SOURCE WATER ASSESSMENT REPORT

AN EVALUATION OF THE SUSCEPTIBILITY OF PUBLIC DRINKING WATER SOURCES TO POTENTIAL CONTAMINATION

APA **106**

Norwalk First Taxing District
Kellogg-Deering Wellfield

The State of Connecticut Department of Public Health (DPH) in cooperation with the Department of Environmental Protection (DEP) recently completed an assessment of the Kellogg-Deering Wellfield, which is a source of public drinking water that is maintained and operated by the Norwalk First Taxing District. This one-time assessment is part of a nationwide effort mandated by Congress under the Safe Drinking Water Act Amendments of 1996 to evaluate the susceptibility of all public drinking water sources in Connecticut to potential sources of contamination. DPH began working in partnership with the DEP in 1997 to develop Connecticut's Source Water Assessment Program, which was approved by the U.S. Environmental Protection Agency in 1999. Sources of potential contamination that are of concern to public drinking water supplies here in Connecticut are generally associated with historic waste disposal or commercial, industrial, agricultural and residential properties that store or use hazardous materials like petroleum products, solvents or agricultural chemicals.

The assessment is intended to provide Norwalk First Taxing District consumers with information about where their public drinking water comes from, sources of potential contamination that could impact it, and what can be done to help protect it. This assessment will also assist the public water supply system, regional planners, local government, public health officials and state agencies in evaluating the degree to which the Kellogg-Deering Wellfield may be at risk from potential sources of contamination. The assessment can be used to target and implement enhanced source water protection measures such as routine inspections, protective land use regulations, acquisition of critical land, proper septic system maintenance, and public education. General sources of contamination with the potential to impact the Kellogg-Deering Wellfield include properties with underground fuel storage tanks, improperly maintained on-site septic systems, improper waste disposal, or commercial/industrial sites that store or use chemicals or generate hazardous wastes.

Kellogg-Deering Wellfield Source Water Assessment Summary

STRENGTHS

Public Water System Source Protection Program

POTENTIAL RISK FACTORS

Potential contaminant sources in source water area

No local aquifer protection regulations

2 contaminant release points in source water area

Susceptibility Rating

Rating	Environmental Sensitivity	Potential Risk Factors	Source Protection Needs
Low			
Moderate	X		
High		X	X

Overall Susceptibility Rating: High

This rating indicates susceptibility to potential sources of contamination that may be in the wellfield source water area and does not necessarily imply poor water quality.

Detailed information about the specific factors and information used in establishing this rating can be found in Table 1. Information about opportunities to improve protection in the Kellogg-Deering Wellfield source water area is also presented in Table 2.

CONNECTICUT DEPARTMENT OF PUBLIC HEALTH

Keeping Connecticut Healthy

State of Connecticut Department of Public Health

Drinking Water Division

410 Capitol Avenue – MS# 51WAT
P.O. Box 340308 Hartford, CT 06134
(860) 509-7333

Produced With Funding Provided By The United States Environmental Protection Agency - May 2003

SOURCE WATER ASSESSMENT REPORT

AN EVALUATION OF THE SUSCEPTIBILITY OF PUBLIC DRINKING WATER SOURCES TO POTENTIAL CONTAMINATION

CT1030011

Norwalk First Taxing District
Grupes Reservoir System

The State of Connecticut Department of Public Health (DPH) in cooperation with the Department of Environmental Protection (DEP) recently completed an initial assessment of the Grupes Reservoir System, which is a source of public drinking water that is maintained and operated by the Norwalk First Taxing District. This one-time assessment is part of a nationwide effort mandated by Congress under the Safe Drinking Water Act Amendments of 1996 to evaluate the susceptibility of all public drinking water sources in Connecticut to potential sources of contamination. DPH began working in partnership with the DEP in 1997 to develop Connecticut's Source Water Assessment Program, which was approved by the U.S. Environmental Protection Agency in 1999. Sources of potential contamination that are of concern to public drinking water supplies here in Connecticut are generally associated with historic waste disposal or commercial, industrial, agricultural and residential properties that store or use hazardous materials like petroleum products, solvents or agricultural chemicals.

