CONTENTS

Abstract	
Introducti	on
Pur	pose and Scope
Hea	lth and Regulatory Concerns Related to Arsenic, Iron, and Manganese in Ground Water
Pre	vious Investigations
Ack	nowledgments
Description	n of the Study Area
Stra	tified-Drift Aquifers
Bed	rock Aquifers
Wat	er Use
Study Des	ign and Methods1
Lith	ogeochemical Reclassification of Bedrock Units and Regional-Scale Approach
	rces of Ground-Water Data and Well Selection
Stat	istical Analyses
Relation of	f Arsenic, Iron, and Manganese in Ground Water to Aquifer Type, Lithogeochemistry, and Land Use
	urrence of Arsenic, Iron, and Manganese by Aquifer Type
	urrence of Arsenic, Iron, and Manganese by Lithogeochemical Group
	Anomalous Concentrations of Arsenic by Bedrock Geologic Unit
	Relation of Arsenic in Ground Water to Land Use and Lithology
	Possible Sources of, and Controls on, Arsenic in Ground Water
Ars	enic in Water from Public-Supply Wells and Future Drinking-Water Standards
	and Conclusions
•	s Cited
	1: Geologic, Land-Use, and Chemical Data for Bedrock Wells in the New England Coastal Basins tudy Unit
	2: Chemical Data for Surficial Wells in the New England Coastal Basins Study Unit
търспал	2. Chemical Baia for Barrietal Wens in the New England Coustal Busins Study Cincinnation
FIGURES	
1-4. Ma	ps showing:
1.	Location of the New England Coastal Basins study unit
2.	Location of stratified-drift deposits in the New England Coastal Basins study unit
	Areal distribution and description of major lithogeochemical groups of bedrock geologic units
4a.	Areal distribution of arsenic concentrations in water from selected bedrock wells
4b.	Areal distribution of arsenic concentrations in water from selected stratified-drift wells
5-10. Gra	phs showing:
5.	Percent detection of arsenic, iron, and manganese concentrations in ground water by aquifer type
6.	Percent detection of arsenic concentrations in ground water, at or above 0.005 milligrams per liter, by major lithogeochemical group
7.	Percent detection of arsenic concentrations in ground water, at or above 0.005 milligrams per liter, in selected bedrock geologic units in lithogeochemical group M _c
8.	
9.	
10.	Percent detection of arsenic concentrations, at or above 0.005 milligrams per liter, in ground water, by selected bedrock geologic units and their associated lithogeochemical groups

11.	Map showing areal distribution of selected bedrock geologic units, and their associated lithogeochemical	27
	groups that have anomalous arsenic concentrations in ground water	
12.	Map showing areal distribution of major land-use categories	28
13.	Graph showing percent detection of arsenic concentrations in ground water, at or above 0.005 milligrams	
	per liter, by major land-use category	29
14.	Graph showing percent detection of arsenic concentrations in ground water by lithogeochemical group	
	and major land-use category; (a) major lithogeochemical group with and without wells in the agricultural	
	category, and (b) major land-use category with and without wells in the M _c lithogeochemical group	30
T 4 D 1	50	
TABL	LES	
1	1. Summary of estimated water use for public water supplies by aquifer type in the	
	New England Coastal Basins study unit	9
2	2. Summary of public water supplies compiled by State and aquifer type	
3	3. Percent of wells in stratified-drift and bedrock aquifers yielding water with detectable concentrations	
	of arsenic, iron, and manganese, and Chi-square statistics	18
,	4. Summary statistics for concentrations of arsenic, iron, and manganese in ground water by major	10
_	· · · · · · · · · · · · · · · · · · ·	20
	lithogeochemical group	20
	5. Summary of attained significance levels (p-values) for Kruskal-Wallis tests of the concentrations of	2.1
	water-quality variables compared by lithogeochemical and land use variables	21
(6. Summary of Spearman's rho rank-correlation coefficients for concentrations of arsenic and iron,	
	arsenic and manganese, and iron and manganese	24
7	7. Percent of wells yielding water with arsenic concentrations exceeding 0.005, 0.01, and 0.02 milligrams	
	per liter by lithogeochemical group	31

CONVERSION FACTORS

Multiply	Ву	To obtain
foot (ft)	0.3048	meter
square mile (mi ²)	2.590	square kilometer
million gallons per day (Mgal/d)	0.04381	cubic meter per second
feet per day (ft)	0.3048	meters per day
pounds per acre (lbs/acre)	1.12	kilograms per hectare
pounds per acre per year (lbs/acre/yr)	1.12	kilograms per hectare per year
gallons per day per person (gal/d/person)	0.06309	liters per second per person
gallons per minute (gal/min)	3.785	liters per minute

OTHER ABBREVIATIONS USED IN THIS REPORT

milligrams per liter (mg/L) parts per million (ppm)