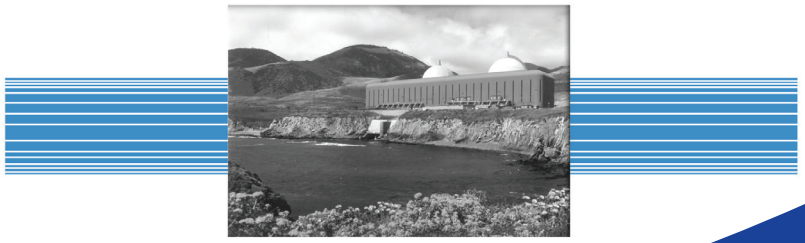
EPRI ELECTRIC POWER RESEARCH INSTITUTE

2019 TECHNICAL REPORT

Nuclear Work Planning Training



Nuclear Work Planning Training

3002015496

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All or a portion of the requirements of the EPRI Nuclear Quality Assurance Program apply to this product.

YES NO

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ABSTRACT

This report replaces two Electric Power Research Institute (EPRI) reports—*Nuclear Maintenance Applications Center: Maintenance Work Package Training for Nuclear Utility Personnel—Student Handbook* (product ID 1014533) and *Nuclear Maintenance Applications Center: Maintenance and Modification Work Planner Training Program Description* (product ID 3002002821).

This report provides a new standard training curriculum for the maintenance and modification work planners at nuclear power plants who develop work packages. This training is implemented using EPRI U's processes, the EPRI Learning Management System, and the NANTeL portal. Managing the training through EPRI U gives utilities the following advantages:

- It takes the onerous burden off the utility and provides an EPRI credential process; this is not a qualification.
- Redundant costs are eliminated.
- It represents an efficient use of instructional staff and other training resources.
- Standardized training ensures consistency throughout the industry.

Through this curriculum, significant improvement and consistent implementation of the processes associated with developing work packages should be realized. By applying the standards, members will improve their plants' reliability and availability.

The Work Planning Users Group was instrumental in producing, editing, and providing support to ensure that this report was completed and is applicable to all EPRI members.

Keywords
Graded approach to planning
Planner training
Technical detail
Work instructions
Work planning

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Product Title: Nuclear Work Planning Training

PRIMARY AUDIENCE: Maintenance and modification work planners

SECONDARY AUDIENCE: Coordinator of training, supplemental personnel performing planning activities

KEY RESEARCH QUESTION

What fundamental knowledge and skills are required by maintenance and modification work planning personnel to prepare consistent, technically accurate work packages aligned with industry standards?

RESEARCH OVERVIEW

EPRI engaged the Work Planning Users Group, a technical advisory group consisting of industry personnel, subject matter experts, and vendors, to produce a standard training curriculum that could be used across the industry to provide consistent, effective instruction on the development of work packages. This report replaces two EPRI reports—*Nuclear Maintenance Applications Center: Maintenance Work Package Training for Nuclear Utility Personnel—Student Handbook* (product ID 1014533) and *Nuclear Maintenance Applications Center: Maintenance and Modification Work Planner Training Program Description* (product ID 3002002821).

KEY FINDINGS

- Planner training contributes to an efficient organization that responds to plant and industry changes with a continuous focus on improvement.
- Essential to improving technical detail is an understanding of regulatory and industry requirements addressing work package content and level of detail.
- Consistent guidance on the foundational elements of work packages—appropriate structure, format, and content—is core to each station's performance.
- Proper application of a graded approach to planning improves efficiency and minimizes errors by applying the correct level of rigor in accordance with the difficulty of the task.

WHY THIS MATTERS

Work planning, a fundamental aspect of each station, directly affects the operation of the entire generating facility and is a major contributor to the efficiency of the work management process, the frequency of human performance errors, and rework. As the plant's performance expectations continue to increase, so must the performance of the maintenance planning organization improve. One of the key contributors to maintenance planning performance is a well-developed and maintained initial and continuing training curriculum. A robust training curriculum requires clearly identified tasks (which lead to expectations), standards for performance, and continuous critical feedback for improvement of planning department deliverables. The long-term benefits of a standard, well-established planner training curriculum across the industry are more consistent, technically accurate work packages, which reduce challenges to the station.

EXECUTIVE SUMMARY

HOW TO APPLY RESULTS

This report provides a complete curriculum, including a PowerPoint1 presentation, computer-based training, and test bank questions (separate applications from this report) to be taught by EPRI U authorized vendors to ensure consistent knowledge transfer.

LEARNING AND ENGAGEMENT OPPORTUNITIES

- The activities of the Work Planning Users Group are excellent opportunities for members to exchange experiences and obtain assistance.

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PROGRAM: Nuclear Maintenance Applications Center, P41.05.01

IMPLEMENTATION CATEGORY: Plant Optimization

[1] PowerPoint is a registered trademark of Microsoft.

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1
INTRODUCTION TO THE TRAINING

1.1 Purpose and Scope of the Training

The purpose of this report is to provide a standard curriculum for comprehensive training (non-accredited) for planners that will complement *Nuclear Maintenance Applications Center: Maintenance Work Package Planning Guidance* (Electric Power Research Institute [EPRI] product 3002007020) and site-specific planning training, if any.

Nuclear Maintenance Applications Center: Maintenance Work Package Planning Guidance (3002007020) provides guidance to power plant personnel regarding work package content as a supplement to AP-928, *Work Management Process Description.* This training supplements the information in that report by providing fundamental knowledge and skills required to prepare consistent, technically accurate work packages that are aligned with industry standards.

This is objective-based training, not on-the-job training or evaluation.

This program applies to planners working in the following capacities:

- Coordinator of Training (see Section 1.6.1, Definitions)
- Maintenance Work Planners (including fix-it-now [FIN] team planners)
- Modification Work Planners
- Supplemental personnel performing planning activities

While this report addresses comprehensive training for planners, each licensee is responsible for complying with regulatory requirements for work package content and for determining the most effective means of developing work packages that integrates with the other related licensee-specific processes.

1.2 Background

The Work Planners Users Group (WPUG) technical advisory group (TAG) concluded that in order to ensure that the resources support best-in-class performance and recognize the evolution of the "Maintaining the Plant Organization," one comprehensive resource was needed to provide standard guidance and an approach to planner training at nuclear power plants.

This report is the resulting product. It combines *Nuclear Maintenance Applications Center: Maintenance Work Package Training for Nuclear Utility Personnel—Student Handbook* (EPRI 1014533) and *Nuclear Maintenance Applications Center: Maintenance and Modification Work Planner Training Program Description* (EPRI 3002002821) into one comprehensive, updated report which provides a standard training curriculum for work planners.

1.3 Expected Benefits of a Comprehensive Training Curriculum

As nuclear planning transforms to a more autonomous entity, there is an increased reliance on planning to produce documents with sufficient technically accurate content. The WPUG examined existing EPRI work planner training resources and processes to determine whether the components necessary to achieve success are in place. This report is the result of a recommendation for improvements in planner training to support:

- Low, unplanned capacity loss factors.
- The prevention of equipment failures and the efficient utilization of resources.
- Asset management in support of license renewal and aging control.
- The incorporation of new technologies and advanced information management.
- Managing the risk and reducing human performance errors associated with maintenance activities.

This report is designed to be used with the EPRI Nuclear Work Planning Training PowerPoint[2] and test bank which are managed under EPRI U to ensure training is complete, effective, and efficient.

Benefits to be expected from the use of this report are based on EPRI's experience in all member utilities and are as follows:

- Comprehensive work planning training standard
- Improved work package accuracy
- Continuous focus on improvement
- Proper application of "graded approach to planning"

1.4 Report Structure and Training Content Overview

PowerPoint presentation slides and the exam bank are provided separate from this report.

1.4.1 Report Organization

There are five key sections in this report that provide guidance to licensees on the planner training curriculum:

- Section 1 provides the purpose and scope of this report as well as outlines the structure. It also introduces definitions and identifies relationships between this report and other EPRI documents and organizations.
- Section 2 provides a brief overview of the approach that was used to develop this curriculum.
- Section 3 provides the instructor lesson plan and learning objectives.

[2] PowerPoint is a registered trademark of Microsoft.

- Section 4 explains implementation of this planner training curriculum and describes the roles and responsibilities required for development of site-specific planner training, if any.
- Section 5 provides detailed description of skills and performance attributes essential for work planners and those personnel implementing work packages.
- Section 6 provides a list of references.
- Appendices are also provided to enhance the guidance developed in the report. Appendix A provides a listing of key points. Appendix B provides resources for the student. Appendix C provides examples of training program tools and templates; Appendix D provides utility examples of training processes.

1.5 Prerequisites for the Training

The trainees should primarily be familiar with their plant-specific work planning procedures as a result of work experience as a work planner or approved site training. The trainee is also expected to be familiar with the fundamental concepts of the work planning process by reviewing the associated EPRI report *Nuclear Maintenance Applications Center: Maintenance Work Package Planning Guidance* (3002007020) and resources provided in Appendix B.

1.6 Glossary of Terms, Acronyms, and Abbreviations

The terms, definitions, acronyms, and abbreviations in this section provide the foundation for common terminology used in this report. Users of this report and training organizations may want to understand the correlation between the terminology used in this report and training material with their own site/fleet definitions and terms.

1.6.1 Definitions and Nomenclature

coordinator of training – normally a planning supervisor or designee with additional responsibility of coordinating planner training.

enabling objectives – Developed from the tasks listed on the training task list and defining the skills, knowledge, or behaviors trainees must reach in order to successfully complete terminal objectives. They specify what the student is to accomplish after receiving appropriate training. Enabling objectives support the achievement of terminal objectives, and they may support other enabling objectives.

fully proficient – An individual who has successfully completed task proficiencies on all position-specific proficiency guides (PSPGs) and is approved to work independently by management.

independent – Performance of an activity with no direct oversight.

learning objective – A statement of what the student will be able to do after completing the training lesson. Learning objectives are developed from the training task list. There are two types of learning objectives: terminal objectives and enabling objectives.

maintenance planner – An employee assigned to perform planning activities who is assigned to the maintenance planning organization. This individual is normally responsible for planning on-line and outage work orders that are implemented by maintenance personnel.

mentor – A proficient individual who provides on-the-job training to planner candidates and evaluates their performance. In addition to being station-approved for the task they mentor, a mentor has completed specialized training to perform this function. A mentor demonstrates task performance and then observes the candidate's progress as they perform the task. Once a mentor is satisfied with a candidate's mastery of the concepts and/or mechanics of a task, he/she may recommend to supervision that the candidate be approved to perform planning of work on areas for which they are noted as proficient without oversight.

modifications planner (also called *projects planner*) – A planner whose major focus is the development of work packages that implement medium to large design changes.

on-the-job training (OJT) – A formal, structured method of providing required job-related skills, knowledge and attitudes to trainees in the actual job setting. At times, a simulation of the activity may be used to replicate the actual job setting. On-the-job training is a separate and distinct step that prepares the candidate for evaluation of task performance by a mentor.

planner (entry level) – The entry-level position for persons that do not meet all the proficiency requirements to independently perform planning functions.

planner (fully proficient) – An individual who has successfully completed all the position-specific training requirements and all the position-specific proficiency guidelines (PSPGs) for all planner tasks. The fully proficient planner may develop work packages independently, remain "Fully Proficient" as long as they continue to meet continuing training requirements, and may be used to review the work of non-proficient planners.

planner (task proficient) – An individual who has successfully completed all the requirements specified on any position-specific proficiency guide (PSPG) and is approved to independently perform that particular task or activity.

planner training and proficiency record – A summary of all activities that a planner must complete to be considered proficient. This summary is used to capture a trainee's progress through the training process. This document is maintained by the planning organization and is documented proof of proficiency. This form is used by the Nuclear Training Department to update the Database Training Management database once proficiency is attained. (See Appendix C, Examples of Training Records.)

planning quality review team – The core group of individuals who monitor work package quality.

planning standard – A document that provides task-specific information and step-by-step guidance for performing planning activities. Each task is represented in the planning standard.

position-specific proficiency guide (PSPG) – A document which lists a sequence of activities that are required for task proficiency used to document the individual's successful progress through position-specific training.

proficiency matrix – A document cross-reference that lists each planner within the training program and their progress toward achieving "Fully Proficient" status.

risk assessment screening – A task-based assessment of the risks associated with a work activity. Risk is usually evaluated in the following five areas:

- Industrial Safety Risk – All hazardous work activities and working environments
- Radiological Risk – All activities that can create or are being performed in an area with radiological impact
- Nuclear Safety/Operational Risk – Probability Risk Assessment (PRA), Limiting Condition for Operation (LCO), reactivity management, generation risk
- Environmental/Chemistry Risk – All activities that can adversely impact environmental or plant chemistry parameters
- Corporate/Regulatory Risk – Emergency plan, grid reliability, Maintenance Rule goals and regulatory compliance

specialized task – A task that gives the planner additional skills over and above those required to plan typical work packages.

subject matter expert (SME) – An individual who possesses requisite knowledge, skills, and experience on a particular task or area.

supplemental planners – An employee assigned to perform planning activities who is not considered a "long-term" or "permanent" employee. The term *supplemental* is used to describe employment status and not job responsibilities.

task-proficient – An individual who has completed all the requirements specified on any Position-Specific Proficiency Guide (PSPG).

terminal objectives – Statement in specific and measurable terms that describes what the learner will be able to do as a result of engaging in a learning activity. They are developed from the tasks listed on the training task list. Achievement of a terminal objective indicates the ability to perform the tasks selected for training.

work request – For the purpose of this guide, the term *work request* will refer to the initiating document from the computerized maintenance management system (CMMS) which is then promoted to a work order or completed via the minor maintenance process. It is understood that this term differs between CMMS tools.

