

**Department of Energy**  
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**April 13, 1999**

The Honorable John T. Conway  
Chairman  
Defense Nuclear Facilities Safety Board  
625 Indiana Avenue, N.W.  
Suite 700  
Washington, D.C. 20004

Dear Mr. Chairman:

Consistent with DOE's efforts to enhance formality of nuclear explosive operations at Pantex, the W62 and W88 project plans have been approved. The attached project plans formalize the activities necessary for line management to authorize restart of nuclear explosive operations. These activities include implementation of process enhancements (as necessary), development and approval of a new authorization basis, internal and external readiness reviews, and an enhanced NESS Revalidation.

It is important to note that the W62 project plan is a first revision. The original plan was approved in November 1998 and is the first to pilot many of the activities necessary to reauthorize operations using a phased approach to SS-21 implementation. The W88 project has just been recently initiated and has incorporated many of the lessons-learned from the W62. Both projects when completed will greatly enhance DOE's ability to assure nuclear explosives operations are conducted in a safe and compliant manner at Pantex.

Please call me at (505) 845-6045 if you have any questions.

A handwritten signature in cursive script that reads "RE Glass".

Richard E. Glass  
Director,  
Weapon Programs Division

Attachments

Cc: See Page 2

# **W88**

# **Existing Operations**

# **Reauthorization**

# **Project Plan**

**Revision 0**

**March 26, 1999**

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## Appendix A. W88 EORPP Gantt Chart

## Change History

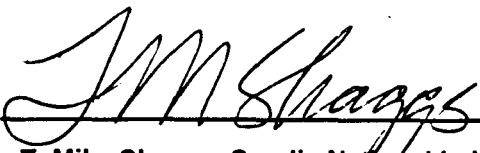
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<u>Issue</u>	<u>Date</u>	<u>Summary</u>
Rev 0	March 26, 1999	Scoping for the tasking from Director, WPD/AL/DOE

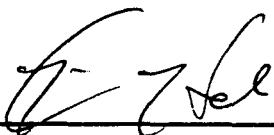
Approved by the W88 Project Team Leads of:

 3-25-99  
\_\_\_\_\_  
Norm Butts, Mason Hanger Corporation Date

 3-25-99  
\_\_\_\_\_  
Dennis Umshler, Department of Energy / Albuquerque / WPD Date

 3/25/99  
\_\_\_\_\_  
T. Mike Skaggs, Sandia National Laboratory Date

 3-25-99  
\_\_\_\_\_  
David Ryan, Department of Energy / Amarillo Area Office Date

 3-25-99  
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Kevin Hale, LANL National Laboratory Date

Approved by the SMT consisting of:

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Rick Glass, Director, DOE/AL-WPD Date

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Corey Knapp, SNL, Manager Date

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Herb Berman, MHC, Deputy General Manager & Technical Director Date

# Existing Operations Reauthorization Project Plan

## 1 Introduction

In response to the March 3, 1999 Weapon Programs Division (WPD) tasking memorandum from Rick Glass, the W88 Project Team (PT) was established and has developed this EORPP. The EORPP is the first phase of a multi-year W88 Integrated Safety Process (ISP) that will address all Seamless Safety for the 21st Century (SS-21) activities.

An informal walk-through of the W88 process was conducted in September 1998. No safety issues were revealed during the informal walk-through. However, a list of enhancements and improvements that could increase the margin of safety, quality, and efficiency of operations was developed. This list is not included with this plan but will be used by the PT when considering changes to the W88 processes. Schedules, responsibilities, and major milestones for the W88 EORPP program are shown in the Gantt chart, Appendix A.

## 2 Background

The W88/Mk5 Reentry Body (RB) is a pressurized thermonuclear warhead which is deployed on the Trident II (D5) submarine launched ballistic missile. The first production unit was completed at Pantex in September 1988. The last Nuclear Explosive Safety Study (NESS) was completed on September 29, 1994 and will expire on September 29, 1999.

## 3 Program Direction

The W88 EORPP will result in the reauthorization of existing nuclear explosive operations for assembly, disassembly, and inspection. The W88 EORPP does not change the scope of operations that are currently authorized and being performed at the Pantex Plant in accordance with W88 Program Control Document requirements. These include:

- War Reserve surveillance,
- Joint Test Assemblies (traditional and high fidelity),
- Stockpile Laboratory Test (test beds),
- Environmental Sample Test Units,
- Assistance for Significant Finding Investigations issues,

- Accelerated Aging Units (identified in W88 Integrated Pit Manufacturing and Qualification Plan, June 30, 1998), and
- An aggressive warhead rebuild and return schedule to the DoD in support of the Limited Life Component Exchange program.

## 4 Purpose

The W88 processes are authorized and are being executed at the Pantex Plant. The purpose of this W88 Existing Operations Reauthorization Project Plan (EORPP) is to attain the reauthorization, including the NESS, of current W88 operations at the Pantex Plant by formally establishing the safety basis for the current W88 operations. The W88 EORPP will only address the activities necessary to allow DOE to reauthorize the current W88 processes.

## 5 Project Deliverables

Project Team deliverables for Phase One include the following:

- Development and Approval of a HAR
- Development and Approval of an ABCD
- Issued NEOPs
- Qualified Production Technicians
- Functional Trainer
- Approved NESS Revalidation
- Successful Readiness Assessments
- Authorization Agreement (AA)

## 6 Project Team

The W88 PT lead members are Norm Butts (Pantex), T. Mike Skaggs (SNL), Kevin Hale (LANL), Dennis Umshler (DOE/AL), and Dave Ryan (DOE/AAO).

Per the WPD tasking, each of the PT member's parent organization will provide the resources necessary for successful completion of the activities as defined in this project plan. The PT members have the full authority at their site to direct work and to assign resources as necessary to ensure the successful implementation of the W88 EORPP.

In executing the W88 EORPP, the W88 PT is responsible for the following:

- Establishing the W88 Safety Basis, including the Hazard Analysis Report (HAR) and Activity Based Control Document (ABCD),
- A qualitative assessment of operational risk,



- Reviewing all changes to the W88 Nuclear Explosive Operating Procedures (NEOP) and other procedures, tooling, testers, training, trainer, and facilities since the 1994 NESS,
- Identifying enhancements to the W88 NEOPs and other procedures, tooling, testers, training, trainer, and facilities to increase the margin of safety,
- Assessment against MHC SS-21 attributes,
- Ensuring the development of a Weapon Safety Specification (WSS),
- Implementing applicable lessons learned from other programs, and
- Maintaining records of critical decisions and meetings.

This list is not all-inclusive. See Appendix A, Gantt chart, for additional detail.

