Department of Energy
Albuquerque Operations Office
P.O. Box 5400
Albuquerque, New Mexico 87185-5400

June 23, 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 W88 project plan has been revised. The attached project plan formalizes 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 W88 project plan is a first revision. The original plan was approved in March 1999 and is piloting many of the activities necessary to reauthorize operations using a phased approach to SS-21 implementation. This project 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.

Patricia O'Guin for

Daniel E. Glenn
ISP Project Officer
Weapon Programs Division

Attachment

cc:
See Page 2

W88
Existing Operations Reauthorization Project Plan

Revision 1

June 4, 1999

Prepared by:

Norm Butts, MHC
Kevin Hale, LANL
Jeff Minter, MHC
Sandra Phillips, MHC
David Ryan, DOE/AAO
Mary Abt, SNL
T. Mike Skaggs, SNL
Thomas Stepan, LANL
Dennis Umshler, DOE/AL

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Change History

Issue	Date	Summary
Rev 0	March 26,1999	Scoping for the tasking from Director, WPD/AL/DOE
Rev 1	June 4, 1999	Incorporation of detailed HA process, update to Project Team membership

Approved by the W88 Project Team Leads of:

Norm Butts, Mason Hanger Corporation — Date: 6/4/99

Dennis Umshler, Department of Energy / Albuquerque / WPD — Date: 6/4/99

Mary Abt, Sandia National Laboratory — Date: 6/4/99

David Ryan, Department of Energy / Amarillo Area Office — Date: 6/4/99

Kevin Hale, LANL National Laboratory — Date: 6-4-99

Approved by the SMT consisting of:

D E Glenn — 6/4/99
Dan Glenn, ISP Project Officer, DOE/AL-WPD — Date

Darrell Schmidt for — 6/4/99
Steve Goodrum, Manager, DOE/AAO — Date

Patricia O'Guin — 6/4/99
Pat O'Guin, Deputy Director, DOE/AL-WPD — Date

D Moorefield — 6-4-99
Mark Baca, Director, DOE/AL-WSD — Date

Karen L Boardman — 6/4/99
Karen Boardman, Acting Deputy Director, DOE/AL-OSS — Date

D P Varley — 6/4/99
Dan Varley, Program Manager, LANL — Date

Jerry Dow (+ 5 weeks slip on date) — 6/4/99
Jerry Dow, Associate Program Leader, LLNL — Date

C A Knapp — 6-4-99
Corey Knapp, Manager, SNL — Date

J Angelo — 6/4/99
Jim Angelo, Mission Programs Division Manager, MHC — 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 Existing Operations Reauthorization Project Plan (EORPP). The EORRP 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 warhead was completed at Pantex in September 1988. The last Nuclear Explosive Safety Study (NESS) was approved 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 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 Nuclear Explosive Operating Procedures (NEOPs)
- Qualified Production Technicians
- Functional Trainer
- Approved NESS Revalidation
- Successful Readiness Review
- Authorization Agreement (AA)

6 Project Team

The W88 PT lead members are Norm Butts (Pantex), Mary Abt (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 NEOPs 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 the DOE approval authority 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 DOE 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 tasks' 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 Weapons Response screens, 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.
- The analysis supporting the existing DOE approved authorization basis 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 programs described in Appendix G of the BIO and the Pantex General Information Document (GID) are not part of this plan. Those are in place and assumed to be adequate (radiation safety, industrial safety, industrial hygiene, etc.). Implied controls or protective measures assumed to be provided by these administrative control programs will not be used in the hazards analysis process.

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 develop the detailed W88 Phase 2 ISP plan after reauthorization of W88 operations has been granted. Requirements for the WSS, HAR, and ABCD documents as described in the D&P Manual will be incorporated into the W88 ISP plan.

9.1 Process Changes

9.1.1 Nuclear Explosive Operating Procedures (NEOPs) and Other Procedures

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 procedure 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 W88 Phase 2 ISP plan 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 (Bldg. 12-86, bays 7 & 9), 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.

9.1.3 Equipment and Facility Layouts

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

The PT will develop and incorporate 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.

During phase 1 of the ISP, the PT will make any necessary W88 tooling changes that impact nuclear explosive 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 a comparison of the W88 current nuclear explosive operations at the Pantex Plant using the MHC SS-21 Attributes. This comparison will be used in the implementation of the W88 EORPP and the second phase of the ISP to focus 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 and Activity Based Control Document

As mentioned previously, MHC management is responsible and accountable for the Hazard Analysis (HA) activities including the Hazard Analysis Report (HAR) and the Activity Based Control Document (ABCD). The MHC lead PT member will direct the HAR and ABCD activities in accordance with this plan.

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.

This plan provides direction to the Hazards Analysis Task Team (HATT) for the development of the W88 HAR. The W88 HAR will be prepared to support the W88 EORPP. The plan

employs a pre-screening of the W88 procedures to determine the extent of procedures to be analyzed, a comparison of the W88 process to incorporate previous analyses, and analysis of W88 specific processes. It is anticipated that the process for developing the W88 HAR will involve the examination of approximately thirty-nine procedures in order to identify those W88 operational hazards whose consequences meet or exceed Nuclear Explosive Operations (NEO) Evaluation Guidelines as defined in D&P Manual Chapter 11.4, Rev 1, Change 27. These hazards include:

- Inadvertent Nuclear Detonation (IND),
- High Explosive Detonation/Deflagration (HED/D)
- Fire leading to fissile material dispersal
- Uncontrolled release of radioactive material from the facility, and
- Death or serious worker injury resulting from non-standard industrial hazards

To achieve this end, the PT will ensure that the W88 HAR and ABCD development will:

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

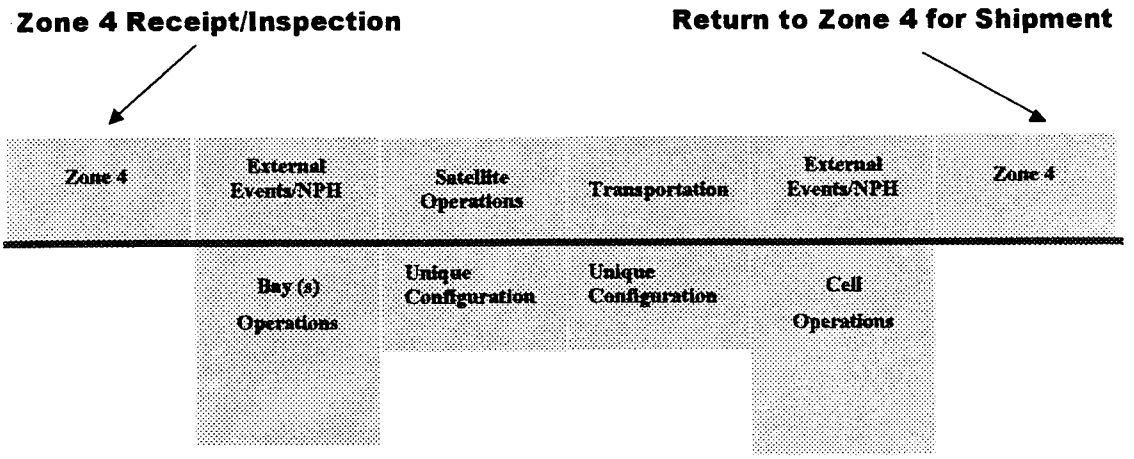


Figure 1: Example for Informational Purposes Only

- Identify 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 primarily by viewing of videos and reviewing of prior analyses (e.g., the WSS, the Basis of Interim Operations (BIO), etc.), coupled with walkdowns of those processes that require additional observation.

- Identify and analyze accident scenarios associated with hazards identified in the WSS with consequences that meet or exceed the 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.

- Include 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.

- Describe each control, provide the technical basis for selection of the control, and provide the linkage, through the accident scenario description, from the hazard to the control (i.e., shows the derivation). For each TSR level 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.

- Document the adequacy of the proposed control set in establishing an understood risk envelope.

