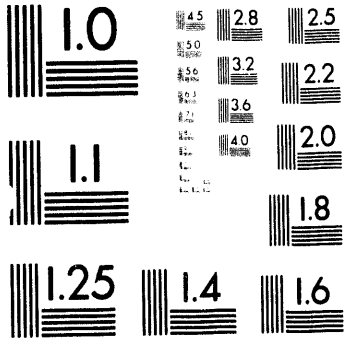
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ES/ER/TM-90

Environmental Restoration Program Pollution Prevention Checklist Guide for the Surveillance and Maintenance Project Phase

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MARTIN MARIETTA ENERGY SYSTEMS, INC.
managing the

Oak Ridge K-25 Site
Oak Ridge Y-12 Plant
Oak Ridge National Laboratory
under contract DE-AC05-84OR21400

Paducah Gaseous Diffusion Plant
Portsmouth Gaseous Diffusion Plant
under contract DE-AC05-76OR00001

for the
U.S. DEPARTMENT OF ENERGY

CONTENTS

ACRONYMS

CAA	Clean Air Act of 1970
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
NPDES	National Pollution Discharge Elimination System
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PPE	personal protective equipment
PP/WM	pollution prevention/waste minimization
RCRA	Resource Conservation and Recovery Act of 1976
SARA	Superfund Amendments and Reauthorization Act of 1986
S&M	surveillance and maintenance
WA	waste assessment

1. PURPOSE

DOE Order 5820.2 mandates that a surveillance and maintenance program be established in all shut-down facilities to ensure adequate containment of contamination, provide physical safety and security, and reduce potential public and environmental hazards. A key consideration in this process is the prevention of any waste to be generated from these activities.

The purpose of this checklist guide is to assist the user with incorporating pollution prevention/waste minimization (PP/WM) in all Surveillance and Maintenance (S&M) phase projects of the Environmental Restoration (ER) Program. This guide will help users document their PP/WM activities for technology transfer and reporting requirements. Automated computer screens will be created from the checklist data to assist users with implementing and evaluating waste reduction. Users can then establish numerical performance measures to measure progress in planning, training, self-assessments, field implementation, documentation, and technology transfer. Cost savings result as users train and assess themselves and perform preliminary waste assessments.

2. APPLICABILITY

This checklist guide applies to all ER Program participants performing S&M phase projects for all sources of pollution including air emissions, water, and solid waste. This guide is intended to serve three primary audiences:

- Site project managers and others on the project team engaged in activities focusing on or ultimately serving the process of incorporating PP/WM in the S&M phase project;
- ER PP/WM specialists—for use as a general overview to help ensure that PP/WM criteria are being applied whenever possible in all S&M phase projects; and
- ER Technology Development and Application specialists—for use as a tool for providing new and effective technology information to the site project managers.

Although this checklist guide may be used by a number of individuals as indicated above, it is incumbent on the ER Program to ensure that the projects select and apply technologies that not only result in the smallest quantities of waste with the least toxicity, but also minimize environmental releases during remediation. Minimizing waste generation should be considered in addition to the capital, maintenance, and operating costs to implement liabilities and any potential threat to human health and the environment.

3. INTRODUCTION

This chapter identifies specific instances during the execution of a S&M project where this guide may be helpful.

ER activities differ significantly from routine production facilities. While the focus for PP/WM for production operations is often on source reduction and recycling, those techniques are not readily adaptable to ER projects. Opportunities for source reduction and recycling are limited for clean-up activities since ER inherits contaminated waste sites from previous production processes, where ongoing process operations generally do not exist. Although treatment is not a preferred alternative per the U.S. Environmental Protection Agency (EPA) hierarchy, the nature of ER activities is generally such that clean up of the site by the application of some treatment technology is often the only alternative. The fact that the waste exists cannot be changed.

The success of incorporating PP/WM in the S&M phase project will be determined ultimately by how successful the generator minimizes the volume and toxicity of the waste.

4. USE OF THIS CHECKLIST GUIDE FOR THE S&M PROJECT

The document guide is organized into three sections. The first section of the checklist guide contains general questions concerning the generator's pollution prevention program in general. The second section of the checklist guide entails questions concerning the pollution prevention program as it applies to the S&M project phase. The third section of the guide is more waste stream specific and contains questions concerning contaminants and media. The generator is also asked to give their rationale on how they would incorporate pollution prevention.

5. INSTRUCTIONS FOR S&M PROJECT PHASE USERS CHECKLIST

The following are steps use to simplify this guide.