## **7 Roles & Responsibilities**

### **7.1 PT EORPP Oversight (Decision Points)**

In addition to the required briefings (See Appendix A), the PT will monitor, direct, and report W88 EORPP progress by conducting the following team meetings and briefings.

### **7.2 Weekly Conference Calls**

Weekly conference calls which will focus on:

- Schedule status,
- Status of deliverables,
- Site requirements and or commitments,
- Change control actions, and
- Action items.

Pantex will document these calls via meeting minutes that will be distributed, by e-mail to the PT, before the close-of-business the following day. The weekly PT conference calls will not be conducted the week that the monthly PT meeting is scheduled.

### **7.3 Monthly PT Meetings**

Monthly PT meetings that will include detailed reviews of the following:

- Schedule status,
- Status of deliverables,
- Change Control Actions,
- Comment Resolution,

- Site requirement and / or commitments,
- Preparation for SMT briefings, and
- Action items.

Pantex will document these meetings via meeting minutes that will be distributed, to the PT, prior to the next PT conference call.

#### **7.4 EORPP CHANGE CONTROL**

The W88 EORPP is a dynamic document and consequently will require changes during implementation. Changes may be proposed by any participating organization, provided that they use this change control process. Significant changes, as defined below, will be formally directed by WPD Director and coordinated through the PT. The PT will address only project scope, deliverables, resources, and schedule changes that are officially requested in writing.

The PT will provide WPD with a project impact assessment, to include resource impacts, of requested changes for adjudication and subsequent formal tasking. If WPD (when appropriate, in concert with the Standing Management Team (SMT)) approves the requested change after review of the project impact assessment, WPD will provide formal documentation of the change approval. The change approval documentation and project impact assessment will be maintained in the project files.

A significant change is any change to the project plan that adversely affects:

- An individual activity's schedule by more than 5% of the activity's baselined schedule duration;
- An activity's resource planning or requirement by more than 5% of the activity's baselined resources estimate;
- Any change to the schedule that adversely affects the deliverables; or
- Any scope change.

When a baseline change to the project plan is needed, a revised plan will be submitted by the PT for WPD approval. After approval, a copy of this plan will be distributed to each member of the PT and the SMT.

No PT member will act independently on the addition or deletion of requirements to the plan. A quorum of at least three PT lead members, or their designated representative, must be in agreement in order to accept changes to the plan and / or schedule. If the change directly affects a specific organization (plant, laboratory, or area office) the PT lead from that organization must be present. PT members are responsible for addressing concerns that impact their organization.

## **7.5 MHC Responsibilities**

MHC management is responsible and accountable for the HA activities including the HAR and ABCD. The MHC lead PT member will direct the HAR and ABCD activities in accordance with this plan.

## **8 EORPP Project Assumptions / Risks**

The PT asserts that the following programmatic risks to the successful W88 EORPP completion exist to the project as defined.

- The schedule is highly success oriented. The task durations are the minimum necessary for proper completion assuming adequate resources are committed to the schedule. If dedicated resources, which are technically competent and enthusiastic, are not provided, the schedule commitments will not be met.
- Significant changes to W88 NEOPs and other procedures, tooling, testers, training, trainer, or facilities have not been factored into this plan. If significant changes are necessary, the schedule commitments will have to be revised
- Acceptance and support, by all involved organizations, of the methodology being used to develop the HAR and ABCD is essential for on-time completion of W88 EORPP deliverables.
- The timely receipt of weapons response data, WSS and screening tables, is imperative for the on time completion of the HAR and ABCD.
- A concurrent review of the HAR and ABCD during their development, by LANL, SNL, Pantex Management, and the Safety Basis Review Team, must occur or project milestones will not be met.
- Support for the Integrated Review concept is essential to meeting project milestones. An integrated review must occur for the on-time reauthorization of the current processes.
- Rework, of the EORPP activities, must be avoided to minimize schedule impacts.
- Work or analysis being performed by the Pantex BIO Upgrades Project will not be duplicated.
- Adequate training facilities are available.
- Other ongoing weapon IWAP activities may be affected by the implementation of this plan (hazard analyses, surge capacity, etc.).
- This plan may impact the accelerated W88 Disassembly and Inspection (D & I) and rebuild schedule.

- The institutional safety processes are not part of this plan. They are in place and assumed to be adequate (radiation safety, industrial safety, industrial hygiene, etc.).

## 9 Scope of Work

The W88 ISP will be implemented through a multi-phase approach. The first phase is the reauthorization of existing operations, which includes a Revalidation of the 1994 NESS, and the second phase is the long-term ISP, which will be completed in accordance with the DOE/AL Integrated Weapons Activity Plan (IWAP) schedule implementing the SS-21 criteria.

Phase One is the implementation of the W88 EORPP, which will only address the activities necessary, as defined in this plan, for the PT to establish the safety basis and assert that the current W88 processes are safe. Phase One will allow DOE to reauthorize the current W88 processes at the Pantex Plant.

The second phase will implement the SS-21 philosophy specified in EP401110. The W88 PT will, shortly after completion of this plan, develop the W88 ISP plan. It is expected that by the time the planning for the second phase of W88 ISP begins, requirements for the WSS, HAR, and ABCD documents will have been issued in DOE Directives. The PT will incorporate these requirements into the W88 ISP plan.

### 9.1 Process Changes

#### 9.1.1 Nuclear Explosive Operating Procedures (NEOPs) and Other Procedures Operations and Facilities

The W88 NEOPs and other procedures will be reviewed for changes that have occurred since the 1994 NESS. These changes will be documented in support of the NESS Revalidation portion of the Integrated Review.

The PT will make W88 NEOPs and other procedural changes (i.e. additional controls, etc.) that are deemed necessary as a result of information gained from the HAR and ABCD development to increase the margin of safety. The second phase of W88 ISP will address the longer-term enhancements and upgrading of the W88 NEOPs and other procedures to the SS-21 NEOP format.

#### 9.1.2 Operations and Facilities

Pantex currently operates three nuclear bays (Bldg. 12-104, bays 9, 11, & 13), two non-nuclear and non-special nuclear materials (SNM) bays and two cells (Bldg. 12-44, cells 4 & 6) for the W88 program. The PT assumes that the facility

utilization will remain constant throughout the execution of the W88 EORPP. The MHC lead PT member will address potential facility conflicts to ensure that there is no impact on the implementation of this plan.