- Evaluate the adequacy and effectiveness of the control set and then compare the proposed controls to the Target Level of Controls (TLC) guidance.

- Document 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).

- Build upon lessons learned from HAR and ABCD development efforts on other weapon programs as applicable (e.g., W56, W87).

- Provide the DOE approval authority sufficient information to enable an assessment of the adequacy of the identified controls and an understanding of the residual risk DOE is accepting if 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 analysis plan (part of the EORPP)
- Development of the Technical Support Document (TSD)
  - Including Hazard identification matrix and process flow chart
- Preliminary HAR and ABCD
- Final HAR and ABCD

9.4.3 HAR & ABCD Orientation

In preparation for the W88 HAR and ABCD development, the HATT and the PT will receive the following briefings:

- HAR & ABCD Development briefing (HAR, TLC, ABCD, TSR, etc.) including lessons learned from previous programs
- 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
  - Walkthrough of the facilities
  - 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

The following information/documents will be made available to the HATT for use during the HA process:

- Weapon Safety Specification (WSS)
- Weapon Response Screens table
- Process Flow Chart
- Tester list
  NEOP and O&I lists

This information will be used during the identification of hazards and the development of scenarios using the What-If Analysis and/or other industry accepted hazard evaluation techniques.

9.4.5 HAR Development

The methodology to be used will provide a defensible risk profile for W88 operations, identify effective control sets linked to specific hazards as well as comply with the guidance set forth in D&P Manual Chapter 11.4, Rev 1, Change 27. The products produced by this process will be released for review upon approval by MHC Risk Management and the W88 Project Team. Written comments concerning the products produced by the HATT are appreciated and will be dispositioned in writing through the W88 Project Team. The methodology to develop the W88 HAR is shown in Figure 2.

The successful completion of the W88 HAR will require the staffing of three hazards analysis teams under the guidance of a HAR Coordinator. The HAR Coordinator will be a Pantex, Risk Management employee and will be responsible for overall project development, maintaining schedule, and serving as the primary point of contact between the hazard analysis teams, the Project Team, the review teams, and the Design Agencies.

The three hazard analysis teams will assemble the HAR in a parallel effort. Each team will consist of a mix of MHC and Design Agency hazard analysts. The first team (Team 1) will be responsible for comparing the W88 processes to existing analyses (e.g., BIO, CSSM, site-wide TSRs) and identifying W88 specific controls in Satellite operations, and validating the applicability of both the identified hazards and their corresponding control sets. This team will be led by a LANL hazard analyst experienced in previous analyses. The second team (Team 2) will be responsible for documenting the W88 hazards associated with bay operations. This team will be led by a Pantex Risk Management hazard analyst with hazard analysis experience in similar bay operations as they apply to other weapons systems. The third team (Team 3) will be responsible for documenting the W88 hazards associated with cell operations. This team will be led by a Pantex Risk Management hazard analyst with hazard analysis experience in similar cell operations as they apply to other weapons systems.

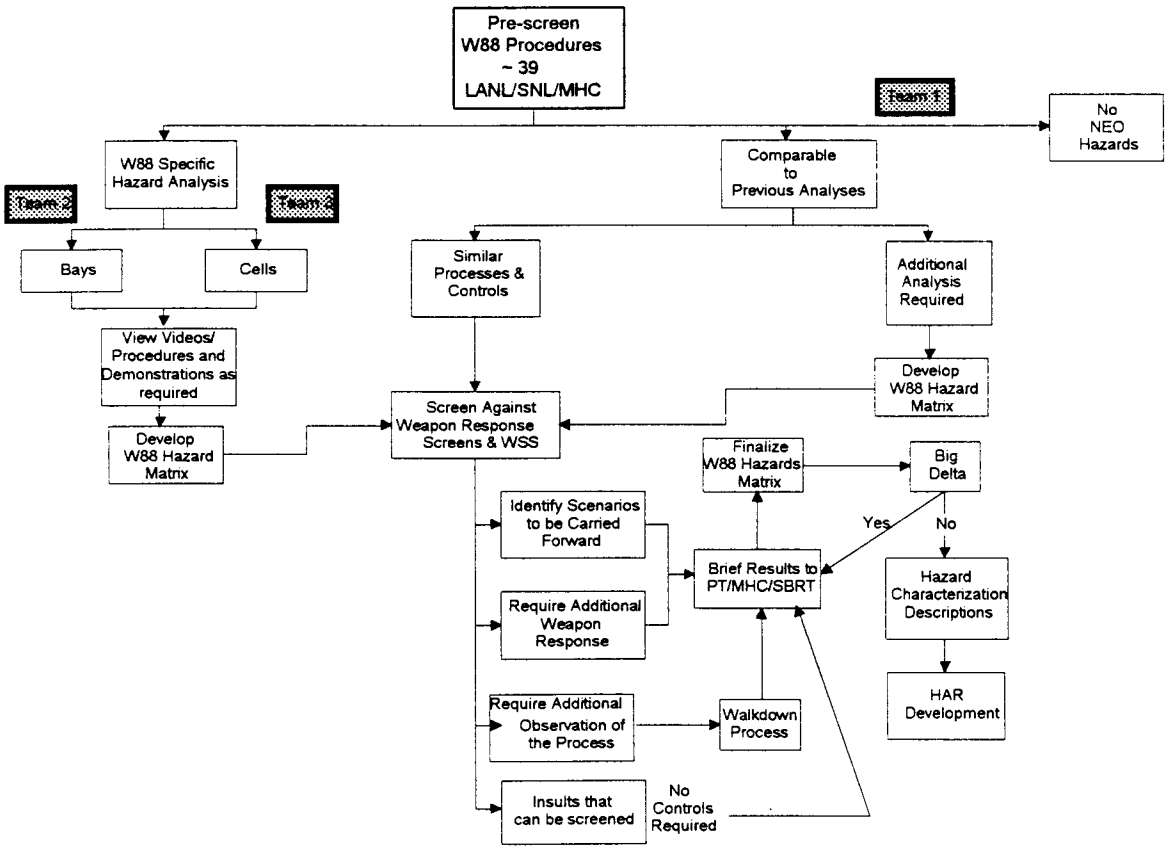


Figure 2 W88 Hazard Analysis Flow Chart

9.4.5.1 Procedure Pre-Screen

A pre-screen of the W88 procedures will be performed by LANL, SNL, and MHC experienced risk analysts. This pre-screen will be used to divide the W88 Procedures into four categories and to allow assignment of the procedures to the three independent hazards analysis teams. The division of the procedures will be accomplished based on the experience and judgement of the analysts.

1. Procedures which introduce no NEO hazards- Team 1
2. Procedures which have hazards that compare to previous analyses - Team 1
3. Bay procedures expected to introduce NEO hazards - Team 2
4. Cell procedures expected to introduce NEO hazards - Team 3

9.4.5.2 Review of No NEO Hazards (Team 1)

For those processes that pose no NEO hazards, the team will prepare a written summary with justification to be included in the TSD.

9.4.5.3 Previous Comparison Analysis (Team 1)

During the comparison analysis, the procedures will be compared to previous analyses to determine if the hazards and controls from those analyses can be applied to the W88. Comparisons may include the Basis of Interim Operations (BIO), Master Studies, Nuclear Explosive Safety Studies, and other weapon program hazard analyses. The comparison analysis will provide the opportunity to use existing analyses to decrease the amount of time and cost required to establish W88 controls. The comparison analysis will focus primarily on satellite activities and activities that are common to other weapon programs. The comparison process is expected to evaluate:

- Radiography Operations
- CSA Leak Testing
- Separation Testing
- Mass Properties
- Purge & Backfill Operations
- Zone 4 to Zone 12 Transport
- Ramp Transport in the Shipping Configuration
- Staging Operations

In the areas of the process where the W88 is similar to a previous hazard analysis, the hazards and events identified in the previous analysis will be evaluated to determine if the analysis can be applied to the W88. If the scenarios identified in the previous analysis can be applied to the W88, the scenarios will be screened against the W88 weapon response criteria and the controls identified in the previous analysis will be modified to apply to the W88. If the scenarios in the previous analysis are not appropriate for use on the W88, then additional hazard scenario development will be completed. In the areas of the process

where the W88 is not similar to the previous analysis, development of W88 specific hazard scenarios will be completed.

