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Nuclear Maintenance Applications Center: Applying Skill of the Craft to Maintenance Planning

2014 TECHNICAL REPORT

Nuclear Maintenance Applications Center: Applying Skill of the Craft to Maintenance Planning

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PRODUCT DESCRIPTION

This report delineates a consistent approach to the definition and explanation of *skill of the craft* used in part when determining the appropriate level of detail when planning and developing work packages to assist stations in establishing a standard. The intent is to diminish "lesson plan" type of detail within work plan instructions by allowing credit for the skills and knowledge inherent within the occupation.

This report is based on a consensus of industry peers and is intended to be applied at facilities as appropriate. Each facility is encouraged to assess its own experience and training and to adapt this information to best meet its unique needs. The intent is to identify standard elements that should be considered when accounting for skill of the craft within work plan instruction and not to provide an all-inclusive list.

Standardized task evaluations are also introduced as a method that can be used to validate skill level if a supervisor is concerned with the level of skill a craftsperson displays.

Background

The term *skill of the craft* and its application vary widely throughout the industry; examples include the following:

- *Skill of the craft* (also called *skill of the trade*): The discipline-specific skills, possessed by craft, which can be performed properly without written instructions. Skills possessed by the craft are defined and administered by the associated craft accredited and non-accredited training programs. This list of craft skills and knowledge can be found in the task analysis maintained by the Nuclear Training Department for craft who participate in an accredited training program.
- *Skill of the craft* defines the level of skills, knowledge, and abilities required for the individual to qualify to perform a scope of work safely and effectively in facilities/areas that are low hazard or below, based on their qualifications, training, experience, and judgment.
- *Skill of the craft* is defined for each craft, including required proficiency, experience, knowledge, skill, and ability as well as the type of work that can be safely performed without enhanced work planning.

Although the definition can change, the intent remains the same: skills that do not require the use of work plan instructions to be performed.

This report is not intended to replace the comprehensive work planning guidance on graded approach to planning or discussion of level of detail in EPRI report 3002000966, *Maintenance Work Package Planning Guidance*. This report provides additional support to these and to Institute of Nuclear Power Operations (INPO) 12-013, "Performance Objectives and Criteria"

(INPO proprietary document) WM-1 performance objectives and Criteria 1, which states, “The level of detail in work planning and instruction is based on the safety significance and complexity of the activity and considers training, experience, and skills of the workers and supervisory oversight.”

Objectives

This report provides a consistent approach to the definition and explanation of *skill of the craft* supporting the level of detail determination when planning and developing work packages.

Approach

An EPRI Nuclear Maintenance Applications Center (NMAC) technical advisory group (TAG) on Skill of the Craft was convened to develop an industry guideline document to address skill of the craft and the impact on work packages based on a station’s specific determination of its craft’s non-trained skills. This group met to develop the appropriate scope of the report, applicable guidance, and licensee examples of implementation. Experience-proven practices and techniques were identified during this effort and originally addressed in EPRI report 3002000966, *Maintenance Work Package Planning Guidance*. Additional guidance was requested to be provided as a separate document and is addressed in this report.

Results

This report will conclusively address a recurring topic: how to define and address skill of the craft in work plan instructions. This will result in further improvement between inherent knowledge as documented in craft training programs and the level of detailed provided in planned tasks that will accomplish the following:

- Reduce or eliminate “lesson plan” type of detail in work plan instruction by allowing credit for skills and knowledge inherent with the occupation.
- Improve human performance by providing a more consistent approach when evaluating the skill of the craft input to the level of detail determination.

Ultimately, addressing skill of the craft will reduce work package “bloat” that often masks deficiencies in other areas and invalidates the content of existing accredited craft training programs, increasing the overall risk to human performance.

Applications, Value, and Use

The information contained in this report represents a significant collection of industry best practices and human performance information related to skill of the craft in support of various work activities common at a nuclear power plant. Assemblage of this information provides a single point of reference both now and in the future. Through the use of this guideline, in close conjunction with EPRI report 3002000966, *Maintenance Work Package Planning Guidance*, stations should be able to significantly improve and consistently implement the processes associated with establishing baseline skills to support efficiency in planning. This will subsequently help members reduce the cumulative impacts resulting in work package bloat and increase reliability and efficiency.