The satellite operations required for W88 operations are as follows: Radiography (Bldg. 12-84, Bays 1 & 10), CSA leak check (Bldg. 12-99, Bay 8), Separation Test Facility (Bldg. 12-50), Mass Properties (Bldg. 12-60), Purge & Backfill (Bldg. 12-104, Bay 16), Transportation, and Staging (assigned as available). Weapons interface issues with these facilities will be addressed in this EORPP. Work or analysis being performed by the Pantex BIO Upgrades Projects will not be duplicated.

#### 9.1.3 Equipment & Layout and Facility Control

Equipment and Facility Layouts are not required or formally documented in the current W88 procedures.

The PT will develop and incorporate Equipment and Facility Layouts into the W88 general procedures as part of the EORPP.

#### 9.1.4 Testers

All testers used on the W88 Program will be identified. The current W88 testers will be reviewed, for changes since the 1994 NESS, during the NESS Revalidation portion of the Integrated Review. These changes will be documented.

The PT will make W88 tester changes that are deemed necessary as a result of information gained from the HAR and ABCD development to increase the margin of safety.

The second phase of the W88 ISP will address the upgrading of the W88 testers to meet SS-21 criteria.

#### 9.1.5 Trainer

The current W88 trainer will be reviewed for necessary upgrades and enhancements to increase the fidelity of the trainer.

Prior to the training of the W88 production technicians, the scheduled enhancements to the W88 trainer will be made.

The PT will also make W88 trainer changes that are deemed necessary as a result of information gained from the HAR and ABCD development to increase the margin of safety.

The second phase of the W88 ISP will address the upgrading of the W88 trainer to meet SS-21 criteria.

#### 9.1.6 Training

The W88 Program Production Technicians and Operations Managers are qualified and certified per the current Pantex Plant Standards and internal operating procedures and are performing W88 processes.

The PT will identify, document, and implement W88 specific training enhancements, as required, to the existing W88 training program.

Prior to the PT's declaration of readiness to proceed to the Integrated Review, the W88 production technicians will be trained in any process that changes as a result of the implementation of this EORPP.

#### 9.1.7 Tooling

The current W88 tooling will be reviewed, for changes since the 1994 NESS, during the NESS Revalidation portion of the Integrated Review. These changes will be documented.

The PT will make the necessary W88 tooling changes as a result of information gained from the HAR and ABCD development to increase the margin of safety.

The second phase of the W88 ISP will address the upgrading of the W88 tooling to meet SS-21 criteria.

### 9.2 *SS-21 Assessment*

The PT will conduct an assessment of the current nuclear explosive W88 processes at the Pantex Plant using the MHC SS-21 Attributes. The PT's assessment will document the differences between the current W88 process and the comprehensive MHC SS-21 program requirements.

The PT will use this assessment in the implementation of the W88 EORPP to focus their actions on necessary improvements to the W88 processes.

### 9.3 *Weapon Safety Specification*

A WSS containing the following items will be in place prior to the start of the HA for the W88 EORPP. The WSS will, at a minimum, include the following:

- Warhead description,
- Identification of hazards,

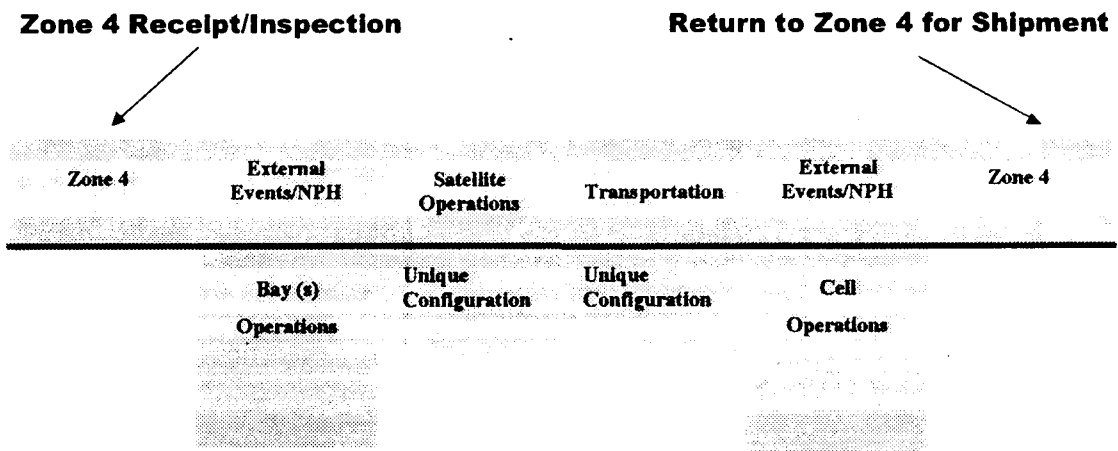
- Identification of hazardous components and materials contained within the warhead,
- Definition of the safety attributes and concerns,
- Criticality information,
- Intrinsic Radiation (INRAD) information,
- Safety information,
- Potential contamination information,
- Major component descriptions, and
- Component handling information.

#### 9.4 Hazard Analysis Report (HAR) and Activity Based Control Document (ABCD)

##### 9.4.1 HAR & ABCD Objectives

The W88 HA for nuclear explosive operations and associated activities will provide the technical basis for deriving the necessary operation-specific controls to ensure safe W88 operations at the Pantex Plant. The HAR will document, in summary form, the results of the HA, which will be used in the development of the ABCD. To achieve this end, the PT will ensure W88 HAR and ABCD development that:

- Documents the scope for W88 nuclear explosive operations at the Pantex Plant and provides a concise description and basic flow for the W88 activities (Figure 1: Example for Informational Purposes Only).



9.4.1.1 Figure 1: Example for Informational Purposes Only

- Identifies hazards inherent in the W88 warhead, the processes used for assembly, disassembly, and testing, and the facilities where the work is performed. These include hazards posed by the W88 warhead and its components, by the process (e.g. tooling), and by the facility (e.g. electrical energy available). Hazard identification will be accomplished by reviewing prior

analyses (e.g., the WSS, the Basis for Interim Operations (BIO)), coupled with a walk-down of the processes.

