Savage Municipal Water Supply (I-60)
Milford, New Hampshire
30 June 1985

Location and Nature of Site

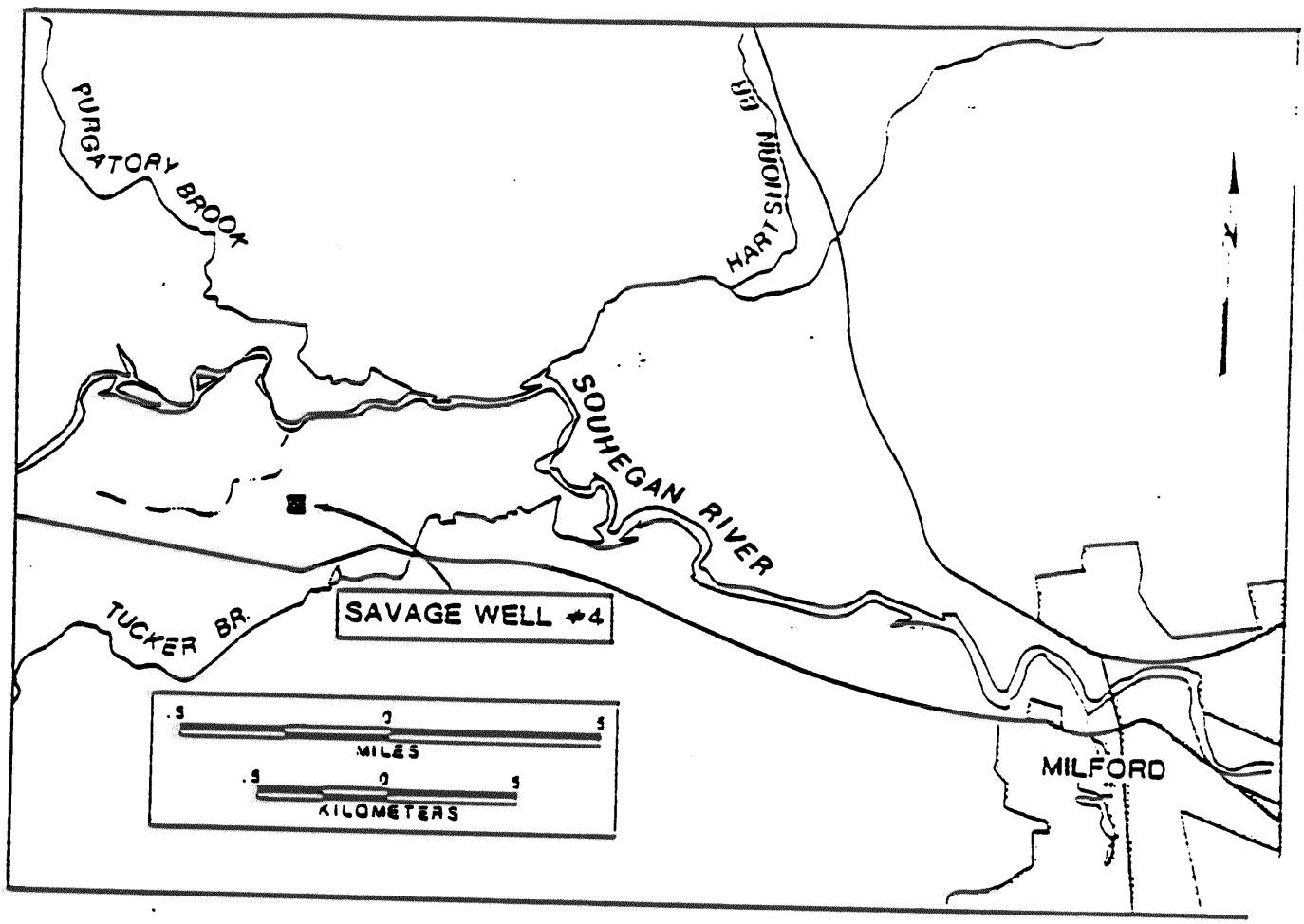
The Savage Municipal Water Supply site is located in Milford, approximately three kilometers west of the town center and 275 meters south of the Souhegan River. The Souhegan River empties into the Merrimack River approximately 19 kilometers to the east of this site. The area in the vicinity of the site is characterized by a variety of land uses ranging from agricultural to heavy industrial, interspersed with commercial and residential developments.

