

WIPP OPERATIONS PLANNING - AN OVERVIEW

P. A. Miskimin, S. C. Cossel, D. L. Plung
Westinghouse Electric Corporation

ABSTRACT

The Waste Isolation Pilot Plant (WIPP) is a first-of-a-kind facility for emplacement of radioactive waste in a geologic repository. The concern for safe and efficient operations - coupled with the domestic and international significance of this project - necessitates that WIPP be a "model plant." To develop WIPP as a model plant, a unique planning methodology was employed to identify, evaluate, incorporate, and implement these elements that together will form the best possible overall operation. The resulting improvements in communication among project participants and the smooth transition being made from construction are equally attributable to the methodology employed and the operating program plan developed.

WIPP DESCRIPTION

The Waste Isolation Pilot Plant (WIPP) is a research and development project of the Department of Energy (DOE). Located in southeastern New Mexico, WIPP is designed to demonstrate the safe disposal of radioactive waste materials from defense programs of the United States by emplacing waste packages in salt formations approximately 2,150 feet below the surface. Additionally, WIPP will serve as an experimental facility to gather necessary information for future permanent disposal of defense high-level radioactive wastes.

The waste to be received at WIPP is composed of three basic types: 1) contact-handled transuranic waste, limited to radiation levels not greater than 200 mrem/hr at the waste package surface; 2) remote-handled transuranic waste, with surface radiation levels above 200 mrem/hr; and 3) defense high-level waste.

FROM CONSTRUCTION TO OPERATION

The development of WIPP occurred in two phases: 1) site and preliminary design validation, in which two shafts were dug and an underground experimental area constructed; and 2) full construction in which the required surface and underground facilities are being built. This latter stage is scheduled to be completed by December 1986; subsequent to that, there will be a period of cold operation, followed in 1988 with the receipt of radioactive waste for emplacement.

Accordingly, in March 1984, an analysis was performed by Westinghouse Electric Corp., the Technical Support Contractor to DOE for the WIPP Project, on how best to ensure the facility would be ready in all respects to receive radioactive waste on schedule and to accomplish its mission as authorized by the Department of Energy. In general, this analysis determined that significant planning would be required to guarantee an orderly and efficient transition from construction to operations.

As a consequence of this analysis, the WIPP Project Office of the Department of Energy and Westinghouse Electric Corp. agreed that a planning process was needed which would produce a master plan for WIPP. Being that no other facility existed after which to pattern WIPP - and that there was and continues to be considerable domestic and international significance attached to this project - the operating plan would have to be more than might be required at another facility. Rather, from the outset, the intent was that the product of this planning process be the basis for a "model plant," an exemplary facility after which future radioactive waste repositories would model themselves.

To attain this objective, the planning process was designed to perform several functions:

- 1) Identify and evaluate operating and management alternatives
- 2) Utilize decision-making methodologies where appropriate
- 3) Identify and resolve undecided issues
- 4) Identify resources required in each functional area
- 5) Develop specific schedules
- 6) Bring the right expertise into the planning process
- 7) Increase project participants' understanding of operations and management plans and requirements.

Another commanding feature of this effort was the intended multiple audiences for this document. Whereas most manuals have a single, defined, and relatively immutable audience, the plan for this model facility had to serve three principal audiences and three functions:

- 1) Department of Energy: The plan had to establish a sound policy and philosophy upon which the DOE could

judge the site's readiness to proceed from construction to cold operations, and degree of preparation (later) to begin receipt of radioactive waste.

- 2) Operating Contractor: At this juncture, no operating contractor had been selected by the DOE. Yet, this plan had to provide the operating logic in suitable detail to allow a contractor to operate WIPP on behalf of DOE.
- 3) Visitors: As anticipated, the uniqueness of WIPP would draw visitors from all sectors: Foreign nationals, corporate visitors, and DOE and other government representatives. It is useful to have a planning document available to support discussion with certain visitors.

THE OPERATIONS PROGRAM PLAN

An initial step in developing the plan was identifying and segregating the functional areas comprising WIPP operations. (Table I lists the functional areas currently addressed in the Operations Program Plan.) Concurrently, individual committees were established for drafting the various sections of the plan and a format for the descriptions of these functional responsibilities was prepared.

TABLE I

Functions Addressed in the Operations Program Plan

Public Health & Safety	Site Development
Environmental Operations	Safety
Security	Engineering
Mining	Waste Transportation
Maintenance	Training
Quality	Waste Management Systems
Geosciences	Experimental Programs
Administration	Computer Systems
Decommissioning	Startup
Plant Operations	Facilities Management

Planning Committees

As implemented, the planning process was a highly participative activity. In addition to a Technical Support Contractor representative, each committee included at least one representative from the DOE WIPP Project Office, one from the Albuquerque Operations Office of the DOE, and other appropriate

personnel from the WIPP technical staff. Further, to ensure that appropriate expertise and lessons learned were factored into the planning, experts from various DOE and Westinghouse organizations throughout the United States were utilized as consultants or committee members. In all, more than 50 individuals actively participated in the preparation of this document. (Table II is a partial list of the types of expertise obtained from other DOE and Westinghouse organizations.)