- Identifies and analyzes all accident scenarios with consequences that meet or exceed the Nuclear Explosive Operations (NEO) Evaluation Guidelines using the focused What-if Analysis and/or other industry accepted hazard evaluation techniques (e.g. fault tree analysis, event tree analysis, etc.). The W88 HAR will describe the analytical technique used and present the results. Analysis of a comprehensive set of accident initiators and event sequences resulting in consequences that meet or exceed NEO Evaluation Guidelines will be identified and developed by trained and experienced analysts. Accidents will be grouped into common scenarios (e.g. drops, minor strikes, fire, etc.) where common controls for prevention or mitigation apply.
- Includes a synopsis of the results and relevance to the proposed nuclear explosive operation when existing analyses in DOE approved documentation are relied upon and referenced.
- Describes each control, provides the technical basis for selection of the control, and provides the linkage, through the accident scenario description, from the hazard to the control (i.e., shows the derivation). For each control, the ABCD will document the basis statement for Safety Limits (SL), Limiting Conditions for Operation (LCO), and Surveillance Requirements (SR). The basis statement will describe how each requirement was derived from the hazard analysis and why it is an adequate control. The primary purpose for describing the basis for each requirement is to ensure that any future changes to the requirement will not affect its original intent or purpose.
- Documents the adequacy of the proposed control set in establishing an understood risk envelope.
- Evaluates the adequacy and effectiveness of the control set and then compares the proposed controls to the Target Level of Controls (TLC) guidance.
- Documents that the existing W88 nuclear explosive processes are within the safety envelope established for the facilities (BIO, Critical Safety Systems Manual (CSSM)/Technical Safety Requirements (TSR)) and the Nuclear Explosive Operations (HAR/ABCD).
- Builds upon lessons learned from HAR and ABCD development efforts on other weapon programs as applicable (e.g., W56, W87).
- Provides WPD Director with information based upon the hazards, dominant potential accidents, and process controls to understand and assess the residual risk that the DOE is accepting when the operation is authorized.



#### 9.4.2 HAR & ABCD Briefings

To ensure that the PT is achieving the objectives per this plan, periodic reviews with the SMT will be performed. Each organization's SMT member must review the PT's progress with their respective PT member prior to the SMT review. For the HAR and ABCD work, the PT will present progress on the following:

- Hazard assessment plan (part of the EORPP)
- Hazard identification matrix, process flow chart and improvements to control hazards
- Preliminary HAR and ABCD
- Final HAR and ABCD

#### 9.4.3 HAR & ABCD Training

In preparation for the W88 HAR and ABCD development, the PT will receive training on the following items:

- Focused What-If Analysis and other industry accepted hazard evaluation techniques (Figure 2). The training will focus on low probability events and procedure deviation and use examples from recent weapons initiatives like the W56 and W87.
- Target Level of Controls
- TSR/ABCD training will include examples from recent weapons projects like the W56 and W87.
- W88 nuclear weapon design overview
  - Hazardous components
  - Component qualification information
  - STS information
  - Weapon system safety features, including intrinsic radiation and criticality information
- W88 Process overview
  - Existing process flows
  - Videos of W88 operations
- Facilities Orientation
  - Identification of facilities (including transportation and satellite facilities)
  - Description of potential hazards/energy sources
  - Review of existing Authorization Basis/Safety Basis including NES studies
  - BIO upgrade initiatives.

#### 9.4.4 HAR & ABCD Preparation

MHC management is responsible and accountable for the HA activities including the HAR and ABCD. The MHC lead PT member will direct the HAR and ABCD activities in accordance with this plan.

Upon the completion of the training activities described above, MHC will develop an initial hazard identification matrix (Table 1: Example of a Hazard Identification Matrix). The matrix will identify hazardous weapon components and the threats to these components (electrical, mechanical, chemical, etc.). This matrix will be used as a tool during the identification of hazards and the development of scenarios using the focused What-If Analysis and/or other industry accepted hazard evaluation techniques.

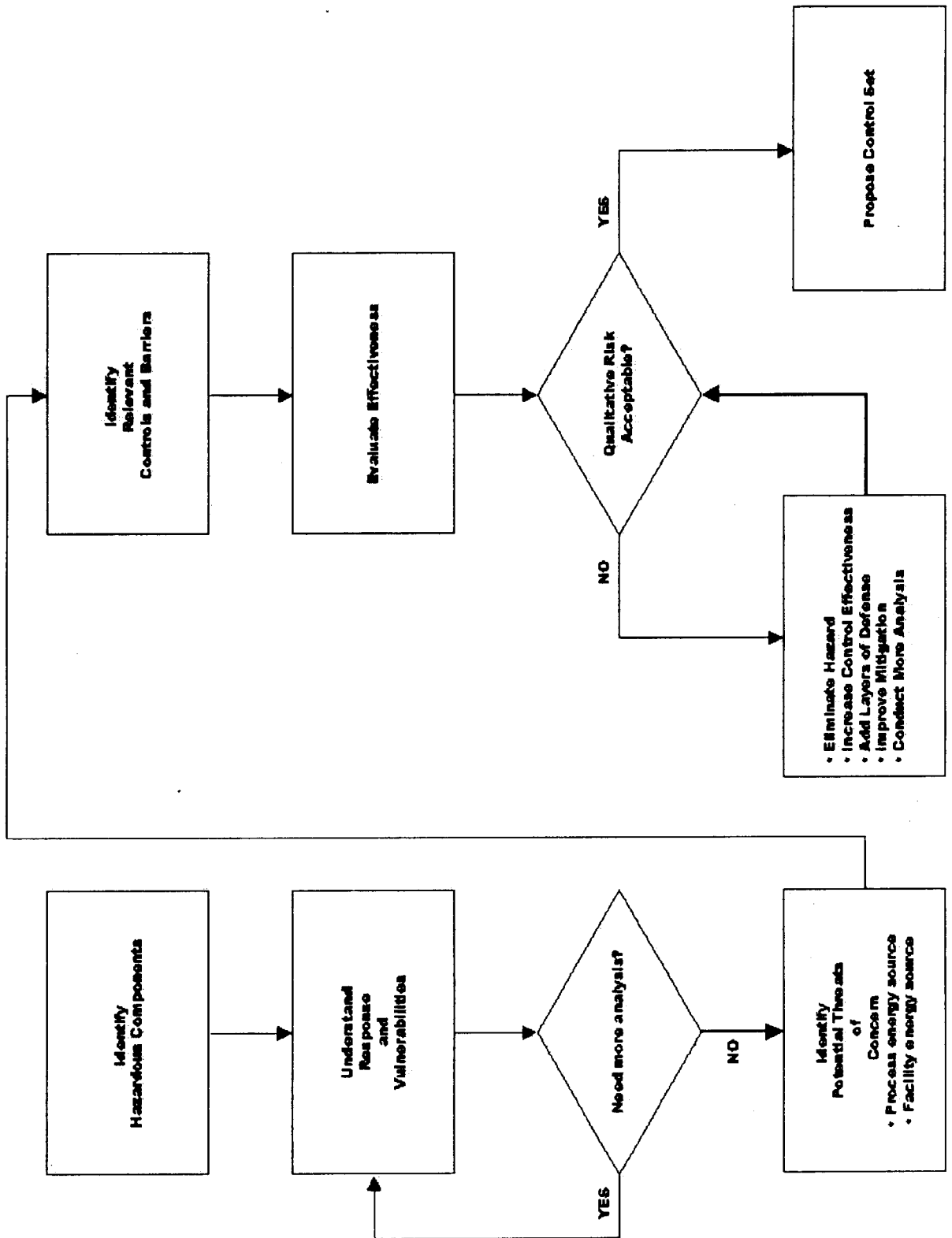


Figure 2: Focused What If Analysis

Hazardous Component	Hazard Type	Electrical Current	Electrical Energy	Thermal	Mechanical Strike	Mechanical Crush	Other

*Table 1: Example of Hazards Identification Matrix*

After MHC management review, the hazard identification matrix will be provided to the PT for review and acceptance. Additionally, LANL and SNL will review the matrix and provide comments to the PT. The PT will resolve concerns, such as the need for additional weapon response information. The PT will request that LANL and/or SNL provide the necessary additional weapon response information if required.

