cost $2.3 million in initial capital costs and $561,900 in annual O&M costs for a total of $10.3 million over 40 years in PNW costs.

Alternative GW5: ***Ground-Water Extraction; Chemical Oxidation; Discharge to Badfish Creek; Ground-Water Monitoring; and Institutional Controls***

U.S. EPA's Recommended Alternative

Contaminated ground water would be extracted as described in Alternative GW2. The water would then be treated with chemical oxidation as described in the section "Summary of the Recommended Alternative" on pages 2 and 3 of this document.

Metals would be removed prior to chemical oxidation, the treated water would then be discharged to Badfish Creek, the ground water would be monitored, and institutional controls would also be implemented as described in Alternative GW2. (See page 10 for a detailed description of the alternative.)

The cost of this alternative would be $1.8 million in initial capital costs and $567,900 in annual O&M costs for a total of $10.9 million over 40 years in PNW costs.

EVALUATION OF GROUND-WATER CLEANUP ALTERNATIVES

1. Overall Protection of Human Health and the Environment

Alternative GW1 would not be protective of human health and the environment because it does not remove contaminants from the ground water. Therefore, Alternative GW1 cannot be selected and will not be further evaluated. Alternatives GW2, GW3, GW4, and GW5 all provide protection of human health and the environment by restoring ground water and by preventing further movement of contaminants in the ground water with the use of extraction wells and by treating the contaminated water.

2. Compliance with ARARs

Attainment of ground-water cleanup standards will be difficult to meet. However, the technologies outlined in this document are the best technologies available for cleaning up ground water. Alternatives GW2 through GW5 would be able to meet regulations relating to access restrictions, ground-water monitoring, handling of potential hazardous wastes, and discharging to surface water. Alternatives GW2, GW3, and GW5 would meet air-quality standards. Alternative GW4 may not meet air-quality standards on a continuous basis due to the variation of contaminant levels throughout the year. When the contaminant levels are

low, the micro-organisms die off. Then, when the contaminant levels increase, there are not enough micro-organisms left to break down the contaminants. Alternative GW4 might require some process modifications to meet surface-water quality standards on a continuous basis. Alternatives GW2, GW3, and GW4 would be closely monitored to prevent violations of surface-water discharge limits.

3. Long-Term Effectiveness and Permanence

Alternatives GW2 through GW5 would permanently remove contaminants by extracting and treating the contaminated ground water. Alternative GW5 would produce the least amount of waste which would require further handling or treatment. Alternatives GW2 through GW5 would all provide protection over time, but would require skilled operation to achieve the cleanup goals.

4. Reduction of Toxicity, Mobility, or Volume through Treatment

Alternatives GW2 through GW5 would immobilize the metals through pretreatment. Alternatives GW2 through GW5 would reduce the mobility of the ground-water contaminants with the ground-water extraction system. Alternatives GW2 and GW3 would reduce the toxicity and volume of the contaminants through air stripping and treatment with carbon filters. Some of the contaminants, however, would also be transferred to the carbon filter which must be destroyed in order to reduce the toxicity or volume. Alternatives GW4 and GW5 would reduce the toxicity and volume of the contaminants through on-site treatment.

5. Short-Term Effectiveness

Alternatives GW2 through GW5 would take the same amount of time to clean up the site since they all use the same ground-water extraction system. It is expected to take 40 years to reach cleanup goals. Alternatives GW2 through GW5 would not pose risks to the community. With Alternatives GW2 through GW5, workers could be exposed to site contaminants through the drilling of the extraction wells and during the startup of operations. Workers could also be exposed to partially treated ground water during operation and maintenance of the facility. Exposure to the contaminants would be reduced by the use of protective equipment. Risks posed by this type of exposure would depend on the amount of exposure and the amount of treatment the water has received.

6. Implementability

Alternatives GW2 through GW5 would be technically feasible using proven technologies. Alternatives GW2 through GW5 would be administratively feasible. Coordination with WDNR and U.S. EPA would also be required in order to determine when the ground water is cleaned up. A shortage of materials needed to implement any of the alternatives is not anticipated. GW4 may be more difficult to implement because micro-organisms could die due to an inconsistent food source (ground-water contaminants).