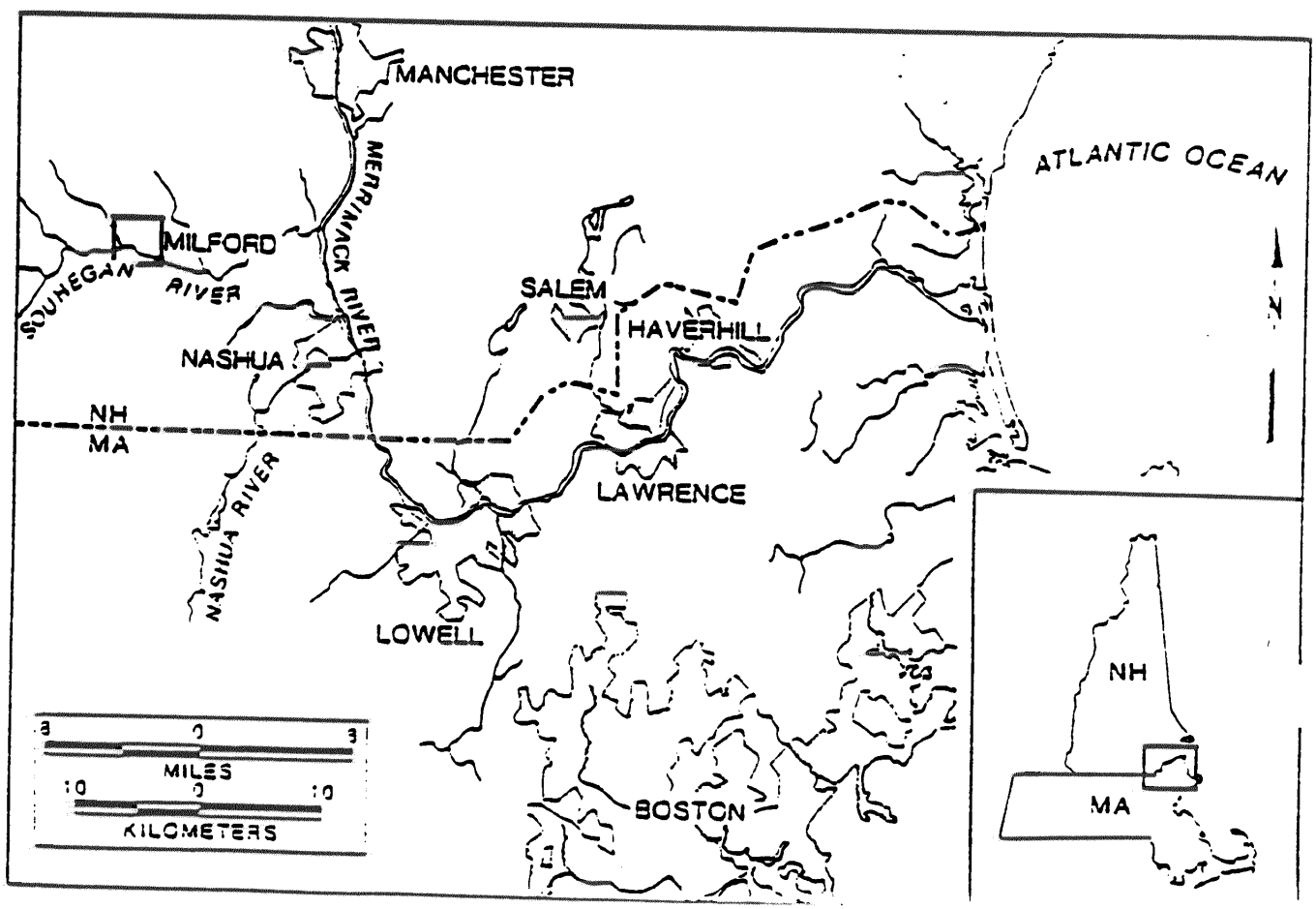
Savage Water Supply contains a gravel-packed well with a sustained yield of approximately 500 gallons per minute. The Town of Milford utilized this water supply, as well as its wellfield, from 1960 to 1983. The well was shut down in February 1983 when routine water quality monitoring by the New Hampshire Water Supply and Pollution Control Commission (NHWSPCC) detected high levels of volatile organic contaminants in the water. Four major industrial facilities, Hendrix Wire and Cable Company, Inc.; Hitchiner Manufacturing Company, Inc.; New England Steel Fabricators, Inc.; and O.K. Tool Company, located west and southwest of the well, are suspected of being the source of the contamination.

