

Waste Management Practices for Petroleum Marketing Facilities

API PUBLICATION 1638
FIRST EDITION, OCTOBER 1994



American Petroleum Institute
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Washington, D.C. 20005



STEP

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- To extend knowledge by conducting or supporting research on the safety, health and environmental effects of our raw materials, products, processes and waste materials.
- To commit to reduce overall emissions and waste generation.
- To work with others to resolve problems created by handling and disposal of hazardous substances from our operations.
- To participate with government and others in creating responsible laws, regulations and standards to safeguard the community, workplace and environment.
- To promote these principles and practices by sharing experiences and offering assistance to others who produce, handle, use, transport or dispose of similar raw materials, petroleum products and wastes.



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Manufacturing, Distribution, and Marketing Department

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FOREWORD

Petroleum marketing facility operations, which range from retail fuel convenience stores to terminals and lube plants, present a great variety of waste streams and a challenge to manage them properly. Few waste streams associated with petroleum marketing facilities are process streams with opportunities for changes in processes, raw materials, or large source reductions. Most of the waste stream quantities are directly related to sales and/or service volume. These factors present the unique challenge for waste management at petroleum marketing facilities, which this publication addresses.

Waste management opportunities with source reduction, recycling/re-use, treatment, or disposal as appropriate to the waste stream and the facility are present in many areas of petroleum marketing facilities. The volume of many individual waste streams may not appear impressive; however, significant and worthwhile opportunities exist for sound waste management and source reduction.

The term, "waste minimization," is used within this publication to encompass both the concepts of waste management and source reduction.

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CONTENTS

SECTION 1—INTRODUCTION	Page
1.1 Purpose and Scope	1
1.2 Organization	1
1.3 Regulatory Driving Forces	1
1.4 The Waste Management Hierarchy	2
1.5 Pollution Prevention	3
1.6 Reference Documents	3
 SECTION 2—FACILITIES ADDRESSED BY THIS DOCUMENT	
2.1 Overview	3
2.2 Marketing Terminals	3
2.3 Bulk Plants	3
2.4 Lube Blending & Packaging Facilities	3
2.5 Asphalt Plants	4
2.6 Aviation Servicing Facilities	4
2.7 Full Automotive Service Facilities	4
2.8 Retail Fuel Car Wash/Convenience Stores	4
2.9 Remediation Sites	4
 SECTION 3—WASTE MANAGEMENT OPTIONS	
3.1 Overview	4
3.2 Handling and Storage Area Wastes	4
3.3 Facility Wastes	9
3.4 Automotive Wastes	11
3.5 Miscellaneous Wastes	13
 APPENDIX A—WASTE MANAGEMENT PROGRAM FRAMEWORK	15
APPENDIX B—INVENTORY INFORMATION SUMMARY WORKSHEET	17
APPENDIX C—WASTE REDUCTION OPPORTUNITIES WORKSHEET	19
 Table	
1—Marketing Facilities Waste Stream Management	5

Waste Management Practices for Petroleum Marketing Facilities

SECTION 1—INTRODUCTION

1.1 Purpose and Scope

Petroleum marketing facilities are subject to increasingly complex and restrictive requirements governing waste management. Regulations at the federal, state, and local level mandate strict control over the handling, treatment, and disposal of waste generated from marketing facilities. This situation can lead to confusion about which waste management practices are acceptable and which should be discontinued.

This document provides specific guidance for managing typical waste streams at petroleum marketing facilities. The waste management options discussed in this document reflect currently acceptable industry practices and are based upon information gathered from representative API member facilities and compliance with applicable environmental regulations. Additional complimentary discussions of marketing waste minimization practices are presented in Chapter 5 of API Publication 302.

1.2 Organization

This introductory section provides readers with a summary of federal environmental regulations that oblige facilities to utilize sound waste management practices. State and local regulations may be more restrictive and impose additional requirements on some facilities. This section also introduces readers to the concept of the waste management hierarchy and the benefits of pollution prevention.

Following this introduction are two additional sections. Section 2 identifies the types of petroleum marketing facilities covered by this document. Section 3 identifies typical waste streams generated at each type of facility covered and discusses waste management options on a waste stream-specific basis. Finally, Appendixes A, B, and C contain guidance on implementing a facility waste management program that is based on continuous environmental improvement and pollution prevention.

1.3 Regulatory Driving Forces

Every petroleum marketing facility covered by this guidance document is directly or indirectly impacted by the ever-growing number of local, state, and federal environmental requirements. Operators should keep current on the regulations that impact their facility. These regulations represent a growing force in encouraging pollution prevention and waste minimization. Some regulations encourage waste minimization directly, while others do so indirectly by limiting the

range of disposal options that are available to facility operators.