5.1 PROJECT INFORMATION

Complete the project information as requested in Sect. 1 of the S&M Project Phase Checklist (Fig. 1, p. 4).

5.2 FACILITY/SITE DESCRIPTION

Complete the facility/site description as requested in Sect. 1 of the S&M Project Phase Checklist (Fig. 1).

5.3 GENERAL QUESTION INFORMATION

Complete the general questions as requested in Sect. 1 of the S&M Project Phase Checklist (Fig. 1).

5.4 S&M PHASE-SPECIFIC QUESTION INFORMATION

Complete the general S&M project phase questions as requested in Sect. 2 of the S&M Project Phase Checklist (Fig. 1).

5.5 WASTE STREAM INFORMATION

Complete the waste stream questions as requested in Sect. 3 of the S&M Project Phase Checklist (Fig. 1).

SECTION 1. GENERAL QUESTION INFORMATION

Project Name: Project Manager:
Phase: S&M Project Location:

Facility/Site Description: _____

_____

_____

		YES	NO
1.	Is there a PP/WM Site Plan on site?	____	____
2.	Have the appropriate personnel been trained on:		
	• Site general employee radiation training?	____	____
	• 24-hr SARA/OSHA (HAZWOPER) with 8-hr annual refresher?	____	____
	• RCRA hazardous waste generator?	____	____
	• Pollution prevention and waste minimization?	____	____
3.	Does the PP/WM Site Plan have clear objectives and statements of scope?	____	____
	Does the PP/WM have numeric goals, scope, and objectives as follows:		
	• A statement of pollution prevention scope and objectives developed and distributed to all project personnel.	____	____
	• A statement of pollution prevention scope and objectives developed and distributed to all contractor personnel.	____	____
	• A statement of pollution prevention scope and objectives developed and distributed to all safety and emergency response personnel.	____	____
	• Specific numerical goals for pollution prevention for each project waste stream set and distributed or displayed to all project personnel.	____	____
	• Specific numerical goals for pollution prevention for each project waste stream set and distributed or displayed to all contractor personnel.	____	____
	• Specific numerical goals for pollution prevention for each project waste stream set and distributed or displayed to all safety and emergency personnel.	____	____

Fig. 1. S&M Project Phase Checklist.

		YES	NO
4.	Have project managers or personnel initiated work and waste management plans for projects that are scheduled to start within 180 days or less from now?	____	____
	• PP/WM incorporated in any of the project work and waste management plans.	____	____
	• A section on PP/WM incorporated in at least one of the project work and waste management plans.	____	____
	• A section on PP/WM in all the project work and waste management plans.	____	____
	• A section on PP/WM in all the project work and waste management plans. Each section discusses at least three techniques to reduce or prevent waste generation.	____	____
5.	Do project managers or personnel have the following data relating to site operations and waste streams so that pollution prevention opportunities can be identified?		
	• Supply and distribution records (i.e., chemical inventory, chain of custody, and waste drum tracking)?	____	____
	• Maintenance records (i.e., inspection and preventive maintenance, repair orders)?	____	____
	• Supervision records (i.e., quality assurance audits, noncompliance, and personnel records)?	____	____
	• Required permits and records (i.e., CAA, NPDES, and RCRA monitoring, RCRA accumulations facility inventories and manifests, CERCLA reportable quantity release, and sample waste analyses)?	____	____
	• PP/WM program documentation (i.e., all work and waste management plans for projects scheduled 180 days or less from now)?	____	____
	• Design information (i.e., process flow diagrams and material balances)?	____	____
	• Environmental information and reporting (i.e., sample waste analyses, RCRA/Tennessee Annual Report, EPA Biannual Report, and Pollution Prevention Act Tri-Report)?	____	____
	• Raw material site information (i.e., material safety data sheets, contractor data logs, site operating procedures, and project schedules and milestones)?	____	____
	• Economic information (i.e., waste treatment, disposal, operating, maintenance, and departmental and pollution prevention implementation costs)?	____	____

Fig. 1 (continued)

