



Groundwater & Water System Protection Plaistow, NH

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Multi-barrier Approach Starts with Source Water Protection

The Multiple Barrier Approach to Protecting Public Health

The multiple barrier approach provides “defense in depth” against waterborne pathogens and chemical contaminants that can cause a variety of illnesses and conditions, some of them potentially fatal. By erecting barriers against these contaminants at each step in the process from raw, untreated source water to the delivery of treated finished water, system owners and operators can protect the health and well being of the people who rely on them for potable water.



Source Water

Barriers: Selecting and protecting the best source of supply.



Treatment

Barriers: Installing treatment methods, implemented by a certified operator, that will improve the quality of the source water.



Storage and Distribution

Barriers: Constructing, operating, and maintaining well-engineered storage facilities and distribution systems.



Monitoring and Public Information

Barriers: Providing consumers with information on water quality and health effects.

Figure 8-6. Multiple-barrier approach to safe drinking water. Source: USEPA, 2003.

Source Water Assessment & Protection (general approach)

- (1) **Delineate** (map) areas around surface-water intakes or public-supply wells to be protected from contamination,
- (2) **Inventory** known and potential sources of contamination in these areas,
- (3) **Determine** the susceptibility of sources to contaminants,
- (4) **Notify and involve** the public about identified threats and what they mean to their public water system
- (5) **Implement** management measures to prevent, reduce, or eliminate threats.

Plaistow's 2001 Source Protection Plan reflects this approach.

Source Water Assessment Reports

Source Number	Source Description	Source Type	Date Assessment Completed	Number of Vulnerability Rankings			Susceptibility Ranking Criteria													
				Highs	Mediums	Lows	Detects	Well/Intake	KCSs	PCSs	Highways/RRs	Pesticides	Septics	Urban Land Cover	Ag Land Cover	Animals	Lagoons	Dry discharges	Sanitary radius	Trophic status
EPAID 1939030	System Name: SAWYERS BANQUET FUNCTION FACIL																			
001 PTW		G	7/24/2001	3	0	6	H	L	L	H	H	L	L			L	L			
EPAID 1939050	System Name: PLAISTOW TOWN HALL																			
001 BRW		G	7/24/2001	3	0	6	L	L	H	H	H	L	L			L	L			
System Type	P	C=Community; P=Non-Transient, Non-Community; N=Transient																		

- In 2001 – “13 of 56 (23%) public water supply wells had a “detect”

EPAID 1935030	System Name: TIMBERLANE RGNL HIGH SCHOOL																			
001 BRW		G	8/3/2001	4	2	6	L	L	H	M	L	L	H	H	H	L	L		M	
EPAID 1935040	System Name: SWEET HILL KINDERGARTEN																			

- Statewide assessment data indicates increased risk of detects associated with a greater number of PCSs within 1,000 ft. of well.

EPAID 1936100	System Name: PENTUCKET SHOPPING CENTER																			
002 BRW		G	11/5/2001	1	4	7	L	L	L	M	L	L	M	H	M	L	L		M	
004 BRW		G	11/5/2001	1	5	6	L	L	L	M	M	L	M	H	M	L	L		M	

<http://des.nh.gov/organization/divisions/water/dwgb/dwspp/reports/part1.htm#p>

2001 Plaistow Source Protection Plan – “High” Ranking Threats to PWSs

1. Known detects (e.g., VOCs)
2. Location/number of highways in WHPA
3. Number/proximity of septic systems
4. Anthropogenic “PCSs” within WHPAs
5. Percentage urban land cover in WHPA

Managing PCSs in Plaistow

PCS Inspections Ensure Groundwater BMPs Required in State Rules Are in Place

PCSs listed within RSA 485-C:7

USUALLY REQUIRES INSPECTION

- ✓ **Vehicle service & repair**
- ✓ **General service & repair**
- ✓ **Metalworking**
- ✓ **Manufacturing**
- ✓ **Waste & scrap processing**
- ✓ **Laboratories**
- ✓ **Hazardous waste facilities**
- ✓ **Concrete, asphalt, tar manufacturing**

NO INSPECTION REQUIRED

- ✓ **Cemeteries**
- ✓ **Salt sheds**
- ✓ **Transportation corridors**
- ✓ **Septic systems**
- ✓ **Snow dumps**
- ✓ **Stormwater infiltration pond or leaching catch basin**

Develop a BMP Inspection Program

- “Many of the high risks to Plaistow’s groundwater sources identified by NH DES’s Source Water Assessments are petroleum products and regulated substances (greater than household quantities of hazardous materials).”
- “Therefore, the committee will develop a Best Management Practice (BMP) Inspection/Survey Program for businesses that use regulated substances.”*