1.6.2 Acronyms and Abbreviations

ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
CAP	corrective action program
CBT	computer-based testing
CFR	Code of Federal Regulations
CMMS	computerized maintenance management system
CV	concurrent verification

DIF	difficulty, important, frequency analysis
EQ	equipment qualification
FIN	fix-it-now
ICES	INPO Consolidated Event System
ID	identification
INPO	Institute of Nuclear Power Operations
IPT	infrequently performed test
IPTE	infrequently performed test evolution
ISI	in-service inspection
IST	in-service testing
JIT	just in time
LCO	limiting condition for operations
NEI	Nuclear Energy Institute
NMAC	Nuclear Maintenance Applications Center
NUMARC	Nuclear Utilities Management Resource Council
OE	operating event(s) or operating experience
OJT	on-the-job training
PM	preventive maintenance
PMT	post-maintenance test(ing)
PQRT	procedure quality review team
PRA	probabilistic risk assessment
PSPG	position-specific proficiency guide
SAT	systematic approach to training
STE	standardized task evaluation
SME	subject matter expert
SOC	skill of the craft
SSC	structure, system, and/or component
TAG	technical advisory group
WPUG	Work Planners User Group

1.7 Key Points

Throughout this report, key information is summarized in Key Points. ***Key Points*** are bold lettered boxes that succinctly restate information covered in detail in the surrounding text and make the Key Point easier to locate.

The primary intent of a Key Point is to emphasize the information that allows individuals to take action for the benefit of their plant. The information included in these Key Points is selected by NMAC personnel, consultants, and utility personnel who prepared and reviewed this report.

The Key Points used in this report are defined below. Each category has an identifying icon to draw attention to it when quickly reviewing the report.

Key Cost Point

Emphasizes information that will result in reduced purchase, operating, or maintenance costs.

Key Human Performance Point

Denotes information that requires personnel action or consideration in order to prevent injury or damage or to ease completion of the task.

Key Information Point

Denotes information of special importance.

The Key Points Summary section is located in Appendix A of this report and contains a listing of all Key Points in each category. The listing restates each Key Point and provides a reference to its location in the body of the report. By reviewing this listing, the users of this report can determine if they have taken advantage of the key information that the writers of this report believe would benefit their plants.

2
OVERVIEW OF THE TRAINING DEVELOPMENT AND IMPLEMENTATION

2.1 Training Development

EPRI and the Work Planners Users Group established a Technical Advisory Group (TAG) consisting of subject matter experts (SMEs) who reviewed industry-leading training processes at stations and utilities and incorporated that material into this report. The concepts of the process are:

- Analysis
- Design
- Development
- Implementation
- Evaluation

2.2 Implementation Overview

This training is implemented utilizing EPRI U processes and the EPRI Learning Management System (LMS), which allows organizations to more efficiently provide the work planner training content and allows individuals to complete the training and track completions on their EPRI U transcripts. This work planner training is also available through the NANTel portal.

Knowledge examinations and performance evaluations have been developed under the EPRI Standardized Task Evaluation (STE) program. Completion of the training, knowledge examination, and proficiency record provides a standardized approach to work planner training and competency, establishing reasonable confidence for granting qualifications at power generation facilities.

Accompanying this report is a PowerPoint presentation, CBT, and test bank. The report will be an open resource; however, the PowerPoint presentation, CBT, and test bank will be retained and managed within EPRI U.

Advantages to utilities:

- Takes the onerous burden off of the utility and provides an EPRI credential process
- Eliminates redundant costs
- Efficient use of Instructional Staff and other training resources
- Industry consistency

2.3 Development of Site-Specific Planner Training

If licensee determines that it is necessary to implement a site-specific planner training curriculum based on this report, it is important to remember that resources needed to develop and maintain this training should be provided from both the planning and training organizations. The level of effort needed will vary greatly depending on completeness of the existing planner training, if one exists.

In general, planning department personnel are the subject matter experts to define training needs, develop training content, and determine training delivery method. They also select mentors. Selecting and assigning the appropriate mentors establishes a good foundation for implementing the planner training program. One consideration should be assigning mentors by specialty (or topic) to promote consistent standards.

Training personnel provide the expertise needed for proper training content structure, format, delivery assistance and records management.

Once the work planner training program is established, it is expected that the program can be administered and maintained under normal circumstances with only part-time resources from both organizations. A needs analysis according to site-specific processes will be necessary to determine personnel responsibilities.

Key Human Performance Point

Selecting and assigning the appropriate mentors establishes a good foundation for implementing the planner training program. One consideration should be assigning mentors by specialty (or topic) to promote consistent standards.

3
INSTRUCTOR LESSON PLAN: MODULES AND OBJECTIVES

3.1 Course Content Overview

Table 3-1 illustrates the general structure and content of the training course.

Table 3-1
Course structure and content

Day One (Full Day)			
Module Number	**Subject Matter**	**Number of Slides**	**Approximate Duration**
1	Introduction to the Training	13	50 minutes
2	Overview of Regulatory and Industry Requirements	32	2 hours 8 minutes
3	Skills and Performance Attributes for Key Personnel	12	48 minutes
4	Category of Maintenance and Use of Work Packages	39	2 hours 36 minutes
Day Two (Partial Day)			
5	Recommended Content and Format of Work Instructions	29	1 hour 56 minutes
6	Recommended Methodology for Developing a Work Package	19	1 hour 16 minutes
7	Performance Measures to Assess Work Package Technical Detail	15	1 hour

The PowerPoint modules contain detailed instructor notes. The source of the instructor notes is noted for additional understanding if needed.

3.2 Course Terminal Objective

Through this course, the trainee will gain a comprehensive understanding of industry best practices and human performance information related to the preparation of work packages in support of various work activities common at a nuclear power plant as found in the EPRI report *Nuclear Maintenance Applications Center: Maintenance Work Package Planning Guidance* (3002007020). Trainees will learn to apply the guidance into their daily plant-specific work process as a planner to support the efficient execution of work.

3.3 Module 1: Course Introduction

This presentation material is to introduce the trainee to the course content and structure. It will address the history of the training and explain the relevance of the training to their job as planners and to the success of their plant. It will familiarize trainees with:

- Course prerequisites and glossary of terms for trainees (Appendix B)
- Process used to develop and implement the training
- Performance measures
- Purpose and scope of the training
- Training format
- Background and operating experience
- Terminal objective

Refer to Section 1 of this report for an understanding of the purpose and scope of the training and background information on the development of this report.

There are six learning objectives achieved through multiple enabling objectives described in each module. At the completion of the training, the trainees will be able to:

- LO 1 – State and discuss regulatory and industry requirements (Module 2)
- LO 2 – State and discuss the relationship between the planner and implementers and how it is impacted by skill of the craft (Module 3)
- LO 3 – State and discuss the graded approach to planning and the relationship between category of maintenance and use of work packages (Module 4)
- LO 4 – Discuss the attributes of a work instruction (Module 5)
- LO 5 – State and discuss recommended work package review guidelines (Module 6)
- LO 6 – State and discuss performance measures to assess sufficient work package technical detail (Module 7)

There are no learning objectives for the course introduction.

3.4 Module 2: Overview of Regulatory and Industry Requirements

The presentation material for this module will provide the trainees with an understanding of the regulatory and industry requirements upon which the EPRI guidance and work planning processes are based.

Planning implements, maintains, or impacts several regulatory requirements. Specifically, it is important that the planner understand their role in federal laws and regulatory guidance.

When planners are writing instructions, they must have a good questioning attitude and understanding of applicability. Planners need to understand when a task comes under 10 CFR 50.65 Maintenance Rule and when it comes under 50.59 Changes, Tests, and Experiments, which requires a safety evaluation. Understanding of these rules and when they apply ensures the right process is followed.

Key Information Point

When planners are writing instructions, they must have a good questioning attitude and understanding of applicability. They need to understand when a task comes under 10 CFR 50.65 Maintenance Rule and when it comes under 50.59 Changes, Tests, and Experiments, which requires a safety evaluation. Understanding of these rules and when they apply is important so the right process is followed.

In addition, the Institute of Nuclear Operations (INPO) has guidance that impacts planning of work orders. These are not regulatory guides but guidance that examines the technical accuracy of the work orders and how it impacts station performance.

The specific laws, regulatory guidance, and industry guidance are outlined in the enabling objectives.

3.4.1 Module 2 Objectives

Learning Objective 1 – Upon completion of this module of training, the student is able to state and discuss regulatory and industry requirements upon which the EPRI guidance and the work planning process are based.

Enabling Objective 1-1 – Regulatory requirements:

- 10 CFR 50, Appendix B, *Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants*
  - Including ASME NQA-1 Part 2 Section 401 and 402
- Maintenance Rule, 10 CFR 50.65, *Requirements for monitoring the effectiveness of maintenance at nuclear power plants*
- Program on Technology Innovation: *10 CFR 50.69 Implementation Guidance for Treatment of Structures, Systems, and Components*

Enabling Objective 1-2 – Applicable regulatory guidance documents

- Regulatory Guide 1.33, *Quality Assurance Program Requirements (Operational)*
- Regulatory Guide 1.160*, Monitoring the Effectiveness of Maintenance at Nuclear Power Plants*

Enabling Objective 1-3 – INPO Guidance

- INPO 11-003, *Guideline for Excellence in Procedure and Work Instruction Use and Adherence*
- INPO 12-013, *Performance Objectives and Criteria*

Enabling Objective 1-4 – NEI Guidance Documents

- NEI 96-07, *User's Guide for NEI 96-07 Revision 1, Guidelines for 10 CFR 50.59 Implementation*
- NUMARC 93-01*, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants*
- *NEI Efficiency Bulletin 16-01, Eliminate Administrative Changes to Preventive Maintenance Work Orders*
- *NEI Efficiency Bulletin 16-15a, Work Screening Process*
- *NEI Efficiency Bulletin 16-15b, Utilizing Minor Maintenance*
- *NEI Efficiency Bulletin 16-15c, FIN Team Efficiency*
- *NEI Efficiency Bulletin 16-16, High-Cost, Noncritical Preventive Maintenance Reduction*

3.4.2 Module 2 Learning Activities and Resources

The learning activities and associated resources for this module are summarized in Table 3-2.

Table 3-2
Module 2 learning activities and associated resources

Learning Activities	Resources
Attend lecture	Classroom Presentation material
Discussion, questions and answers	None
Performance measurement	Comprehensive Knowledge Examination

3.4.3 Module 2 Key Learning Points Summary

- Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances (10 CFR 50, Appendix B, Criterion V).
- 10 CFR 50.65 – Maintenance Rule - Expanded the scope of "safety-related" to encompass nonsafety-related SSCs.