		YES	NO
6.	Have project managers or personnel had the PP/WM plan audited in the last 12 months?	____	____
	Was the program audited in the following manner:		
	• A periodic schedule for audit of activities was made?	____	____
	• The audit was performed by those who have direct responsibility for performing the activities being audited?	____	____
	• The audit was performed by those who do not have direct responsibility for performing the activities being audited?	____	____
	• The audit was always reviewed by responsible management?	____	____
	• Follow-up action was always taken as a result of the audit?	____	____
7.	Does project management/personnel have cost, schedule, and program contents specific to the PP/WM program activities?	____	____
	What kind of waste accounting is performed:		
	• Are operating cost records kept?	____	____
	• Are treatment cost records kept?	____	____
	• Are disposal cost records kept?	____	____
	• Are maintenance cost records kept?	____	____
	• Are life-cycle cost records kept?	____	____
	• Are costs to implement pollution prevention activities kept?	____	____
	• Are real-time cost savings since PP/WM plan implementations kept?	____	____
8.	Have project managers or personnel evaluated the PP/WM Program to the numerical goal criteria in the last 12 months?	____	____
	Are the following criterion used to evaluate the pollution prevention program:		
	• Number of numerical goals achieved?	____	____
	• Number of cost reductions achieved?	____	____

Fig. 1 (continued)

	YES	NO
• Number of noncompliances cited?	____	____
• Number of new technologies integrated?	____	____
• Number of noncompliances corrected?	____	____
9. Do project managers or personnel keep and organize records from PP/WM activities for quality assurance purposes?	____	____
Are the records from PP/WM activities kept and organized in the following manner:		
• Records furnish documentary evidence from all PP/WM activities kept and organized?	____	____
• Records are well-organized and are easy to assess?	____	____
• Records are protected against damage, deteriorations, or loss?	____	____
• Requirements and responsibilities for record transmittal, distribution, retention, maintenance, and dispositions are established and documented?	____	____
10. Is technology information available for comparison from other sites for PP/WM assessment?	____	____
11. Do facility managers or personnel implement mechanisms for quality improvement in PP/WM to prevent noncompliance?	____	____

How often does management assess the PP/WM Site Plan to ensure that it is adequate and is effectively implemented?

____ a. Never.

____ b. No regular schedule for assessing the PP/WM program; occasionally performed.

____ c. Regular schedule for assessing the PP/WM program; performed every 2 years.

____ d. Regular schedule for assessing the PP/WM program; performed every year.

____ e. Regular schedule for assessing the PP/WM program; performed at least every 6 months.

Fig. 1 (continued)

SECTION 2. S&M PHASE-SPECIFIC QUESTION INFORMATION

		YES	NO
1.	Is there an ER PP/WM Site Plan on site?	____	____
2.	Is PP/WM currently incorporated in the S&M documents?	____	____
3.	Does the ER PP/WM Site Plan include specific quantitative goals for reducing the volume or toxicity of each waste stream?	____	____
4.	If specific numerical goals are not included for each waste stream, is a strategy outlined to arrive at numerical goals?	____	____
5.	Does the ER PP/WM Site Plan include programmatic goals for the evaluation of new technologies to reduce waste generation for S&M activities?	____	____
6.	Does the ER PP/WM Site Plan contain a budget for its waste minimization program?	____	____
7.	Is there a method for tracking waste for the ER site's waste management activities from the point of generation to the point of discharge or treatment, storage, or disposal?	____	____
8.	Has the organization developed baseline data for the generation of waste?	____	____
9.	Is there a method for accounting for waste management costs?	____	____
10.	Has the organization developed guidance for applying quality assurance to waste minimization activities?	____	____
11.	Does the ER PP/WM Site Plan explain how PP/WM principles are incorporated into activities involving S&M?	____	____
12.	Have ER PP/WM waste assessments (WAs) been conducted on the waste streams that have been generated?	____	____
13.	If ER PP/WM WAs have not been conducted, are there plans to conduct WAs in this fiscal year?	____	____
14.	Does the ER PP/WM Site Plan identify research and development projects related to S&M activities?	____	____
15.	Does the ER PP/WM Site Plan describe technology transfer activities that are planned for S&M activities?	____	____
16.	Does the ER PP/WM Site Plan describe a procedure for evaluating the S&M PP/WM program?	____	____
17.	Does the PP/WM Site Plan explain how design principles that minimize waste generation are incorporated into new construction and options that involve new or modified processes?	____	____

Fig. 1 (continued)

SECTION 3. WASTE STREAM INFORMATION

1. What are the contaminants on site? (Use additional pages if necessary.)

2. How are the contaminants stored or contained? (Use additional pages if necessary.)

	YES	NO
3. Are the contaminants stored in a manner that reduces the generation of waste?	____	____
Are wastes always segregated at the source to minimize the generation of waste?	____	____
4. Is an effort made to separate clothing contaminated with a certain level of radioactive material from that contaminated with a lower level to make it possible to reuse that with the lower level following laundering?	____	____
5. Is clothing contaminated with radioactive material maintained separate from that not contaminated with radioactive material?	____	____
6. Are hand, clothing, and foot monitors available near areas containing radioactive material to reduce the potential for spread of such material?	____	____