The results of the procedure comparison process will be the separation of satellite and common procedures into two categories as follows:

1) **Similar Processes and Controls** For those procedures which are comparable to other program processes, the team will screen them against the W88 Weapon Response Screens and the WSS, then forward them to the Project Team for Review. Eventually hazard characterization descriptions will be developed.

2) **Additional Analysis Required.** The procedures which require further hazards analyses will either be analyzed by the procedure comparison team or forwarded to the Bay or Cell team.

9.4.5.4 Bay and Cell Analysis (Teams 2 and 3)

The W88 specific analysis will provide a hazard analysis and control identification for assembly operations, disassembly and inspection (D&I) operations, and transportation of full and partial assemblies outside the shipping container. The W88 specific analysis will use a modified "what-if" approach to identify hazards associated with the nuclear explosive operations, determine the unmitigated consequences associated with each hazard, and qualitatively assign likelihoods to hazards and events which meet the NEO Evaluation Guidelines as defined in the D&P Manual. Additional analytical techniques may be used at the discretion of the HATT to characterize the W88 hazards and events. External events and Natural Phenomena Hazards (NPH) will rely on the existing site safety analysis. The transportation and facility master studies and the Pantex dispersal analysis included all weapon systems and does not need to be repeated for the W88. It is expected that the HATT will provide analysis of operationally enabled external hazards, such as lightning strikes, during the operation.

In addition, special studies such as the Fire Hazards Analysis (FHA), will be used in support of the W88 HAR.

9.4.5.4.1 Team Process Review

The bay and cell teams will consist of hazard analysts from MHC Risk Management, an analyst from the appropriate laboratory (i.e., bay analyst from SNL, cell analyst from LANL), and a production technician. The W88 Program Manager, Program Engineer, and Tooling Engineers may also be asked to participate. The team composition provides the best opportunity to complete a thorough examination of the hazards associated with the W88 operation. The use of a "what-if" methodology examining all process steps, performed by experienced hazard analysts and Design Agency weapons response experts will serve to provide confidence that all hazards potentially resulting in accidents with consequences that meet or exceed the NEO Evaluation Guidelines have been identified and analyzed.

The bay and cell teams will view the videotapes and procedures, coupled with demonstrations of the process as required to identify potential threats of concern. The process used in the W88 HAR will examine each step of the assembly and disassembly/inspection procedure. These potential threats of concern will be documented in the W88 Hazards Matrix. To insure that the hazard analysis methodology will focus on operationally induced hazards, the hazard matrix prepared for each procedure will have check boxes linked to each process step for both the broad category on insult (e.g., mechanical, electrical, thermal) and the resulting unmitigated NEO consequence (e.g., IND, HEDD).

The scenarios will be screened using the W88 Weapon Response Screens and the WSS to separate those scenarios that:

1. Will be carried forward into the Hazard Characterization Descriptions in the TSD, or
2. Require additional weapon response information, or
3. Require additional observation of the process, or
4. Do not require controls due to benign consequences, or because the scenarios are determined to be sufficiently unlikely

The disposition of the proposed scenarios will be indicated on the Hazards Matrix in the TSD.

For those scenarios not readily screened by either the Weapons Safety Specification or the W88 Weapons Response Screens, weapons response information will be requested from the Design Agencies. If the required weapons response information cannot be provided by the Design Agencies in a timely manner, conservative controls will be assigned to the scenarios until such time as the modified screening criteria can be provided. In these cases, the likelihood of the scenario will be determined by the likelihood of the occurrence.

For those scenarios that require additional observation, walkdowns of the process will be conducted.

Benign consequences are defined as those not meeting or exceeding the NEO Evaluation Guidelines. Sufficiently unlikely scenarios are defined as those that may be screened using the W88 weapon response screens.

9.4.6 Hazard Characterization Descriptions

Hazard characterization descriptions will be developed to include descriptions of the events of concern along with bounding unmitigated consequences, likelihoods and the justifications for the likelihoods, and controls and the bases for those controls. The hazard characterization descriptions will be documented in the TSD. Only those hazards which meet or exceed NEO Evaluation Guidelines will be developed into a hazard characterization description. Where practical, for those scenarios to be carried forward into the HAR, accidents will be grouped into common scenarios where the same controls for prevention or mitigation apply. In accordance with D&P Manual

Chapter 11.4, Rev 1, Change 27, the HAR will only examine those scenarios which could lead to either an inadvertent nuclear detonation, a high explosive detonation or deflagration, a fire leading to the dispersal of fissile material, an uncontrolled radiological release, or those non-standard industrial hazards which could result in serious worker injury or death.

Unmitigated occurrence likelihoods will be based on industry standards and prior analyses, while unmitigated consequence likelihoods will be provided by the Design Agencies. The unmitigated likelihoods will not be supported through detailed quantitative analyses.

Only those controls at the TSR level that are tangible controls, and can be described as being effective and reliable with respect to their corresponding hazards will be included in the hazard characterization descriptions. TSRs derived from the controls in the HAR will be based on their ability to prevent or mitigate scenarios that meet or exceed NEO Evaluation Guidelines. Inadvertant nuclear detonation scenarios will have at least two primary controls (preferably as LCOs), or, if a lesser control set is selected, a justification for adequacy will be specifically addressed in the HAR. Positive measures will not be proposed during the HAR development process for those scenarios which can be screened through the W88 weapons response criteria.

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.

A description of the residual risk associated with scenarios and controls will be provided. The residual risk discussion will be provided in terms of the consequence of the scenario and the likelihood of the scenario upon implementation of the identified controls. Residual risk will be determined using those controls proposed and developed as TSRs and not as a function of any defense in depth positive measures.

The hazard characterization descriptions will be presented to the W88 Project Team for concurrence. Upon concurrence by the W88 Project Team of HATT findings and agreed upon applicable control sets, the HATT will forward their hazard characterization description to the HAR Coordinator for inclusion in the HAR.

9.5 ABCD Development

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 are 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 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 the DOE approval authority. 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 the DOE approval authority, 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 memorandum, 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 production or training facilities. The NESS report will establish a current assessment of the adequacy of controls of the W88 operation 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