MHC will then group tasks dependent upon when weapon vulnerabilities change and dominant threats arise using the matrix, available information on W88 processes, and changes to the weapon configuration. The MHC will document the results through a process flow chart. This process flow chart will be used to develop the potential accident scenario table and/or other hazard evaluation formats.

MHC will review the process flow chart and then provide it to the PT for review and acceptance. Additionally, LANL and SNL will review the process flow chart and provide comments to the PT. The PT will resolve concerns with the process flow chart.

The SBRT will review the hazard identification matrix and the process flow chart, and provide comments to the PT for resolution.

The PT will present a summary of the hazard identification matrix results, process flow chart results, and improvements to control hazards to the SMT. The PT will describe how the hazard identification matrix and process flow chart were developed and discuss the need for the identified improvements to control hazards. This review is not required to continue with the HA plan.

#### 9.4.5 HAR & ABCD Development

During the HA, priorities will be assigned in the following order: cell activities, bay activities, transportation between bays and cells, and satellite facility interfaces. When relying on existing analysis and/or controls from DOE approved documents, MHC will document these assumptions (e.g. reliance on the tester program, etc.) and include a synopsis of the results and relevance to the proposed nuclear explosive operation through the HAR.

Using the process flow chart and NEO Evaluation Guidelines MHC will identify potential accident scenarios, including credible initiating events and consequences. The MHC lead will use the process flow chart as a road map and establish clear linkages between the configuration of the nuclear explosive, the inherent vulnerabilities, dominant threats, and the derivation of controls.

The first cut of relevant potential accident scenarios will be developed and documented in a table (Figure 3: Example of a Potential Accident Scenario Table) and/or other industry accepted hazard evaluation format (e.g. fault tree, event tree, etc.) using videos and/or walk-downs. Potential accident scenarios involving consequences, that meet or exceed the NEO Evaluation Guidelines, will be used to identify the need for DOE approved controls. Accident scenarios with the same initiating event and consequence will be grouped in the potential accident scenario table and/or other industry accepted hazard evaluation format. Potential accident scenarios will be categorized as either known or unknown with respect to weapon/component responses and will also be used to assess the need for changes in tooling, equipment, and/or procedures. Unknown weapon/component responses may require additional LANL and/or SNL analyses. The PT will request the analyses as required.

Weapon/component responses will be determined upon identification of relevant accident scenarios and the controls will be identified concurrently throughout this process. Upon evaluating the weapon response and vulnerabilities, MHC will initiate a screening to determine if additional analysis is required to develop an improved set of controls or if the set of existing controls provides the DOE approval authority with an acceptable level of risk. MHC management will review the results for acceptance and then provide the results to the PT for review and acceptance. Additionally, LANL and SNL will review the results and provide comments to the PT for resolution.

**(SAMPLE) Potential Accident Scenario Table (SAMPLE)**

Initial Conditions	Step	Workhead Config	Scenario	Hazard	Unmitigated Likelihood	Consequences							Positive Measures	Reference/Comment	
						I	H	F	W	R	N	T			
						NE	DR	DR	DR	DR	DR	DR	DR		
			Warhead configurations noted											Uncontrolled release of radioactive materials	
<b>Task 1: Remove unit from shipping container and XXXX (Hoist to transport cart)</b>															
	1.11.8 19.3 - 28, 33 - 39	WHHC/ WHHC	Drop Unit max height (20 ft) (step 27.1 (DOX-2.275 file))	M			X								Refers to Worker Death or Permanent Disability
			All steps of task included Unit falls from XXXX stand due to technician(s) standing on its base	M			X								Like scenarios can be grouped if hazards, initial conditions and positive measures are common
			Drop equipment (<20 lb) on unit (strongback, HOCOR, protective cover, vertical lifting fixture) distance approximately 1 ft	M			X								
			Close motor and appliances (1.0 lb) drops on unit	M			X	X		X					
			Electrical Energy couples to uncovered J1 connector (lightning thru crane, TESD, other electrical energy)	E			X	X					J1 connector cover		
			Fan in the bay	T			X	X							
<b>Task 2: ESD Electrical Test</b>															

Figure 3: Example of a Potential Accident Scenario Table

Upon completing the process utilized to identify clear linkages between hazards and controls and the derivation of those controls, MHC will summarize dominant threats, linkages between hazards and controls, and the derivation of controls through a preliminary W88 HAR. The preliminary HAR will document the risk envelope, as defined by the W88 control set, for the W88 operations. MHC will ensure that the W88 control set is documented in a preliminary ABCD.

The ABCD, when combined with the Pantex Plant TSR (CSSM), will establish a set of safety requirements. These requirements will provide reasonable assurance of adequate protection against the consequences of accident scenarios that could potentially meet or exceed the NEO Evaluation Guidelines. The ABCD will describe each control and provide the technical basis for selection of the control.

The ABCD will identify those controls that are relied upon to prevent or mitigate the consequences of the accident scenarios described in the HAR. The controls will be presented to clearly distinguish their relative level of importance to safety, using DOE Order 5480.22 and includes the following:

- Safety Limits (SL) - SL is reserved for a small set of extremely significant features that are essential to prevent potentially major offsite impact.
- Limiting Conditions for Operation (LCO) - LCO establishes the lowest functional capability or performance level of tooling / equipment / system / structure required for safe operations. Even if defense-in-depth controls failed, the set of LCOs will include the controls needed to maintain confidence in the safety of the operation.
- Surveillance Requirements (SR) - Those requirements relating to test, calibration, or inspection to assure that the necessary quality of systems, tooling, or equipment is maintained to ensure operations will be within Safety Limits and that Limiting Conditions for Operation will be met.
- Bases - A brief summary of the reasons for SL, LCO, and SR that demonstrates how each requirement was derived from the hazard analysis and why it is an adequate control. The primary purpose for describing the basis for each requirement is to ensure that any future changes to the requirement will not affect its original intent or purpose.
- Administrative Controls - Procedural requirements that ensure safety of operations.