- Maintenance activities are activities that restore SSCs to their as-designed condition, including activities that implement approved design changes. Maintenance activities are not subject to 10 CFR 50.59 (unless the activity permanently alters the design bases, operation or control of an SSC, or a plant parameter), but are subject to the provisions of 10 CFR 50.65 as well as technical specifications.
- NEI Efficiency Bulletins are designed to improve effectiveness and efficiency of resources and processes through the elimination of administrative changes, proper work classification and prioritization process, utilizing minor maintenance, effective use of FIN teams, and high-cost, noncritical PM reduction.

3.5 Module 3: Skills and Performance Attributes for Key Personnel

The presentation material for this module describes the basic relationship between the planner and implementers. It prompts a questioning attitude regarding misconceptions and assumptions when writing instructions, provides an understanding of how to use skill of the craft in the performance of a job, and describes fix-it-now teams.

3.5.1 Module 3 Objectives

Learning Objective 2 – Upon completion of this module of training, the trainee is able to state and discuss the relationship between the planner and implementers and how it is impacted by skill of the craft.

Enabling Objective 2-1 – State the typical functions of planners, including a typical work planner position summary, experience, and skills.

Enabling Objective 2-2 – Describe the basic relationship between the planner and implementers, taking into consideration the degree to which the planner can rely on the skill of the craft and various alignments of planners with organizational structure.

Enabling Objective 2-3 – Describe fix-it-now (FIN) teams.

3.5.2 Module 3 Learning Activities and Resources

The learning activities and associated resources for this module are summarized in Table 3-3.

Table 3-3
Module 3 learning activities and associated resources

Learning Activities	Resources
Attend lecture	Classroom Presentation material
Discussion, questions and answers	None
Performance measurement	Comprehensive Knowledge Examination

3.5.3 Module 3 Key Learning Points Summary

- In addition to developing, maintaining, and completing work packages, work planners also interface with various departments on the development of design changes, perform impact reviews, participate in plant system teams, and perform initial risk assessment associated with work package scope of work.
- There are typical competencies for a work planner and senior work planner/advisor, but specific expertise and experience are determined by each station.
- The more/less reliance the Planner places on the skill of the craft, the more/less detail the Planner needs to communicate to the craft in the work package.
- Skill of the craft is determined by the training program and what determines a "qualified" individual.
- The FIN team protects the schedule and works within the graded approach to maintenance.

3.6 Module 4: Category of Maintenance and Use of Work Packages

The presentation material for this module addresses key elements in determining the level of work instruction (graded approach to planning) and the relationship between the maintenance category and the use of work packages.

3.6.1 Module 4 Objectives

Learning Objective 3: Upon completion of this module of training, the trainee is able to incorporate the EPRI guidance related to the graded approach to planning and the relationship between category of maintenance and the use of work packages into their daily plant-specific work process.

Enabling Objective 3-1: State and discuss the graded approach to planning, including the following:

- Level 1 – Detailed work package
- Level 2 – Simple work package (procedure-based)
- Level 3 – Minor maintenance (no work instructions required)
- Tool pouch maintenance

Enabling Objective 3-2: Describe the relationship between the category of maintenance and the use of work packages, to include the following types of activities that may require a work package:

- Deficient maintenance
- Preventive maintenance
- Corrective maintenance
- Design modification

- Equipment surveillance
- Post-maintenance testing
- Infrequently performed test (IPT) or evolution (IPTE)

3.6.2 Module 4 Learning Activities and Resources

The learning activities and associated resources for this module are summarized in Table 3-4.

Table 3-4
Module 4 learning activities and associated resources

Learning Activities	Resources
Attend lecture	Classroom Presentation material
Discussion, questions and answers	Examples from EPRI report 3002007020 (See Section 3.6.4)
Performance measurement	Comprehensive Knowledge Examination

3.6.3 Module 4 Key Learning Points Summary

- A detailed work package would be most appropriate for non-routine tasks that are fairly complex and performed infrequently (for example, hydrostatic tests).
- A simple work package could be appropriate for non-routine tasks that are fairly complex and performed frequently when detailed instructions are already available in existing maintenance instructions or procedures (for example, quarterly surveillance).
- Minor maintenance requires little or no work instructions and would typically be required for routine tasks that are fairly simple and performed frequently.
- Tool Pouch work requires no work instructions and no retention of records.
- Deficient maintenance is any work on plant component that has a potential or actual deficiency that does not threaten the component's design function or performance criteria.
- Corrective maintenance is restoration of equipment or components affecting nuclear or personnel safety or plant reliability that have failed, degraded, or do not conform to their original design, configuration, or performance.
- Preventive maintenance includes actions that detect, preclude, or mitigate degradation of functional structures, systems and components. There are three types of preventive maintenance: periodic, predictive, and planned.
- Periodic maintenance is time-based preventive maintenance but may also be initiated because of the results of predictive maintenance, vendor recommendation, or experience.
- Predictive maintenance consists of "condition-based" preventive maintenance actions taken to maintain a piece of equipment within design operating conditions and to maximize its life. Predictive maintenance involves diagnostic/analysis, inspection, and/or testing to assess the condition of an SSC.

- Design modification is a change to those bounded technical requirements that ensure performance of design basis functions or compliance with the plant licensing basis. When a design modification is required, a Level 1 work package is typically warranted.
- Systematic Equipment Troubleshooting activities are coordinated with other station activities and comply with risk evaluation of impaired system(s) in accordance with systems matrix and PRA analysis.
- Sometimes a work package is needed to conduct equipment surveillances. In most cases, the work planner will have discipline-specific maintenance and surveillance procedures that define equipment surveillance activities.
- PMT should be included in all work packages that require a return to service validation. When a PMT needs to be prepared, the planner should select the appropriate test scope from a PMT matrix. If a test is not available, the planner should contact the appropriate organization to determine the most appropriate test.
- Infrequently performed tests or evolutions may or may not be specifically covered by existing normal or abnormal operating procedures and, if covered by existing procedures, are seldom performed. This also includes special, infrequently performed surveillance testing involving complicated sequencing or placing the plant in unusual configurations and evolutions that require use of special test procedures in conjunction with existing procedures.

3.6.4 Module 4 Workshops, In-Class Exercises, and Examples

This module includes several example documents based on the examples provided in *Nuclear Maintenance Applications Center: Maintenance Work Package Planning Guidance* (3002007020). When teaching this module, the instructor should have *Maintenance Work Package Planning Guidance* (3002007020) open in order to show the trainees the generic examples listed from the guide.

- Work Instruction Example – Level 1 Mechanical (*Maintenance Work Package Planning Guidance,* Appendix A.5)
- Work Instruction Example – Level 1 Electrical (*Maintenance Work Package Planning Guidance,* Appendix A.6)
- Minor Maintenance Form Example (*Maintenance Work Package Planning Guidance,* Appendix A.4)
- Minor Maintenance and Tool Pouch Floor Chart Example (*Maintenance Work Package Planning Guidance,* Appendix A.3)

In addition, the instructor may opt to include licensee-specific examples.

3.7 Module 5: Recommended Content and Format of Work Instructions

The presentation material for this module addresses key elements of work package development of content and format, human performance error likely situations and prevention techniques.

3.7.1 Module 5 Enabling Objectives

Learning Objective 4: Upon completion of this module of training, the trainee is able to discuss the attributes of a work instruction.

Enabling Objective 4-1: Describe the structure, content, and format for work instructions and how to develop them by consideration of human performance issues and error-prevention techniques, including the following:

- Attributes for ensuring effectiveness
- Section content
- Consideration of human performance issues and error prevention techniques
- Establishing level of detail

3.7.2 Module 5 Learning Activities and Resources

The learning activities and associated resources for this module are summarized in Table 3-5.

Table 3-5
Module 5 learning activities and associated resources

Learning Activities	Resources
Attend lecture	Classroom Presentation material
Discussion, questions and answers	Examples from EPRI report 3002007020 (See Section 3.7.4)
Performance measurement	Comprehensive Knowledge Examination

3.7.3 Module 5 Key Learning Points Summary

- Planner should perform the following to ensure effectiveness of the work order:
  - Perform work order task analysis.
  - Incorporate needed controls or safeguards.
  - Develop work package content consistent with skill of the craft and site instructions/ procedures.
  - Include OE and FME as required.
  - Ensure work packages are reviewed and verified for technical accuracy and consistency with the writer's guide, as applicable.
  - Use a planner checklist, as applicable.
- Precautions, limitations, notes, cautions, and warnings do not direct or imply action.
- Task/Discipline work instructions are written in the sequence performed with one action per step.

- Human performance techniques should be used by planners while developing a work package.
- Level of detail considers all of the following:
  - Complexity of task
  - Frequency of task performance
  - Consistency
  - Risk and consequence of error
  - Qualifications (Skill of the craft)

3.7.4 Module 5 Workshops, In-Class Exercises, and Examples

This module includes operating experience and several example documents based on the examples provided in *Nuclear Maintenance Applications Center: Maintenance Work Package Planning Guidance* (3002007020). When teaching this module, the instructor should have *Maintenance Work Package Planning Guidance* (3002007020) open in order to show the trainees the generic examples listed from the guide.

- Include Operating Experience (ICES) (Review INPO ICES pages)
- Planning Walkdown Guide and Checklist (*Maintenance Work Package Planning Guidance,* 5.1)
- Work Instruction Example – Level 1 Mechanical or Electrical (*Maintenance Work Package Planning Guidance* Appendix A.5 or A.6) to use as an example to review specific content and structure as the sections or notes, cautions, and warnings are discussed.

In addition, the instructor may opt to include licensee-specific examples.

3.8 Module 6: Recommended Methodology for Developing a Work Package

The presentation material for this module reviews the process and key elements of developing the work package.

3.8.1 Module 6 Enabling Objectives

Learning Objective 5 – Upon completion of this module of training, the trainee will be able to describe the processes for developing a work package.

Enabling Objective 5-1 – Describe the following attributes of developing a work package:

- Performing initial review of the work request
- Performing initial review of the work order
- Performing walkdowns of the work order
- Pre-planning activities and developing work order tasks
- Developing the work instructions

- Identifying of necessary parts
- Communicating Miscellaneous Attributes of Task Planning
- Ensuring Work Package Technical Reviews
- Administering the work order approval process

3.8.2 Module 6 Learning Activities and Resources

The learning activities and associated resources for this module are summarized in Table 3-6.

Table 3-6
Module 6 learning activities and associated resources

Learning Activities	Resources
Attend lecture	Classroom Presentation material
Discussion, questions and answers	Examples (See Section 3.8.4)
Performance measurement	Comprehensive Knowledge Examination

3.8.3 Module 6 Key Learning Points Summary

- Typically, the maintenance team, such as FIN, provides the work planner with the initial validation of the work order request.
- The work planner performs an initial review of the work order, which includes validating and updating the work order description and performing a walkdown.
- A walkdown may consist of:
  - Noting precautions/prerequisites (for example: energy releases, safety concerns, environmental hazards)
  - Permits
  - Verification of component or EQID model part numbers
  - Access to equipment (for example scaffolding, ladders)
  - Photographs/digital images
- The planner should determine the availability and applicability of existing work instructions before developing new ones.
  - If they exist, determine if the existing procedures or work instructions can be used in their entirety or partially.
  - If they do not exist or they are only partially available, then the work instruction will be developed using the graded approach to planning.

- Along with identifying necessary parts within the work package, include miscellaneous actions that support the personnel implementing the work in the work package.
- The planner develops the appropriate routing list/review request and submits the task for approval.
- Maintenance work instructions are written for maintenance activities that do not change the design of the plant and are not subject to 10 CFR 50.59. As such, a technical review is appropriate, in lieu of the review process described in the regulation.

3.8.4 Module 6 Workshops, In-Class Exercises, and Examples

This module includes operating experience and several example documents based on the examples provided in *Nuclear Maintenance Applications Center: Maintenance Work Package Planning Guidance* (3002007020). When teaching this module, the instructor should have *Maintenance Work Package Planning Guidance* (3002007020) open in order to show the trainees the generic examples listed from the guide.

- Example of Planner Walkdown Checklist (Appendix A.1)
- Planner Walkdown Process Example (Appendix A.7)
- Monitoring Work Package Quality – Example Generic PQRT Work Package Grading or Scoring Form (Appendix A.8)

In addition, the instructor may opt to include licensee-specific examples.

3.9 Module 7: Performance Measures to Assess Work Package Technical Detail

The presentation material for this module is to familiarize the trainee with performance metrics that prevent rework and measuring the technical accuracy of work packages.