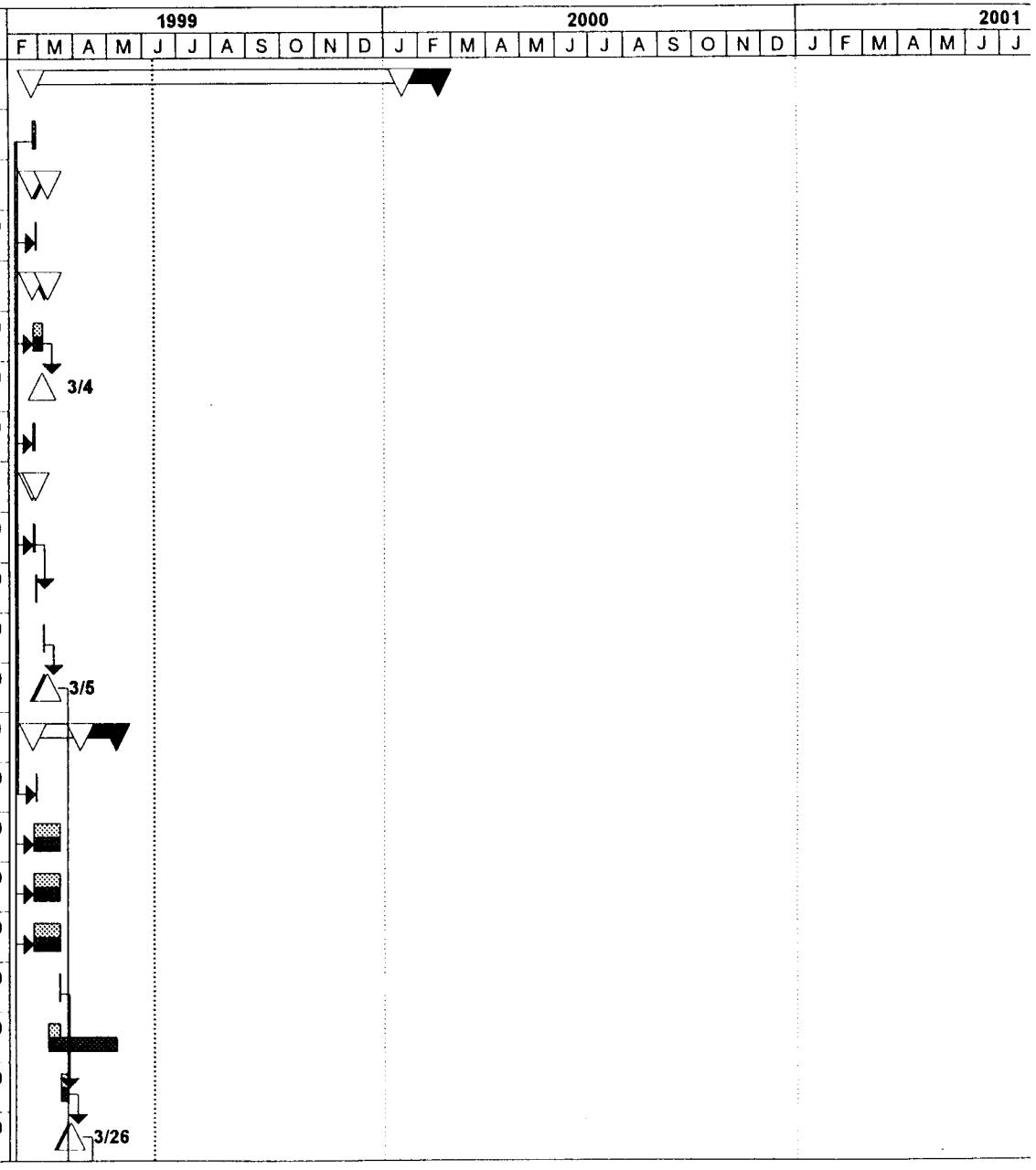
Once the Integrated Review is completed, the final approval activities listed in the Gantt Chart will be completed, leading to reauthorization of W88 nuclear explosive operations.

Appendix A

W88 EORPP Gantt Chart

Appendix A to W88 Existing Operations Reauthorization Project Plan (EORPP) Rev 1, June 4, 1999

ID	Task Name	Dur	Start	Finish
1	**W88 EORPP**	**252d**	**2/23/99**	**2/18/00**
2	Planning Meeting	3d	2/23/99	2/25/99
3	**Develop W88 EORPP Plan (Includes HA and ABCD methodology)**	**1d**	**2/25/99**	**2/25/99**
4	List of Assumptions	1d	2/25/99	2/25/99
5	**Milestone 0 Preparations**	**9d**	**2/23/99**	**3/5/99**
6	Draft DOE/AL Tasking Letter for Project Team	7d	2/23/99	3/3/99
7	DOE Tasking Letter - signed	1d	3/4/99	3/4/99
8	Establish PT	2d	2/23/99	2/24/99
9	**Facilities Review**	**3d**	**2/23/99**	**2/25/99**
10	Facilities Identified	2d	2/23/99	2/24/99
11	Freeze Facility upgrades as required	1d	2/25/99	2/25/99
12	Coordinate W88 EORPP plan w/ Org team members & their Mgmt	1d	3/4/99	3/4/99
13	Milestone 0 - SMT Approve Conceptual Plan	1d	3/5/99	3/5/99
14	**Milestone 1 preparations**	**54d**	**2/23/99**	**5/7/99**
15	Organization Responsibility Matrix	1d	2/25/99	2/25/99
16	Define Basic Project Scope, Schedule & Org Assig	18d	2/23/99	3/18/99
17	Rough estimate of resource requirements & impacts	18d	2/23/99	3/18/99
18	Conceptual HA Plan	18d	2/23/99	3/18/99
19	Provide Programmatic Risk & Potential Obstacles of EORPP	1d	3/18/99	3/18/99
20	SS21 Attributes Review	45d	3/8/99	5/7/99
21	Coordinate W88 EORPP plan w/ Org team members & their Mgmt	5d	3/19/99	3/25/99
22	Provide W88 EORPP to SMT	1d	3/26/99	3/26/99



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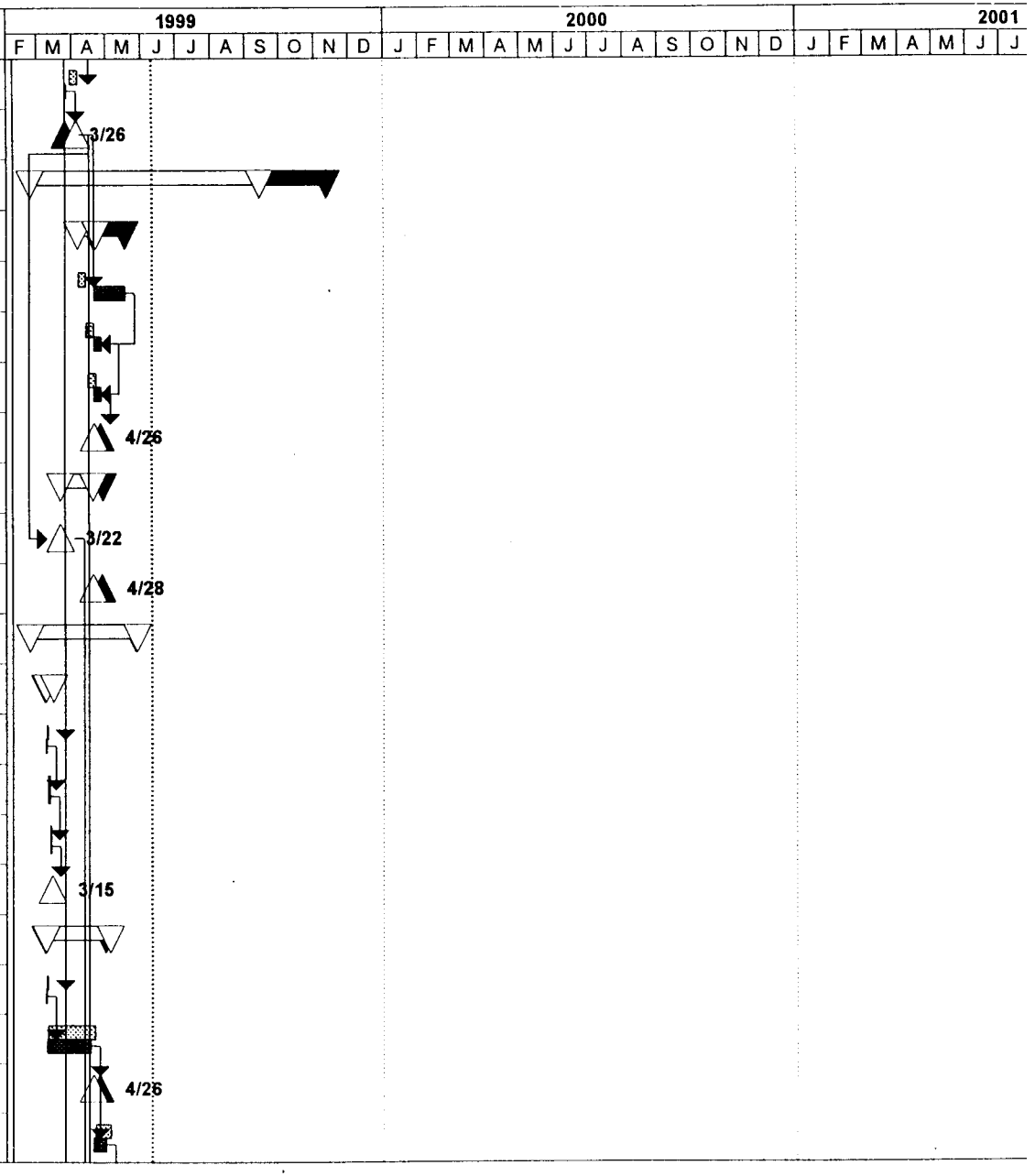
ID	Task Name	Dur	Start	Finish
23	Changes in Scope and Requirements	1d	3/26/99	3/26/99
24	Milestone 1 - SMT Approves Project Plan	1d	3/26/99	3/26/99
25	**Milestone 2 Preparations**	**188d**	**2/23/99**	**11/11/99**
26	**Resource Requirements**	**20d**	**4/20/99**	**5/17/99**
27	Assignments/resources	20d	4/20/99	5/17/99
28	Cost estimates	5d	4/20/99	4/26/99
29	Resource & Schedule Impacts	5d	4/20/99	4/26/99
30	Schedule is resource loaded	0d	4/26/99	4/26/99
31	**WSS**	**28d**	**3/22/99**	**4/28/99**
32	Final Draft of WSS to all Project Team Members	1d	3/22/99	3/22/99
33	Issue WSS	1d	4/28/99	4/28/99
34	**HA Preparations**	**68d**	**2/23/99**	**5/27/99**
35	**Tooling**	**6d**	**3/8/99**	**3/15/99**
36	Identify W88 Special Tooling list	1d	3/8/99	3/8/99
37	Identify schedule impacts of special tooling	2d	3/10/99	3/11/99
38	Special Tooling review to PT	1d	3/12/99	3/12/99
39	Freeze implementation of special tooling upgrades	1d	3/15/99	3/15/99
40	**Procedures**	**40d**	**3/8/99**	**4/30/99**
41	Identify all W88 NEOPs & procedures	1d	3/8/99	3/8/99
42	Identify & update NEOP EORPP enhancements	29d	3/9/99	4/16/99
43	Procedure Review to PT	1d	4/26/99	4/26/99
44	Freeze & Publish Procedures	2w	4/19/99	4/30/99