The assessment is intended to provide Norwalk First Taxing District consumers with information about where their public drinking water comes from, sources of potential contamination that could impact it, and what can be done to help protect it. This initial assessment complete will also assist the public water supply system, regional planners, local government, public health officials and state agencies in evaluating the degree to which the Grupes Reservoir System may be at risk from potential sources of contamination. The assessment can be used to target and implement enhanced source water protection measures such as routine inspections, protective land use regulations, acquisition of critical land, proper septic system maintenance, and public education. General sources of contamination with the potential to impact the Grupes Reservoir System include properties with underground fuel storage tanks, improperly maintained on-site septic systems, improper waste disposal, or commercial/industrial sites that store or use chemicals or generate hazardous wastes.

Grupes Reservoir System Source Water Assessment Summary

STRENGTHS

Point source pollution discharge points not present in this watershed area

Public water system has a comprehensive source protection program.

POTENTIAL RISK FACTORS

Potential contaminant sources present in the watershed

Less than 10% of watershed area owned by public water system

Local regulations or zoning initiatives for the protection of public drinking water sources do not exist

Susceptibility Rating

Rating	Environmental Sensitivity	Potential Risk Factors	Source Protection Needs
Low	X	X	
Moderate			
High			X

Overall Susceptibility Rating: Moderate

This rating indicates susceptibility to potential sources of contamination that may be in the source water area and does not necessarily imply poor water quality.

Detailed information about the specific factors and information used in establishing this rating can be found in Table 2. Information about opportunities to improve protection in the Grupes Reservoir System is also presented in Table 2.

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OVERVIEW - The Grupes Reservoir System watershed encompasses some 6,531 acres of land in New Canaan, Ridgefield and Wilton and New York State. Approximately 3.0% of this watershed is owned by the Norwalk First Taxing District. Public drinking water sources in this system include Browns, Grupes, John D. Milne, and Scotts reservoirs. State-wide satellite imagery developed by the University of Connecticut indicates that undeveloped land and residential properties presently account for approximately 89.1% percent of the land cover in the Grupes Reservoir System. Commercial development at 0.2% and agricultural land use at 10.8% account for the remainder of the land coverage in the source water area. Approximately 7.4% of the land in the watershed area is preserved including all watershed land owned by the Norwalk First Taxing District, state forest and parklands, and municipally or privately held land designated as open space. Information about drinking water quality and treatment is available in the Norwalk First Taxing District's annual Consumer Confidence Report.

ASSESSMENT METHODS.

The drinking water source assessment methods used by the Department of Public Health Drinking Water Division to evaluate the susceptibility of public drinking water sources to contamination are based on criteria individually tailored to surface water and groundwater sources. The criteria are keyed to sanitary conditions in the source water area, the presence of potential or historic sources of contamination, existing land use coverage's, and the need for additional source protection measures within the source water area. Source-specific data for community and non-community systems were used to determine whether a particular criterion should be rated as low, moderate or high, relative to the risk of potential contamination at the drinking water source. Further, a ranking system was used to compute an average rank for each community drinking water source based on its environmental sensitivity, potential risk of contamination and source protection needs. Watersheds and reservoirs rated as having a low, moderate or high susceptibility to potential sources of contamination generally exhibit the characteristics summarized in Table 1.

Table 1 – General Watershed Area Characteristics and Susceptibility Ratings

Susceptibility Rating	**General Characteristics of the Watershed Area***
Low	Low density of potential contaminant sources Lower intensity of land development
Moderate	Low to moderate density of potential contaminant sources Moderate intensity of land development
High	Moderate to high density of potential contaminant sources Higher intensity of land development No local watershed protection regulations Detectable nitrates and/or volatile organic chemicals in the untreated source water during the past three years that are below the maximum contaminant levels allowed by state and federal drinking water regulations

****Note: Not all characteristics may be present for a given susceptibility rating***

Readers of this assessment are encouraged to use the attached glossary to assist in the understanding of the terms and concepts used throughout this report.

Maps representing the location and features of the Grupes Reservoir System source water area have not been included with this assessment report because of homeland security concerns.

GRUPES RESERVOIR SYSTEM ASSESSMENT RESULTS.

Based on a combination of current reservoir and watershed area conditions, existing potential contaminant sources, and the level of source protection measures currently in place, the source water assessment for this watershed system indicates that it has an overall Moderate risk of contamination from any identified potential sources of contamination. The assessment findings for the Grupes Reservoir System are summarized in Table 2, which lists current conditions in the source water area and recommendations or opportunities to enhance protection of this public drinking water source. A listing of potential contaminant source types in the area, if present, can be found in Table 3. A summary of source water area features is shown in Table 4. It should be noted that this rating does not necessarily imply poor water quality or ongoing violations of the Connecticut Public Health Code.