3.9.1 Module 7 Enabling Objectives

Learning Objective 6: Upon completion of this module of training, the trainee is able to discuss performance measures for work package detail and how they are used.

Enabling Objective 6-1: Describe how to measure work package technical detail, including:

- Planning process indicators (package returns)
- Periodic assessment of work package effectiveness
- Post-job feedback of work package effectiveness

Enabling Objective 6-2: Describe how to measure work package technical detail, including:

- Direct maintenance feedback

Objective 6-3: Describe how performance measures are used to improve work package effectiveness.

3.9.2 Module 7 Learning Activities and Resources

The learning activities and associated resources for this module are summarized in Table 3-7.

Table 3-7
Module 7 learning activities and associated resources

Learning Activities	Resources
Attend lecture	Classroom Presentation material
Discussion, questions and answers	None
Performance measurement	Comprehensive Knowledge Examination

3.9.3 Module 7 Key Learning Points Summary

- Work planning performance is composed of two key attributes:
  - Work package technical detail
  - Work package process performance
- Work package technical detail – A measure of accuracy, content, and level of detail contained in a work package.
- Plants should assess work package detail throughout the planning process.
- A periodic assessment of work planning process and products should be performed to track and trend the percentage of work packages not meeting expectations.
- It is recommended that a minimum criterion be used to review against an existing standard for work package technical detail.
- Work package content, accuracy, and level of detail can be monitored and adjusted by analyzing the feedback from any combination of the four feedback processes.

3.9.4 Module 7 Workshops, In-Class Exercises, and Examples

The instructor may opt to include licensee-specific examples.

4
PLANNER TRAINING DETAILS

4.1 Selection of Planning Personnel

Candidates who enter any training program must meet some minimum levels of experience and education.

4.1.1 Minimum Entry Level Requirements

Minimum entry requirements for the selection of planning personnel should be in accordance with site-specific requirements as documented in station processes. For industry guidance, refer to EPRI's *Nuclear Maintenance Applications Center: Maintenance Work Package Planning Guidance* (3002007020).

4.1.2 Candidate Evaluations

Candidate evaluations should be in accordance with and set by site-specific requirements as documented in station processes.

If exemptions are warranted based on outcome of the experience and training history review, they should be processed in accordance with site-specific procedures and appropriate training records.

4.2 Planner Training Program Overview

The Planner Training Program is a planned sequence of instruction designed to provide planning personnel with the requisite knowledge and skills necessary to prepare work packages and related work control documents. The program consists of the following five elements, which are illustrated in Figure 4-1:

- Orientation training
- Position-specific training
- Position-specific proficiency guides
- Planner technical training
- Continuing training

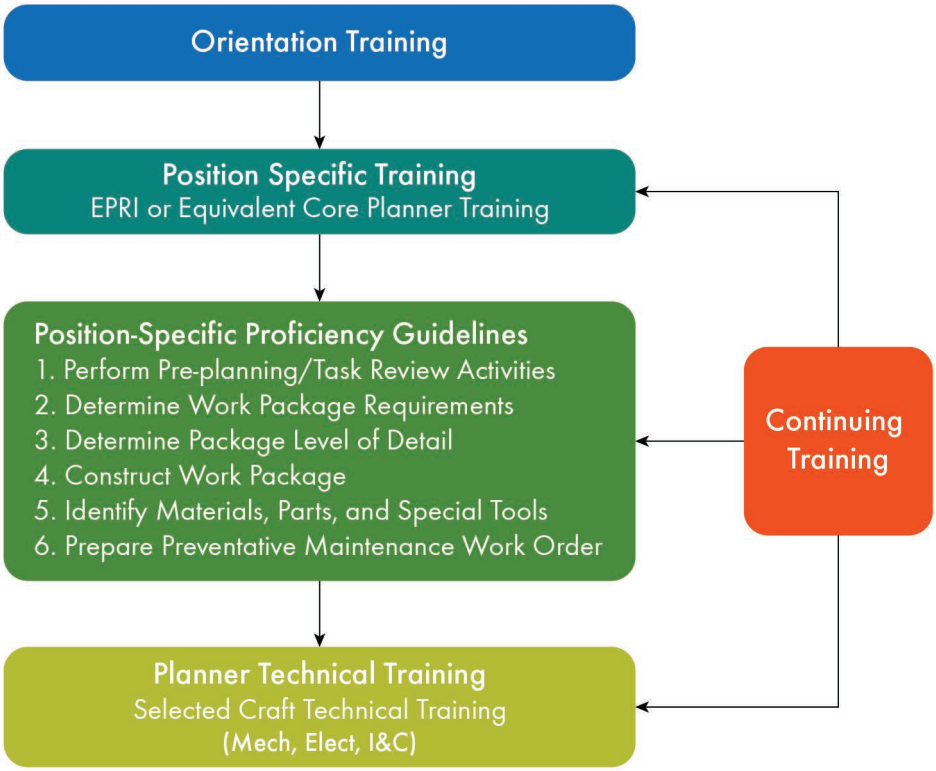

Figure 4-1
Initial Training Program Overview

4.2.1 Orientation Training

Orientation training may be provided in several forms. It is designed to give individuals the basic knowledge required to allow them to work safely and within regulatory and department expectations. General Employee Training typically includes topics such as:

- Obtaining routine access to the plant facilities
- Understanding the basic site health and safety requirements
- Understanding basic principles followed at a nuclear power plant
- Communicating effectively and interfacing with other departments within the organization
- Conducting activities according to applicable regulations and plant policies and procedures
- Orientation training should typically be completed within six months of initial entry into program. Newly hired work planners are introduced to the plant and department processes and procedures. Most of this training is accomplished with required reading assignments and by short (one- or two-day) temporary assignments to other departments.

4.2.2 Position-Specific Training

Position-specific training teaches the contents of *Nuclear Maintenance Applications Center: Maintenance Work Package Planning Guidance* (3002007020). This course reinforces the fundamentals of planning packages and provides insight into industry standards that drive

excellence. The reason for this standardized EPRI-based course is to provide a common building block for work planning throughout the industry to improve planning consistency and performance. Appendix D of this report provides examples of EPRI and utility processes related to or supporting the training of work planners.

4.2.3 Position-Specific Proficiency Guides

Position-specific proficiency guides typically consist of mentored activities, in which specific planner tasks are trained and evaluated by a proficient mentor. Completion of all non-specialized position-specific proficiency guides is required before a planner can perform planning functions independently. Prior to completion, the planner can perform planning activities with concurrence of the Department Supervisor/Lead, and under the guidance of a mentor.

All documents generated by a planner prior to completion of the position-specific proficiency guides should be reviewed for completeness and accuracy by a fully proficient individual or mentor.

Position-specific proficiency guides consist of mentored activities. A mentor demonstrates proper performance of the task and then observes the trainee performing the task. Once the mentor is satisfied that the trainee has mastered the task, the position-specific proficiency is signed. The trainee is now "Task Proficient." Proficiency guides are used to document a trainee's progress through the training process for planners and mentors. A proficiency guide exists for all required and specialized planner tasks. They typically consist of the following:

- Task title and number
- Required prerequisite (Must be completed prior to entering the proficiency process for the task.)
- Required reading assignments (Must be completed prior to entering the proficiency process for the task.)
- Required training (Classroom training that must be completed prior to entering the proficiency process for the task.)
- Standards of performance (A list of activities which must be demonstrated and observed by the assigned Mentor. These skill and knowledge items were compiled during the task analysis of the activity.)

All steps listed on the proficiency guides should be completed and witnessed by the mentor. The mentor's signature signifies that all the steps have been completed successfully. Completion of a single position-specific proficiency guideline constitutes that the candidate has mastered that specific task. However, the candidate must complete all position-specific proficiency guidelines before being able to work independently.

To become "Fully Proficient," the following task proficiencies should typically be completed:

- Perform pre-planning/task review activities
- Determine work package requirements
- Determine work package level of detail

- Construct work package
- Identify materials, parts and special tools
- Prepare preventive maintenance work order
- Specialized position-specific task proficiency

Prior to performing any planning department specialized planning tasks, all individuals should complete the required position-specific proficiency guidelines and all associated classroom training and prerequisites prior to independent performance, or perform specialized tasks only under the cognizant control of a planning department individual.

The Planning Supervisor or responsible person will determine the required number of individuals obtaining and maintaining proficiencies on a specialized task.

Specific requirements for specialized task proficiencies are found on the Specialized Task Position-Specific Proficiency Guide:

- B.12 – 07, Specialized Task Position-Specific Proficiency Guide, Perform Mentor Activities
- B.13 – 08, Specialized Task Position-Specific Proficiency Guide, Prepare Modification Work Order

4.2.4 Planner Technical Training

Planner technical knowledge should be evaluated on a case-by-case basis. Each planner should have a general understanding of the fundamental concepts and knowledge of the typical types of equipment maintained by the maintenance discipline for which they plan packages. Planners at some sites are responsible for developing detailed equipment work instructions and provide technical field support during maintenance activities. Planners need technical training commensurate with their technical responsibilities, and these responsibilities must be included in the planner position training task list.

Lesson plans should be selected from the technical training programs and assigned to a planner in order to fill any gaps in technical knowledge. These lesson plans can be completed by self-study of the material and a discussion with a planning mentor, attending the actual class, computer-based training, and so on.

Depending on the level of discipline-specific knowledge possessed by planners, management may decide to supplement the planner's knowledge of specific equipment and systems training by having them attend selected maintenance discipline-specific programs, as defined in:

- Human Performance and Technical Writing Training (for example, Procedure Professionals Association Work Planner Writing or equivalent)
- Craft Mechanical Maintenance Training Program
- Craft Electrical Maintenance Training Program
- Instrument and Control Maintenance Training Program
- Engineering Support Personnel Training Program

4.2.5 Planner Continuing Training

Planner continuing training in the nuclear industry is typically a combination of generic training for the entire planning population and group-specific training that is targeted for the groups as a whole or individuals. Multiple training methods and settings can be used for either generic or discipline-specific continuing training. Training methods may vary from informal seminars presented within work groups to complex hands-on laboratory exercises. Similarly, training settings may vary from formal classroom to Just-In-Time (JIT) field training. In addition, vendor training may be provided, as appropriate, to specific groups or individuals, and just-in-time training may be provided to individuals or groups before important activities such as refueling outages.

The continuing training process could generally use the systematic approach to training (SAT) process to identify and provide training necessary for continuous improvement of planners' skills and knowledge. The SAT process is typically administered via planning department personnel using guidance from training department instructions.

Continuing training should be based on performance improvement rather than a specific number of training hours. Continuing training topics for performance improvement can be derived from one or more of several potential feedback mechanisms available throughout the work order execution process. Some of these opportunities for feedback include:

Prior to Work Order Execution:

- Peer reviews of work packages under development
- Pre-execution T-week walkdowns (craft feedback)
- Planning review process

During Work Order Execution:

- In-progress work order comments/changes

After Work Order Execution:

- Work week critiques
- Post-modification critiques
- Completed work order verbal, manual and/or electronic work order feedback tools
- Maintenance rework due to work planning errors

Non-execution Dependent:

- Corrective Action Program (CAP)
- Internal and industry operating experience (OE)
- Self-assessments and peer assessments
- Planning observation program

Continuing training in technical and administrative topics maintains and improves planning personnel job performance and aids in development of a broader scope and depth of position-specific knowledge and skills. Continuing training keeps planning personnel current with respect to plant modifications, procedure changes, operating experience, and technical advances associated with their job functions. Continuing training consists of generic topics and group-specific training. A graded approach of the SAT process should be used for planner continuing training.

Attendance in maintenance craft continuing training may enhance a planner's knowledge of plant equipment and systems and improve work package format and content. However, maintenance craft continuing training alone does not constitute planner continuing training. Planner continuing training should be driven from work package reviews and feedback related to the planner function.

Key Human Performance Point

Planner continuing training topics should be derived from an analysis of planning department improvement opportunities and changes to planning standards. Planner continuous training should NOT consist of maintenance craft continuing training alone.