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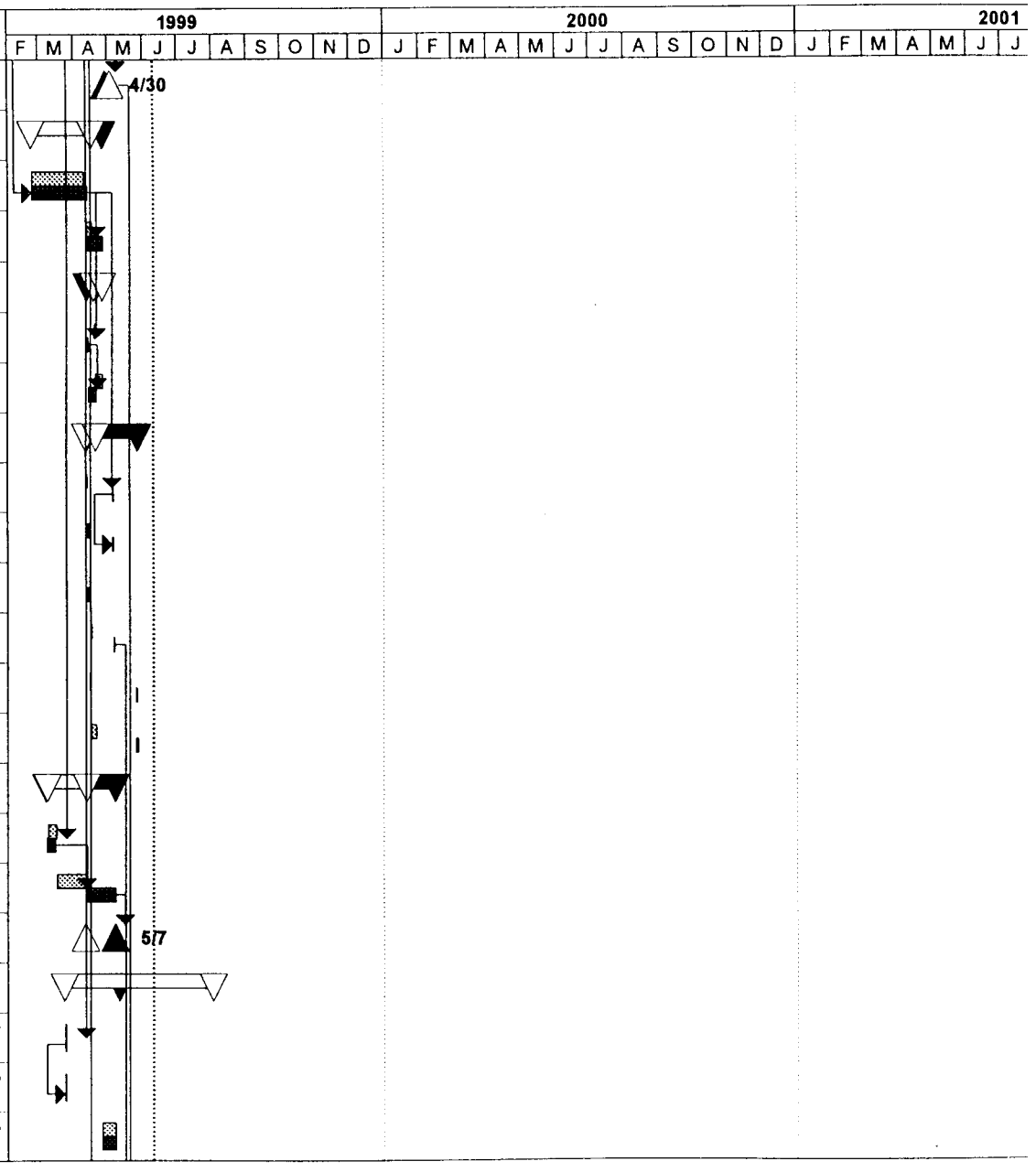
ID	Task Name	Dur	Start	Finish
45	Finalize Procedures	1d	4/30/99	4/30/99
46	**Video**	**45d**	**2/23/99**	**4/26/99**
47	Film Video	35d	2/23/99	4/12/99
48	Make copies of video	2w	4/13/99	4/26/99
49	**Trainer Implementations**	**6d**	**4/13/99**	**4/20/99**
50	Proposed Trainer requirements /	1d	4/13/99	4/13/99
51	Replace/Repair W88 Trainer parts	5d	4/14/99	4/20/99
52	**Training of Project Team, SBRT, HATT**	**33d**	**4/13/99**	**5/27/99**
53	Basic Hazard Eval Techniques &	1d	5/5/99	5/5/99
54	TSR/ABCD Training	1d	5/5/99	5/5/99
55	Lessons Learned (W56, W87, W76, W62, W69,	1d	4/13/99	4/13/99
56	W88 Nuclear Weapon Design overview	1d	5/6/99	5/6/99
57	Facilities Orientation for HATT& PT	1d	5/26/99	5/26/99
58	W88 Process Overview (includes viewing of	2d	5/26/99	5/27/99
59	**Testers**	**45d**	**3/8/99**	**5/7/99**
60	Identify W88 Testers	6d	3/8/99	3/15/99
61	PT review tester upgrades	19d	4/13/99	5/7/99
62	Document tester review rationale	0d	5/7/99	5/7/99
63	**HA Pre-cursors**	**35d**	**3/24/99**	**5/11/99**
64	Process Flow Diagram/Description	1d	3/24/99	3/24/99
65	Scope/Depth Chart Design	1d	3/24/99	3/24/99
66	Develop Weapon Response Screens	10d	4/26/99	5/7/99