The following summaries of regulations are intended to provide information highlighting waste management requirements. It is suggested that the reader consult with legal counsel before undertaking activities which may be imposed by these regulations.

1.3.1 THE RESOURCE CONSERVATION AND RECOVERY ACT OF 1976 AND THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984

1.3.1.1 General

The Resource Conservation and Recovery Act of 1976 (RCRA) and the Hazardous and Solid Waste Amendments of 1984 (HSWA) require generators of hazardous wastes to implement programs to reduce the volume and toxicity of wastes. In addition, land disposal restrictions make landfilling and land application more costly waste management options.

1.3.1.2 Waste Manifest

A hazardous waste manifest must be prepared any time hazardous waste is sent from the site of generation over a public road for treatment, storage, or disposal. In the manifest, a description of the waste and the name of the transporter and of the Treatment, Storage, & Disposal (TSD) site are needed. The manifest also includes a section whereby the generator certifies that a program is in place to reduce the volume and/or toxicity of the waste generated, to the degree economically practicable. Large and small quantity waste generators must read, sign, and date this certification statement every time a hazardous waste leaves the site.

1.3.1.3 Future Requirements for Nonhazardous Waste

Future EPA regulations will likely affect the operation of non-hazardous solid waste landfills and incinerators. EPA is expected to set a national goal of source reduction and recycling. In addition, the regulations will set uniform standards with regard to landfill construction, corrective action, and New Source Performance Standards for municipal waste incinerators. These regulations may result in further restrictions on solid waste disposal options.

1.3.1.4 Land Disposal Restrictions

In the Hazardous and Solid Waste Act (HSWA), Congress mandated restrictions on the land disposal of hazardous waste. Subsequently, EPA developed strict treatment standards that must be met before a hazardous waste can be placed in or on the land for disposal. The land disposal restrictions require generators of hazardous waste to include with each manifest a notification to the disposal/treatment facility that land disposal of the waste is restricted. The notification must specify the type of treatment required before the waste can be disposed in or on the land. If the waste has been pretreated to meet the applicable treatment standard, the manifest for that waste must be accompanied by written certification that land disposal is allowed. Land disposal restrictions have increased the cost of treatment and disposal for most hazardous waste streams. As a result of these notification and disposal requirements, waste minimization has become a more attractive management option.

1.3.2 SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) TITLE III FORM R REPORTS

Some petroleum marketing facilities are subject to the toxic release inventory reporting requirements of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). Every July 1, affected facilities must complete a Form R for each listed toxic chemical on site that exceeds the threshold quantity. The Form R report requires detailed information on facility emissions and off-site transfers of toxic chemicals. Waste minimization information also is required on the Form R report. The information becomes part of a national database that is available for public review. As a result, an unprecedented amount of information on facility emissions and waste generation is now subject to public scrutiny. Regulators also use this information to target enforcement and regulatory initiatives.

1.3.3 CLEAN WATER ACT

1.3.3.1 General

The Clean Water Act controls the discharge of pollutants into the waters of the United States. These controls are implemented through the National Pollutant Discharge Elimination System (NPDES) regulations and pretreatment regulations. Under the NPDES program, direct dischargers of pollutants to surface water must obtain a permit. Under the pretreatment regulations, significant industrial users discharging to Publicly Owned Treatment Works (POTW) must obtain permits. Some stormwater discharges are also regulated.

1.3.3.2 Stormwater

Certain industries that discharge stormwater runoff into surface water systems or into municipal stormwater systems

must obtain a NPDES permit. Some marketing facilities are subject to these requirements. These facilities must reduce the levels for each toxic compound in the stormwater through the use of Best Available Technology (BAT).

1.3.3.3 POTW Discharges

Under the pretreatment regulations, Publicly Owned Treatment Works (POTWs) that accept industrial sources of wastewater must set local effluent limits. These local limits have come under closer scrutiny, as have the amount of toxics being received by POTWs. Stricter pretreatment standards have been set as a result. Significant industrial users (SIUs) must have a permit. SIUs are facilities that meet any one of the following descriptions:

- a. A facility subject to categorical pretreatment standards.
- b. A discharger of 25,000 gallons per day or more.
- c. A user that contributes more than 5 percent of the dry weather hydraulic capacity or organic capacity of the POTW.
- d. A facility designated by the POTW due to past facility violations.

In addition, facilities that discharge hazardous waste to the POTW are now subject to certain notification and reporting requirements.