7. Cost

Alternative GW1 involves O&M costs of $114,200 and a PNW cost of $2.4 million over a 40-year period. There is no capital cost involved.

Alternative GW2 involves a capital cost of $2.7 million, O&M costs of $1.3 million and a PNW cost of $20 million over a 40-year period.

Alternative GW3 involves a capital cost of $2.1 million, O&M costs of $1.1 million and a PNW cost of $16.8 million over a 40-year period.

Alternative GW4 involves a capital cost of $2.3 million, O&M costs of $561,900 and a PNW cost of $10.3 million over a 40-year period.

Alternative GW5 involves a capital cost of $1.8 million, O&M costs of $567,900 and a PNW cost of $10.9 million over a 40-year period.

8. State Acceptance

The State of Wisconsin supports the recommended alternative for ground water at the City Disposal site.

9. Community Acceptance

This will be addressed in the ROD after public comments on the FS and this Proposed Plan are received.

SUMMARY OF CLEANUP ALTERNATIVES

The alternatives recommended by U.S. EPA for cleaning up the source of contamination (Alternative S3) and the ground water (Alternative GW5) at the City Disposal site provide the best balance of trade offs with respect to the nine criteria. Based on the information available at this time, U.S. EPA believes that the recommended alternatives are protective of

human health and the environment, comply with ARARs, and are cost effective. They also use treatment to address the principal threat.

The recommended alternative for the source includes active gas extraction through trenches and wells, flaring, capping the landfill, and institutional controls.

The evaluation of the source cleanup alternatives found that:

- Although all of the alternatives would provide some protection of human health and the environment through extracting and flaring the landfill gases, Alternative S1 provides no protection from direct contact with the wastes. Capping in Alternatives S2, S3, and S4 would provide protection from direct contact with the wastes and would prevent continued contamination of ground water.
- Alternatives S1 and S2 would not meet State requirements for landfill covers. Alternatives S3 and S4 would meet State requirements for landfill covers.
- Alternative S3, with its clay cover over the entire landfill and the addition of the synthetic membrane over Cells 6 and 12 would provide the most reliable protection over time, and assists in the more aggressive removal of VOCs from Cells 6 and 12.
- Alternative S3 provides additional effectiveness proportional to its cost when compared to Alternative S4.

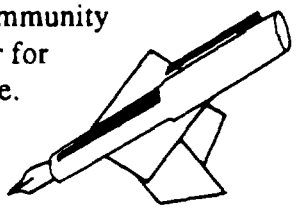
The recommended alternative for ground water includes ground-water extraction, chemical oxidation, discharge to Badfish Creek, ground-water monitoring, and institutional controls.

PUBLIC COMMENT INVITED

Comments provided by residents and other interested parties are valuable in helping U.S. EPA select a final cleanup plan for the site. U.S. EPA encourages you to share your views about the recommended cleanup plan and the other alternatives presented in the FS.

U.S. EPA provides you with two methods to let it know your opinion during the public comment period:

1. You may **send written comments** to Susan Pastor, the community relations coordinator for the City Disposal site. Her address is listed under "For More Information." **Comments must be postmarked by June 18, 1992.**



2. You may **submit oral comments** to U.S. EPA during the **public meeting at 7 p.m.** on **June 3, 1992** at the Dunn Town Hall. A court reporter will be present to record oral comments. You may also submit written comments at this meeting.

U.S. EPA will respond to all significant comments in a document called a Responsiveness Summary. The Responsiveness Summary will be attached to the ROD and will be made available to the public in the information repository and Administrative Record File.

The Proposed Plan, FS, and other site-related documents are available at the information repository listed on the back page.

For more information on the City Disposal site, please contact Susan Pastor at (312) 353-1325 or through U.S. EPA's toll-free number: 1-800-621-8431.

The Superfund law requires U.S. EPA to provide the public with the opportunity to submit written and oral comments concerning the cleanup alternatives and the Proposed Plan.

