

# **The Program**

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## **I. THE ENHANCED WORK PLANNING PROCESS**

### **A. Introduction**

Three key elements of the Office of Environment, Safety, and Health programs throughout the Department of Energy Complex are:

- Work planning, hazard analysis and hazard control are essential for effective management of health and safety;
- Line management is fundamentally responsible for health and safety; and
- Worker participation greatly enhances the effectiveness of health and safety programs.

Enhanced Work Planning (EWP) addresses these three elements through the use of multidisciplinary teams to integrate health and safety into the sites' existing work planning process. Incorporation of the EWP process into existing programs will improve communication among all parties involved in work planning.

Work Planning is a process that determines the requirements, means, and design to accomplish intended work. Factors considered during work planning include: task to be accomplished; hazards; methods and procedures; interface with support organizations; impact on operations; materials and resources; priorities and schedules; hazards and controls; quality assurance; and costs. Work planning may be initiated in response to requests by line management, engineers, planners or other plant personnel.

The rigor of the planning process depends on factors such as risk, safety, complexity, and routine versus non-routine work. An appropriate degree of rigor in planning is important to the effective and efficient conduct of operations. Depending on the nature of the work, planning can involve many technical specialists, such as occupational health and safety (industrial hygiene, safety, health physics, and occupational medicine), waste management, and engineering with additional input from various levels of management and from workers.

The challenge of work planning is to conduct work in a timely, effective, and efficient manner, while ensuring the identification, evaluation, and control of workplace hazards. In a traditional approach to work planning, these 'subject matter experts' are generally given work packages for review during various phases of the work planning process. When changes are made by any of the specialists the package must be reviewed again by all parties. This is a sequential review similar to that shown in following graphics



Conversely, Enhanced Work Planning is designed to improve the traditional work planning process by implementing a cooperative team approach and fully integrating health and safety early into the process. This can be accomplished, in part, by:

- Fully integrating the input of occupational health and safety organizations, worker (craft), and other professionals early into the planning process. This up-front, multi-disciplinary planning approach reduces unnecessary rework of planning documents and decreases work stoppages in the field due to unanticipated safety or workability issues.
- Enhancing productivity through the use of the 'Necessary and Sufficient' process to reduce unnecessary controls, monitoring, and medical surveillance.
- Taking an approach that balances the rigor of planning with the risk and complexity of the job. This necessitates the use of an appropriate level of hazard analysis and control.
- Improving communication and interaction between line management, workers (crafts), occupational health and safety, planning and design professionals, and all other groups involved in the planning process.
- Identifying the appropriate customer and addressing their specific needs in a timely fashion.

## **B. Objectives**

Each site within the DOE complex is different, each has its own set of unique problems and methods for addressing them. As a result no single work planning process works best for all sites. There are, however, several Objectives which apply to improving all work planning processes.

The sites undertaking the incorporation of the EWP process should:

- Baseline the current work planning procedures;
- Identify barriers and opportunities for improvement
- Examine health and safety issues;
- Develop enhancements to test; and
- Be innovative.

The team conducting an EWP project should work toward achieving the following:

- Improve the work planning process, enhance efficiencies, and reduce risk and vulnerability by improving work planning from both an operational and worker protection standpoint;
- Develop a process in which management, labor, and health and safety professionals work cooperatively in multidisciplinary teams;
- Demonstrate that the Enhanced Work Planning model provides 'real life' improvements;
- Facilitate the integration of reliable and effective hazard based analysis techniques into the work planning process;
- Determine the most appropriate means for conducting hazard characterization to aid line management, employees, and occupational health and safety personnel in reducing risks and vulnerabilities; and

At the end of the EWP demonstration participants should be able to:

- Identify the elements of an Enhanced Work Planning process along with the key participants and their roles;
- Be able to actively participate in the work planning process;
- Be able to identify and apply hazard analysis techniques in the work planning process; and
- Describe the elements of an effective exposure assessment program.
- Measure effectiveness of the enhancements
- Incorporate successful approaches into the way work is performed

### **C. Elements of an Enhanced Work Planning Project:**

There are no specific rules or requirements for conducting EWP rather it is a performance based method of carrying out work planning. There are, however,

several elements which make up the framework of all EWP projects these elements are presented below.

### **1. Hazard control through work planning**

Hazards can be more easily identified and controlled if they are considered during the work planning process. Foresight always reduces the risks and saves time and money. Keeping all of the EWP Team informed and actively involved in the work planning process reduces risks, and avoids time-consuming duplication of effort.

### **2. Employee involvement**

Direct employee participation in the work planning and exposure assessment process improves identification of the hazards.

### **3. Coordination and communication**

Each member of the EWP Team must know their responsibilities, and the responsibilities of the other members. The following factors should also be considered in selecting EWP Team member:

- Level of Involvement;
- Frequency of interaction with other team members;
- Impact they have on the work planning process; and
- How well they work with others and keep others informed of their involvement.