4.2.5.1 General Topics for Continuing Training

Generic topics of training that have broad application may include the following:

- Changes in organizations or procedures that affect planning processes (planning standards)
- Changes in regulatory requirements or oversight process
- Planning performance indicators
- Changes/enhancements to planning software applications
- Training identified by program evaluation feedback
- Human performance and error-reduction topics that apply to the planning organization as a whole

4.2.5.2 Group-Specific Topics for Continuing Training

Group-specific topics should be addressed during training that supports the maintenance or enhancement of knowledge and skills directly related to individuals or discipline-specific planning groups. It may be administered to individuals or small groups, depending on individual responsibilities and training needs. Disciplines have specific planning needs due to the differences in maintenance philosophy, types of equipment, and individual experience levels within the maintenance discipline which they support:

- Training identified by program evaluation feedback
- Deficiencies in craft-specific knowledge and skills
- Advanced technical training courses

- Human performance and error-reduction topics that apply to specific groups
- Just-in-time training administered due to procedural changes in a specific group that will affect planning activities for that group

4.2.5.3 Topic Selection

Topic selection is based on revisions to the planner proficiency requirements resulting from task analysis review.

Topics are chosen based on plant-specific and industry events applicable to the current needs of the group. Sources for operating experience may include but are not limited to:

- Corrective Actions Program
- Planner performance metrics
- Industry events
- INPO Event Reports (IERs)
- NRC events and notices
- Other, such as position-specific proficiency training feedback

Some continuing training classes are determined to be required per site procedures. Supervisors/ Leads are responsible for identifying required training and ensuring that their employees attend the required training. If a planner is unable to attend the required training, the supervisor/lead is responsible for arranging makeup training or disqualifying the individual.

Supervisors are responsible for providing a list to their training coordinators of personnel who must attend required training.

4.2.5.4 Proficiency Requirements

Upon final completion of all required prerequisites, position-specific training and position-specific proficiency guidelines for the position of Planner, the individual will be considered "Fully Proficient."

4.3 Administration of the Training and Proficiency Process

Proper administration of training materials and the proficiency process is necessary in order to maintain the quality and integrity of the training curriculum. This section provides guidance and details to administer training material requests, development, implementation and effectiveness. Guidance is also provided for administration of continuing training relative to maintaining planner proficiency.

4.3.1 Requesting Training

Training is typically requested using a training request/approval form, as shown in Appendix C.14 or similar document. The requestor fills out Part 1 of the training request/approval form and typically routes it to the responsible person.

Value added to planner's knowledge and skills:

- Cost of the training versus value added
- Resources required to develop and deliver training
- Existing training that could be used
- Other solutions available to address deficiencies

The Planning Department Manager or Supervisor will respond to the initiator or group with the status of the request and a basis.

4.3.2 Developing Training Materials

New training and continuing training topics should be reviewed by the Planning Supervisor. A method regarding new materials is listed below:

- Nuclear Training Department conducting task analysis, if required
- Assigning a unique number, type and mode of training
- Working with the assigned SME to develop the new material
- Completing a "Training Material Request/Approval" form, and attaching the new/revised material for review
- Scheduling training/mentoring on new tasks prior to adding them to the program description (to prevent revoking the "Fully Proficient" status from planners) or process exemptions as appropriate
- Ensuring that new proficiencies are added to the training program description
- Updating the proficiency matrix and all related attachments for new tasks
- Ensuring approved training materials are properly retained and are easily retrievable
- Reviewing the material, signing the appropriate form, and attaching the new material for review by the Planning Supervisor/Lead

A method regarding revised materials is listed below:

- Working with the subject matter expert, if one is assigned, to revise materials as required
- Adding newly identified skills and knowledge items to the position-specific proficiency guidelines, as appropriate
- Scheduling training on the revised material
- Updating existing position-specific proficiency guidelines to indicate training has been completed
- Reviewing the material, signing approval, and attaching a copy of the revised material for review by the Planning Supervisor/Lead

4.3.3 Implementing Training

All training material should be approved using site-specific procedures and forms.

Classroom training, briefings, and Just-In-Time (JIT) training can typically be delivered by any assigned subject matter expert. Training attendance should be recorded on a training attendance record. A copy of the attendance record should be retained in each attendee's training file. Task proficiency, using the position-specific proficiency guidelines, should be conducted by mentors.

The trainee is responsible for:

- Maintaining the position-specific proficiency guideline throughout the mentoring process
- Presenting the position-specific proficiency guideline to the assigned mentor as activities are completed
- Obtaining the appropriate section of the Planning Standard for use during mentoring sessions

Mentors are typically responsible for:

- Demonstrating proper performance of each activity listed in the Performance Requirements section of the position-specific proficiency guideline
- Observing the trainee performing each activity:
  - Each activity should be observed and repeated as many times as required for the trainee to become proficient.
  - The Planning Standard should be used to determine if the activity has been performed satisfactorily.
  - As each activity is performed satisfactorily, the mentor should initial and date the activity in the performance requirements section of the position-specific proficiency guideline.
  - When all activities have been initialed and dated, the mentor should sign and date the appropriate course number in the Required Training section of the position-specific proficiency guideline.

Once satisfied that all the proficiency criteria have been met, the training coordinator signs the position-specific proficiency guideline and signs the Training Coordinator Review section of the planner training record (proficiency card) if all activities are complete. The training coordinator then typically routes the position-specific proficiency guideline and proficiency card to the Planning Manager/Supervisor or a delegate for final approval.

The Planning Manager (or delegate) typically reviews and signs the position-specific proficiency guideline to grant proficiency, signs and dates the proficiency card, and returns the position-specific proficiency guideline and proficiency card to the training coordinator.

Once the approved position-specific proficiency guideline is returned to the trainee coordinator, they should typically perform the following:

- Retain the position-specific proficiency guideline in the trainee's training record.
- Send a copy of the completed Proficiency Card to the Nuclear Training Department for entry into the training records database.
- Update the Proficiency Matrix.

4.3.4 Evaluating Training Effectiveness

Planning feedback and undesirable plant events where the apparent cause or contributing cause is attributed to planning should be evaluated to determine if standards and planning training should be changed to prevent recurrence.

Key Cost Point

Implementing widespread planning standard changes to address individual isolated events may not be the most cost-effective means to reduce the potential for repeat events.

Training program effectiveness should be measured using the following criteria:

- Maintenance rework caused by deficient planning
- Trends identified by the corrective action program.
- Walkdown review feedback of prepared work packages prior to execution by the craft. Typically, the planning quality review team reviews a representative sample (5%–10%) of all work packages prepared and compares them against department standards.

If the Planning Supervisor determines that an individual's performance is below planning department standards, the planner's "Fully Proficient" status can be revoked. In most cases, a planner must be task-proficient on all tasks in order to perform planning activities independently; revoking of a single task will result in the loss of "Fully Proficient" status.

4.3.5 Revoking Task Proficiency

Revoking task proficiency status should be documented using a site-specific equivalent to the "Task Revocation Record" illustrated in Appendix C.4. Typically, the process is documented as follows:

- The Planning Supervisor initiates the Task Revocation Record.
- The Planning Supervisor and the training coordinator specify remediation actions that must be taken in order to reinstate task proficiency.
- The remediation plan is reviewed and signed by the individual, the training coordinator and the Planning Supervisor.
- The training coordinator updates the proficiency matrix and routes a copy to the Nuclear Training Department.

- "Activity Revocation Form" section of the form should be noted as "ALL." This eliminates the need to send several forms to the Nuclear Training Department in the case where a planner is determined not to be proficient in multiple tasks.
- The Nuclear Training Department updates the training records Database indicating the change in proficiency status.
- The Planning Supervisor may allow the planner to continue to perform planning activities but must provide a "Fully Proficient" individual to review the work of the individual whose proficiency was revoked.
- The Planning Supervisor may allow the planner to continue to perform specific or limited planning activities not related to the reason for revoking task proficiency but must provide a "Fully Proficient" individual to review the individual's work.

4.3.6 Task Proficiency Reinstatement

When a planner has completed all remediation activities, the Planning Supervisor should document proficiency on a site-specific equivalent to the "Task Proficiency Reinstatement Record" illustrated in Appendix C.5. Typically, the process is documented as follows:

- The Planning Supervisor and the training coordinator review and sign the form with the affected individual.
- The training coordinator or equivalent retains a copy of the form in the planner's training record.
- The training coordinator updates the proficiency matrix.
- If remediation has been completed for all tasks, the training coordinator routes a copy of the form to the Nuclear Training Department.
- "Activity Re-instate Proficiency On" should be noted as "ALL." This eliminates the need to send several reinstatement forms to the Nuclear Training Department in the case where a planner was not proficient on multiple tasks.
- The Nuclear Training Department updates the database indicating the change in proficiency status.

If the planner's proficiency was revoked on more than one task, all tasks must be remediated prior to regaining "Fully Proficient" status.

4.3.7 Continuing Training

An individual who is fully proficient (and subsequently does not complete required continuing training for that task during the scheduled quarter) should have a defined time to complete the training (recommend a 90-day grace period). If the training is not completed within the designated time frame, the individual should be disqualified from performing all planner tasks. The training coordinator should complete the Task Revocation Record or the individual. This form is then signed by the Planning Supervisor and then submitted to the Nuclear Training Department for processing.

When an individual's proficiency status is revoked, supporting comments and a remediation plan should be documented in accordance with site-specific procedures and the appropriate form. Loss of task proficiency will result in loss of "Fully Proficient" status since an individual must be proficient in all planner tasks to work independently.

Personnel who have had their proficiency status revoked may have their task proficiency reinstated by completing remediation in accordance with site-specific procedures and the appropriate training record. Reinstatement of proficiency should be documented using a Task Proficiency Reinstatement Record. This form is then typically submitted to the Nuclear Training Department for processing.

In cases where an individual's revoked proficiency status prevents them from working independently, the individual may continue to perform planning activities if approved by the Planning Supervisor and as long as all work performed by the affected individual is reviewed by a task-proficient mentor or a fully proficient planner. Revoking proficiency status due to delinquent continuing training is typically initiated in the same manner described in the previous section, with the following exception:

- The site-specific "Proficiency Revocation Form" should indicate "ALL" in the appropriate section of the form.
- Reason for revocation should be noted as "Continuing Training."

4.4 Training Records

The following is a list of typical training records that are used throughout the implementation of a typical training and submitted to and retained by the training coordinator. Many of these records have been discussed in the previous sections of this report. Examples of these records are provided in Appendix C of this report, although the format and structure of each document will vary among licensees:

- Appendix C.1 – Planner Training Proficiency Record
- Appendix C.2 – Planner Required Reading List
- Appendix C.3 – Training Exemption Record
- Appendix C.4 – Task Proficiency Revocation Record
- Appendix C.5 – Task Proficiency Reinstatement Record
- Appendix C.6 – Position-Specific Proficiency Guide (PSPG), Perform Pre-Planning/Task Review Activities
- Appendix C.7 – Position-Specific Proficiency Guide (PSPG), Determine Work Package Requirements
- Appendix C.8 – Position-Specific Proficiency Guide (PSPG), Determine Package Level of Detail
- Appendix C.9 – Position-Specific Proficiency Guide (PSPG), Construct Work Package
- Appendix C.10 – Position-Specific Proficiency Guide (PSPG), Identify Materials, Parts and Special Tools

- Appendix C.11 – Position-Specific Proficiency Guide (PSPG), Prepare Preventive Maintenance Work Order
- Appendix C.12 – Specialized Task Position-Specific Proficiency Guide (PSPG), Perform Mentor Activities
- Appendix C.13 – Specialized Task Position-Specific Proficiency Guide (PSPG), Prepare Modification Work Order
- Appendix C.14 – Training Material Request/Approval Form

5
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A
LISTING OF KEY INFORMATION

A.1 Key Cost Points

Key Cost Point

Emphasizes information that will result in reduced purchase, operating, or maintenance costs.

Page Number	Key Point
4-10	Implementing widespread planning standard changes to address individual isolated events may not be the most cost-effective means to reduce the potential for repeat events.

A.2 Key Human Performance Points

Key Human Performance Point

Denotes information that requires personnel action or consideration in order to prevent injury or damage or to ease completion of the task.

Page Number	Key Point
2-2	Selecting and assigning the appropriate mentors establishes a good foundation for implementing the planner training program. One consideration should be assigning mentors by specialty (or topic) to promote consistent standards.
4-6	Planner continuing training topics should be derived from an analysis of planning department improvement opportunities and changes to planning standards. Planner continuous training should NOT consist of maintenance craft continuing training alone.