TABLE II

Outside Participants in WIPP Planning Process

<u>Organization</u>	<u>Expertise Provided</u>
Westinghouse Waste Technology Services Division, Nevada Operations (E-MAD Facility)	Operations Emergency Planning
Westinghouse Idaho Nuclear Co. (Idaho Chemical Processing Plant)	Maintenance Site Development Security Environment Editing Safety
West Valley Nuclear Services Company	Emergency Planning Radiological Safety Decommissioning
Westinghouse Nuclear Services Integration Division	Training
Westinghouse Waste Technology Services Division - Waltz Mill Site	Administration Decommissioning Computers
Westinghouse Hanford Company (HEDL)	Administration
Pantex Facility (DOE Mason Hanger Company)	Training Emergency Response
Westinghouse Hittman Nuclear, Inc.	Transportation

Document Format

Each chapter, devoted to a single project function, was drafted using a standardized format (and suggested number of pages). Establishing a standard format at the beginning of the process ensured consistency among chapters and inclusion of appropriate information.

Information requested of each authoring committee included:

- 1) Program Description: Functions, organization, major stages.
- 2) Major Undecided Issues: Unresolved issues that affect policy, philosophy, or program scope.

- 3) Resources Needed: Manpower, major equipment, facilities.
- 4) Interfaces: With other WIPP organizations, DOE, outside organizations.
- 5) Evaluation: Tangible means of verifying program's success, measuring results.
- 6) Guidance Documents: DOE, DOT, EPA, MSHA, Regulations or Directives.

independent management review team. Final review is by DOE.

Functions Served by the Operations Program Plan

Benefits were immediate. The process uncovered several significant problems, some of which were not previously recognized, others that had inadvertently "slipped into a crack." Many of the problems were significant enough that they could have adversely affected the overall project schedule.

Another immediate benefit is the increase in communication. Since DOE (both the WIPP Project Office and the Albuquerque Operations Office) were heavily involved in the process, communication was increased dramatically. The improved communications opened the way for an improved working relationship between customer and client.

A third immediate benefit is the tie between schedule, program, and resources. For really the first time, all aspects of the project were tied together in a single, easy-to-understand document. The complete cycle from conceptual program, to resources requirements, to schedule is extremely useful to all levels of management and professionals.

Many other benefits have resulted from production of the Operations Program Plan - a defined work scope, high-level visitor information, better employee training, budget justification, and documentation of conflict resolution. Some of the benefits are just coming to light. Therefore, it has become evident to all involved with the WIPP Project that the Operations Program Plan has already served many important purposes, yet continues to increase in importance.

These benefits, and others detailed below, will continue throughout the life of the project. An annual review is conducted and the Operations Program Plan extended as warranted to ensure it accurately reflects the anticipated scope of activities.

Project Planning Support

The Operations Program Plan represents an important input to the PERT charts necessary to monitor the project's progress. Starting with the milestones denoted in each of the chapters, the Project Planning group has developed a realistic events logic. From using the events and milestones described in each chapter's description and summary schedules, three levels of PERT charts have been developed. Those milestone events directly contributing to the project's overall progress are recorded on a Project Master Summary Schedule for use by DOE and other major project participants. The primary supporting events are recorded on two lower tier PERT charts that allow management personnel to track the progress of individual activities.

Budgeting and Costing Support

To assist in establishing clear costing and budgeting practices, budgets and costs

Further, a summary was required for each chapter to briefly explain what the function is and how it is accomplished; this summary is intended for persons who want a quick familiarity with the subject matter. Secondly, the summary provides a rationale of why the program is constituted as it is; this part of the summary clarifies what alternatives were considered in the process of planning the program and reflects the systematic decisionmaking process employed in the preparation of each functional activity.