The assessment of this and other comparable watershed areas throughout Connecticut generally finds that adopting recommendations similar to those presented in Table 2 could reduce the susceptibility of most surface water sources to potential sources of contamination.

Table 2 Source Water Assessment Findings and Source Protection Opportunities For the Grupes Reservoir System

Assessment Category	Conditions as of June 2002	Recommendations and Source Protection Opportunities
Environmental Sensitivity Factors	Predominant watershed topography characterized by gentle slopes	Monitor runoff during heavy precipitation events
	Reservoirs have moderate to high capacity to support excessive growths of algae and plankton	Monitor reservoir nutrient levels for source waters classified as eutrophic or mesotrophic.
Contaminants Detected in Untreated Source Water	None	
	Click here to review EPA's current drinking water standards	Encourage homeowners to adopt residential best management practices that minimize the use of hazardous materials or generation of hazardous waste in the watershed.
Potential Risk Factors	Potential contaminant sources present in the watershed	Periodically inspect these sites and maintain a water quality monitoring program consistent with the level of potential risk
	Approximately 35% of the land for this source water area is undeveloped, which could present a risk if developed inappropriately.	Proactively work with local officials and developers to insure that only low-risk development occurs within the watershed area
	Major state or interstate roadways present in the watershed	Monitor road salt and herbicide usage along these roadways and address potential for hazardous material spills resulting from vehicular accidents
	Known contaminant release points not present in the watershed	Encourage residential property owners to inspect and regularly cleanout onsite septic systems and replace underground fuel storage tanks with above ground tanks.
Source Protection Needs Factors	Less than 10% of watershed area owned by public water system	Increase ownership or control of watershed area whenever land becomes available for purchase or support land acquisition by public or private conservation/preservation organizations
	Less than 10% of the land in the source water area exists as preserved open space	Support and encourage the acquisition of open space land within the watershed area
	Local regulations or zoning initiatives for the protection of public drinking water sources do not exist	Establish local watershed protection regulations to protect public drinking water sources
	Comprehensive plans and policies for the protection of public drinking water sources do not exist at the local government level	Develop or enhance local governmental plans and policies that favor the protection of public drinking water sources
	Point source pollution discharge points not present in this watershed area	Support environmental awareness and education within the community.

Inventoried significant potential contaminant sources present in the Grupes Reservoir System source water area are listed in Table 3. While these facilities, if present, have the potential to cause surface water contamination; there is no indication that they are doing so at this time.

Table 3 – Summary of Significant Potential Contaminant Types in the Grupes Reservoir System Source Water Area

Category	Subcategory	Number of SPCS Types
Waste Storage, Handling, Disposal	Hazardous Waste Facilities	2
	Solid Waste Facilities	0
	Miscellaneous	0
Bulk Chemical, Petroleum Storage	Underground Storage Tanks	5
	Tank Farms	0
	Warehouses	0
Industrial Manufacturing / Processing	Chemical & Allied Production	0
	Chemical Use Processing	0
	Miscellaneous	0
Commercial Trades and Services	Automotive and Related Services	0
	Chemical Use Services	0
	Miscellaneous	0
Miscellaneous	No Identifiable SPCS Type	0
Agricultural Operations	Animal or Livestock Waste Handling	0
	Pesticide Storage or Application	1
Total Number of Contaminant Types		8

Prominent features of the Grupes Reservoir System source water area are summarized in Table 4.

Table 4 - Features of the Grupes Reservoir System

Location of Watershed Area	New Canaan, Ridgefield and Wilton and New York State
Name of Reservoir(s) and Diversion(s)	Browns, Grupes, John D. Milne, and Scotts reservoirs
Number and Type of Public Drinking Water Reservoirs or Diversions in the Watershed	1 Distribution and 1 Distribution and Storage
Trophic Status of Reservoir(s)	2 Eutrophic and 2 Mesotrophic
DEP Surface Water Classification	AA
Watershed Area (total acreage)	6,531 acres
Preserved Land in the Watershed [a]	482 acres
Predominant Watershed Topography	gentle slopes
General Land Use and Land Cover in the Watershed [b] -Urban - Commercial or Industrial -Urban - Residential -Agricultural -Undeveloped Land	 0.2% 17.5% 10.8% 71.6%
Significant Potential Contamination Sources -Number of inventoried facilities in source water area [c] -Count of inventoried facilities per square mile -Number of contaminant types within inventoried facilities	 7 0.69 per sq mile 8
Number of Contaminant Release Points Inventoried by CTDEP [d]	0

[a] Preserved land includes any combination of land owned by the public water supply, state forest and parklands, and municipally or privately held land designated as open space.