MHC will evaluate the adequacy and effectiveness of the control set and then compare the proposed controls to the TLC guidance. For each control, the ABCD will document the basis statement for safety limits (SL), Limiting conditions for Operations (LCO), and Surveillance Requirements (SR). The basis statement will describe how each requirement was derived from the hazard analysis and why it is an adequate control. The primary purpose for describing the basis for each requirement is to ensure that any future changes to the requirement will not affect the original intent or purpose.

MHC management will review the results and the preliminary HAR and ABCD for acceptance. The preliminary HAR and ABCD will then be provided to the PT for review and acceptance. Additionally, LANL and SNL will review these preliminary documents and provide comments to the PT for resolution.

Using the preliminary HAR and ABCD, the PT will perform a walk-through of the W88 processes, validate the hazards and accident scenarios, and evaluate the effectiveness of the derived controls. Upon completion of this evaluation, the PT will resolve concerns, such as need for additional analysis. The SBRT will concurrently review the preliminary W88 HAR and ABCD and provide comments to the PT for resolution.

A summary of the preliminary W88 HAR and ABCD will be presented to the SMT.

## **10 EORPP Review and Approvals**

### **10.1 Periodic Presentations to SMT**

The PT will provide periodic presentations to the SMT. These presentations will focus on the following:

- Project progress,
- Schedule status,
- Status of deliverables,
- SBRT and MHC management comment resolution,
- Specific SMT requests,
- Issues needing SMT resolutions, and
- Action items.

### **10.2 HAR & ABCD Review and Approval**

As described previously, the PT will provide periodic updates to the SMT. After an internal MHC review of the W88 HAR and ABCD, the PT will conduct a final review to ensure that the final W88 HAR and ABCD have met the outlined objectives.

The HAR/ABCD will become a portion of the authorization basis to process future changes. The PT will determine when changes to the existing W88 process are mandatory for safety, quality or reliability reasons. Upon completion of the HAR/ABCD, the PT will make the mandatory changes. If the changes are not mandatory, the PT will maintain a list of enhancements identified and make a determination of their necessity at a later time. If the PT determines that these enhancements will be made, the PT will implement them using change control after the HAR/ABCD is in force.

The PT will present a summary of the final W88 HAR and ABCD to the SMT. The PT will then recommend approval of the final W88 HAR and ABCD to WPD. Upon approval, the PT will document lessons learned from this activity.

The PT will ensure that the controls that are communicated (flowed-down) to the shop floor level are reviewed and concurred by the participating organizations.

### **10.3 Safety Basis Review Team (SBRT)**

To ensure timely feedback and approval, the SBRT's review of the HAR and ABCD will be conducted in parallel with the development of the documents. The SBRT will provide comments to the PT for resolution.

The SBRT will independently provide an assessment of the final W88 HAR and ABCD to WPD Director, along with a recommendation for approval or rejection. Upon completion of the comment resolution process, the SBRT will issue a Safety



Evaluation Report (SER). SBRT activities that affect the W88 EORPP schedule are shown on the Gantt chart in Appendix A.

## **10.4 Integrated Review**

An Integrated Review will be conducted, as required in the WPD tasking, which consists of a concurrent NESS Revalidation and a DOE Readiness Review. The process demonstration for the Integrated Review will be conducted in Building 12-15, Bays 1 and 5 (training facility) or in the production facilities. Comments from both reviews will be resolved simultaneously, and the PT will combine the process demonstrations into a concurrent walk-through.

### **10.4.1 Integrated Review Input Document**

The documentation for the Integrated Review will consist of the same information required by line management for their review and approval to proceed with independent reviews. Specifically, the input documentation will consist of the WSS, the HAR, process flow charts, and the ABCD along with a plan of action. Should additional information be required to aid the review team, this additional information will be treated as supporting analysis for the authorization basis documents. A reference library containing appropriate supporting analysis (e.g., tooling and testers drawings) will be established at the Pantex Plant. If the Integrated Review Team identifies potential deficiencies with the authorization basis documents, the PT will resolve the issues and, if necessary, revise the documents to correct the deficiencies.

The NESS Revalidation portion of the Integrated Review will include the normal requirements of a NESS Revalidation plus additional information and activities. These include: briefings on the WSS, HAR, and ABCD; and a process demonstration in the bay and cell. The NESS report will establish a current assessment of the adequacy of controls on the W88 process to meet the Nuclear Explosive Safety standards.

The scope of the DOE Readiness Review will consist of a review of the W88 operations and facilities to determine that all authorization basis document requirements have been implemented.

## **11 Reauthorization**

Once the Integrated Review is completed, the final approval activities listed in the Gantt Chart will be completed, leading to reauthorization of W88 nuclear explosive operations.

## **Appendix A**

### **W88 EORPP Gantt Chart**





## Appendix A--W88 Existing Operations Reauthorization Project Plan (EORPP) Revision 0, March 26, 1999

ID	Task Name	Dur	Start	Finish	Predecessors	1999												2000											
						F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A					
31	WSS	20d	3/22/99	4/19/99																									
32	Final Draft of WSS to all Project Team Members	0d	3/22/99	3/22/99																									
33	Issue WSS	0d	4/19/99	4/19/99																									
34	Identify & document which W88 Ops covered by SAR/BIO/TSR	15d	4/5/99	4/23/99	24																								
35	HA Preparations	49d	2/23/99	4/30/99																									
36	Tooling	4d	3/8/99	3/11/99																									
37	Identify W88 tooling list	1d	3/8/99	3/8/99	13																								
38	Identify schedule impacts of tooling enhancements	2d	3/10/99	3/11/99	37																								
39	Tooling review to PT	1d	3/11/99	3/11/99	38																								
40	Freeze implementation of tooling upgrades	0d	3/11/99	3/11/99	39																								
41	Procedures	40d	3/8/99	4/30/99																									
42	Identify all W88 NEOPs & procedures	1d	3/8/99	3/8/99	13																								
43	Identify & update NEOP EORPP enhancements	30d	3/8/99	4/16/99	42																								
44	Procedure Review to PT	0d	4/16/99	4/16/99	43																								
45	Freeze & Publish Procedures	2w	4/19/99	4/30/99	44																								