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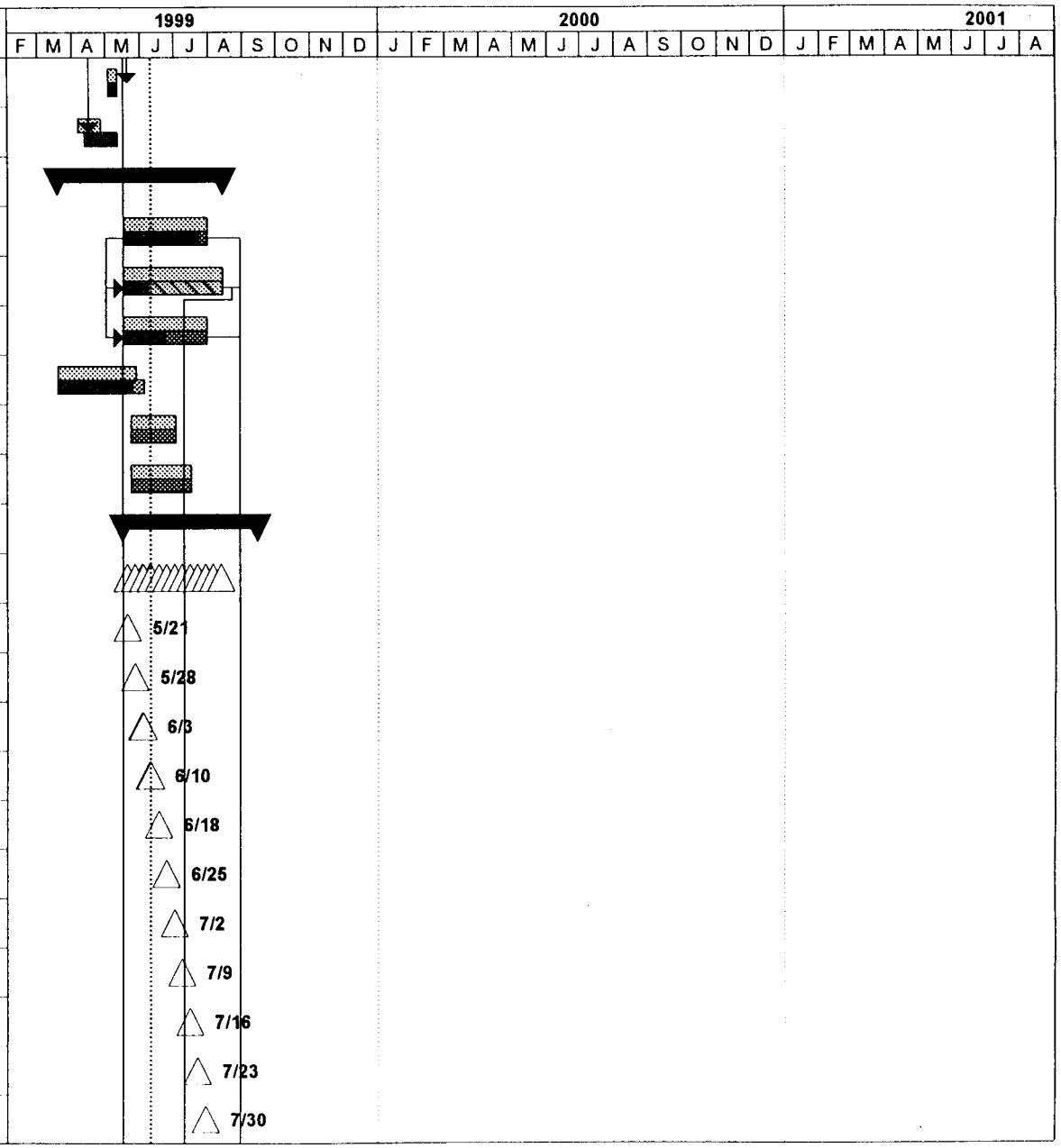
ID	Task Name	Dur	Start	Finish
67	Prescreen Procedures	7d	5/3/99	5/11/99
68	Identify & document which W88 Ops covered	22d	4/12/99	5/11/99
69	**Hazards Analysis**	**106d**	**3/19/99**	**8/13/99**
70	Previous Comparison Analysis	11w	5/17/99	7/30/99
71	Bay Analysis	13w	5/17/99	8/13/99
72	Cell Analysis	11w	5/17/99	7/30/99
73	Fire Hazards Analysis	56d	3/19/99	6/4/99
74	Tooling Seismic Analysis	6w	5/24/99	7/2/99
75	Facility Seismic Analysis	8w	5/24/99	7/16/99
76	**HAR Development**	**87d**	**5/17/99**	**9/14/99**
77	**PT Evaluation of HA progress**	**60d**	**5/21/99**	**8/13/99**
78	PT Evaluation of HA progress 1	0d	5/21/99	5/21/99
79	PT Evaluation of HA progress 2	0d	5/28/99	5/28/99
80	PT Evaluation of HA progress 3	0d	6/3/99	6/3/99
81	PT Evaluation of HA progress 4	0d	6/10/99	6/10/99
82	PT Evaluation of HA progress 5	0d	6/18/99	6/18/99
83	PT Evaluation of HA progress 6	0d	6/25/99	6/25/99
84	PT Evaluation of HA progress 7	0d	7/2/99	7/2/99
85	PT Evaluation of HA progress 8	0d	7/9/99	7/9/99
86	PT Evaluation of HA progress 9	0d	7/16/99	7/16/99
87	PT Evaluation of HA progress 10	0d	7/23/99	7/23/99
88	PT Evaluation of HA progress 11	0d	7/30/99	7/30/99