Proximity of Chemical Hazard to Marine Resources

In February 1983, the NHWSPCC detected the following contaminants in the Savage well:

1,1-dichloroethane	53 ppb
Trans-1,2-dichloroethylene	76 ppb
1,1,1-trichloroethane	317 ppb
Trichloroethylene	60 ppb
Tetrachloroethylene	862 ppb


PURGATORY BROOK
HARTSHORN BR.
SOUHEGAN RIVER
SAVAGE WELL #4
TUCKER BR.
MILES
KILOMETERS
MILFORD


MANCHESTER
MERRIMACK RIVER
ATLANTIC OCEAN
MILFORD
SOUHEGAN RIVER
SALEM
HAVERHILL
NASHUA
NH
MA
NASHUA RIVER
LAWRENCE
LOWELL
BOSTON
MILES
KILOMETERS
NH
MA

The groundwater plume appears to extend from approximately one kilometer west of the well site to at least 335 meters east of the well site. The highest groundwater concentrations of the organic volatile contaminants (35,530 ppb) were found on the O.K. Tool Company property. Groundwater flow is toward the east at a rate of 35 cm/day. The contaminant plume is believed to have reached the Souhegan River; a section of the river is recharged by the groundwater. Monitoring wells located between the well site and the river north and northeast of the well have groundwater volatile organic concentrations of 300-1,600 ppb. Contamination appears to have spread to Keyes Municipal Well, located north of the river.

A discharge stream from the Hitchiner facility west of the well site drains directly into the Souhegan River. Surface water samples from this stream had volatile organic levels of over 4,000 ppb at the source. River surface water samples downstream from the discharge stream contained 12 ppb volatile organics. Hydrogeological studies have shown that this discharge stream is also recharging the underlying groundwater in the area.

Marine Resources at Risk

This waste site may impact the anadromous fish resources of the Souhegan River and Merrimack River fish to a lesser extent. The Souhegan River has several dams, starting at the city of Merrimack near the confluence with the Merrimack River, and including two dams in the Milford area. None of these structures have fish ladders and are therefore barriers to upstream migration. However, fish ladders are scheduled for installation on these dams in the 1990's as part of the Merrimack River Basin restoration effort.

The Essex and Pawtaucket dams are located on the Merrimack River downsteam from the Souhegan tributary. Both dams will have fish ladders in place by September 1985, allowing fish runs to extend up the Merrimack River above the Souhegan. By 1987, complete restoration of the natural fish migration to the headwaters of the Merrimack is planned.

The U.S. Fish and Wildlife Service operates the National Nashua Fish Hatchery on the Nashua River near its confluence with the Merrimack River. The New Hampshire Department of Fish and Game (DF&G) operates a fish hatchery at Milford which releases hatchery-reared fry into the waters of the Souhegan River. These fry are able to survive downstream passage of all dams en route to the Atlantic Ocean. Atlantic salmon currently do not spawn naturally in any portion of the Merrimack River. Both New Hampshire DF&G and the U.S. Fish and Wildlife Service capture adult Atlantic salmon near Lowell and truck them to the hatcheries for spawning. After the installation of fish ladders on the Merrimack, Atlantic salmon are expected to ascend the

river above Manchester to re-establish their natural spawning runs in the Peme River.

American shad restoration is also a high priority with New Hampshire DF&G and the U.S. Fish and Wildlife Service. Adult shad captured in the Connecticut River and released upstream of Lowell in the Merrimack River system have spawned, with fry returing to the Atlantic Ocean for maturation. Shad are expected to proliferate in the Merrimack River Basin after installation of fish ladders on all of the dams. Alewife, blueback herring, and rainbow smelt are able to migrate up to the Pawtaucket dam. The installation of fish ladders is expected to re-establish migrations upstream.

Site Chronology

Feb. 1983	NHWSPCC closes Savage Well and Milford Trailer Park water supply well because of volatile organic contamination.
March 1983	EPA approves Immediate Removal Action to connect Milford Trailer Park to municipal water supply.
April-Sept. 1983	Preliminary groundwater measurements done by NHWSPCC of Savage Wellfield, including the surrounding industrial facilities. Multiple sources of volatile organic contamination suspected.
Sept. 1983	Savage Water Supply site proposed for NPL.
March 1984	Site-specific hydrogeological study of the Hitchiner Manufacturing Company facility completed.
Nov. 1984	Site-specific hydrogeological study of the O.K. Tool Company facility completed.
Jan. 1985	Draft Report of the hydrogeological Investigation of the Savage Water Supply site completed by the Hydrogeological Investigation Unit of NHWSPCC.
June 1985	Four industrial facilities identified as responsible parties and issued Letters of Intent.
Fall 1985	RI/FS scheduled to begin.

NOAA Reviewer: Sharon Christopherson, NOAA Hazardous Materials Response Branch

EPA Contact: Camille Connick

State Contact: John Regan

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