### **4. Hazard identification and assessment**

This involves identifying the hazards associated with a job or task, and determining the potential for exposures to the hazards from performing each task.

### **5. Medical surveillance**

The occupational health personnel should be involved in the work planning process to obtain hazard identification and assessment information and determine the relationships between hazard exposures and health effects. They must alert the EWP Team to any identified trends in occupational illness that they may be observing which indicate a worker exposure that needs to be reduced. They are also the ones who determine employee medical fitness for a job or task. The most important concept here is that the linkages and flow of information between the occupational health organization to line management and the health and safety organization must be developed and utilized.

## **6. Lessons learned** (See tab section 'Lessons Learned')

During the demonstration as well as after the demonstration is completed, lessons learned should be documented. Improvements, and their added value, should be noted and explained. Any changes needed to improve the enhanced work planning process or draft exposure assessment guidance documents developed by the EWP Team should be incorporated into the project.

## **7. Performance Measures** (See tab section Performance Measures)

Performance measures are useful tools to measure achievement and movement toward reaching established goals. They are used to monitor trends and changes in a process or program. Performance indicators are also used to evaluate the effectiveness of the enhanced work planning process. The EWP Team selects and measures the criteria to be used for performance indicators as one of the first steps in this project.

Performance measures may be Quantitative or Qualitative (e.g. hours expended/dollars saved, number of forms eliminated, or reduction in worker hours charged to job delay codes) or more subjective and qualitative (e.g. more documented, consistent planning process or better application of graded approach to exposure assessment). Performance measures selected for the demonstration project should focus on those attributes that can be measured over the relatively short duration of an enhanced work planning demonstration project.

## **II. CARRYING OUT AN ENHANCED WORK PLANNING PROJECT**

### **A. Building Management Consensus**

Recent successes in enhanced work planning demonstrations projects can be attributed to one primary factor: strong “buy-in” by line management, support organizations, workers, and safety and health staff. Achieving initial “buy-in” and maintaining it throughout the course of the project requires: (1) definition in concrete terms how the project will benefit participants; (2) effective communication among contractor managers and workers, and DOE Field and Operations Office staff; and (3) implementation that is responsive to the specific needs of the site. Without appropriate buy in the project cannot succeed.

### **Develop Objectives**

The first step in building consensus is to define concrete objectives for the demonstration projects. The objectives should reflect quantifiable improvements in performance that can be altered as a result of implementing the EWP process. Objectives should be established based on the most important issues of a given site. For example objectives can be related to specific elements in the Award Fee Determination Plan. Table 1 provides a list of sample EWP project objectives.

**TABLE 1. Sample EWP Project Objectives**

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### **Develop Communications Links**

Communication is key to the success of any program or demonstration project. Communication links should be established to inform all participants and interested stakeholders of the activities of the EWP Team. Successes should be documented and reported to senior management as well as to union representatives and managers not directly involved in the EWP demonstration.

### **Start with Health and Safety and Line Management Simultaneously**

Health and safety organizations can be valuable allies in launching the project and must be on board. However, experience has shown that line management endorsement and participation are fundamental to ensure the success of the EWP initiative. Buy-in from those who own the work control process is key (a key selling point for the project will probably be enhanced planning mechanisms fostering improved efficiencies, productivity's and cost savings while simultaneously improving health and safety).

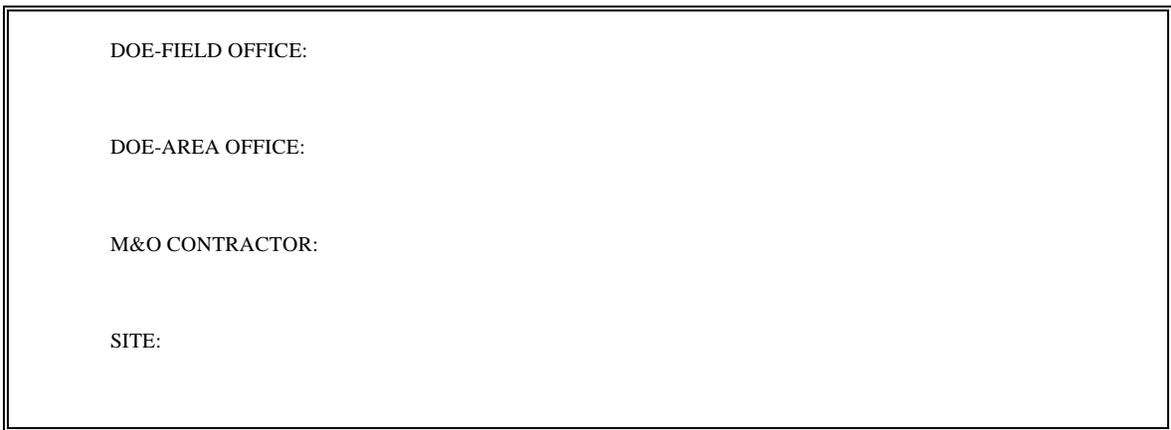
### **Solicit Endorsements Both “Vertically” and “Horizontally”**