A.3 Key Information Points

Key Information Point

Denotes information of special importance.

Page Number	Key Point
3-3	When planners are writing instructions, they must have a good questioning attitude and understanding of applicability. They need to understand when a task comes under 10 CFR 50.65 Maintenance Rule and when it comes under 50.59 Changes, Tests, and Experiments, which requires a safety evaluation. Understanding of these rules and when they apply is important so the right process is followed.

B
STUDENT RESOURCES

B.1 Definitions

concurrent verification (CV) –A series of actions by two individuals working together at the same time and place to separately confirm the condition of a component before, during, and after an action, when the consequences of an incorrect action would lead to immediate and irreversible harm to the plant or personnel. (Ref. INPO AP-931)

corrective maintenance – The classification of any work on powerblock systems, structures, or components (SSCs) where the SSC has failed or is significantly degraded to the point that failure is imminent (within its operating cycle/PM interval) and it no longer conforms to or is incapable of performing the SSC's design function. (Ref. INPO AP-928)

deficient maintenance – The classification of any work on powerblock equipment in which identified potential or actual degradation is minor and does not threaten the component's design function or performance criteria. (Ref. INPO AP-928)

flagging – A distinct form of marking that is used to identify components to be worked or manipulated in order to ensure that workers do not work on or manipulate other components that are similar in location or appearance.

graded approach to planning – Provides a methodology for planning to allocate resources for higher risk tasks to ensure the appropriate level of effort and rigor is available to prepare work packages with a sufficient level of detail, thus improving the execution of work tasks without increasing planner resources.

independent – Performance of an activity with no direct oversight.

modification planner (also called *Projects Planner*) – A planner whose major focus is the development of work packages that implement medium to large design changes.

periodic maintenance – "Time-based" preventive maintenance actions taken to maintain a piece of equipment within design operating conditions and to extend its life. (Ref. INPO AP-928)

predictive maintenance (PdM) – "Condition-based" preventive maintenance actions taken to maintain a piece of equipment within design operating conditions and to extend its life. Predictive maintenance involves troubleshooting, inspection, and/or testing to assess the condition of a system, structure, or component. (Ref. INPO AP-928 Rev 1)

pre-job brief – An interactive dialogue between those involved in the work to ensure that all understand the scope of what is to be accomplished, procedural steps, roles and responsibilities, hazards, and controls. This discussion provides a heightened level of awareness of significant aspects of the task.

preventive maintenance (PM) –Predictive (condition-based) and periodic/planned (time-based) actions taken to maintain a piece of equipment within design operating conditions and to extend its life. (Ref. INPO AP-928)

risk assessment screening – A task-based assessment of the risks associated with a work activity. Risk is usually evaluated in the following 5 areas:

- Industrial Safety Risk – All hazardous work activities and working environments
- Radiological Risk – All activities that can create or are being performed in an area with radiological impact
- Nuclear Safety/Operational Risk – Probability Risk Assessment (PRA), Limiting Condition for Operation (LCO), Reactivity management, Generation risk
- Environmental/Chemistry Risk – All activities that can adversely impact environmental or plant chemistry parameters
- Corporate/Regulatory Risk – Emergency Plan, Grid reliability, Maintenance Rule goals, Regulatory compliance

rule-based error – An event where an action or actions that match intentions but do not achieve their intended outcome due to incorrect application of a rule or inadequacy of the plan. Rule-based actions are performed using learned responses as a result of interacting with the plant, through formal training or by working with experienced process workers. Errors are encountered when a new situation arises in which a previously learned rule is applied inappropriately.

self-check – An attention-management technique an individual uses to focus attention on the appropriate component, to think about the intended action and its expected outcome before performance, and to verify component condition after performance.

skill of the craft (SOC) (also called *skill of the trade*) – Skills possessed by qualified craft that can be performed consistently error-free, independent of the risk to human performance, and that do not rely upon written instructions or procedures. (source: *Skill of the Craft Determination* [3002003104])

subject matter expert (SME) – An individual who possesses requisite knowledge, skills, and experience on a particular task (task-proficient) or subject and has been selected by management to assist in developing or implementing the planner training program.

work instruction – Information for performance of the work to be accomplished, the level of detail of which is dependent on the assigned planning level. When applicable, approved procedures may be referenced and may suffice as work instructions.

work order – A document used to control work and/or testing activities.

work package – A compilation of documents including the work order, work instructions, and any other supporting material (for example, drawings, vendor manuals, weld process sheets, operating experience, safety analysis, permits, etc.).

B.2 Acronyms and Abbreviations

ALARA	as low as reasonably achievable
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
CV	concurrent verification
FIN	fix-it-now
INPO	Institute of Nuclear Power Operations
IST	in-service testing
IV	independent verification
LCO	limiting condition for operations
NEI	Nuclear Energy Institute
NUMARC	Nuclear Utilities Management Resource Council
OE	operating event(s) or operating experience
PdM	predictive maintenance
PM	preventive maintenance
PMT	post-maintenance test(ing)
PRA	probabilistic risk assessment
QC	quality control
SOER	significant operating experience report
SSC	structure, system, or component

C
EXAMPLES OF TRAINING RECORDS

The purpose of this appendix is to provide examples of typical training records that are completed by the training program and submitted to and retained by the training coordinator. The user of this report should recognize that the format and structure of each document will vary from among licensees, and as such, these examples are provided for illustrative purposes only. A listing of the example records is provided below:

- Appendix C.1 – Planner Training Proficiency Record
- Appendix C.2 – Planner Required Reading List
- Appendix C.3 – Training Exemption Record
- Appendix C.4 – Task Proficiency Revocation Record
- Appendix C.5 – Task Proficiency Reinstatement Record
- Appendix C.6 – Position-Specific Proficiency Guide (PSPG), Perform Pre-Planning/Task Review Activities
- Appendix C.7 – Position-Specific Proficiency Guide (PSPG), Determine Work Package Requirements
- Appendix C.8 – Position-Specific Proficiency Guide (PSPG), Determine Package Level of Detail
- Appendix C.9 – Position-Specific Proficiency Guide (PSPG), Construct Work Package
- Appendix C.10 – Position-Specific Proficiency Guide (PSPG), Identify Materials, Parts and Special Tools
- Appendix C.11 – Position-Specific Proficiency Guide (PSPG), Prepare Preventive Maintenance Work Order
- Appendix C.12 – Specialized Task Position-Specific Proficiency Guide (PSPG), Perform Mentor Activities
- Appendix C.13 – Specialized Task Position-Specific Proficiency Guide (PSPG), Prepare Modification Work Order
- Appendix C.14 – Training Material Request/Approval Form

C.1 Planner Training and Proficiency Record

TRAINEE NAME:				**USER ID:**	
JOB TITLE:				**DEPT:**	
Course Title	**Document Number**	**Date Complete**	**Date Exempted**	**Supervisor**	**Comments**
(PART 1) Orientation					
Required Reading					
(PART 2) Position Specific Training					
EPRI or Equivalent Core Planner Training (3002015496)					
(PART 3) Position-Specific Proficiency Guides – PLANNER					
Perform Pre-planning/ Task Review Activities	(3002015496)-01				
Determine Work Package Requirements	(3002015496)-02				
Determine Package Level of Detail	(3002015496)-03				
Construct Work Package	(3002015496)-04				
Identify Materials, Parts and Special Tools	(3002015496)-05				
Prepare Preventative Maintenance Work Order	(3002015496)-06				

(PART 4) Specialized Position-Specific Proficiency Guides					
Mentor Proficiency	(3002015496)-07				
Prepare Modification Work Order	(3002015496)-08				
(PART 5) Required Additional/Technical Training (if applicable)					

TRAINING COORDINATOR REVIEW

I have reviewed this form and verify by my signature below that

_____ (Trainee Name)

has completed OR has been exempted from all Training and Proficiency requirements AND recommend that the above be authorized to perform all duties associated with the position of

_____ (Job Title)

independently

REVIEWED BY: _____ **DATE:** _____

Training Coordinator

DEPARTMENT SUPERVISOR
This trainee has successfully completed the requirement necessary to perform all activities for this job function successfully. **APPROVED BY:** _____ **DATE:** _____ Planning Supervisor/Manager
RECORDS
Proficiency Matrix Updated: _____ Date: _____ Training Coordinator **Database Updated:** _____ **Date:** _____ Nuclear Training Department

C.2 Planner Required Reading List

TRAINEE NAME:			**USER ID:**	
JOB TITLE:			**DEPT:**	
READING ASSIGNMENT				
DOCUMENT NUMBER	**TITLE**		**INITIALS**	**COMPLETION DATE**

I HAVE COMPLETED ALL READING ASSIGNMENTS LISTED IN ATTACHMENT 2 OF (3002015496).

_____ _____

SIGNATURE DATE

C.3 Training Exemption Record

PART 1 – GENERAL INFORMATION	
EMPLOYEE:	ID:
EMPLOYEE'S SUPERVISOR:	ID:
ACTIVITY EXEMPTED FROM:	ACTIVITY ID:
PART 2 – SUPPORTING DATA	
JUSTIFICATION FOR EXEMPTION:	
COMMENTS/SUPPORTING DOCUMENTATION:	
The above-named individual has been exempted from the training requirements for this task.	
Employee: Signature:	Date:
Training Coordinator: Print Sign	Date:
Planning Supervisor: Print Sign	Date:

PART 3 – RECORDS UPDATED	
Nuclear Training Dept. – Database Updated. Print Sign	Date:
Training Coordinator – Proficiency Matrix Updated Print Sign	Date:

C.4 Task Revocation Record

PART 1 – GENERAL REVOCATION DATA	
EMPLOYEE:	ID:
EMPLOYEE'S SUPERVISOR:	ID:
ACTIVITY REVOKED FROM:	ACTIVITY ID:
PART 2 – SUPPORTING DATA	
REASON FOR REVOCATION:	
COMMENTS/SUPPORTING DOCUMENTATION (Required):	
The above-named individual has been revoked from this activity.	
Employee: Signature:	Date:
Training Coordinator: Print Sign	Date:
Planning Supervisor: Print Sign	Date:

Remediation Plan Details:	
PART 3 – RECORDS UPDATED	
Nuclear Training Dept. – Database Updated. Print Sign	Date:
Training Coordinator – Proficiency Matrix Updated Print Sign	Date:

C.5 Task Proficiency Reinstatement Record

PART 1 – GENERAL REMEDIATION DATA	
EMPLOYEE:	ID:
EMPLOYEE'S SUPERVISOR:	ID:
ACTIVITY PROFICIENCY RESCINDED:	ACTIVITY ID:
PART 2 – SUPPORTING DATA	
JUSTIFICATION FOR RE-PROFICIENCY:	
COMMENTS/SUPPORTING DOCUMENTATION (Required):	
The above-named individual has been remediated for this activity and is deemed proficient.	
Employee: Signature:	Date:
Training Coordinator: Print Sign	Date:
Planning Supervisor: Print Sign	Date:

PART 3 – RECORDS UPDATED	
Nuclear Training Dept. – Database Updated. Print Sign	Date:
Training Coordinator – Proficiency Matrix Updated Print Sign	Date:

C.6 -01, Position-Specific Proficiency Guide (PSPG), Perform Pre-Planning/Task Review Activities

PERFORM PRE-PLANNING/TASK REVIEW ACTIVITIES (3002015496)	
EMPLOYEE:	ID:
The signatures below indicate that the above-named trainee has successfully completed the requirements for this proficiency guide and is capable of independent performance of this activity.	
TRAINING COORDINATOR (Print/Sign)	DATE:
SUPERVISOR/MANAGER (Print/Sign)	DATE:

PREREQUISITES		
DESCRIPTION	**DATE COMPLETED**	**TRAINING COORDINATOR**
EPRI or Equivalent Core Planner Training (3002015496)		N/A

REQUIRED READING			
DOCUMENT NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**TRAINING COORDINATOR**

REQUIRED TRAINING EXEMPTION Y N			
COURSE NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**MENTOR**
(3002015496)-01	Performing Pre-Planning/Task Review Activities		

STANDARDS FOR PERFORMANCE	
DOCUMENT NUMBER	**DESCRIPTION**
Plant procedure	Work Planning Standard
EPRI (3002015496)	Maintenance Work Package Planning Guidance
PLANNER STANDARD	Planning Standard