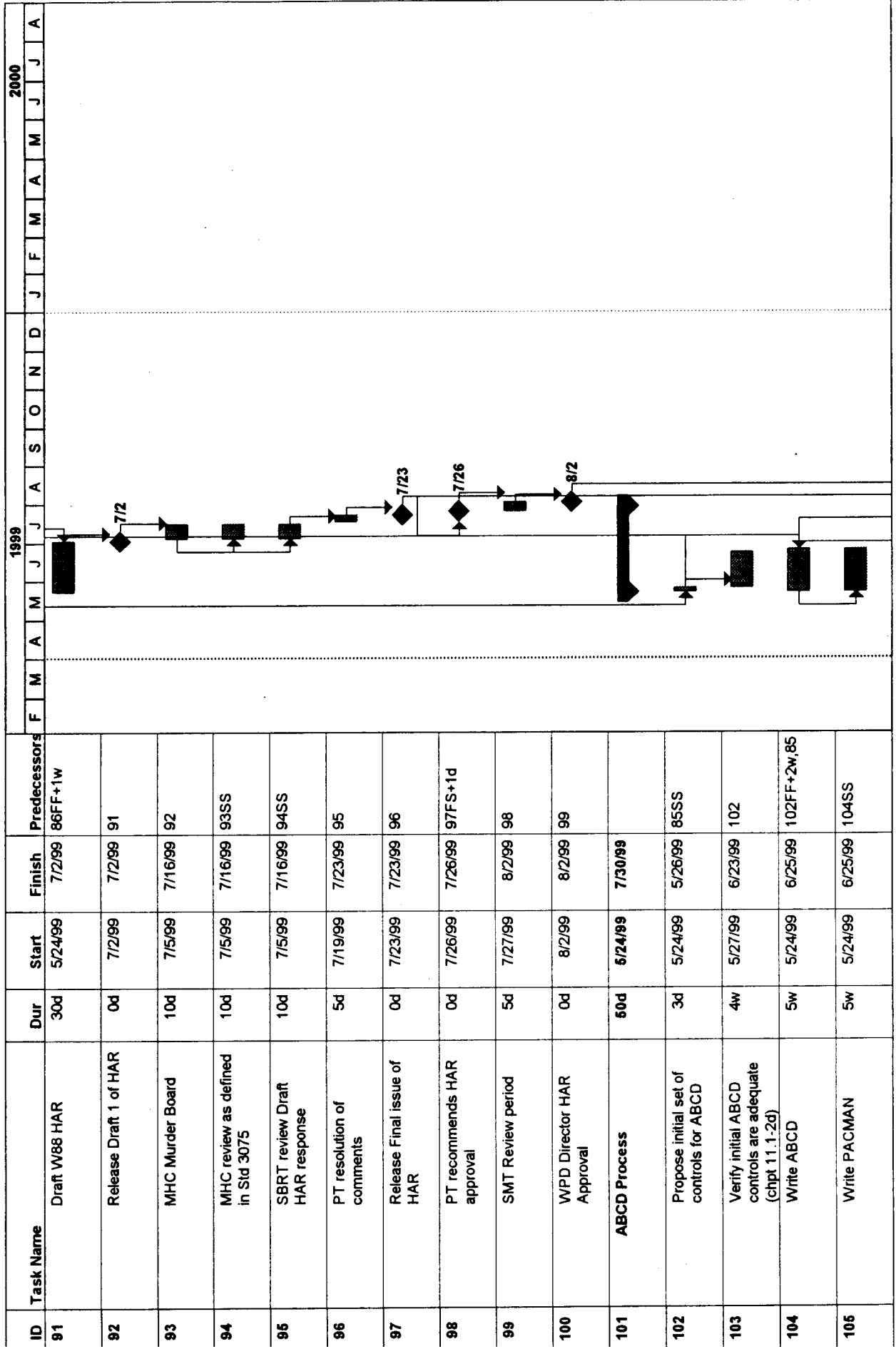
## Appendix A--W88 Existing Operations Reauthorization Project Plan (EORPP) Revision 0, March 26, 1999

ID	Task Name	Dur	Start	Finish	Predecessors	1999												2000											
						F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A					
61	Testers	25d	3/8/99	4/9/99																									
62	Identify W88 Testers	6d	3/8/99	3/15/99	13																								
63	PT review tester upgrades	19d	3/16/99	4/9/99	62																								
64	Document tester review rationale	0d	4/9/99	4/9/99	63																								
65	HA Process	95d	3/23/99	8/2/99																									
66	Process Flow Diagram/Description	1d	3/23/99	3/23/99	32FS+1d																								
67	Scope/Depth chart Design	1d	3/23/99	3/23/99	66SS																								
68	Component Hazards ID Matrix	5d	4/21/99	4/27/99	54																								
69	SBRT Review of Initial Haz ID Matrix	1d	4/28/99	4/28/99	68																								
70	Configuration change flow chart	3d	4/29/99	5/3/99	69																								
71	Accident Scenarios	38d	5/4/99	6/25/99																									
72	First cut of relevant accident scenarios using videos	5d	5/4/99	5/10/99	70																								
73	Screening of accident scenarios	5d	5/7/99	5/13/99	72SS+3d																								
74	Perform analysis on required scenarios (labs)	4w	5/14/99	6/10/99	73																								
75	Resolve process changes as a result of analysis	4w	5/19/99	6/15/99	74SS+3d																								