[b] Based on statewide data layer of land use and land cover developed by UCONN Dept of Natural Resource Management Engineering and Connecticut DEP satellite imagery averaged across the entire watershed.

[c] Inventoried facilities reflect the actual number of SPCS sites present in the source water area, which may have more than 1 type of contaminant present at the facility.

[d] Sites or locations with documented accidental spills, leaks or discharges. While these sources, which are cataloged and tracked by the Connecticut DEP, may fall within a public drinking water supply source water area, they may or may not presently be discharging to the environment or causing contamination of a public drinking water source.

OVERVIEW - The Kellogg-Deering Wellfield is located in an aquifer that is comprised largely of water-bearing sand and gravel deposits. The source water area is delineated by a preliminary Level B aquifer protection mapping area, which encompasses some 4852.4 acres of land in New Canaan and Norwalk. Vacant land and residential properties in the Kellogg-Deering Wellfield source water area presently account for approximately 82.1 percent of the land cover. Commercial development at 13.4 percent and agricultural land use at 4.5 percent, account for the remainder of the land coverage's in the source water area. Information about drinking water quality and treatment is available in the Norwalk First Taxing District's annual Consumer Confidence Report.

ASSESSMENT METHODS.

The drinking water source assessment methods used by the Department of Public Health Drinking Water Division to evaluate the susceptibility of public drinking water sources to contamination are based on criteria individually tailored to surface water and groundwater sources. The criteria are keyed to sanitary conditions in the source water area, the presence of potential or historic sources of contamination, existing land use coverage's, and the need for additional source protection measures within the source water area. Source-specific data for community and non-community systems were used to determine whether a particular criterion should be rated as low, moderate or high, relative to the risk of potential contamination at the drinking water source. Further, a ranking system was used to compute an average rank for each community drinking water source based on its environmental sensitivity, potential risk of contamination and source protection needs.

Wellfields rated as having a low, moderate or high susceptibility to potential sources of contamination generally exhibit the characteristics summarized in Table 1.

Table 1 – General Source Water Area Characteristics and Susceptibility Ratings

Susceptibility Rating	**General Characteristics of the Source Water Area***
Low	Low density of potential contaminant sources Lower intensity of land development
Moderate	Low to moderate density of potential contaminant sources Moderate intensity of land development
High	Moderate to high density of potential contaminant sources Higher intensity of land development No local aquifer protection regulations Detectable nitrates and/or volatile organic chemicals in the untreated source water during the past three years that are below the maximum contaminant levels allowed by state and federal drinking water regulations

**** Note: Not all characteristics may be present for a given susceptibility rating***

Readers of this assessment are encouraged to use the attached glossary to assist in the understanding of the terms and concepts used throughout this report.

Maps representing the location and features of the Kellogg-Deering Wellfield source water area have not been included with this assessment report because of homeland security concerns

KELLOGG-DEERING WELLFIELD ASSESSMENT RESULTS.

Based on a combination of current wellfield and source water area conditions, existing potential contaminant sources, and the level of source protection measures currently in place, the source water assessment for this wellfield indicates that it has an overall High risk of contamination from identified potential sources of contamination. It should be noted that this rating does not necessarily imply poor water quality or ongoing violations of the Connecticut Public Health Code. The assessment findings for the Kellogg-Deering Wellfield are summarized in Table 2, which lists current conditions in the wellfield source water area and recommendations or opportunities to enhance protection of this public drinking water source. A listing of potential contaminant source types in the area can be found in Table 3. A summary of source water area features is shown in Table 4.

The assessment of this and other comparable wellfields throughout Connecticut generally finds that adopting recommendations similar to those presented in Table 2 could reduce the susceptibility of most groundwater sources to potential sources of contamination.