It is important to solicit endorsements and input from various organizational levels at the site, both within DOE and the applicable contractor organizations. In launching previous EWP demonstrations, success resulted from discussions with line managers and DOE deputy assistant directors and then moving up through the ranks to the head of the DOE field office and the contractor's president. The ultimate success of the project will depend on the participation and support of the line supervisor and workers.

Solicit "horizontal" endorsements from the many groups having input to the planning process. At the manager and assistant manager levels, discussions should involve all the groups represented by the EWP Team (see Section IV. Implementation). In addition, discussions should be held with personnel working on related or similar initiatives throughout the site. To carry out a successful EWP demonstration input must be obtained from all parties:

- who may be involved in the decision-making process;
- whose input will be solicited for decision;
- whose job function would/should require them to be familiar with the project and how it is performed. As a starting point to identify individuals who may be important to contact, Figure 1., *Typical Contacts Involved With EWP Demonstrations (DOE and M&O Contractors)*, identifies the positions of the key parties involved in earlier EWP demonstrations.

**Figure 1. Typical Contacts Involved With EWP Demonstrations (DOE and M&O Contractors)**



### **Communicate with Worker Organizations**

Work with appropriate site management and labor relations specialists to create a dialogue with worker organizations. Representatives of the work force must be part of any successful EWP project.

### **Conduct Briefings**

While the Assistance Team functions to provide senior managements input into the EWP project short, impromptu meetings to allow feedback to be solicited on how the initiative is going are useful. Brief meetings should routinely be held with the DOE and M&O senior management to discuss specific successes in efforts to date and follow-up activities.

### **Follow-Up**

Follow-up is critical to launching and conducting an EWP demonstration projects. Lessons learned from previous and other ongoing EWP demonstrations have shown that the “out of site, out of mind” phenomenon can be one of the biggest obstacles to a successful project. Periodic (e.g., weekly) phone calls to site contacts are typically necessary to follow the approval processes necessary to “close the deal” and actually begin work. The primary objective of follow-up in the initial stages is to ensure that any impediments or bottle necks to getting underway are identified without delay so that they can be resolved.

## **B. Developing the EWP Implementation Plan**

The EWP Implementation Plan establishes a "contract" among the DOE Operations, Field or Area Office, and the Management and Operating Contractor. The EWP Implementation Plan identifies the objectives of the project, the specific activities to be completed, deliverables, schedule milestones, and resources that will be committed by all interested parties. The plan also identifies satisfaction criteria that establish a basis for ensuring expectations are met during the project. The plan must be approved by the DOE Area, Operations or Field Office, and M&O contractor. For more information on a EWP Implementation Plan see the tab-section 'EWP Implementation Plan'.

## **C. Roles and Responsibilities of the EWP Teams and Participants**

To preclude duplication of effort, eliminate overlap in responsibilities, and ensure clear lines of accountability for the EWP demonstration, clear roles and lines of responsibilities should be assigned to everyone participating in the project. The following descriptions define the principle players in the EWP process.

## **1. Participants**

Several groups (teams) and individuals are instrumental to the success of the Enhanced Work Planning project including; the Enhanced Work Planning Team, the Assistance Team, the Enhanced Work Planning Team Leader, the on site Facilitator, and interested Stakeholders.

As a minimum, two distinct teams are formed: 1) the multidisciplinary **Enhanced Work Planning Team (EWP Team)**, consisting of individuals involved in the day-to-day planning and conduct of work, and 2) the **Assistance Team**, made up of senior management, directors, and DOE officials. These two teams form the foundation of the EWP project. Interested stakeholders such as representatives from the other facilities at the site, DOE HQ, etc. may also be formed into an advisory team.

The EWP demonstration project conducted by the EWP Project Team with assistance from the EWP site facilitators and guidance from the Assistance Team. It is important to remember that the direction of the demonstration project is established by the EWP Project Team and Assistance Team and not by the project facilitator.

### **Enhanced Work Planning Team (EWP Team)**

During the initial development of the EWP project, an EWP Team (Figure 1. *Typical Enhanced Work Planning Team (EWP Team) Participants*) is assembled. Different names have been used in previous demonstration projects; for example they have been called the "Core Team" and "Work Control Team". Regardless of what this team is called their function will be the same. Their mission is to examine existing processes used to plan and conduct work at the site and to identify, formulate and test potential enhancements to these processes.

