1.0 INTRODUCTION

1.1 Why Drinking Water Protection Involves Everybody

As a business owner, a business leader, and as a member of your community, one of the most important services you can help provide to your community, your customers and yourself is good safe drinking water. Understanding the different ways in which water quality can be protected will give you the ability to lead others in this most important pursuit. This booklet is written for you, a business owner, to help you protect drinking water supplies through the use of Best Management Practices (BMPs). This booklet is also written for those who simply wish to protect the quality and quantity of the water they consume and are looking for specific practices to help achieve this goal[1].

Whether your drinking water comes from surface water (streams, rivers, ponds, lakes and manmade reservoirs), or from an underground well which pumps ground water to the surface, it can be contaminated by a wide variety of pollutant sources. These sources of pollutants include industry, agriculture, development and construction, automobile service and repair shops, and a variety of nonpoint sources, such as septic systems, landfills and stormwater runoff.

As our population grows, demand for good drinking water will escalate, and water sources that are not yet developed will be in demand. These future drinking water sources, and our existing water supplies, must be protected now from contamination. Preventing pollution of present and future drinking water sources is much more cost-effective and makes much more sense than remediating a contaminated water supply.

This booklet provides information concerning drinking water protection measures that can be undertaken by four general categories of businesses:

- Agriculture,
- Land Development and Construction,
- Manufacturing and Light Industry, and
- Automotive Repair Shops.

For each business category, Best Management Practices (BMPs) that will help business owners to help protect drinking water are described, followed by Case Studies that illustrate the use of specific BMPs to protect drinking water. Finally, for each business category, a set of Self-Evaluation Questions has been developed to help you determine whether your business practices are helping to protect drinking water.

[1] The information in this document has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement Contract #68-C-99-234. It has been subjected to the Agency's publications review process and has been approved for publication as an EPA document. Mention of trade names of commercial products does not constitute endorsement or recommendation of use.

1.2 The Federal Drinking Water Source Protection Program

Under the federal Safe Drinking Water Act (SDWA) and the SDWA Amendments of 1996, states, territories and Indian tribes in the U.S. are required to conduct source water assessments and make the results available to the public. The results of these assessments can then be used to develop comprehensive plans to protect drinking water. These comprehensive drinking water assessment plans are called Source Water Assessment Program plans, or SWAP plans. All SWAP plans must identify drinking water sources, identify potential sources of contamination and may recommend possible actions needed to protect drinking water. Many businesses may be identified as a potential source of contamination based on their activities and proximity to a public water supply. Each state develops its own SWAP plan, following general guidelines provided by the U.S. Environmental Protection Agency (US EPA).

The US EPA is the federal agency coordinating this program. However, each state is responsible for actually undertaking SWAPs. Therefore, each state relies internally upon all of its counties, municipalities, regional authorities, businesses, residents and non-residents to undertake drinking water protection measures.

1.3 The Regulatory Framework For Drinking Water Protection

Federal, state, and local environmental laws and regulations are intended to provide protection of our surface and ground water sources of drinking water. Seven major federal acts are applicable to protection of drinking water sources:

The Clean Water Act. Regulates pollutant discharges from point sources (those coming from the end of a pipe) by requiring point sources discharging to public drinking water supplies to meet drinking water quality standards through a permitting process. The CWA also regulates pollutant discharges from non-point sources (e.g. runoff from agricultural fields, erosion and sedimentation practices).

The Safe Drinking Water Act. Established the Source Water Assessment and Protection Program (SWAP) to assess public drinking water supplies' susceptibility to contamination from potential sources of contamination. Some businesses may be identified as potential sources of contamination on these assessments based on the businesses activities.

The Resource Conservation and Recovery Act. Requires businesses generating, transporting, treating, storing and disposing of hazardous waste to take precautions against spills, improper disposal and incorrect application.

The Toxic Substances Control Act. Regulates the manufacturing, processing, and disposal of new and existing chemicals that may be toxic to people and the environment. This act indirectly protects drinking water source waters by controlling potential contaminants.

The Federal Food, Drug, & Cosmetic Act. Is intended to assure the safety of chemicals used in food, drugs, and cosmetics and is important as it authorizes EPA to set tolerances for pesticide residues in foods and animal feeds. The act established the concept of Health Guidance Levels for agricultural chemicals in ground water.

The Federal Insecticide, Fungicide, and Rodenticide Act. Controls the pesticide industry and agricultural pesticide use. It includes provisions to protect the environment (including drinking water source waters) from adverse effects of pesticides.

Many state and local laws and regulations are designed to support the federal acts and protect drinking water source waters. These may be more restrictive than the federal laws and it is therefore important to be aware of and follow the state and local laws and regulations.

1.4 Why Your Business Should be Involved with Drinking Water Protection

Whether your business is located within the watershed of a surface water supply or depends on ground water for drinking water, protecting drinking water is essential for your businesses' and your employees' health. Protecting drinking water is everyone's responsibility, because:

- Water resources cross political boundaries;
- Water is a liquid which, if polluted, can carry pollutants from one place to another;
- Ground water and surface water are connected and communicate with each other. If one water body is polluted, there is a good chance that other connected water resources, including wells, reservoirs, streams, rivers and lakes will become polluted as well;
- Prevention of pollution is far more effective, cheaper and safer than cleaning up already-contaminated water; and
- Clean water reduces treatment costs and consequently reduces the costs your business pays the local water supplier.