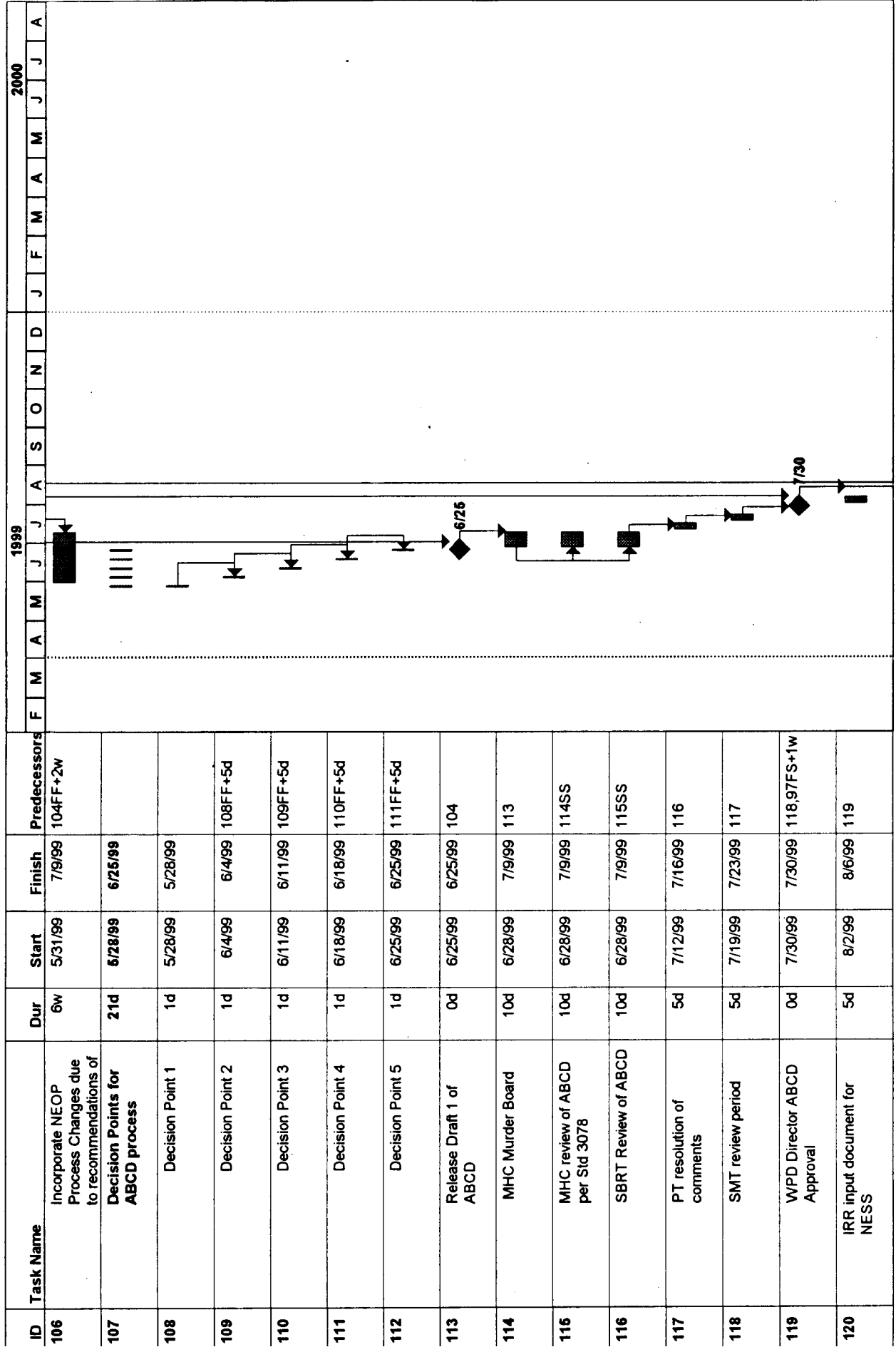




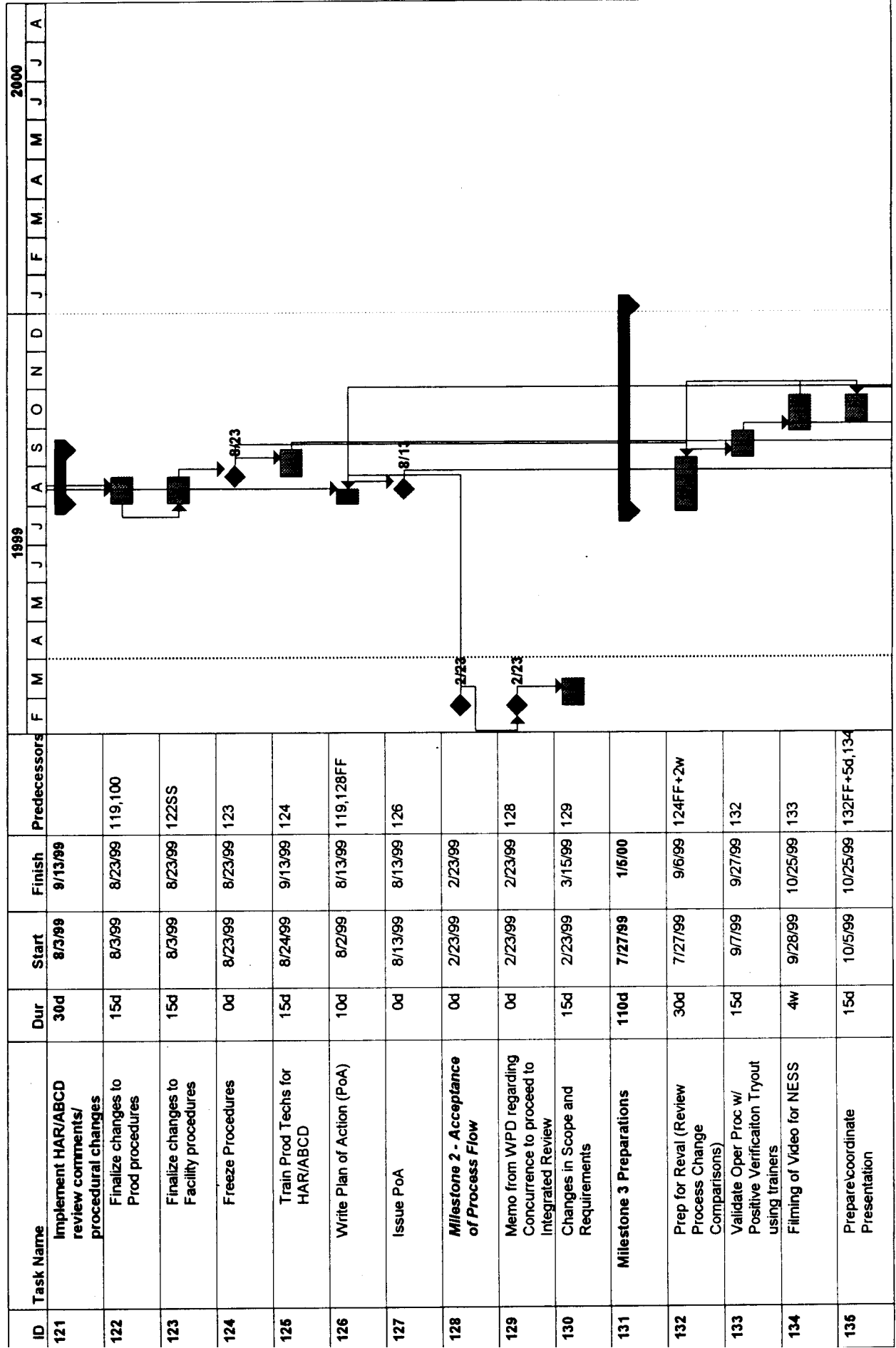
# Appendix A--W88 Existing Operations Reauthorization Project Plan (EORPP) Revision 0, March 26, 1999



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