The team is composed of representatives from all of the organizations routinely involved in the planning and/or conduct of work and is led by a team leader selected from within the team (typically the manager of the planning department or another qualified manager). They complete various activities and discussions during the project with the on-site facilitator serving to facilitate team meetings and suggest process improvements. They solicit ideas and information from a cross section of the site including workers, planners, supervisors, and support organization.

EWP Teams members are selected based on the recommendation of their supervisors. Important considerations in selecting participants include:

- Willingness to constructively work with others to improve the existing processes and systems;
- Experience at the site within their respective technical discipline;
- Familiarity with existing planning practices (and/or their outcomes);
- Availability to devote four to six hours per week to the EWP demonstration project over the duration of the project; and
- Existing job responsibilities and authority (i.e., participants should be able to help identify enhancements, test them, and have the credibility with their superiors to advocate adopting the enhancements as warranted).

**Figure 1. Typical Enhanced Work Planning Team (EWP Team) Participants**

<i>Potential EWP Team Participants</i>	
<ul style="list-style-type: none"> <li>o craft supervision</li> <li>o safety engineering</li> <li>o medical</li> <li>o facility owners</li> <li>o waste management</li> <li>o quality assurance</li> <li>o conduct of operations specialists</li> </ul>	<ul style="list-style-type: none"> <li>o industrial hygiene</li> <li>o radiation protection</li> <li>o planning/scheduling/coordination</li> <li>o nuclear criticality</li> <li>o labor</li> <li>o training</li> </ul>

**EWP Team Leader**

The duties of the EWP Team Leader include focusing the EWP Team on the key issues at hand, running meetings, issuing assignments, and ultimately deciding on how potential enhancements will be tested and incorporated into actual work activities. Over the course of the demonstration, the EWP Team Leader is also responsible for identifying and adding other participants to the effort, interfacing with site management and the Assistance Team (see below), and, in general, providing checks and controls to ensure demonstration activities and work products are fully compatible with existing site structures and overall policies.

The EWP Team Leader is one of the most important individuals involved in the EWP project. He or She should be selected based upon their willingness to champion the initiative and be able to commit sufficient time to the project. The Team Leader

should be at a managerial level high enough to make appropriate decisions and directives.

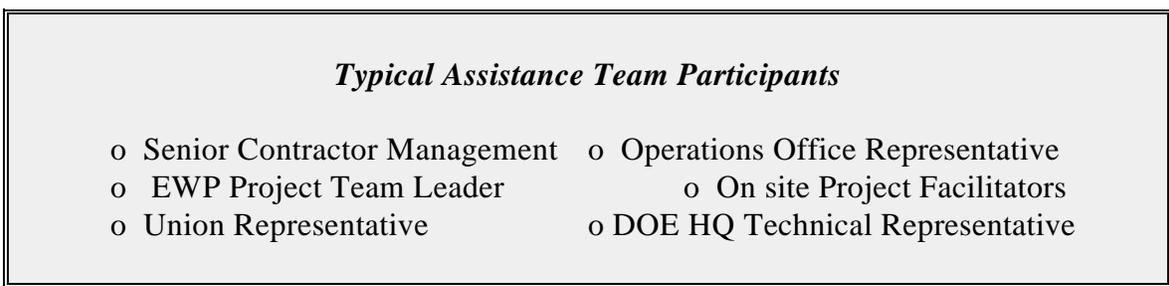
### **Assistance Team**

The Assistance Team provides direction to the project, facilitates the resolution of procedural matters, and provides senior management support when needed. This group is also responsible for supporting the eventual “buy in” of the site and the various organizations at the site to the enhancements proven effective by the EWP Team. As identified in Figure 2., *Typical Enhanced Work Planning Demonstration Project Assistance Team Participants*, the Assistance Team is made up of site divisional and departmental directors, the EWP Project Team leader, DOE officials and interested stake holders. These individuals should have both a detailed knowledge of the site as well as the decision-making authority to approve changes in existing processes and management systems.

Meetings are convened during the project to inform the Assistance Team of EWP Team activities and to solicit concurrence with the scope and direction of the project. During the meetings the Assistance Team is informed of elements of the planning process the EWP Team is considering enhancing, what the enhancements will be, and how they will be implemented. Concurrence, input, and support is solicited from the Assistance team regarding these changes.

On average, a commitment of about 1 hour/week will be required for the Assistance Team members.

**Figure 2. Typical Enhanced Work Planning Demonstration Project Assistance Team Participants**



### **Interested Stakeholders**

A third group that may be formed at a site consists of Interested Stakeholders. This group includes other parties at the site, Area Office, DOE Field Office, DOE Headquarters, and/or throughout the DOE complex who may have an interest in the project. Interested stakeholders may have an interest in adopting results from the EWP

demonstration project to other projects at facilities not yet addressed by the project. This group should be routinely be appraised of project developments through periodic reports or briefings.

