

2

WASTE MANAGEMENT PLANS

There is increasing emphasis on pollution prevention in oil and gas operations. This emphasis has resulted in numerous efforts to define the elements of a successful waste management plan. The American Petroleum Institute (API)^{1, 2}, C.T. Stilwell³, and EPA⁴ have published guidelines for waste management plans which include waste minimization as an integral part of the plan. The following pages present an overview of the ten steps recommended by API² for developing a waste management plan.

STEP 1: COMPANY MANAGEMENT APPROVAL

Management approval should include established goals, such as a specific waste volume reduction in a set time frame. Key personnel and resources to be committed to the plan should be defined. Additionally, management should develop a mission statement. An example of a mission statement used by a major E&P company is provided below.

**WASTE MANAGEMENT POLICY AND ENVIRONMENTAL POLICY**

At (Company), we recognize the importance of safeguarding the environment wherever we conduct our business. This extends from the production of crude oil and other energy sources through the manufacture and distribution of our products.

Therefore, in keeping with the (Company's) Guiding Principles and Objectives, (Company's) Environmental Policy is as follows:

- *To comply* with environmental laws and regulations.

- *To conduct* our operations in a manner that demonstrates respect for the quality of the environment.
- *To cooperate* with federal, state, and local governments in analyzing emerging environmental issues, finding solutions to environmental problems, and developing cost-effective, scientific environmental standards.
- *To maintain* effective environmental procedures and equipment, consistent with available technology.
- *To respond* quickly and effectively to environmental incidents involving (Company's) facilities, equipment, or products under our control.
- *To endorse* research to advance scientific knowledge concerning the causes and prevention of environmental deterioration.
- *To encourage* development of new technology which inherently provides improvement in the quality of the environment.
- *To provide* environmental training programs for employees, emphasizing individual responsibility for sound environmental management.
- *To maintain* corporate and departmental environmental monitoring programs to ensure compliance with (Company's) policy and governmental requirements.

STEP 2: AREA DEFINITION

The selection of an area for a specific waste management plan generally should account for variations in regulations and types of operations. In most cases, the area will be within one state.

STEP 3: REGULATORY ANALYSIS

Evaluate federal, state, and local laws and regulations. Evaluate landowner and lease agreement conditions. Using these evaluations, define operating conditions and requirements.

STEP 4: WASTE IDENTIFICATION

Identify the type, amount, and frequency of generation of each waste generated within the plan's area. A brief description of each type of waste should be provided.

Note: A general overview of drilling operations, oil field production operations, gas production and gas plant operations, and pipeline operations is presented in Chapter 4. Examples of wastes potentially generated by each type of operation are included in the overview. This overview may help you in preparing a waste management plan.



STEP 5: WASTE CLASSIFICATION

Classify each waste stream with respect to its regulatory status (e.g., hazardous or nonhazardous and exempt or non exempt from regulation as a hazardous waste under the Resource Conservation and Recovery Act (RCRA)).

STEP 6: LIST AND EVALUATE WASTE MANAGEMENT AND DISPOSAL OPTIONS

List all waste management practices and determine the environmental acceptability of each. Consider regulatory restrictions, engineering limitations, economics, and intangible benefits to determine the feasibility of a practice.

STEP 7: WASTE MINIMIZATION

Analyze each waste generating process for opportunities to reduce the volume generated, reduce the toxicity, recycle, reclaim, or reuse. Apply the Waste Management Hierarchy presented in Chapter 1.



Waste management plans are an important component of successful waste management. An effective plan will emphasize waste minimization, and, in turn, promote more effective waste management.

STEP 8: SELECT PREFERRED WASTE MANAGEMENT PRACTICES

Choose the management practice for each waste stream. Implement waste minimization options identified in Step 7 whenever feasible. Provide specific instructions for the implementation of the selected practice.

STEP 9: PREPARE AND IMPLEMENT AN AREA WASTE MANAGEMENT PLAN

Compile all the preferred waste management and minimization practices and write waste management summaries for each waste. Implement the plan on a field level.

STEP 10: REVIEW AND UPDATE WASTE MANAGEMENT PLAN

Establish a procedure to periodically review the plan and evaluate new or modified waste management and minimization practices. Revise the plan as necessary.