Keywords

Skill of the craft
Standardized task evaluation
Work packages

ABSTRACT

There are several factors that the planner should consider when determining the most appropriate type of work package and content level of detail that is communicated to the craft. Skill of the craft is one element. The level of detail for work plan instructions must consider training and qualification of users to improve worker productivity and task execution and to implement the graded approach to planning.

This report provides a standard approach to *skill of the craft* definition and explanation in work plan packages and instruction. It provides a basis for evaluating and maintaining a station-specific standard approach to addressing skill of the craft in work instructions that follows a more consistent methodology in supporting the level of detail determination. Fundamentally, the result will be the creation of work packages that contain a sufficient level of technical detail.

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1
INTRODUCTION

1.1 Purpose and Scope

The purpose of this report is to provide a consistent approach to the application of skill of the craft and a methodology for the allowance of baseline skills when evaluating and developing work packages to improve and consistently implement the work package processes. This will support efficiency in planning by reducing the impact on human performance, resulting in the following:

- Sufficient level of technical detail
- Effectively managed resources
- Improved human performance
- Improved alignment with accredited training
- Reduction of masked deficiencies in other areas
- Reductions in work package "bloat"

In addition, the report identifies standardized task evaluations (STEs) as a method that can be used to validate skill level.

It is not the intention of this report to provide a listing of skill of the craft tasks. The report is designed to facilitate utilities or stations (generically referred to as *station*) in establishing the rationale for accounting of baseline skills and craft personnel's non-trained skills.

Likewise, skill of the craft should not be the sole determinant for overall work plan instruction level of detail. The information in this technical report should be used in conjunction with EPRI report 3002000966, *Maintenance Work Package Planning Guidance*.

1.2 Background

EPRI report 3002000966, *Maintenance Work Package Planning Guidance* (supplement to Institute of Nuclear Power Operations (INPO) AP-928, "Work Management Process Description") identified standards regarding work package content to facilitate a consistent approach for work package quality, format, level of detail, and implementation of feedback. However, additional guidance was requested that would focus on an industry consensus of skill of the craft to reduce work package bloat and provide a consistent approach to craft personnel's baseline and non-trained skills in the work package process.

In response to the request, in April 2014, an EPRI Nuclear Maintenance Applications Center (NMAC) technical advisory group (TAG) on skill of the craft was convened to expand on *skill of the craft* and provide STEs that would provide methodologies to validate skills. The emphasis is to increase work package planning efficiency and reduce work package bloat that potentially becomes a challenge to human performance to the craft.

1.3 Report Structure and Content Overview

The key sections of this report provide guidance to licensees on developing and implementing a strategy for planners to incorporate skill of the craft into work plans and instructions consistently and effectively.

Section 1 presents the scope and purpose of this report and discusses deficiencies addressed in part by this report. It also introduces definitions and outlines some relationships between this report and other EPRI documents and organizations.

Section 2 describes the inherent knowledge and skills of the craft and essential attributes for skill of the craft associated with the determination of level of detail in work packages and instructions.

Section 3 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 describes considerations for situations in which there is no accredited training program or no basis to determine skill of the craft. Finally, Appendix C provides a presentation summarizing the purpose and content of the report.

1.4 Glossary of Terms

1.4.1 Definitions and Nomenclature

Continuing training: A training program that maintains and enhances the required performance level of individuals qualified to independently perform tasks.

Qualified: Condition that exists when all programmatic requirements have been fulfilled for completion of training and qualification requirements in order to perform a given task and/or job.

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.

Standardized task evaluation (STE): Portable tasks for the utility industry coordinated by EPRI. Each EPRI STE is written for a specific task and is composed of a written test and a separate performance evaluation similar to task performance evaluation. The primary uses of STEs are to prove the capability of supplemental personnel and to establish portable qualifications.