### **EWP Project Facilitators**

Project facilitators may be deployed from DOE-EH, other sites or the site its self to assist in the conducting of the project. The most successful demonstration projects to date have used a technical assistance approach whereby key facilitators (technical experts) help coordinate work and regularly visit the site to work closely with the EWP Team. The role of the project facilitators is to provide the site with technical assistance and ensure the project moves forward consistent with established project objectives. One facilitator (on-site facilitator) remains on-site over the duration of the project working closely with the site EWP Team to provide day to day support. Experience has shown that the on-site facilitator is second only to the EWP Team leader in importance. This individual provides the day to day continuity of the project. Other facilitators provide input as necessary i.e., an EH facilitator would remain primarily at DOE headquarters and provide overall support for a given site and coordination with other similar efforts underway across the complex. Facilitators are senior-level professionals, experienced in conducting EWP demonstrations and with credentials such as advanced degrees in occupational safety and health, professional certifications, etc. Senior-level technical and managerial skills are important to ensure the project's approach is suitably tailored to the site's individual needs.

### **On site Facilitator**

The on site facilitators plays a key role in the success of the EWP demonstration project by providing day-to-day support for the project at the site. He/She will be responsible for maintaining project momentum through a full time presence, making frequent contact with interested parties, working with the customer to identify specific needs, performing selected technical and management tasks. The facilitator assists the EWP Project Team leader in maintaining the focus of the project, helps organize and run meetings, maintains routine communications with interested stakeholders, helps prepare "straw man" forms and procedures, and in general help insure the project acheives it objectives.

The on site facilitator works with management and operating contractor personnel and DOE field personnel conducting the project and provide advice, consultation and guidance. Other responsibilities include:

- Ensuring effective communications with DOE and management and operating contractor management regarding the project during planning and implementation;

- Developing the EWP Implementation Plan and obtaining required approvals;
- Monitoring project progress, and working with the EWP Team to promptly eliminate barriers encountered during the project;
- Tracking schedule and budget information against commitments;
- Providing coordination with other site improvement initiatives, and promoting adoption of the results from the project across the site into all aspects of the contractor's work activities;
- Preparing routine progress reports regarding project activities, successes, and barriers encountered; and
- Developing a final report on the EWP project summarizing results and lessons learned.

In order to make the most effective use of the use of the on-site facilitator's time and efforts this individual should be provide with an office at the site. In addition it is important to provide a telephone with voice mail and computer support including e:mail capabilities.

#### **D. EWP Project Team Meetings**

The EWP Team carries out the day to day functions of the EWP project through regularly scheduled meetings. EWP Team meetings are working sessions and must be held consistently over the course of the project. The meetings facilitate communication among the various groups relative to identifying existing practices and how they could be enhanced. The EWP Team should meet once or twice weekly to discuss issues and jointly work through solutions to identified issues. The major activities the EWP project team include:

- developing performance measures used to monitor the progress toward achieving the goals of the demonstration project;
- documenting the current practices of work planning and job and task hazard analysis and identifying potential enhancements to the existing process;
- selecting several activities that normally involve work planning and worker exposures;

- applying the elements of EWP (i.e., multidisciplinary team, employee involvement, job and task hazard analysis, graded (risk/complexity) bases approach, etc.) and the enhancements identified to selected jobs over a brief (six to eight week) period;
- documenting improvements and value added from application of these principles, as well as any changes needed to improve the work planning process; and
- drafting exposure assessment guidance documents and team work principles.

Meetings should last from 1 to 2 hours. During this time, presentations may be made by one or more team members regarding specifically identified issues or “straw man” enhancements to be critiqued by the group. EWP Team members may be assigned to, assemble additional information to be shared at a later meeting, or develop a straw man ‘enhanced’ procedure for group comment. Walk downs of selected jobs are conducted outside of the scheduled meeting times while the reviews and feed back from the walk downs are discussed during the meetings. Meeting minutes should be maintained as a record of the demonstration project.

While it may be appropriate to occasionally convene lengthy meetings, where professionally produced materials are used to illustrate concepts, long meetings are generally unnecessary and may sometimes be a detriment. Being sensitive to the time required is always appreciated by decision makers and helps foster confidence that the EWP Demonstration will not waste participant’s time either at the initial stages or later on. Often, short, unscheduled, informal discussions will best accomplish objectives and eliminate delays caused by trying to set formal appointments. Even top executives (e.g., the president of an M&O contractor) can be approached for a five minute briefing in between his appointments, providing he or she is confident that the meeting will be short and to the point.