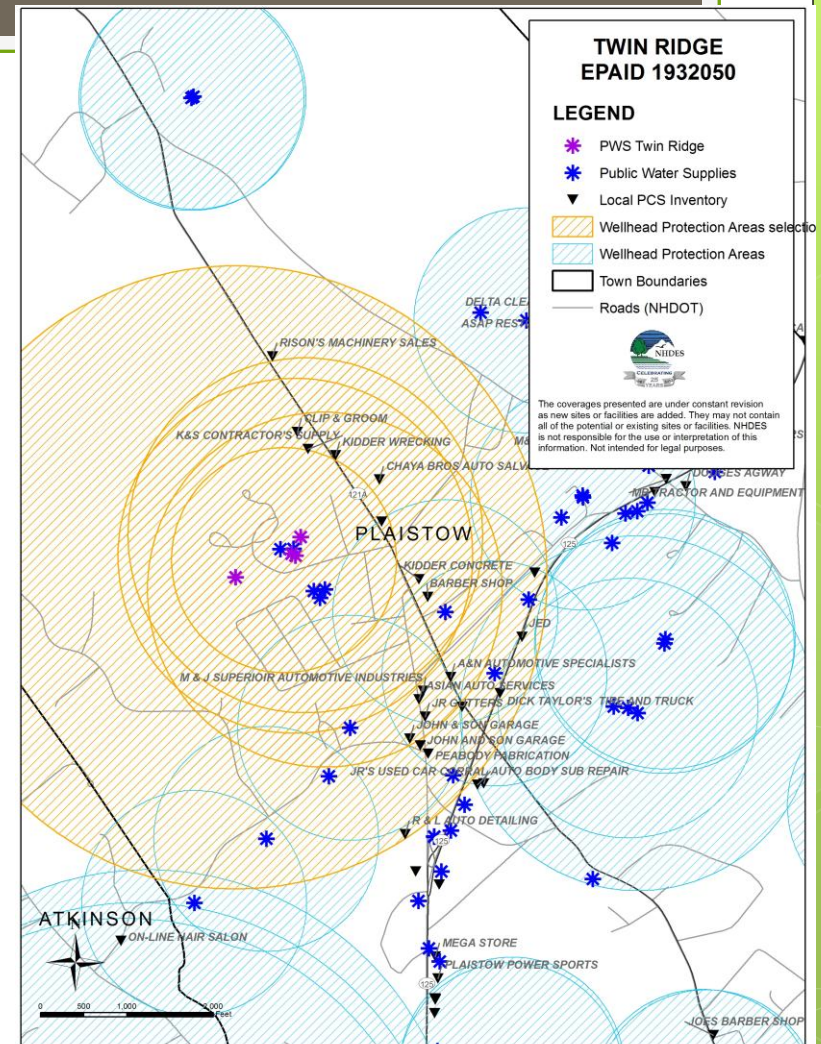
Source: Source Water Protection Plan, 2001



Local BMP Inspection Programs

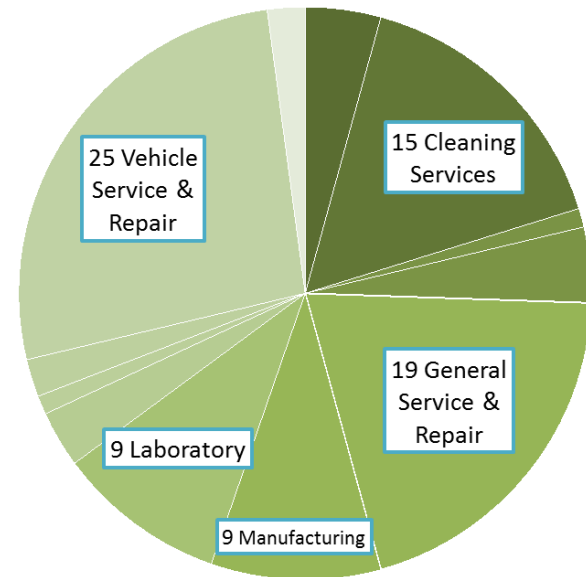
- Inspection once every 3 years
- Review of BMPs required by state/local regs
- Comply with Env-Wq 401, BMPs for Groundwater Protection

DES offers guidance and training to town/water system inspectors.



PCSs by “Type” in Plaistow

- Most are in WHPAs
- Most PCSs likely warrant some on-site inspection
- Regular inspections determine whether BMPs are followed
- DES provides maps, PCS lists, and training for local inspectors



Zoning & Regulations



Plaistow, NH Master Plan

“Objective 1: Ensure a safe and adequate water supply for all citizens through proper management of land, water supply areas, and aquifer recharge areas.”

Plaistow's Aquifer Protection Zoning

- Protects stratified drift aquifers;
- Prohibits 23* land uses
- Hydrogeologic study to determine availability of water.