Task performance evaluation (TPE): The process of validating competency on practical factors and performance items that personnel must demonstrate in the work place or simulated work environment while being evaluated by a qualified task evaluator. TPE is distinct and separate from on-the-job training.

Training qualification task list: An inventory of tasks for a specific job or position. This list includes all tasks selected and deselected for initial and continuing training based on their difficulty, importance, and frequency.

Qualification: The characteristics, skills, or knowledge gained through training or experience, as measured against established requirements that qualify an individual to perform an identified task.

Work package bloat: Occurs when basic site procedure and management expectations are reiterated in the body of work packages or work instructions to typically compensate for workers' noncompliance with established expectations.

1.4.2 Acronyms

DIF	difficulty, importance, frequency
SOC	skill of the craft
STA	standard task analysis
STE	standardized task evaluations
TPE	task performance evaluation

1.5 Relationship with EPRI NMAC and to Other EPRI Reports

The development of this report was made possible through the close working relationship between the utility work planning community and EPRI NMAC. NMAC continues to serve as a key resource for work planners by providing a wide range of products, including technical reports addressing maintenance processes and system/equipment maintenance guidance—both with a focus on improving equipment reliability.

During the development of this report, several EPRI products were identified that provide detailed guidance regarding a work activity or work process. In many cases, skill of the craft was considered, but not to the level of detail provided in this report. These EPRI reports were primarily used as source material to ensure consistency of applied guidance among licensees and include the following:

- *Nuclear Maintenance Applications Center: Maintenance Work Package Planning Guidance* (3002000966)
- *Plant Engineering: EPRI Standardized Task Evaluation Program Implementation Guide* (1025244)
- *Nuclear Maintenance Applications Center: Maintenance and Modification Work Planner Training Program Description* (3002002821)

1.6 Listing of 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, making the key point easier to locate.

The primary intent of a Key Point is to emphasize information that will allow individuals to act for the benefit of their plant. EPRI personnel who reviewed this report assisted in the selection of the information included in these Key Points.

The Key Points are organized into a single category—Human Performance—which is shown in the following way:

Key Human Performance Point

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

2
SKILL OF THE CRAFT DETERMINATION

2.1 Reliance on Skill of the Craft

It is reasonable to place a degree of reliance on skill of the craft in the development of work packages and work planning instructions. The benefits are easily identified and agreed upon:

- Improved consistency among planners in work instruction content
- Facilitates human performance in work instruction content
- Reduced cumulative impact of work package bloat
- Increased efficiency of resources

However, these benefits can be realized only through consistent application of skill of the craft during the development of work plan instructions. This is achieved using a deterministic approach based on station processes and a clear explanation of skill of the craft, to create human-factored content that takes into account the inherent abilities of the discipline-specific craft persons, reducing unnecessary reiteration of these basics.

It is important to recognize the guidance contained in EPRI report 3002000966 regarding graded approach and level of detail. When Level 1 detailed work packages are prepared, there is minimal reliance on the skill of the craft other than the fundamental inherent skills.

Key Human Performance Point

Skill of the craft is only one factor the planner should consider when determining the appropriate level of detail of work plan instructions.

Skill of the craft includes discipline-specific 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 instruction.

Skill of the craft is considered the basic skills that the craft possess due to hiring practices and educational requirements. These are entry-level requirements. These skills and knowledge are important because they usually support the skills requiring training, but they have been deselected from the training program because they are fundamental to the craft position.

From a training perspective, typically craft training tasks are identified and programs developed using the difficulty, importance, frequency (DIF) methodology and standard task analysis (STA) to determine if the task requires no training, training, or training and periodic retraining. The latter two—tasks requiring training and training and periodic retraining—become part of the craft qualification matrix used to assign work and are therefore not skill of the craft.

2.2 Determining Skill of the Craft

Stations have numerous methods to determine skill of the craft. Each station should document its skill of the craft determination. Planning of activities that are determined to be skill of the craft should be limited to sufficient technical detail required to conduct the task.