The first meeting should include all participants in the EWP project. During this meeting a general briefing on Enhanced Work Planning (See Resources tab section - 'Briefing Manual') will be presented. Because this meeting will provide a broad introduction to the project it will usually take at least 4 hours. The EWP briefing should be presented by an EWP 'expert', usually the assigned on-site facilitator with assistance from an EH Headquarters facilitator. During this meeting each participant should be given a 'Participants Briefing Manual'. Subsequent meetings during the start up process would include activities such as:

“Ice Breaking” exercise during which participants break into several competing teams and are asked to plan and build ‘the highest free-standing structure’ using plastic toys. Results and observations are then discussed in the context of real life conduct of work situations at the site.

“Baselining” exercises during which participants are asked to identify their roles and responsibilities at various steps of the planning process. Comments from the entire Team are solicited concerning where enhancements may be warranted.

## **E. Bench marking and Performance Measures**

### **1. Baselining**

The EWP Team must attain a thorough understanding of current work planning processes. Through a systematic review of the existing planning processes, the EWP Team will identify where project emphasis should be placed (i.e., where enhancements to the existing planning process could be most beneficial), what the enhancements would be, and how these enhancements can be tested through incorporation into actual ("real life") projects.

During the review of existing work planning processes the EWP Team to explores how each 'group' contributes to the planning process, how planning ultimately affects and controls the conduct of work, and what each 'group' needs from the planning process to ensure safety and efficiency. EWP Teaml ascertains what information the various groups needs from the planners and vice versa (e.g., what constitutes an acceptable “work package” in the view of the various departments). Some sample questions include:

- What are problem areas, bottlenecks, or barriers which may cause inefficiency?
- How should safety and health information, risk codes, job safety analysis forms, exposure assessment data, etc., be used by the various groups involved in the conduct of work?
- How are existing systems used to measure performance and accountability? (e.g., backlog of work requests, hours charged to delay codes on time sheets, injury and illness logs, etc.)

### **2. Performance Measures** (See tab section 'Performance Measures')

The EWP Team establishes performance measures to help judge the overall merit of enhancements that are to be tested during the demonstration project. Performance measures may be objective and quantitative in nature (e.g., “hours expedited/dollars saved”, “number of forms eliminated”, “less worker hours charged to delay codes”) or more subjective and qualitative (e.g., “more documented, consistent planning process”, “better application of graded

approach to exposure assessment”). While evaluation of the merits of the enhancements may require completion of several work packages over long periods of time, some emphasis should be placed on establishing performance criteria which can be used during the relatively short duration of the initial EWP demonstration project.

## **F. Identification and Planning Candidate Work Packages**

### **1. Focus on Groups Warranting Enhancements**

During the base lining phase, the EWP Team will actively solicit input from the Assistance Team on just where the project should be centered. This will preclude focusing project activities on unfounded or preconceived ideas of work planning deficiencies. Rather than attempting to establish baseline information and develop enhancements for an entire site, initial Team discussions should be limited in scope to one or more organizations/activities where enhancements could have a significant impact. In this manner, the project iscope is maintained a manageable size. For example, it may be justified to focus the EWP activities on just maintenance activities at a site rather than include construction, decontamination & decommissioning operations, or environmental restoration programs. Following the initial project’s conclusion, demonstrated enhancements may be tailored and exported to other activities or organizations at a later date. Decisions about how to focus the project should be made by the EWP Team Leader based on input from the Assistance Team.

### **2. Focus on Issues Warranting Enhancements**

The EWP Team’s chief responsibility lies in identifying the issues warranting attention as well as working through these issues so that enhancements are developed and tested. Figure 3., *Questionnaire for Identifying Potential Weaknesses*, presents examples of potential questions the EWP Team might use to identify potential areas for improvement in the existing work planning process. Figure 4., *Examples of the Types of Issues Raised by the EWP Team*, illustrates the kinds of observations made by Team participants. These observations can help focus the effort on certain key elements. Figure 5., *Examples of the Types of Enhancements Developed by the EWP Team*, provides examples of the kinds of enhancements the Team may then develop. Following the base lining phase of the demonstration and at logical intervals throughout the project, the input of the Assistance Team and Interested Stakeholders should be solicited to help prioritize identified tasks.

## **G. Implementation and Demonstration of Enhancements**

### **1. Implementation**

The EWP Project Team will propose specific improvements in the work planning process that should result in a more effective, streamlined process and enhance protection of the safety and health of the workers. Site line management will determine if all or part of the recommendations from the Team should be implemented for selected work efforts to provide an objective determination of the benefits of the proposed changes.