Table 2 **Source Water Assessment Findings and Source Protection Opportunities**

Kellogg-Deering Wellfield

Assessment Category	Conditions Through June 2002	Recommendations and Source Protection Opportunities
Environmental Sensitivity Factors	All wells in the Kellogg-Deering Wellfield are sited and constructed in accordance with DPH regulations and the most recent DPH sanitary survey of this wellfield indicates that it is free of deficiencies.	
Contaminants Detected in Untreated Source Water	cis-1,2 Dichloroethylene, MTBE, Tetrachloroethylene, Toluene, Xylenes, Methylene Chloride in source water before aeration treatment	Maintain monitoring levels specified in the Connecticut Public Health Code Section 19-13-B102
	Except where noted above, any detected contaminants listed are below maximum contaminant levels (MCL) established by the federal government or guidance levels established by the Connecticut Department of Public Health. The presence of these contaminants, in general, indicates that this wellfield is sensitive to human activity.	
	Click here to review EPA's current drinking water standardsT	Encourage homeowners to adopt residential best management practices that minimize the use hazardous materials or generation of hazardous waste.
Potential Risk Factors	Potential contaminant sources in source water area	Periodically inspect SPCS sites and maintain a water quality monitoring program consistent with the level of potential risk
	2 contaminant release points in source water area	Maintain an adequate level of surveillance around contaminant release point sites to insure that groundwater contamination is not occurring
	Ten percent or more of the source water area has been developed for commercial or industrial use	Monitor activities at commercial and industrial facilities to insure that best management practices are being followed Encourage residential property owners to conduct scheduled inspections and maintenance of underground fuel storage tanks and on-site septic systems.
Source Protection Needs Factors	Level B aquifer mapping completed	Complete Level A mapping
	100 percent ownership or control of sanitary radius around wellheads in wellfield.	
	Local aquifer protection regulations have not been adopted for this source water area	Develop and adopt local aquifer protection regulations
	Less than 10% of the land in the source water area exists as preserved open space	Support and encourage the acquisition of open space land within the source water area Support environmental awareness and education within the community.

Inventoried significant potential contaminant sources in the Kellogg-Deering Wellfield source water area are listed in Table 3. While these facilities have the potential to cause groundwater contamination, there is no indication that they are doing so at this time.

Table 3 Summary of Significant Potential Contaminant Types in the Kellogg-Deering Wellfield Source Water Area

Category	Subcategory	Number of SPCS Types
Waste Storage, Handling, Disposal	Hazardous Waste Facilities	30
	Solid Waste Facilities	0
	Miscellaneous	0
Bulk Chemical, Petroleum Storage	Underground Storage Tanks	64
	Tank Farms	2
	Warehouses	0
Industrial Manufacturing / Processing	Chemical & Allied Production	0
	Chemical Use Processing	45
	Miscellaneous	7
Commercial Trades and Services	Automotive and Related Services	82
	Chemical Use Services	8
	Miscellaneous	8
Agriculture and Related	Pesticide Storage, Handling or Application	0
Total Number of Contaminant Types		246

Prominent features of the Kellogg-Deering Wellfield source water area are summarized in Table 4.

Table 4 Features of the *Kellogg-Deering Wellfield* Source Water Area

Number and Type of Public Drinking Water Supply Wells	4 stratified drift wells
Source Water Area Delineation Method [a]	preliminary Level B
DEP Groundwater Classification	GA-impaired or GAA-impaired- Groundwater that may not be meeting all standards with a goal to restore to drinking water quality
Size of Source Water Area	4852.4 acres
Location of Source Water Area	New Canaan and Norwalk
Predominant Land Use and Land Cover in Source Water Area [b] -Urban - Commercial or Industrial -Urban - Residential -Agricultural -Undeveloped Land	 13.4 % 67.7 % 4.5 % 14.4 %
Preserved Land In Source Water Area [d]	103.0 acres
Significant Potential Contamination Sources -Number of inventoried facilities in source water area -Count of inventoried facilities per square mile -Number of contaminant sources within inventoried facilities	 180 23.74 per sq mile 246
Number of Contaminant Release Points Inventoried by CTDEP [c]	2

[a] Source water delineation method depends on data available for the wellfield

[b] Based on statewide data layer of land use and land cover developed by UCONN Dept of Natural Resource Management Engineering and Connecticut DEP satellite imagery.

[c] Sites or locations with documented accidental spills, leaks or discharges. While these sources, which are cataloged and tracked by the Connecticut DEP, may fall within a public drinking water supply source water area, they may or may not presently be discharging to the environment or causing contamination of a public drinking water source.

[d] Any combination of state forest and parklands and municipally or privately held land designated as open space.