1.3.4 STATE AND LOCAL TRENDS

Many states and localities have programs to encourage industries to emphasize waste minimization. These programs vary considerably in scope and intensity, and are continually evolving.

1.4 The Waste Management Hierarchy

EPA policy encourages industry and the public "to fully utilize source reduction techniques in order to reduce risks to public health, safety, and well-being and the environment and, as a secondary preference, to use environmentally sound recycling to achieve these goals" (Federal Register, Vol. 54, No. 16, 26 January 1989). The preferences for waste minimization opportunities can be considered in the context of what is referenced as the waste management hierarchy. Options at the top of the hierarchy are considered to be more desirable than those at the bottom. Waste management options in order of preference are as follows:

- a. Source reduction.
- b. Recycling/reuse.
- c. Treatment.
- d. Disposal.

The waste management hierarchy is further discussed and implemented in "Section 3—Waste Management Options." API endorses the hierarchy concept and encourages facilities to use it.

1.5 Pollution Prevention

Pollution prevention is considered to include source reduction and some types of recycling. A commitment to pollution prevention can result in many benefits. These benefits include the following:

- a. Reduced potential exposure to workers and the community.
- b. Lower costs of waste disposal.
- c. Reduced risk to the environment.
- d. Reduced regulatory reporting.
- e. Lower materials cost.
- f. Reduced long-term liabilities.
- g. Improved image and public relations.

To realize these benefits, API encourages member facilities to review the framework for developing a site-specific waste management program illustrated in the Appendixes to this document. This framework is built on the principles of pollution prevention and continuous environmental improvement as they apply to petroleum marketing activities.

1.6 Referenced Publications

API

- Publ 302 *Waste Minimization in the Petroleum Industry: A Compendium of Practices*, 1991

- Std 650 *Welded Steel Tanks for Oil Storage*
 RP 652 *Lining of Aboveground Petroleum Storage Tank Bottoms*
 RP 1604 *Removal and Disposal of Used Underground Petroleum Storage Tanks*
 Publ 1621 *Bulk Liquid Stock Control at Retail Outlets*
 Publ 1628 *A Guide to the Assessment and Remediation of Underground Petroleum Releases*
 Publ 1629 *Guide for Assessing and Remediating Petroleum Hydrocarbons in Soil*
 RP 1633 *Handling Water Discharges from Automotive Service Facilities Located at Petroleum Marketing Operations*
 Publ 2202 *Dismantling and Disposing of Steel from Aboveground Leaded Gasoline Storage Tanks*

USEPA¹

- Potential Reuse of Petroleum Contaminated Soil: A Directory of Permitted Recycling Facilities*, Contract No. 68-C9-0033

¹U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, DC 20460.

SECTION 2—FACILITIES ADDRESSED BY THIS DOCUMENT

2.1 Overview

Section 2 describes the petroleum marketing facilities addressed by this document.

The petroleum marketing industry is engaged in the receipt, storage, blending, distribution, and ultimate sale of refined products to the consumer. Individual marketing facilities may perform one or more of these functions. This document specifically addresses waste management practices at the following types of marketing facilities and at sites where remediation is required:

- a. Marketing Terminals.
- b. Bulk Plants.
- c. Lube Blending and Packaging Facilities.
- d. Asphalt Plants.
- e. Aviation Servicing Facilities.
- f. Full Automotive Service Facilities.
- g. Retail Fuel Car Wash/Convenience Stores.
- h. Remediation Sites.

The following subsections describe typical operations at each of these facilities.

2.2 Marketing Terminals

Marketing distribution terminals consist of tank farms, loading/unloading areas, storage areas, and warehouse and

office buildings. Products are generally received by pipeline or marine transport and distributed by truck, rail, or marine transport. Bulk quantities of refined products are stored in aboveground tanks for distribution by tank truck to retail or wholesale marketing facilities. Marketing terminals may also store an inventory of petroleum products in drums, pails, and cases.

Some marketing terminals may support a truck fleet. Marketing terminals that use marine transport to receive and ship products may accept and treat ballast water from marine vessels. Some marketing terminals and asphalt plants have on-site laboratories capable of performing quality control testing of products.

2.3 Bulk Plants

Although bulk plants typically handle smaller quantities of products, operations at these plants are similar to those at marketing terminals. Product receipt is most often by truck, although some are serviced by rail or marine transport. Bulk plants may also support a truck fleet, and may store and distribute other products in bulk or container quantities.

2.4 Lube Blending and Packaging Facilities

Lube oil or grease blending and packaging facilities blend refined products with additives, and package them in drums