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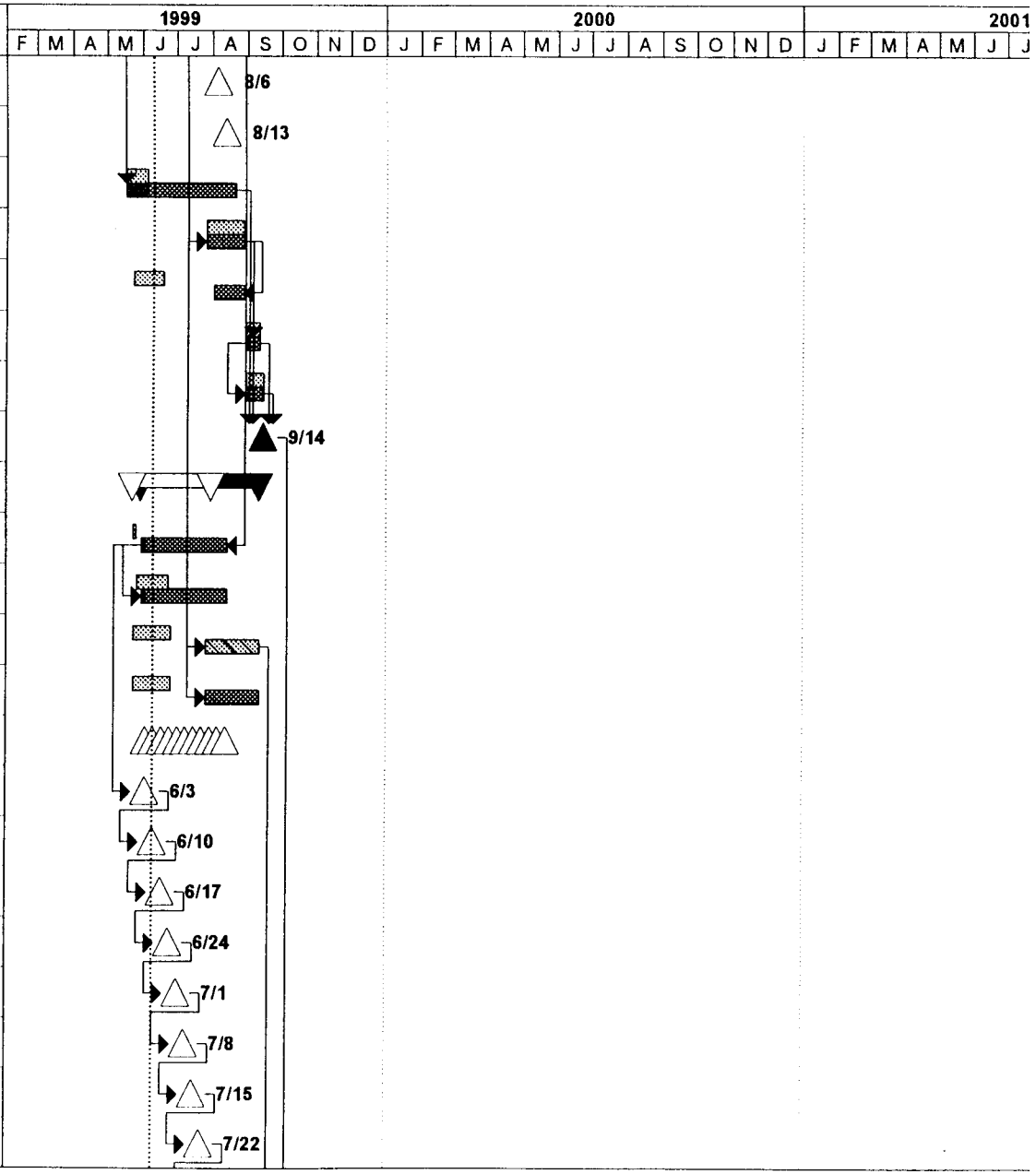
ID	Task Name	Dur	Start	Finish
89	PT Evaluation of HA progress 12	0d	8/6/99	8/6/99
90	PT Evaluation of HA progress 13	0d	8/13/99	8/13/99
91	Develop Chapters 1-3	70d	5/17/99	8/20/99
92	Develop Chapter 4 (Hazard Characterizations)	25d	7/26/99	8/27/99
93	Verify Process Flow & Oper Proc adequacy for final HAR	4w	8/2/99	8/27/99
94	Develop Conclusion Chapter 5	10d	8/30/99	9/10/99
95	Develop Executive Summary	12d	8/30/99	9/14/99
96	Draft HAR issued	0d	9/14/99	9/14/99
97	**ABCD Process**	**75d**	**5/31/99**	**9/10/99**
98	Propose initial set of controls for ABCD	11w	5/31/99	8/13/99
99	Verify initial ABCD controls are adequate	11w	5/31/99	8/13/99
100	Write Draft ABCD	7w	7/26/99	9/10/99
101	Write Draft PACMAN	7w	7/26/99	9/10/99
102	**PT Evaluation of ABCD progress**	**50d**	**6/3/99**	**8/13/99**
103	PT Evaluation of ABCD progress 1	0d	6/3/99	6/3/99
104	PT Evaluation of ABCD progress 2	0d	6/10/99	6/10/99
105	PT Evaluation of ABCD progress 3	0d	6/17/99	6/17/99
106	PT Evaluation of ABCD progress 4	0d	6/24/99	6/24/99
107	PT Evaluation of ABCD progress 5	0d	7/1/99	7/1/99
108	PT Evaluation of ABCD progress 6	0d	7/8/99	7/8/99
109	PT Evaluation of ABCD progress 7	0d	7/15/99	7/15/99
110	PT Evaluation of ABCD progress 8	0d	7/22/99	7/22/99



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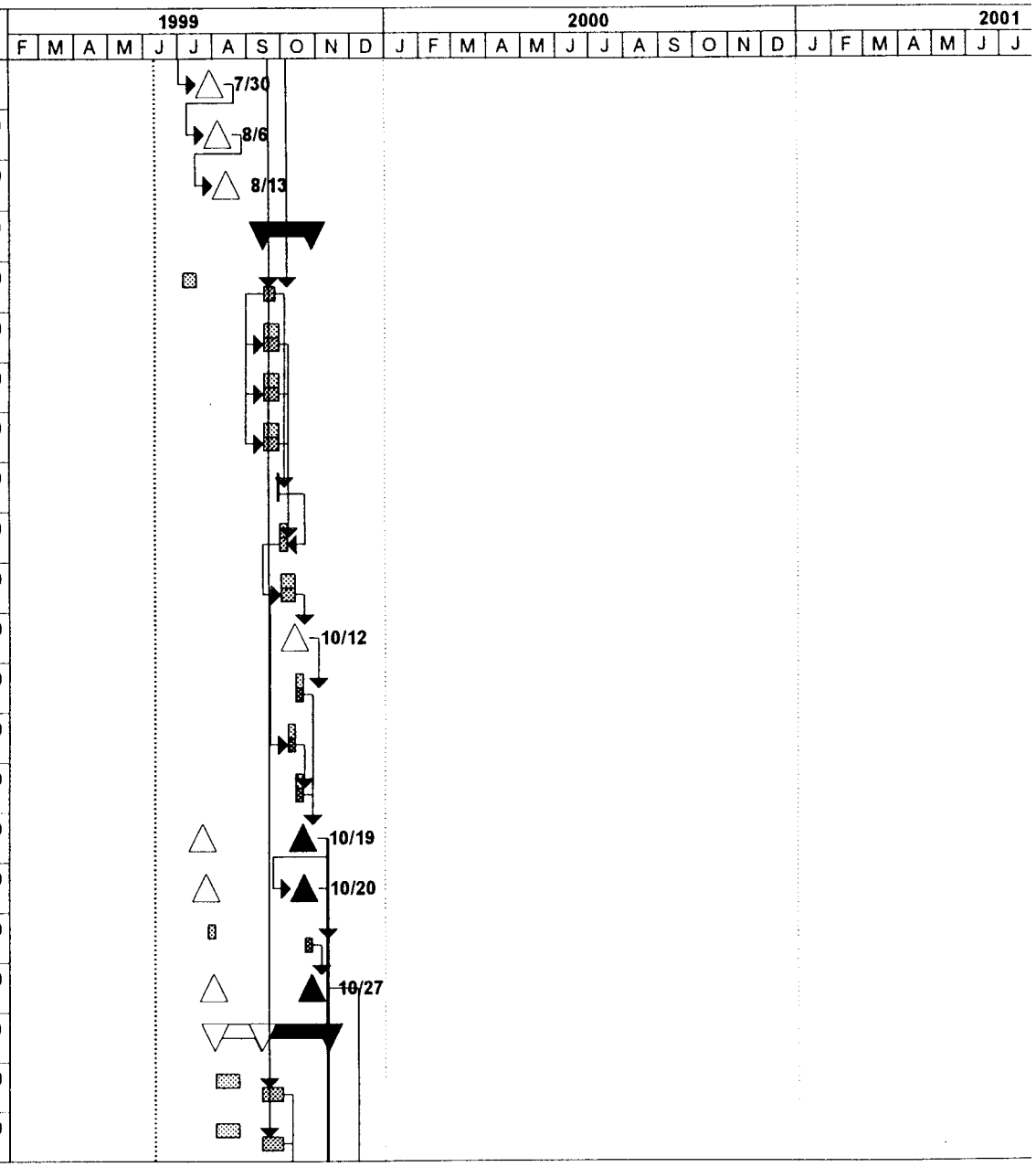
ID	Task Name	Dur	Start	Finish
111	PT Evaluation of ABCD progress 9	0d	7/30/99	7/30/99
112	PT Evaluation of ABCD progress 10	0d	8/6/99	8/6/99
113	PT Evaluation of ABCD progress 11	0d	8/13/99	8/13/99
114	**HAR/ABCD Reviews**	**31d**	**9/15/99**	**10/27/99**
115	Project Team & MHC Risk Mgmt Review	8d	9/15/99	9/24/99
116	SBRT review Draft HAR/ABCD response	10d	9/15/99	9/28/99
117	Lab Review	10d	9/15/99	9/28/99
118	Centralized Review System (CRS)	10d	9/15/99	9/28/99
119	MHC MRDR Board	2d	9/27/99	9/28/99
120	PT resolution of comments	5d	9/29/99	10/5/99
121	HAR/ABCD Revision	9d	9/30/99	10/12/99
122	MHC Release HAR/ABCD to PT	0d	10/12/99	10/12/99
123	PT/SBRT review final revision	5d	10/13/99	10/19/99
124	Develop AB Implementation Plan	5d	10/6/99	10/12/99
125	Auth Basis Change Control Committee (ABCCC) Review	5d	10/13/99	10/19/99
126	Release Final issue of HAR/ABCD	0d	10/19/99	10/19/99
127	PT recommends HAR/ABCD approval	0d	10/20/99	10/20/99
128	SMT Review period	5d	10/21/99	10/27/99
129	WPD Director HAR/ABCD Approval	0d	10/27/99	10/27/99
130	**Implement HAR/ABCD review comments/ procedural changes**	**44d**	**9/13/99**	**11/11/99**
131	Finalize changes to Prod procedures	15d	9/13/99	10/1/99
132	Finalize changes to Facility procedures	15d	9/13/99	10/1/99