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**MENTOR (Initial/Date)**
1	Review/Validate WR/WO	1. Planning Standard 2. 3002007020	
2	Perform Field Walk-Down/Validate Condition Exists	1. Planning Standard 2. Plant Procedure 3. 3002007020	
3	Review Equipment/Work History	1. Planning Standard	
4	Locate/Review OE	1. Planning Standard 2. 3002007020	

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**MENTOR (Initial/Date)**
5	Consult Planning References	1. Planning Standard 2. Plant procedure	
6	Review/Determine the Need for Engineering Support	1. Planning Standard 2. Plant procedure	
7	Verify Component Name (duplicate of Equip/Work History)	1. Planning Standard	
8	Consult with Craft, Engineering, Supervision to Determine Scope	1. Plant Procedure	
9	Review Industrial Safety Hazards	1. Planning Standard 2. Plant procedure 3. 3002007020	
10	Check for Duplicate Work Order	1. Planning Standard	
11	Check for Existing Corrective Action	1. Planning Standard	
12	Review Physical Considerations	1. Planning Standard	
13	Cancel Work Request	1. Planning Standard	
14	Determine Security Requirements	1. Planning Standard 2. Plant procedure	

C.7 -02, Position-Specific Proficiency Guide (PSPG), Determine Work Package Requirements

DETERMINE WORK PACKAGE REQUIREMENTS (1026642-02)	
EMPLOYEE:	ID:
The signatures below indicate that the above-named trainee has successfully completed the requirements on this proficiency guide and is approved for independent performance of this activity.	
TRAINING COORDINATOR (Print/Sign)	DATE:
SUPERVISOR/MANAGER (Print/Sign)	DATE:

-

PREREQUISITES		
DESCRIPTION	**DATE COMPLETED**	**MENTOR**
EPRI or Equivalent Core Planner Training (3002015496)		N/A

REQUIRED READING			
DOCUMENT NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**MENTOR**

REQUIRED TRAINING EXEMPTION Y N			
COURSE NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**MENTOR**
(3002015496)-02	Determine Work Package Requirements		

STANDARDS FOR PERFORMANCE	
DOCUMENT NUMBER	**DESCRIPTION**
EPRI 3002007020	Maintenance Work Package Planning Guidance
PLANNER STANDARD	Planning Standard

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**MENTOR (Initial/Date)**
1	Determine Insulation Requirements	1. Planning Standard 2. Plant procedure	
2	Determine Special Personnel Safety Requirements	1. Planning Standard 2. Plant procedure 3. Plant procedure 4. Safety manual 5. Plant procedure	
3	Determine Tag-out Requirements	1. Planning Standard 2. Plant procedure 2.3002007020	
4	Determine Scaffold Requirements	1. Planning Standard 2. Plant procedure	

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**MENTOR (Initial/Date)**
5	Determine EQ Requirements	1. Planning Standard	
6	Determine QA Requirements	1. Planning Standard	
7	Determine 50.59 Requirements	1. Planning Standard 2. 3002007020 3. 50.59	
8	Determine 50.65 Requirements	1. Planning Standard 2. 3002007020 3. 50.65	
9	Determine PMT Requirements	1. Planning Standard 2. Plant procedure 3. 3002007020	
10	Determine IST/ISI Requirements	1. Planning Standard	
11	Determine Barrier Control Permit Requirements	1. Planning Standard 2. Plant procedure	
12	Determine FEM Requirements	1. Planning Standard 2. Plant procedure 3. 3002007020	
13	Determine Routing Requirements	1. Planning Standard	

C.8 -03, Position-Specific Proficiency Guide (PSPG), Determine Package Level of Detail

DETERMINE PACKAGE LEVEL OF DETAIL (3002015496-03)	
EMPLOYEE:	ID:
The signatures below indicate that the above-named trainee has successfully completed the requirements on this proficiency guide and is approved for independent performance of this activity.	
TRAINING COORDINATOR (Print/Sign)	DATE:
SUPERVISOR/MANAGER (Print/Sign)	DATE:

PREREQUISITES		
DESCRIPTION	**DATE COMPLETED**	**MENTOR**
EPRI or Equivalent Core Planner Training (3002015496)		N/A

REQUIRED READING			
DOCUMENT NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**MENTOR**

REQUIRED TRAINING EXEMPTION Y N			
COURSE NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**MENTOR**
(3002015496)-03	Determine Package Level of Detail		

STANDARDS FOR PERFORMANCE	
DOCUMENT NUMBER	**DESCRIPTION**
PLANNER STANDARD	Planning Standard
EPRI 3002007020	Maintenance Work Package Planning Guidance

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**MENTOR (Initial/Date)**
1	Perform Duration Estimates	1. Planning Standard	
2	Complete Accounting Codes	1. Planning Standard	
3	Identify Available Written Guidance/Develop Work Instructions	1. Planning Standard	
4	Identify Task Complexity (Risk Analysis)	1. Planning Standard 2.3002007020	
5	Determine Risk of Work (unit/generator trip/transient; lost generation; entry into LOC or work using 50% of allowed LCO time; industrial safety and radiation exposure)	1. Planning Standard 2. 3002007020	
6	Determine Special Controls	1. Planning Standard 2. 3002007020	

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**MENTOR (Initial/Date)**
7	Determine if Work is Within Skill of the Craft (Qualification)	1. Planning Standard 2. SOC Matrix (site)	
8	Perform Critical Task Analysis	1. Planning Standard 2.3002007020	
9	Identify the Need for Vendor Support	1. Planning Standard 2.3002007020	
10	Perform Risk Assessment Screening: 1. Industrial Safety Risk 2. Radiological Risk 3. Nuclear/Operation Risk 4. Environmental/Chemistry Risk 5. Corporate/Regulatory Risk	1. Plant procedure 2. 3002007020	
11	Determine Work Level (Level 1, 2, 3)	1. Plant procedure 2.3002007020	

C.9 -04, Position-Specific Proficiency Guide (PSPG), Construct Work Package

CONSTRUCT WORK PACKAGE (1026642-04)	
EMPLOYEE:	ID:
The signatures below indicate that the above-named trainee has successfully completed the requirements on this proficiency guide and is approved for independent performance of this activity.	
TRAINING COORDINATOR (Print/Sign)	DATE:
SUPERVISOR/MANAGER (Print/Sign)	DATE:

PREREQUISITES		
DESCRIPTION	**DATE COMPLETED**	**MENTOR**
EPRI or Equivalent Core Planner Training (3002015496)		N/A

REQUIRED READING			
DOCUMENT NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**MENTOR**

REQUIRED TRAINING EXEMPTION Y N			
COURSE NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**MENTOR**
(3002015496)-04	Construct Work Package		

STANDARDS FOR PERFORMANCE	
DOCUMENT NUMBER	**DESCRIPTION**
PLANNER STANDARD	Planning Standard
EPRI 3002007020	Maintenance Work Package Planning Guidance
PLANT PROCEDURE	

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**MENTOR (Initial/Date)**
1	Create Work Order	1. Planning Standard	
2	Perform Duration Estimates	1. Planning Standard	
3	Complete Accounting Codes	1. Planning Standard	
4	Identify Available Written Guidance/Develop Work Instructions using Human Performance techniques for Planners, writer's guide, and Planner checklist	1. Planning Standard 2. 3002007020	
5	Identify Task Complexity (Risk Analysis)	1. Planning Standard 2. 3002007020	
6	Determine Risk of Work (unit/generator trip/transient; lost generation; entry into LOC or work using 50% of allowed LCO time; industrial safety and radiation exposure)	1. Planning Standard	
7	Determine if Work is Within Skill of the Craft (Qualification)	1. Planning Standard 2. SOC Matrix 3. 3002007020	
8	Perform Critical Task Analysis	1. Planning Standard 2. 3002007020	

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**MENTOR (Initial/Date)**
9	Identify the Need for Vendor Support	1. Planning Standard	
10	Determine Work Level (Level 1, 2, 3)	1. Planning Standard 2. Plant procedure 3. 3002007020	
11	Determine/Add error mitigating HU tools to work instructions	1. Plant procedure 2. 3002007020	
12	Perform Risk Assessment Screening: 1. Industrial Safety Risk 2. Radiological Risk 3. Nuclear/Operation Risk 4. Environmental/Chemistry Risk 5. Corporate/Regulatory Risk	1. Plant procedure 2. 3002007020	

C.10 -05, Position-Specific Proficiency Guide (PSPG), Identify Materials, Parts and Special Tools

IDENTIFY MATERIALS, PARTS AND SPECIAL TOOLS (1026642-05)	
EMPLOYEE:	ID:
The signatures below indicate that the above-named trainee has successfully completed the requirements on this proficiency guide and is approved for independent performance of this activity.	
TRAINING COORDINATOR (Print/Sign)	DATE:
SUPERVISOR/MANAGER (Print/Sign)	DATE:

PREREQUISITES		
DESCRIPTION	**DATE COMPLETED**	**MENTOR**
EPRI or Equivalent Core Planner Training (3002015496)		N/A

REQUIRED READING			
DOCUMENT NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**MENTOR**

REQUIRED TRAINING EXEMPTION Y N			
COURSE NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**MENTOR**
1026642-05	Identify Materials, Parts and Special Tools		

STANDARDS FOR PERFORMANCE	
DOCUMENT NUMBER	**DESCRIPTION**
PLANNER STANDARD	Planning Standard
EPRI 3002007020	Maintenance Work Package Planning Guidance
PLANT PROCEDURE	

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**MENTOR (Initial/Date)**
1	Generate Material Request	1. Planning Standard	
2	Determine Quality Level of Parts	1. Planning Standard	
3	Locate Parts Using Bill Of Materials	1. Planning Standard	
4	Identify/Locate Parts	1. Planning Standard	
5	Order/Reserve Parts	1. Planning Standard	
6	Update BOM Including a Reference of Source	1. Planning Standard	

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**MENTOR (Initial/Date)**
7	List Special Tools	1. Planning Standard	
8	Identify Contingency Parts	1. Planning Standard	
9	Generate a Bill of Materials	1. Planning Standard 2. Plant Procedure	

C.11 -06, Position-Specific Proficiency Guide (PSPG), Prepare Preventive Maintenance Work Order

PREPARE PREVENTIVE MAINTENANCE WORK ORDER (1026642-06)	
EMPLOYEE:	**ID:**
The signatures below indicate that the above-named trainee has successfully completed the requirements on this proficiency guide and is approved for independent performance of this activity.	
TRAINING COORDINATOR (Print/Sign)	DATE:
SUPERVISOR/MANAGER (Print/Sign)	DATE:

PREREQUISITES		
DESCRIPTION	**DATE COMPLETED**	**MENTOR**
EPRI or Equivalent Core Planner Training (3002015496)		N/A

REQUIRED READING			
DOCUMENT NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**MENTOR**

REQUIRED TRAINING EXEMPTION Y N			
COURSE NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**MENTOR**
1026642-06	Prepare Preventive Maintenance Work Order		

STANDARDS FOR PERFORMANCE	
DOCUMENT NUMBER	**DESCRIPTION**
PLANT PROCEDURE	
EPRI 3002007020	Maintenance Work Package Planning Guidance
PLANNER STANDARD	Planning Standard

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**MENTOR (Initial/Date)**
1	Verify “OPEN” Action Requests via Work Order Feedback or PM Change Requests	1. Planning Standard	
2	Review PM database and the Preventive Maintenance Optimization systems (PMOS)	1. Planning Standard	
3	Verify current “Due Date” is proportionate to “Last Performed Data”	1. Planning Standard	
4	Verify PM “Category” vs. Work Order “Job Type”	1. Planning Standard	
5	Verify UCR (Unit Condition Required) vs. Work Order “Priority”	1. Planning Standard	

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**MENTOR (Initial/Date)**
6	Verify PM Active box checked or unchecked as applicable	1. Planning Standard	
7	Verify Auto Features set – Trigger, Generate, Forecast	1. Planning Standard	
8	Verify Lead time properly set	1. Planning Standard	
9	Verify Discipline properly populated	1. Planning Standard	
10	Determine if a Preventive maintenance Change Request (PMCR) is required	1. Planning Standard	
11	Determine the need for and use the PM Critical flag as required	1. Planning Standard 2. Plant procedure	
12	Update PM “Model” and “Current Occurrences” work orders	1. Planning Standard	
13	Create a 1st time PM	1. Planning Standard	