2.2.1 Overview of Training Program

Training programs provide well-defined and documented skills and knowledge required to perform work activities; this provides a baseline for determining skill of the craft. Craft training programs identify inherent skills basic to the discipline-specific skill set as determined through the STA. Because these skills require no training, they are typically not on the training qualification task list. These work skills result from accumulated knowledge from basic craft training or experience required to obtain independent qualification or enhanced journeyperson skills; they are often required at time of hire.

As such, the planner would not need to provide detailed instructions on tasks requiring no training. However, as with all rules, there are special exceptions for which it may be appropriate to provide additional task detail. These decisions should be made with the input of craft supervision. Additional controls may be based on the complexity or consequence of error associated with the task to be performed.

2.2.2 Task Listing

Although a list of all tasks can be generated and training identified for those tasks, it must be understood that the list is for training development purposes to determine the tasks on which craft will be trained.

Lists developed are not intended to be used by planners to determine qualifications used to support task level of detail determinations. Instead, skills and knowledge items should be made easily understandable to planners for use during planning. One possible method would be to evaluate each step within a task in a deterministic manner, taking into account variables addressed in Appendix B (“Work Instruction Technical Writing”) of EPRI report 3002000966, *Maintenance Work Package Planning Guidance*, which include the following:

- Complexity of task
- Frequency of task performance
- Consistency
- Risk and consequence of error
- Qualifications

Key Human Performance Point

Additional detail or controls may be appropriate for tasks that require no training based on deterministic evaluation criteria that assess human performance to reduce the risk to human error.

2.2.3 Gaps Between Craft Training and Actual Knowledge

One benefit of stations determining skill of the craft within their programs is the opportunity to identify gaps between craft training and actual knowledge. Once gaps are identified, the gap should be discussed with station training department and craft supervision for resolution. The resolution may result in raising the level of detail above what should normally be required as an interim measure to reduce the risk to human performance error in order to supplement the skills and knowledge provided to the craft through the training program.

Key Human Performance Point

Raising the level of detail in work instructions may be an interim measure to supplement craft personnel's skills and knowledge to reduce the risk of human performance error.

2.3 Skill of the Craft Determination for Supplemental Personnel

Contractors and temporary personnel who work independently at the station are held to the same standards with regard to training. They must be qualified to perform the work. Although the evaluation methodology may differ, the intent is to meet the standards used in considering the individual "qualified."

Work package planning should not differentiate between station and supplemental personnel.

3
REFERENCES

3.1 Regulations and Regulatory Guidance

10CFR50 Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Facilities.”

10CFR50.65, “Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.”

U.S. Nuclear Regulatory Commission, Monitoring the Effectiveness of Maintenance at Nuclear Power Plants. USNRC Regulatory Guide 1.160, Revision 2, Washington, D.C., May 2000.

U.S. Nuclear Regulatory Commission, Qualification and Training of Personnel for Nuclear Power Plants. USNRC Regulatory Guide 1.8, September 1975.

3.2 Implementing Standards

Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants. American National Standards Institute, 1976. ANSI N18.7/ANS 3.2.

American National Standard Selection and Training of Nuclear Power Plant Personnel. American National Standards Institute, 1971. ANSI 3.1/18.1-1971.

3.3 Industry Guidance

Guidelines for the Conduct of Maintenance at Nuclear Power Plants. Atlanta: National Academy for Nuclear Training, 2005. ACAD 05-004, Chapter VI.

Guidelines for the Conduct of Operations at Nuclear Power Stations. Atlanta: Institute of Nuclear Power Operations, Atlanta, GA. May 2001. INPO 01-002.

Guidelines for the Conduct of Training and Qualification Activities. Atlanta: National Academy for Nuclear Training. September 13, 2002. ACAD 02-004.

Guidelines for the On-the-Job Training and Evaluation. Atlanta: National Academy for Nuclear Training. October 2011. ACAD 91-006.

Guidelines for Training and Qualification of Maintenance Personnel. Atlanta: National Academy for Nuclear Training, 2008. ACAD 92-008.

Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants. Nuclear Management and Resources Council (now the Nuclear Energy Institute), Revision 3, July 2000. NUMARC 93-01.

Supplemental Personnel Process Description. Institute of Nuclear Power Operations, Atlanta, GA, December 2009. INPO AP-930, Revision 2.

Work Management Process Description. Institute of Nuclear Power Operations, Atlanta, GA, November 2003. INPO AP-928, Revision 1.

Performance Objectives and Criteria, Institute of Nuclear Power Operations, Atlanta, GA. INPO 12-013.

Work Package Planning Guide. The Nuclear Exchange, June 1999. NX-1017.

3.4 EPRI Technical Reports

Nuclear Maintenance Applications Center: Maintenance Work Package Planning Guidance. EPRI, Palo Alto, CA: 2013. 3002000966.

Nuclear Maintenance Applications Center: *Maintenance and Modification Work Planner Training Program Description*. EPRI, Palo Alto, CA: 2013. 3002002195.

A
LISTING OF KEY POINTS

A.1 Key Human Performance Points

Key Human Performance Point

Denotes information that requires personnel action or consideration in order to prevent personal injury, equipment damage, and/or improve the efficiency and effectiveness of the task.

Page Number	Key Point
2-1	Skill of the craft is only one factor the planner should consider when determining the appropriate level of detail of work plan instructions.
2-2	Additional detail or controls may be appropriate for tasks that require no training based on deterministic evaluation criteria that assess human performance to reduce the risk to human error.
2-3	Raising the level of detail in work instructions may be an interim measure to supplement craft personnel's skills and knowledge to reduce the risk of human performance error.

B
EVALUATION METHODS TO VALIDATE SKILLS

Planning methods should not differentiate between station and supplemental personnel. Supplemental personnel who work independently at the station must be trained and qualified to perform assigned tasks. They may be exempted from initial training and task performance evaluation using the same method as for station personnel.

Where there is no station training program or no basis to determine skill of the craft (that is, supplemental personnel performing tasks), one of the following methods should be considered.

B.1 Skills Evaluation Methods

Should a supervisor determine that validation of a craftsperson's level of skill be required, there are several methodologies that can be used. Greater detail can be obtained from the station's training department.

B.1.1 Standardized Task Evaluation

EPRI's standardized task evaluations (STEs) have been recognized as a method for validating a standard level of ability. Although various methods exist to provide assurance that workers have the necessary skills and knowledge to perform work, the end result must be objective, credible evidence to show that they have been evaluated to meet station standards.

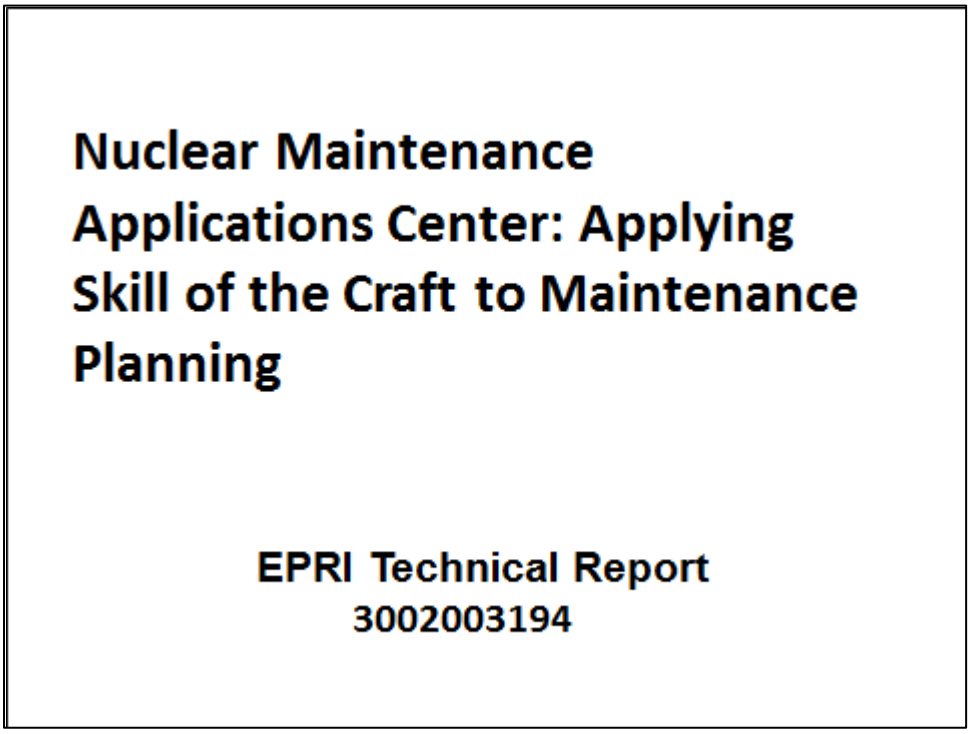
EPRI's STEs can be used to determining whether a worker is proficient in the performance of a specific task. The selected task evaluations that have been systematically developed through the EPRI's STE program are intended to support the needs of the nuclear power industry, other electric power stations, and work force providers who supply the supplemental work force. INPO's ACAD 91-006, Revision 1, October 2011, "Guidelines for On-the-Job Training and Evaluation," acknowledges the use of STEs as one way to prove proficiency. Being able to reference the standard to which workers have been evaluated allows stations to compare the evaluation criteria to the requirements of their program.

