Process Waste Assessment Approach, Training, and Technical Assistance for DOE Contractors

Kansas City Division

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**PROCESS WASTE ASSESSMENT APPROACH, TRAINING,
AND TECHNICAL ASSISTANCE FOR DOE CONTRACTORS**

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Kansas City Division

Process Waste Assessment Approach, Training, & Technical Assistance For DOE Contractors

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INTRODUCTION

The Department of Energy is committed to the hazardous waste minimization requirements set forth under RCRA as amended by HSWA. These regulations required that generators of hazardous waste "have a program in place to reduce the volume and toxicity of waste generated to the extent that is economically practical." Therefore, the DOE issued two orders, 5400.1 and 5820.2A, to mandate that the management of radioactive wastes and other pollutants be accomplished in a manner that minimizes the generation of such wastes. These orders also required each DOE Operations Office to issue a waste minimization plan, thus giving the ownership of waste minimization to the waste generators.

Assessments of all waste-generating operations within the DOE were required as the initial phase of the formal waste minimization program. These assessments, called Process Waste Assessments (PWAs), identify the nature and amounts of waste from each process within a plant's operations, identify the opportunities that exist for pollution prevention, and then evaluate those opportunities for feasible implementation. Therefore, the PWAs enable each DOE site to identify those processes, operations, and procedures that need to be improved or replaced to promote pollution prevention and at the same time provide a baseline from which to measure the pollution prevention progress. In a nutshell, PWAs are the foundation upon which comprehensive and effective pollution prevention rests.

FY91

The development of PWAs at the *Kansas City Division of AlliedSignal Inc. was initiated in October 1990. A site-specific PWA Guidance that addresses pollutant releases to all environmental media, based on information in DOE's Model PWA Plan and EPA's Waste Minimization Opportunity Assessment Manual, was published by the Kansas City Plant (KCP). The KCP's designed PWA methodology streamlines regulatory reporting and tracking requirements.

In FY91, emphasis was first given to shop floor manufacturing operations with the completion of eight pilot PWAs. However, lessons learned from this development indicated a need to concentrate on an alternative approach for non-manufacturing processes.

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FY92

Therefore, in FY92 a graded approach to perform PWAs was developed. This approach consists of three different PWA levels: Level A is a full scope PWA, while Levels B and C are reduced scope assessments requiring less effort. The graded approach establishes volume and toxicity thresholds for materials used in a given process. The actual volume and toxicity of a material determine the PWA level. For processes with a low volume of waste and/or less hazardous materials, the graded approach reduces the effort involved by decreasing the detail required in the material balance. Option generation and evaluation remains equivalent for all of the levels.

Two items are required for a successful PWA program: a structured methodology and training in its use. Therefore, a PWA training program for KCP personnel was also developed in FY92. This training is performance-based. The trainee first learns the steps of a PWA by walking through an example. Then, the students work in teams; each team completes its own PWA with an industrial process. To conclude, the students are given a written test covering the course objectives.

FY93

In response to needs expressed by contractors, DOE's Office of Environmental Restoration and Waste Management, Division of Waste Minimization, EM-352, asked the KCP to be the focal point of PWAs in the DOE complex through the project titled "Process Waste Assessment Approach, Training, and Technical Assistance." This project has three goals:

1. Development of a uniform graded approach with the flexibility to accommodate the wide variety of contractor activities,
2. Presentation of a performance-based training workshop to teach this methodology, and
3. Assistance to contractors with implementation efforts at their sites.

This paper will describe the schedule, deliverables, and status of the objectives in this project.

PWA GRADED APPROACH

The objectives for this activity are to (1) develop a uniform PWA graded approach applicable to both production and laboratory facilities in the DOE; (2) establish reasonable parameters to use in the graded approach such as material toxicity, waste quantity, and cost factors; (3) establish minimum requirements for the PWA levels; and (4) provide justification for informal PWAs. A team has been formed consisting of the four Department of Energy Defense Programs (DP) laboratories -- LLNL, LANL, SNL/CA, and SNL/NM -- and a production facility, KCP, to achieve these objectives. The following are members of this team.