C.12 -07, Specialized Task Position-Specific Proficiency Guide (PSPG), Perform Mentor Activities

PERFORM MENTOR ACTIVITIES (1026642-07)	
EMPLOYEE:	ID:
The signatures below indicate that the above-named trainee has successfully completed the requirements on this proficiency guide and is approved for independent performance of this activity.	
TRAINING COORDINATOR (Print/Sign)	DATE:
SUPERVISOR/MANAGER (Print/Sign)	DATE:

PREREQUISITES		
DESCRIPTION	**DATE COMPLETED**	**SUPERVISOR**
EPRI or Equivalent Core Planner Training (3002015496)		
Task-proficient on the task to be mentored. See 3002015496-01 through 3002015496-06 (As Required)	See Page 2	N/A

REQUIRED READING			
DOCUMENT NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**SUPERVISOR**
3002015496	NMAC: Nuclear Work Planning Training		

REQUIRED TRAINING			
COURSE NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**SUPERVISOR**
3002015496-01 through 3002015496-06	Mentors must be task-proficient on tasks they will Mentor.	See Page 2	N/A
Supervisor Oral Board	Supervisor Interview – (Department expectations for Mentors)		

STANDARDS FOR PERFORMANCE	
DOCUMENT NUMBER	**DESCRIPTION**
3002015496	NMAC: Maintenance and Modification Work Planner Training Program Description

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**SUPERVISOR (Initial/Date)**
1	Perform Pre-Planning/Task Review Activities	1. 3002015496-01	
2	Determine Work Package Requirements	1. 3002015496-02	
3	Determine Package Level Of Detail	1. 3002015496-03	
4	Construct Work Package	1. 3002015496-04	
5	Identify Materials, Parts And Special Tools	1. 3002015496-05	
6	Prepare Preventive Maintenance Work Order	1. 3002015496-06	

C.13 -08, Specialized Task Position-Specific Proficiency Guide (PSPG), Prepare Modification Work Order

PERFORM MENTOR ACTIVITIES (1026642-07)	
EMPLOYEE:	ID:
The signatures below indicate that the above-named trainee has successfully completed the requirements on this proficiency guide and is approved for independent performance of this activity.	
TRAINING COORDINATOR (Print/Sign)	DATE:
SUPERVISOR/MANAGER (Print/Sign)	DATE:

PREREQUISITES		
DESCRIPTION	**DATE COMPLETED**	**SUPERVISOR**
EPRI or Equivalent Core Planner Training (3002015496)		
Proficient on tasks 1026642-01 through 3002015496 2-06 (As Required, Planner Proficient)		N/A

REQUIRED READING			
DOCUMENT NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**SUPERVISOR**
3002015496	NMAC: Nuclear Work Planning Training		
Plant Specific	Engineering program description		

REQUIRED TRAINING			
COURSE NUMBER	**DESCRIPTION**	**DATE COMPLETED**	**SUPERVISOR**
3002015496-01 through 3002015496-06	Basic planner proficiencies, as required		N/A
Supervisor Oral Board	Supervisor Interview – (Projects Planning supervisor)		

STANDARDS FOR PERFORMANCE	
DOCUMENT NUMBER	**DESCRIPTION**
3002015496	NMAC: Nuclear Work Planning Training

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**SUPERVISOR (Initial/Date)**
1	Identify construction craft skills and determine level of detail required in work package	1. 3002007020 2. AP-930	
2	Review Engineering Change Packages		
3	Determine applicable ASME, ANSI, NEC requirements		
4	Assist scheduling in determining component installation sequence related to the effect on online systems, structures, components		
5	Determine if technical review of work instructions for new equipment installation/testing is required	1. 3002007020	
6	Interpret BOM and order required modification parts		

PERFORMANCE REQUIREMENTS			
ACTIVITY NUMBER	**ACTIVITY DESCRIPTION**	**REFERENCES**	**SUPERVISOR (Initial/Date)**
7	Understand the relationship between master and implementing EC tasks	Plant Procedure	
8	Perform walkdown of proposed equipment installation location		
9	Read and Understand design sketches		
10	Develop Post-Modification testing instructions		
11	Place engineering/parts holds on work order tasks	Plant Procedure	
12	Obtain permits (Weld, Excavation, Facility Change)	Plant Procedure	
13			
14			

C.14 Training Material Request/Approval Form

TRAINING MATERIAL REQUEST (Part 1)	
TRAINING REQUESTED BY:	DATE REQUESTED:
REASON FOR REQUEST:	
PQRT/Planning Management Approved [ ] Disapproved [ ] (Print/Sign)	DATE:
TRAINING MATERIAL APPROVAL (Part 2)	
Subject Matter Expert/Developer:	ID:
The signatures below indicate that this training material has been reviewed for relevance and accuracy.	
TRAINING COORDINATOR (Review) (Print/Sign)	DATE:
PLANNING SUPERVISOR (Review) (Print/Sign)	DATE:
CRC/Planning Management (Print/Sign)	DATE:

UNIQUE DOCUMENT NUMBER:	**DESCRIPTION OF ACTIVITY/TRAINING**			
COMMENTS:				
	JIT	**BRIEFING**	**INITIAL**	**CONTINUING**
TYPE OF TRAINING ACTIVITY (Check One)				
MODE OF TRAINING (Check One)	LECTURE	PERFORMANCE		
COMMITMENTS SATISFIED:				

D
UTILITY EXAMPLES OF TRAINING PROCESSES

Completing training to EPRI Technical Report 3002007020, *Nuclear Maintenance Applications Center: Maintenance Work Package Planning Guidance*, should be only one of many building blocks a licensee should consider in a planner training program. It is important to understand that EPRI is not certifying a plant or utility's entire planner training program.

The purpose of this appendix is to provide examples of EPRI and utility processes related to or supporting the training of work planners.

D.1 Work Planner Job Analysis Worksheet

Table D-1 illustrates an example of a work planner job analysis worksheet that may be used in conjunction with the Difficulty, Importance, Frequency (DIF) analysis.

Table D-1
Example of a work planner job analysis worksheet

TASK ID	Title	Difficulty	Importance	Frequency	Train Train/Retrain No Train
WP01	**Introduction to Work Control Process (Fundamentals)**	→	→	→	
WP01A	**Orientation – Introduction:**	→	→	→	**Code #**
WP01A1	Recognize the DCPP Organization and Goals	1	4	1	T – 15
WP01A2	Identify the purpose of the Work Order	1	4	1	T – 15
WP01A3	Identify the role of the Work Planner	1	4	1	T – 15
WP01A4	Recognize station and maintenance standards	3	4	2	T/R - 2
WP01B	**Orientation - Site/Plant Layout:**	→	→	→	**Code #**
WP01B1	Identify the DCPP Facility and Equipment layout	2	3	5	T – 7
WP01B2	Understand the purpose of the ERO	1	4	1	T – 15
WP01C	**Orientation - Communications and Expectations:**	→	→	→	**Code #**
WP01C1	Demonstrate Conservative Decision Making as applied to Work Planning	1	4	1	T – 15

Table D-1 (continued)
Example of a Work Planner Job Analysis Worksheet

TASK ID	Title	Difficulty	Importance	Frequency	Train Train/Retrain No Train
WP01C	**Orientation - Communications and Expectations:**	→	→	→	**Code #**
WP01C2	Utilize the DCPP Website Resources	2	3	5	T – 7
WP01D	Orientation – Procedures:	→	→	→	Code #
WP01D1	Apply Procedure Use and Adherence standards	3	4	5	T – 1
WP01D2	Recognize the planner responsibilities for obtaining procedures to support maintenance	2	4	5	T – 7

D.2 Planner Common Task List

A. PERFORM PRE-PLANNING/TASK REVIEW ACTIVITIES

1. Review/Validate WR/WO
2. Perform Field Walk-Down/Validate Condition Exists
3. Review Equipment/Work History
4. Locate/Review OE
5. Consult Planning References
6. Review/Determine the Need for Engineering Support
7. Verify Component Name (duplicate of Equip/Work History)
8. Consult with Craft, Engineering, Supervision to Determine Scope
9. Review Industrial Safety Hazards
10. Check for Duplicate Work Order
11. Check for CR
12. Review Physical Considerations
13. Cancel Work Request
14. Determine Security Requirements

B. DETERMINE WORK PACKAGE REQUIREMENTS

15. Determine Insulation Requirements
16. Determine Special Personnel Safety Requirements
17. Determine Tag-out Requirements
18. Determine Scaffold Requirements
19. Determine EQ Requirements
20. Determine QA Requirements
21. Determine 50.59 Requirements
22. Determine 50.65 Requirements
23. Determine PMT Requirements
24. Determine IST/ISI Requirements
25. Determine Barrier Control Permit Requirements
26. Determine Routing Requirements

C. DETERMINE PACKAGE LEVEL OF DETAIL

1. Perform Duration Estimates
2. Complete Accounting Codes
3. Identify Available Written Guidance/Develop Work Instructions using Human Performance techniques for Planners, writer's guide, and Planner checklist
4. Identify Task Complexity (Risk Analysis)
5. Determine Risk of Work (unit/generator trip/transient; lost generation; entry into LOC or work using 50% of allowed LCO time; industrial safety and radiation exposure)
6. Determine if Work is Within Skill of the Craft (Qualification)
7. Perform Critical Task Analysis
8. Identify the Need for Vendor Support
9. Perform Risk Assessment Screening:
    - Industrial Safety Risk
    - Radiological Risk
    - Nuclear Safety/Operational Risk
    - Environmental/Chemistry Risk
    - Corporate/Regulatory Risk
10. Determine Work Order Level (Level 1, 2, 3)

D. CONSTRUCT WORK PACKAGE

1. Create Work Order
2. Perform Duration Estimates
3. Complete Accounting Codes
4. Identify Available Written Guidance/Develop Work Instructions using Human Performance techniques for Planners, writer's guide, and Planner checklist
5. Identify Task Complexity (Risk Analysis)
6. Determine Risk of Work (unit/generator trip/transient; lost generation; entry into LOC or work using 50% of allowed LCO time; industrial safety and radiation exposure)
7. Determine if Work is Within Skill of the Craft (Qualification)
8. Perform Critical Task Analysis
9. Identify the Need for Vendor Support
10. Determine Work Package Level (Level 1, 2, 3)

E. IDENTIFY MATERIALS, PARTS AND SPECIAL TOOLS

1. Generate Material Request
2. Determine Quality Level of Parts
3. Locate Parts Using Bill of Materials
4. Identify/Locate Parts
5. Order/Reserve Parts
6. Update BOM, Including a Reference of Source
7. List Special Tools
8. Identify Contingency Parts
9. Generate a Bill of Materials

F. PREPARE PREVENTIVE MAINTENANCE WORK ORDER

1. Verify "OPEN" Action Requests via Work Order Feedback or PM Change Requests
2. Review PM database and the Preventive Maintenance Optimization systems (PMOS)
3. Verify current "Due Date" is proportionate to "Last Performed Data"
4. Verify PM "Category" vs. Work Order "Job Type"
5. Verify UCR (Unit Condition Required) vs. Work Order "Priority"
6. Verify PM Active box checked or unchecked as applicable
7. Verify Auto Features set – Trigger, Generate, and Forecast
8. Verify Lead time properly set
9. Verify Discipline properly populated
10. Determine if "Crediting," "Rebase Dating" or "Bundling" of work is possible
11. Determine if a PM deferral is required
12. Determine if a preventive maintenance change request (PMCR) is required
13. Determine the need for and use the PM Critical flag as required
14. Update PM "Model" and "Current Occurrences" work orders
15. Create a 1st-time PM

G. PREPARE MODIFICATION WORK ORDER

1. Identify construction craft skills and determine level of detail required in work package
2. Review Engineering Change Packages
3. Determine applicable ASME, ANSI, NEC requirements
4. Assist scheduling in determining component installation sequence related to the effect on online systems, structures, components
5. Determine if technical review of work instructions for new equipment installation/testing is required
6. Interpret BOM and order required modification parts
7. Understand the relationship between “Master” Engineering Changes and “Child” Engineering Changes
8. Perform walkdown of proposed equipment installation location
9. Read and Understand design sketches
10. Develop Post-Modification testing instructions
11. Place engineering holds on work order tasks
12. Obtain permits (Weld, Excavation, Facility Change)

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