B.1.2 Task Performance Evaluation

Task performance evaluation (TPE) is the typical process for awarding qualification. If a craftsperson is awarded qualification through TPE, the same process can be repeated to validate that the base level of skills required to attend training are present to perform the job function.

C
GUIDELINE POWERPOINT OVERVIEW

This appendix provides a brief presentation summarizing the purpose and content of this report. An electronic version of this presentation (MS PowerPoint) is available at the Work Planners Users Group Collaboration website.



Section 1 - Purpose

- The purpose is to provide a consistent approach to the application of skill of the craft and a methodology for the allowance of baseline skills when evaluating and developing work packages to improve and consistently implement the work package processes.
- It is designed to facilitate stations in establishing the rationale for accounting of baseline skills or craft person's non-trained skills.

Background

- In April 2014, an EPRI NMAC Technical Advisory Group (TAG) on skill of the craft was convened to expand on skill of the craft and provide standard task evaluations that would provide methodologies to validate skills. The emphasis is to increase work package planning efficiency and reduce work package bloat that potentially becomes a challenge to human performance to the craft.

Report Contents

- **Section 1** scope and purpose
- **Section 2** provides a description of the inherent knowledge and skills of the craft and essential attributes for skill of the craft associated to the determination of level of detail in work packages and instructions
- **Section 3** list of references

Report Contents

- ***Appendix A*** list of key points
- ***Appendix B*** Evaluation Methods to Validate Skills
- ***Appendix C*** presentation summarizing the purpose and content of the report

Definition - Skill of the Craft (SOC)

Skills possessed by qualified craft which can be performed consistently error free independent of the risk to human performance and does not rely upon written instructions or procedures.