Chapter Preparation and Review

The many stages in the preparation and review of each chapter of the Operations Program Plan also accurately reflect the intent to produce a model program. These stages, overseen by a full-time Planning Coordinator, were:

- 1) Committee Formed: The Project Manager selects appropriate personnel.
- 2) Schedules Developed: The Coordinator develops a schedule for preparation of the chapter.
- 3) Kickoff Meeting: A first meeting is held with cognizant DOE personnel to "brainstorm" the subject - determine program scope, action items, etc.
- 4) Working Meetings: Meetings are held, based on direction established in kickoff meeting. These meetings are used to gather information, resolve issues, refine direction, etc.
- 5) Midway Meeting: A second meeting is held with DOE to review and confirm the status and direction.
- 6) Working Meetings: Further working meetings are held based on direction gained from Midway Meeting.
- 7) Wrap-Up Meeting: A final meeting is held with DOE to review the chapter and affirm agreement regarding content and scope.
- 8) Editing: A final edit is done on the chapter.
- 9) Review: Several review cycles are completed, beginning with a review by other WIPP organizations, and extending through contractor project management and then to review by an

have been tied to work packages designated by applicable functional areas in the Operations Program Plan. This allows the costing and budgeting to be figured using the projection of resources needed - manpower, facilities, subcontracts, equipment - and the operational requirements as established in each chapter by the cognizant functional group.

This correspondence to chapters in the Operations Program Plan also affords ease of cross-checking to confirm funding and staffing levels are in accordance with planned activities.

Compliance Support

Compliance with policies and standards is also reinforced. As part of the responsibility of each committee in determining applicable guidance documents, a complete review was conducted of DOE Directives. In addition, the use of committees comprising knowledgeable people from the Technical Support Contractor, DOE, and other organizations provided further assurance that all applicable directives had been considered and addressed. In support of the model plant concept, it was ascertained that programs exceeded all applicable minimum requirements by checking the program objectives and plans against pertinent directives.

Organizational Support

By having each chapter reflect functional rather than organizational concerns, the program's goals and objectives were more clearly understood and the organization was thus designed to maximize interdepartmental support while minimizing redundant efforts or unwarranted interfaces. Implementation of a matrix-type organization was also more efficiently accomplished through evaluation of the staffing, both that assigned to a particular program and that support necessary from other WIPP organizations. This yielded an organization particularly suited to accomplish WIPP's unique mission, allowed easy determination of specifically how many personnel were necessary to accomplish all the anticipated activity, and minimized departmental problems associated with such interferences as overstaffing.

Document Hierarchy

As was noted in the discussion of Project Planning, the Operations Program Plan has been of great assistance in developing a logical document hierarchy, an asset to any organization. (Fig. 1. depicts the document hierarchy.) The DOE WIPP Project Office has a single summary document, the Project Manager's Operating Plan, that designates the responsibilities of and interfaces among the major project participants at WIPP. The Operations Program Plan, in turn, serves as the top operating contract document at WIPP: it describes the programs, the policies, and the philosophies.

Therefore, all lower-tier documents such as the Project Master Summary Schedule,

manuals, and procedures are numbered so as to correspond with the chapter in the Operations Program Plan that describes the program. For instance, any documents that deal with facilities management (Chapter 7) will have a "7" as their first digit. Similarly, budget and variance reports will identify the Operations Program Plan chapter that relates to that specific budget.

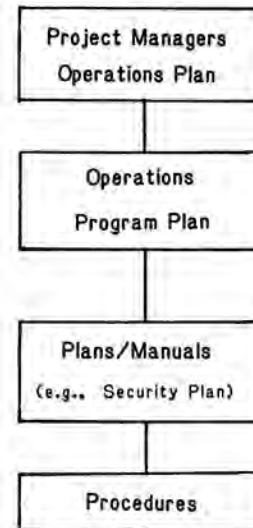


Fig. 1. WIPP Document Hierarchy.

SUMMARY

Through the preparation of this document, WIPP is now on schedule to become the model plant envisioned by DOE and Westinghouse. Yet, it would have been difficult to ensure that WIPP would be available on schedule to accomplish its mission without having undertaken to develop and establish the Operations Program Plan as the facility's master operating plan. As a first-of-a-kind facility, set in an environment of multiple and diverse interfaces and requirements both internal and external to the project, WIPP required a thorough, sophisticated planning process.

This process should offer several key considerations for other facilities, whether it be a complete new facility or an addition to an existing one and whether it be commercial or government:

- 1) As early as possible in the construction stage begin assessing the programs necessary to enter the operations phase.
- 2) Develop an overall set of objectives and goals relating to the operations phase; these can be set based on customer satisfaction, productivity, etc.
- 3) Establish teams to develop the operations program; wherever

possible incorporate whatever additional outside expertise is available to the project.

- 4) Develop frameworks for these committees - these may be reporting formats, schedules, and ancillary support necessary to ensure the committee produces specifically the types and degrees of information sought.
- 5) Review and revise internally until all organizations contributing to

the operations effort understand their own responsibilities, the organizations with which they interface, and - perhaps most importantly, the overall operations and management plans.

- 6) Provide a mechanism for periodic review and updating of the plan developed to ensure the program remains consistent with the prescribed objectives.