## **2. Demonstration of Enhancements**

The demonstration phase of the project provides the opportunity to incorporate identified enhancements in to actual work activities at the site. While an idea for an enhancement may have already been evaluated during table top exercises or through review and comment cycles, incorporation into actual work activities is its true test. During the demonstration phase, a number of work requests are selected, planned, scheduled and conducted incorporating the enhanced processes identified by the EWP Project Team. Ideally, the work will involve projects where the majority of the disciplines represented on the EWP Project Team are affected. In addition, every effort should be made to schedule these sample projects so that the work that has been planned is actually completed before the demonstration phase is completed. Previous EWP Demonstrations have compared, for example, a dozen work orders involving asbestos abatement planned and conducted by the “old” process” versus a dozen work orders which incorporated enhancements such as ‘up-front’ planning walk-downs by the multidisciplinary EWP Project Team, use of enhanced forms and permits detailing and documenting hazard control strategies, use of “delay codes” to help identify inefficiencies in the process, etc.

**Figure 3. Questionnaire for Identifying Potential Weaknesses**

<b>ENHANCED WORK PLANNING DEMONSTRATION</b>	
<b>TYPICAL PROBLEMS ASSOCIATED WITH WORK PLANNING</b>	
RANK 3:	STRONGLY DISAGREE -- OUR SYSTEM IS GREAT HERE!
RANK 2:	MILDLY DISAGREE -- OUR SYSTEM IS OK BUT NEEDS SOME WORK
RANK 1:	AGREE -- OUR SYSTEM NEEDS SIGNIFICANT WORK HERE
RANK 0:	STRONGLY AGREE -- OUR SYSTEM IS DEFINITELY BROKEN HERE!

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- Identification and approval process is redundant and/or inefficient
- Planning process is redundant and/or inefficient
- Scheduling process is redundant and/or inefficient
- Coordination process is redundant and/or inefficient
- Execution process is redundant and/or inefficient
- Employees are disenfranchised from system
- Employees lack faith in S&H analysis
- Work control process is too time consuming, particularly [*describe which aspects*]:
- Work must be rushed due to long process
- Information is not effectively communicated to employees
- Work control process (e.g., planning, design, scheduling, approvals) tempts employees to bypass system
- Compromises are often made to get approval of plans
- Planning process is not consistent and therefore causes problems
- Elements of hazard recognition, evaluation and control not consistently applied (e.g., PPE)
- Hazard-based, graded approach isn't employed to achieve employee protection
- "Team" concept not routinely employed

**Figure 4. Examples of the Types of Issues Raised by the EWP Team**

- 1) "Our planning process is not consistent among the various groups at the site causing inefficiencies and delays in getting the work accomplished. We need to standardize more."
- 2) "Too much time is spent by the planners trying to get signatures and approvals on permits, work requests and other authorizations; Parties involved in approving work orders and plans often do not understand what affixing their signatures means; there is too much unnecessary paper..."
- 3) "The Planner needs to understand too many details about permits and qualifications in multiple technical areas which may be outside of his/her field"... "Get the permitting system back to the people who feel the permits are necessary in the first place..." "Planners must determine when permits are needed but nothing is written down..." "There are overlaps in the permits", "The need for various permits aren't well established or consistently applied"
- 4) "There are sometimes inconsistencies or contradictions in the technical requirements associated with the safety, HP, and IH permits put in place for projects"
- 5) "Sound hazard-based, graded approaches are often not incorporated into recognition, evaluation and control strategies related to occupational safety and health"; "Requirements are sometimes too inflexible and do not make sense based on the specific job at hand"; Too much exposure characterization data is obtained for tasks already shown to be safe while other more hazardous jobs are not characterized enough"
- 6) "Communication of hazard information between the worker/supervisor, the safety and health groups, the Medical Department, and the planners does not consistently occur;" "Hazard information generated from previously performed projects is often not considered when similar jobs are planned". Exposure data and other information is of limited use because a good understanding of the task monitored and duration of exposure is not being documented".
- 7) "There is no good understanding about when to involve Engineering and Waste management in planning process associated with maintenance"
- 8) "We need to make sure the new Electronic Work Order/Request system being put in place doesn't suffer from the same problems as manual system"
- 9) "We need to better establish and document planner responsibilities vs. others involved"
- 10). "We need to improve worker participation in planning process--workers often know best how to perform a job but they don't get a chance to get involved until the last minute"