<u>Team Member</u>	<u>Facility</u>
Susan Pemberton - Leader Dave Eggers Don Watson	Kansas City Plant, (KCP)
Michael Meltzer	Lawrence Livermore National Labs, (LLNL)
Jeff Weinrach	Los Alamos National Labs, (LANL)
Alice Johnson-Duarte Don Adolphson	Sandia National Labs, Livermore, CA, (SNL/CA)
Ed Kjeldgaard Gordon Smith	Sandia National Labs, Albuquerque, NM, (SNL/NM)

The team working on the PWA approach is following the total quality nine-step process.

Step 1. Identification of the key problem: A uniform PWA graded approach does not exist for the DOE contractors.

Step 2. Team formation and establishment of customer requirements: see above.

Step 3. Analyze the current process: KCP's PWA graded approach.

Step 4. Define the desired outcomes: This is being accomplished through the development of a PWA needs assessment for each facility. These needs will be prioritized and then the team will determine how to achieve them.

Step 5. Identify root causes and propose solutions: Working together, the team will modify KCP's PWA graded approach methodology to satisfy the prioritized needs.

Step 6. Test proposed solutions: Projects will be selected to pilot the methodology, with a minimum of one at each DP laboratory facility being initiated in FY93.

Step 7. Refine and implement solutions.

Step 8. Measure progress.

Step 9. Acknowledge team and communicate results.

The following schedule provides the initial planning and status for the objectives and deliverables for the graded approach activity.

<u>Activity</u>	<u>End Date</u>	<u>Status</u>
Identify support personnel from each of the DOE's DP laboratories.	FY93-1	Complete
* Perform preliminary needs assessment at each of the selected laboratories.	FY93-2	In Progress
* Modify KCP's PWA Graded Approach.	FY93-3	
Propose and prioritize pilot PWA projects at each laboratory, consistent with their typical operations.	FY93-3	
Initiate performance of pilot projects using modified PWA Graded Approach.	FY93-4	
* Document FY93 efforts and lessons learned, and recommend future initiatives.	FY93-4	

* Deliverable

PWA TRAINING

The team working on this activity consists of the following KCP personnel:

Don Watson, Leader
Milt Bryant
Mike Gerding
Susan Pemberton
Joe Riehle
Bill Schlosberg
Linda Taylor

KCP will tailor the scope of its PWA training module to meet the needs of other interested DOE sites. A set of worksheets that leads the user through the methodology

has been developed, and KCP's existing performance-based training program has been modified. A microcomputer-based system (both IBM and Macintosh compatible) has also been developed. Working with DOE-HQ, KCP will identify appropriate means to advertise the availability of KCP's training and technical assistance. This will include the development of a DOE-wide PWA contact list. Initially, three training courses, accommodating 20 to 25 people each, will be held on-site at the KCP. The scheduled dates are August 18-19, August 25-26, and September 1-2, 1993. Call Linda Taylor at 816-997-7233 if you are interested. Each attendee will be given the opportunity to complete an example PWA. A training workbook, model worksheets, and a diskette with the worksheet software will be provided.

TECHNICAL ASSISTANCE

The third part of this project is technical assistance. KCP will provide 500 hours of off-site technical assistance for those requesting aid. One of the major lessons learned is that the PWA process is only successful if generators have ownership of their processes. Therefore, KCP will only assist with defining requirements, facilitating teams of site personnel, and consulting and reviewing of PWAs.

The following schedule provides the initial planning and status for the objectives and deliverables for the training and technical assistance activities.

<u>Activity</u>	<u>End Date</u>	<u>Status</u>
* Develop list of PWA contacts within DOE.	FY93-2	In Progress
* Develop training module.	FY93-3	In Progress
Invite interested DOE contractor personnel to attend training and volunteer off-site assistance.	FY93-3	
Deliver on-site PWA training.	FY93-4	
Provide off-site PWA technical assistance as requested.	FY93-4	
* Document training and assistance through a final report and recommend future initiatives.	FY93-4	

* Deliverable

END

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