Fig. 1 (continued)

	YES	NO
7. Are the containers labeled properly with the following information:		
• Proper name or shipping name?	____	____
• Start date for accumulation?	____	____
• Proper EPA code?	____	____
• Proper EPA facility identification number?	____	____
8. Is all documentation properly filed and retained for the appropriate length of time?	____	____
9. Do strict housekeeping requirements exist to minimize potential for cross contamination?	____	____
10. Before beginning a maintenance task, have the following items been assessed:		
• Materials available from surplus stores?	____	____
• Necessary amount of materials to complete the job?	____	____
• Necessary amount of personal protective equipment (PPE) to complete the job?	____	____
• Removal of packaging before entering contaminated areas?	____	____
• Plastic floor covering to collect scrap (shavings, etc.) from the area?	____	____
11. During S&M activities, do any methods exist that may unnecessarily generate waste (e.g., failing to use floor coverings for waste generated in polychlorinated biphenyl (PCB) areas; taking more material into a contaminated area than is necessary; failing to check surplus stores before beginning a task; or failing to remove packaging before entering a contaminated area)?	____	____
12. Is there an approved plan for periodic calibration of instruments used for surveillance of waste with regard to radiation level, constituent concentration, and other appropriate parameters?	____	____
If so, is it being implemented?	____	____
13. Is there an approved plan for preventative maintenance (e.g., lubrication, painting, and adjustments) of facilities turned over to ER?	____	____
If so, is it being implemented?	____	____
14. Is there an exhaust system for enclosed areas containing piping and equipment that may leak gas or vapor?	____	____

Fig. 1 (continued)

	YES	NO
Are the exhaust system equipment and its filters inspected periodically for adequacy?	____	____
15. Are systems containing gas or material that may vaporize monitored for airborne release?	____	____
Is the monitoring continuous?	____	____
16. Have all pipelines and valves been included on the routine inspection checklists?	____	____
Are repairs made to the pipelines and valves in a manner that minimizes the generation of waste?	____	____
17. Have all drum storage areas been included on the routine inspection checklists?	____	____
Are drums clearly marked, in good repair, and stored in approved storage areas?	____	____
18. Do the drum storage areas provide adequate protection and containment for the waste and allow for easy inspection and decontamination?	____	____
Are repairs made to the drum storage areas in a manner that minimizes the generation of waste?	____	____
19. Have all B-25 box storage areas been included on the routine inspection checklists?	____	____
Are repairs made to the B-25 box storage areas in a manner that minimizes the generation of waste?	____	____
20. Has all secondary containment been included on the routine inspection checklists?	____	____
Are repairs made to the secondary containment in a manner that minimizes the generation of waste?	____	____
21. Have all cylinder storage yards been included on the routine inspection checklists?	____	____
Are repairs made to the cylinder storage yards in a manner that minimizes the generation of waste?	____	____
22. Have all cooling towers been included on the routine inspection checklists?	____	____
Are repairs made to the cooling towers in a manner that minimizes the generation of waste?	____	____

Fig. 1 (continued)

	YES	NO
23. Can any primary waste streams be recycled or reused (e.g., unopened materials such as Liquid Nails, caulking, etc.)?	____	____
24. Can any secondary waste streams be recycled or reused (e.g., opened materials such as paint)?	____	____
25. Can any of the solvents used be substituted with solvents less hazardous/toxic?	____	____
26. Can the frequency of "diaper" (absorbent material) changes for PCB leaks be lessened to reduce the volume of waste?	____	____
Can the size of the diapers used for PCB leaks be minimized to reduce volume of waste?	____	____
27. Is there proper selection of PPE?	____	____
Is only the necessary amount of PPE worn into a contaminated area?	____	____
Is the PPE used its maximum amount?	____	____
28. Do the following methods of pretreatment of waste exist:		
• Compaction?	____	____
• Decontamination?	____	____
• Dewatering?	____	____
• Other (describe)?	____	____

29. Do any additional technologies exist that should be considered for PP/WM in the S&M phase? Please describe.

_____
_____
_____
_____
_____
_____
_____

Fig. 1 (continued)

30. Are there any additional ideas that should be considered for PP/WM in the S&M phase? Please describe.

Fig. 1 (continued)

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