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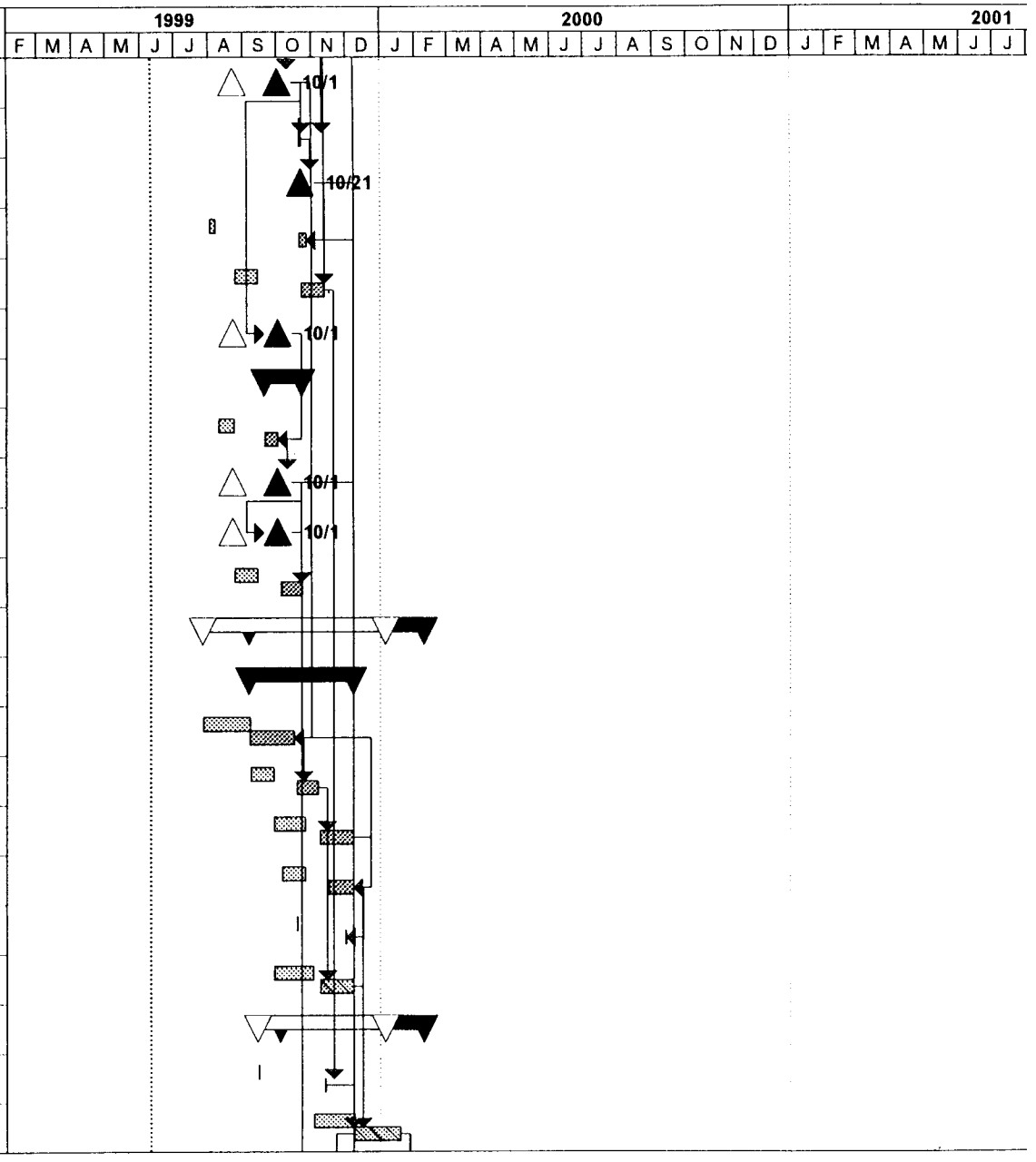
ID	Task Name	Dur	Start	Finish
133	Freeze Procedures	0d	10/1/99	10/1/99
134	Revise Draft PACMAN	2d	10/20/99	10/21/99
135	Release Final Issue of PACMAN	0d	10/21/99	10/21/99
136	IRR input document for NESS	5d	10/20/99	10/26/99
137	Prepare Prod Techs for NESS based on HAR/ABCD	15d	10/22/99	11/11/99
138	Milestone 2 - Acceptance of Process Flow	0d	10/1/99	10/1/99
139	**Post Milestone 2 work**	**25d**	**9/20/99**	**10/22/99**
140	Write Plan of Action (PoA)	10d	9/20/99	10/1/99
141	Issue PoA	0d	10/1/99	10/1/99
142	Memo from WPD regarding Concurrence to proceed to	0d	10/1/99	10/1/99
143	Review EORPP for changes in Scope and Requirements	15d	10/4/99	10/22/99
144	**Milestone 3 Preparations**	**105d**	**9/6/99**	**2/8/00**
145	**NESS Preparations**	**65d**	**9/6/99**	**12/7/99**
146	Prep for Reval (Review Process Change	30d	9/6/99	10/15/99
147	Validate Oper Proc w/ Positive Verificaiton Tryout using	15d	10/18/99	11/5/99
148	Filming of Video for NESS	4w	11/8/99	12/7/99
149	Prepare/Coordinate Presentation	15d	11/15/99	12/7/99
150	Dry Run of Reval presentation	1d	11/30/99	11/30/99
151	MHC Readiness Review	4w	11/8/99	12/7/99
152	**Integrated Review Process**	**85d**	**10/4/99**	**2/8/00**
153	Ensure that Ops Personnel are trained and documentation	1d	11/12/99	11/12/99
154	NESS Reval	25d	12/8/99	1/18/00



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ID	Task Name	Dur	Start	Finish
155	NESS report to DOE/AL manager	5d	1/19/00	1/25/00
156	**Readiness Review - DOE/AL & DOE/AAO**	**70d**	**10/4/99**	**1/18/00**
157	Implementation Plan for Readiness Review	5d	10/4/99	10/8/99
158	Conduct Readiness Review (RR)	25d	12/8/99	1/18/00
159	PT Resolution of findings	10d	1/26/00	2/8/00
160	PT recommendation to start operations	0d	2/8/00	2/8/00
161	Milestone 3	0d	2/8/00	2/8/00
162	**Milestone 4 Preparations**	**7d**	**2/9/00**	**2/17/00**
163	SMT members concur w/ resolution of Integrated Review	1d	2/9/00	2/9/00
164	DOE/AAO drafts recommendation to approve IRR Reval	5d	2/10/00	2/16/00
165	DOE/AAO recommends IRR approval	0d	2/16/00	2/16/00
166	Draft Recommendation to approve NESS Reval (DOE/AL manager)	5d	2/10/00	2/16/00
167	DOE/AL manager recommends DOE/HQ approves NESS Reval	0d	2/16/00	2/16/00
168	DOE/HQ reviews recommendation	5d	2/10/00	2/16/00
169	DOE/HQ approves NESS Reval	0d	2/16/00	2/16/00
170	DOE/AL Manager authorizes operations	1d	2/17/00	2/17/00
171	Milestone 4 -Recommendation to authorize operations	0d	2/17/00	2/17/00
172	Retraining of Production Technicians for WR operations	20d	1/24/00	2/18/00
173	Begin WR work	0d	2/18/00	2/18/00