The evaluation of the ground-water cleanup alternatives found that:

- Alternative GW1 would not be protective of human health and the environment.
- Alternative GW4 would not meet air-quality standards on a continuous basis due to a variation in contaminant levels throughout the year. Alternatives GW2 through GW5 would have to be closely monitored to prevent violations of surface-water discharge standards.
- Alternatives GW2 through GW5 would produce waste that would require further handling or treatment. GW5 would produce the least amount of this waste.
- Alternative GW4 would require a high degree of effort when monitoring the treatment process to ensure that the micro-organism population remains constant and effective.
- Alternative GW5 is implementable and cost effective.

THE NEXT STEP

U.S. EPA will evaluate public comments received during the public comment period before selecting a final cleanup plan for the site. The final cleanup plan will be described in a ROD. After a final cleanup plan is chosen and the ROD is signed, the plan will be designed and implemented. This phase of the Superfund cleanup process is called remedial design and remedial action.

FOR MORE INFORMATION

U.S. EPA Contacts

The following U.S. EPA representatives may be contacted if you have further questions about the City Disposal site.

Susan Pastor (P-19J)
Community Relations Coordinator
Office of Public Affairs
(312) 353-1325

Charles Wilk (HSRW-6J)
Remedial Project Manager
Office of Superfund
(312) 353-1331

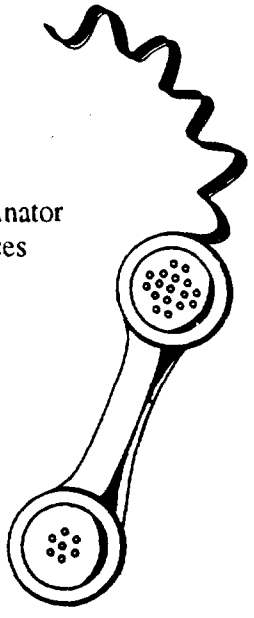
U.S. EPA, Region 5
77 W. Jackson Boulevard
Chicago, IL 60604

Toll-Free
1-800-621-8431
9 a.m. - 4:30 p.m. (Central Time)

WDNR Contacts

Mike Schmoller
State Project Coordinator
Wisconsin Department of Natural Resources
Bureau of Solid and Hazardous Waste
Southern District Office
3911 Fish Hatchery Road
Fitchburg, WI 53711
(608) 275-3303

Cara Norland
Acting State Community Relations Coordinator
Wisconsin Department of Natural Resources
Bureau of Solid and Hazardous Waste
P.O. Box 7921
Madison, WI 53707
(608) 267-0540



Wisconsin Division of Health Contacts

Chuck Warzecha
Hydrogeologist
Wisconsin Division of Health
P.O. Box 309
Madison, WI 53701-0309
(608) 267-3732

Mary Young
Public Health Educator
Wisconsin Division of Health
P.O. Box 309
Madison, WI 53701-0309
(608) 267-6844

GLOSSARY

Applicable or Relevant and Appropriate Requirements (ARARs) - This refers to the Federal and State environmental requirements that a selected remedy will attain. These include requirements such as allowable air emissions, and allowable levels of contaminants in site soils, water, sediments, etc.

Capital Cost - Also referred to as startup costs, this is the amount of money it would take to complete the construction of an alternative to the point where it is ready for operation.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) - A Federal law passed in 1980 and amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA), authorizing identification and remediation of abandoned hazardous waste sites. The Act created a special tax that goes into a trust fund, commonly known as Superfund, to investigate and clean up hazardous waste sites.

Downgradient - This refers to something that is in the pathway of the natural flow of the ground water.

Methane - A volatile organic compound (VOC), commonly known as natural gas, resulting from the decay of organic matter, which is used as a fuel, and also in the petrochemical industry. It is a severe fire and explosion hazard.

Methyl Ethyl Ketone - A flammable liquid with a pungent odor, often used as a solvent or in the surface coating industry. Methyl ethyl ketone is a VOC.

Methylene Chloride - A VOC, commonly used as a paint remover and degreaser. It is moderately toxic by inhalation, ingestion, or absorption through the skin, and can cause eyes to become irritated.