One of the more important services you can provide to your community, your customers and yourself is to help protect drinking water quality. This is everyone's responsibility, but you as a business owner and a member of your community are in a good position to work with others in protecting drinking water supplies.

1.5 How Businesses Can Help Protect Drinking Water

This booklet will provide you with the principles of protecting water quality and information on the most appropriate Best Management Practices that will help you to protect drinking water. This booklet contains four major categories for business, each of which consists of four sections:

1) Best Management Practices to protect water resources, developed for each of the four types of businesses;
2) Case Studies of businesses that have undertaken protection of drinking water through the use of BMPs. The case studies include a review of site and background conditions, a description of the BMPs applied at the site, which are presented in a question/evaluation format, conclusions that can be drawn from the project, and sources to find additional information on the case study.
3) A Self-Evaluation Questionnaire developed for agriculture, light industry/ manufacturing, auto repair shops, and land development and construction; and
4) References and information on where to obtain help or detailed answers to your questions concerning drinking water protection.

As you answer the Self-Evaluation Questions and review the BMPs for drinking water protection for your type of business, keep in mind that these may apply to many other types of businesses, organizations, and individuals as well. Therefore, please feel free to distribute this information to your customers, business associates, friends and others. Protection of drinking water is a responsibility to be shared by everyone, because life depends on good clean water.

1.6 Use of Best Management Practices (BMPs) to Protect Drinking Water

Best Management Practices are everyday practices that a business can employ to protect drinking water. BMPs for protecting water quality have been developed for a variety of activities. This booklet presents BMPs for agriculture, automotive repair shops, land development and construction, and light industry. BMPs represent the best available practical methods for avoiding or minimizing problems related to pollution.

BMPs generally fall into two categories: so-called "structural practices" that require the construction or installation of devices or mechanisms to manage pollutants; and non-structural practices that rely on the implementation of specific behaviors to prevent the contact of pollutants with receiving waters. These are commonly referred to as pollution prevention strategies. This booklet presents both structural and non-structural BMPs. BMPs for all four business categories are briefly described and explained, and other resources for BMPs are listed.

BMPs for protection of water quality generally share some common principles, whether they are developed for agriculture, automotive shops, light industry, manufacturing, construction or land development. These common principles are:

1) Minimizing waste and pollution;
2) Good housekeeping;
3) Keeping good records;
4) Planning to prevent and address emergencies;
5) Providing regular, updated training for all staff including management;
6) Providing good management so that BMPs can be implemented; and
7) Ensuring accountability.

These general principles lie at the heart of all BMPs developed for drinking water protection. In the following sections, specific BMPs for each type of business are described.

1.7 The Business Self-Evaluation

As stated above, a "Self-Evaluation" questionnaire has been prepared for each type of business presented in this workbook. Business owners and operators should complete the questionnaire as part of the general awareness program for drinking water protection.

a) Why Do A Self-Evaluation?

One way to quickly become aware of methods to protect drinking water and to raise awareness is to conduct a Self-Evaluation. By answering questions in a Self-Evaluation, you will become aware of the many ways in which drinking water can be protected. By comparing your answers with the BMPs applied for each of the Case Studies, you will gain a better understanding of how to protect drinking water.

b) Who Should Conduct The Self-Evaluation?

Ideally, both the business owner and the operator, who is responsible for day-to-day operation and management, should conduct the evaluation. Those individuals are responsible for the daily and long-term operation of the business.

c) How To Do A Self-Evaluation

Simply take the time to sit down and answer all the questions that pertain to your type of business, or the business category that most closely resembles your business. Most of the questions are designed so that if you answer yes, it is likely that you are already taking steps that will help to protect drinking water.

d) What to Do With Your Self-Evaluation

First, compare the answers from your evaluation with the BMPs in Sections 2,3,4, and 5. If you had answered yes to most of the evaluation questions, then you are probably running your business in a way that protects drinking water. If most of your answers were no, then you should study the BMPs, the Self-Evaluation questions and the available resources sections to determine whether you can change any of your business practices so that your answers to the Self-Evaluation questions are yes. Finally, study the Case Studies, which provide specific examples of businesses that have undertaken BMPs to protect drinking water.

The results of the Self-Evaluation can be used for business and facility management. If your business is undertaking a number of voluntary drinking water protection measures, you may want to mention these efforts to your public drinking water supplier or the state

drinking water source protection program. If your business is located in New England you may qualify for recognition by the U.S. EPA's Drinking Water Protection Business Honors Program. The results of the evaluation should be made available to all employees, because the success of drinking water protection efforts depends upon public awareness of the problems and the solutions. If your business has a Board of Directors and stockholders, they should be provided with the results of the Self-Evaluation. We recommend that you also provide copies of this booklet to anyone interested; please feel free to photocopy and distribute it.