**Figure 5. Examples of the Types of Enhancements Developed by the EWP Team**

1. Recognized that the true "customer" of the planning process is the craftsman performing the work. Similarly, support organizations are to support the planner and his/her mission, not vice versa.
2. Revise planning flowchart and clarify all the various conduct of work steps in which Planning must be involved from the initiation of the Work Request through project closure. Identify and evaluate various "filters" that help prioritize work and define the level of scrutiny to be applied to a job. Such filters include: "Hazard Category", "Performance Category", "Quality Level", Risk Assessment Codes (RACs), job safety/hazard analysis. Enhance filters as necessary to better deploy planning resources and S&H support where needed most. Enhance the "graded approach" used for planning as well as S&H support.
4. Enhance Planner work flow such that the Work Control Center (WCC) meeting is moved from the second step in the process to later on. Institute new form whose purpose is to document the signatory's acknowledgment that a job is to be performed, start the concurrent planning process by the EWP project team, assign preliminary priority classifications, identify which support groups must be active in the planning process (i.e., constitute the EWP project team) and which choose not to be, etc.
5. Improve the familiarity of the EWP project team in what the job consists of by increasing the detail in the description of work provided in the Work Request and through conduct of project walk-downs by appropriate members of the EWP project team.
6. Identify all essential components of a good work package; identify criteria for acceptance/rejection by Maintenance, Facility Owner, and EWP project team support groups.
7. Expand upon the description of duties and responsibilities relative to Planners and others engaged in the planning process (e.g., conducting walk-downs, etc.).
8. Establish and document just what does signing a plan or permit mean at the various stages of the approval process
9. Identify all types of permits "out there" and establish when/how they are used and who is responsible for their content and application. Clarify when use of permits or requirements on permits are justified. For consistency purposes, establish an updated matrix reflecting all the various types of permits routinely used and when they are required.
10. Enhance the ability of the FERMCO 'Centralized Permitting Group' to improve the way permits are issued. Determine how the EWP project team and Centralized Permitting Group can take more of an up-front role in defining required permits and qualifications so as to help alleviate the Planner's responsibilities for these details. Determine how the Centralized Permitting Group/EWP project team can take more of an up-front role in eliminating inconsistencies and contradictions associated with safety and health.
11. Train Centralized Permitting Group and possibly entire EWP project team in how to use hazard characterization/assessment strategies for identifying, evaluating and controlling hazards.

**Figure 5. (contd) Examples of the Types of Enhancements Developed by the EWP Team**

12. Enhance the opportunity for craft workers and supervisors to interact, discuss and "iron out" requirements before the job begins with those imposing safety and health requirements on a job.
13. Apply a team approach to the use of available hazard analysis tools and exposure/safety risk documentation during job planning through the development and implementation of a practical, step-wise Job Safety Analysis (JSA) for qualitative hazard analysis to supplement current checklist forms. Enhance the qualitative job/hazard analysis system and associated documentation as necessary based on recent DOE guidance pertaining to applying a "graded approach".
14. Based on the professional judgment of the technical experts on the EWP project team, enhance the incorporation of exposure assessment plans into the work packages. Exposure assessment plans are to detail strategies for obtaining quantitative, semi-quantitative and qualitative exposure information, consistent with current DOE guidance.
15. Enhance mechanisms which facilitate the Medical Department's input relative to ensuring workers are medically qualified to do the tasks they are being assigned.
16. Enhance mechanisms whereby the Medical Department receives appropriate exposure information from the safety and health support groups so as to ensure appropriate implementation of the medical surveillance programs.
17. Increase benefits of lessons learned by enhancing the "feedback loop" for participants of EWP project team through debriefings or other mechanisms.
18. Incorporate planning enhancements into the electronic Work Order/Request system currently being put in place
19. Train EWP project team in the process ultimately decided upon for "non-project" maintenance; Eventually export enhanced process to other groups within FERMCO and to other project types.

### **3. Feedback**

The EWP Project Team must establish feedback mechanisms which allow information of the lessons learned from carrying out enhancements to be evaluated and incorporated into the development of future work packages.

#### **H. Identify Lessons Learned.**

The EWP Project Team should identify lessons learned from the project to select the work planning enhancements to be permanently incorporated into the site's work planning processes. In addition, project successes and difficulties encountered in

implementing the project should be documented so that this information can be shared with other DOE sites.

### **I. Validation of Results**

To obtain buy in from senior management successes and savings resulting from the use of EWP must be documented. These successes should be validated through the use of performance measures and metrics derived from the EWP project objectives. The performance measures and metrics should be developed at the beginning of the EWP project. Without the documentation of successes in a quantifiable manner it may be difficult to institutionalize the EWP process or to continue to carry out EWP after the initial demonstration project.

### **J. Preparation of Reports**

The EWP Project Team should periodically draft reports documenting the results from the pilot project. The site management, and the Offices of Field Support should review the draft report. Following resolution of comments, the EWP Project Team should release these document for general consumption.

### **K. Schedule / Time Line**

A typical time line for instituting an EWP project involves several common steps, these steps are presented below:

- Building management consensus
- Preparing the technical support plan
- Selecting EWP Team
- Conducting bench marking and selecting improvements
- Identifying and planning candidate work packages
- Implementing work packages
- Identifying lessons learned
- Validating results
- Preparing reports

While these steps represent a typical EWP project time line there should be enough flexibility to tailor the project to any site. The typical time line shows that these activities are not carried out sequentially but overlap to the extent that several activities may be in progress at once.

## **INSERT TIME LINE**