Performance Based Standards for groundwater may be appropriate to include within Plaistow's zoning.



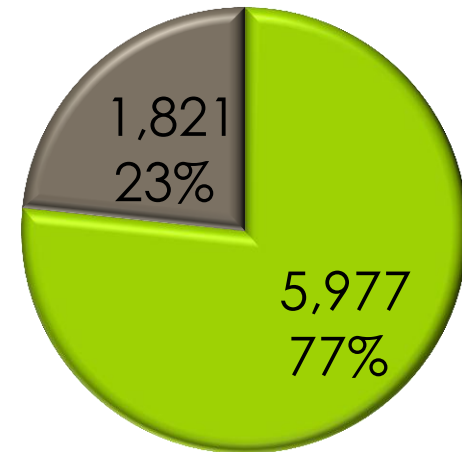
"All regulated substances...must be stored in product tight containers on an impervious surface." (DES Model Performance Standard)



Private Wells:

- 77% of Plaistow's residents receive their water from private (domestic) wells.
- 1 in 5 wells in NH is estimated to exceed the arsenic standard for PWSs. (10 PPB)
- Bladder cancer rates in NH are 29% above the national average (2009) and are increasing over time (1993-2007). (Source: NH DHHS)
- Private well testing ordinance – revised 2013 - See Pelham, NH

Residents Using Public
vs.
Private Well

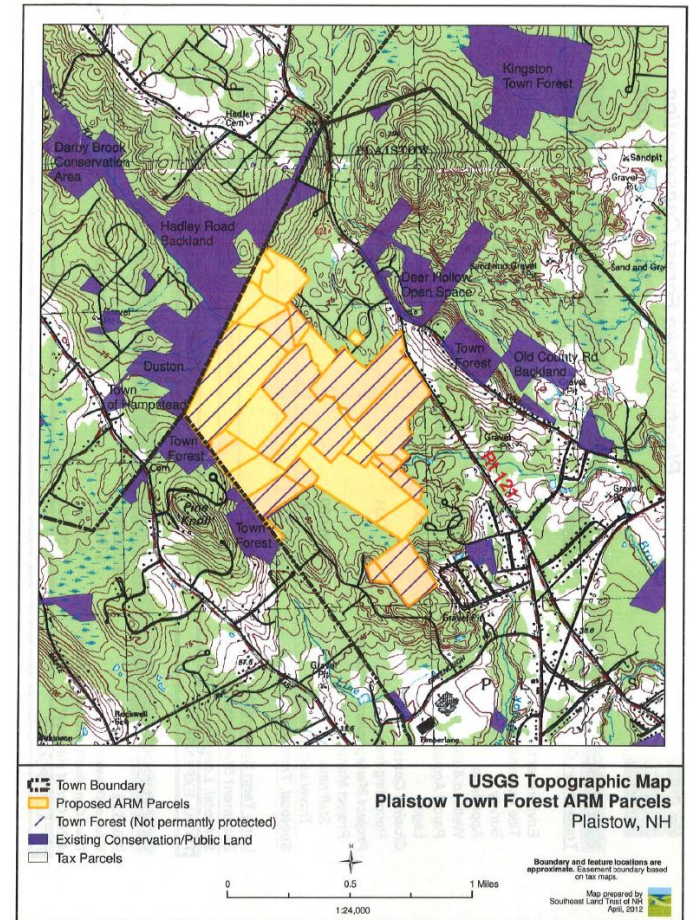


USGS, 2005 (est)

DES recommends the "standard analysis" battery of tests every 3-5 years.

Conservation

- Robust protection for current and future water sources
- DES considers 50% or more of WHPA area protected to be “significant” source protection



Public Education: Elements in the 2001 Plan

- Send letters to residents/businesses in WHPAs about BMPs
- Post information to public access TV
- Distribute information during PCS inspections
- Hold a series of public informational meetings

“Public education and awareness is the cornerstone of this Source Protection Plan...”



Local Source Protection Grants (up to \$20 K)

November 1, 2013 deadline

Delineation (mapping/refining a WHPA)

Assessment (inventory/evaluation of threats)

Planning (Identifying appropriate protection measures)

Implementation (to adopt protections)

Planned sources must have at least a preliminary well siting report (for groundwater sources) submitted to DES.

Visit http://des.nh.gov/organization/divisions/water/dwgb/dwspp/lswp_grants.htm or search “local source protection grants” at www.des.nh.gov

Source Water Protection Program

- Guidance, training, and technical assistance
- SWP grants
- Land conservation grants
- Chemical monitoring waivers
- Water system security
- *Supply Lines & The Source* newsletter
- Youth education
- New community well approval
- Large groundwater withdrawals
- Water conservation
- Groundwater discharge permits
- UIC registration



Web Address: www.des.nh.gov
(search "source water protection")