Potentially Responsible Party (PRP) - An individual, business or government agency identified by U.S. EPA as potentially liable for the release or threatened release of contaminants at a Superfund site.

Present Net Worth (PNW) Cost - An economic term used to describe today's cost for a Superfund cleanup and to reflect the discounted value of future costs. A present net worth cost estimate includes construction and future operation and maintenance costs. U.S. EPA uses present net worth values when calculating the cost of alternatives for long-term projects.

Record of Decision (ROD) - A document issued after the RI/FS which describes U.S. EPA's selected remedy for cleanup of a Superfund site.

Remedial Investigation/Feasibility Study (RI/FS) - The process consists of two distinct, but related studies. The first study is the RI which examines the nature and extent of contamination problems at the site. The second study is the FS which evaluates different methods available to clean up the contamination problems found during the RI.

Semi-Volatile Organic Compounds (Semi-Volatiles) - A group of chemicals which evaporate in air at a slower rate than VOCs. Many are suspected or known to cause cancer or other illnesses.

Tetrahydrofuran - A solvent used in the manufacture of polyvinylchloride (PVC). Tetrahydrofuran is moderately toxic by inhalation, ingestion, or direct skin contact. It can also cause liver and kidney damage.

Toluene - A clear liquid with a sweet, pungent odor. Toluene is used as a solvent for paints and coatings, and is a component of automobile and aviation fuels. It can be toxic by ingestion, inhalation, or skin absorption.

Vinyl Chloride - A gaseous substance which is used in the manufacture of plastics to make pipes, records, raincoats, and floor tiles. Health risks from exposure to high levels of vinyl chloride include liver and lung cancer, as well as cancer of the lymphatic and nervous system.

Volatile Organic Compounds (VOCs) - A group of chemicals (often used as solvents) that have a tendency to evaporate when exposed to air. Due to this tendency, VOCs disappear more rapidly from surface water than ground water. Since ground water does not usually come in contact with air, VOCs are not easily released and can be present for many years in ground water used for drinking water. When present in drinking water, VOCs may pose a potential threat to human health through ingestion, contact with the skin, or inhalation of vapors.

Waiver - CERCLA provides that under certain circumstances, an ARAR may be waived (or not enforced) by U.S. EPA. CERCLA outlines certain criteria for which a waiver may be granted. If a waiver is not granted, the ARAR must be met.

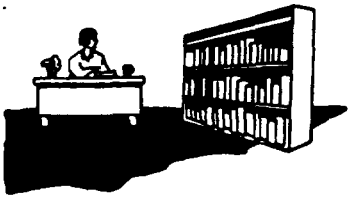
Xylenes - VOCs used as solvents and as ingredients in lacquers, inks, dyes, enamels, and rubber cement. They have also been used in the manufacture of plastics, perfumes, and pharmaceuticals, and are commonly found in paint and varnish removers. They may be toxic by inhalation or ingestion.

Information Repositories/ Administrative Record File

Information repositories contain laws, work plans, community relations plans, and other documents relevant to the investigation and cleanup of Superfund sites. Anyone who would like additional information about the City Disposal site is encouraged to consult the various documents available at the information repository. For more information, visit:

Dunn Town Hall
4156 County Trunk Highway B
McFarland, WI
Contact: Rosalind Gausman

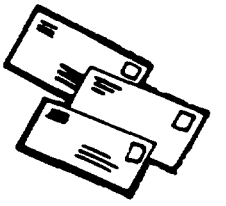
The Administrative Record File, which contains the information upon which the selection of the remedy will be based, is also available at the Dunn Town Hall.



MAILING LIST

If you wish to be placed on the City Disposal site mailing list, please complete this form, detach, and mail to:

Susan Pastor (P-19J)
Community Relations Coordinator
Office of Public Affairs
U.S. EPA, Region 5
77 W. Jackson Boulevard
Chicago, IL 60604



NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

PHONE ( ) _____

AFFILIATION _____

U.S. Environmental Protection Agency
Region 5
Office of Public Affairs (P-19J)
77 W. Jackson Boulevard
Chicago, IL 60604