Section 2 - Skill of the Craft Determination

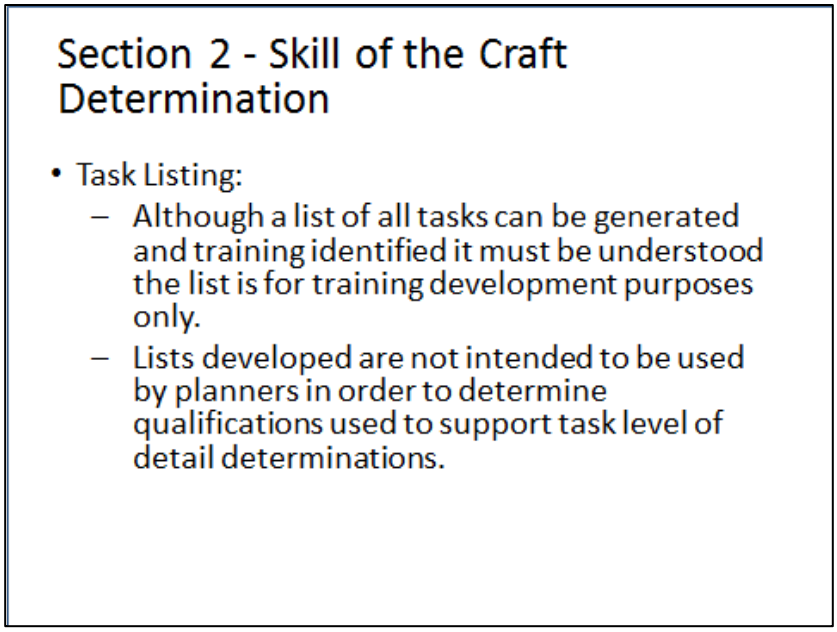
- Reliance on Skill of the Craft:
  - It is reasonable to place a degree of reliance on inherent knowledge or skill of craft in development of work packages and work planning instructions.
  - Benefits can only be realized through consistent determination and application of skill of the craft.
  - Skill of the craft is considered basic skills and knowledge that the craft possesses due to hiring practices and educational requirements.

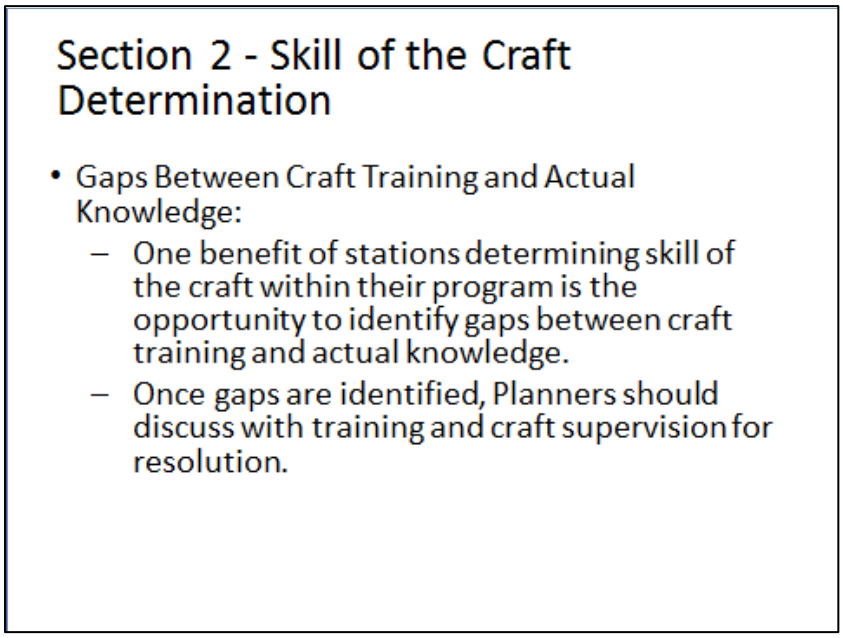
Section 2 - Skill of the Craft Determination

- Determining Skill of the Craft:
  - Numerous methods exist to determine skill of the craft.
  - Planner must allow credit for skills and knowledge learned within an accredited training program.
  - Constant attention to and application of standards is essential.

Section 2 - Skill of the Craft Determination

- Overview of Training Program:
  - Training programs provide well-defined and documented skills and knowledge required to perform evaluations.
  - Planner would not need to provide detailed instructions on tasks requiring no training.


Section 2 - Skill of the Craft Determination
• Task Listing:
– Although a list of all tasks can be generated and training identified it must be understood the list is for training development purposes only.
– Lists developed are not intended to be used by planners in order to determine qualifications used to support task level of detail determinations.


Section 2 - Skill of the Craft Determination
• Gaps Between Craft Training and Actual Knowledge:
– One benefit of stations determining skill of the craft within their program is the opportunity to identify gaps between craft training and actual knowledge.
– Once gaps are identified, Planners should discuss with training and craft supervision for resolution.

Section 2 - Skill of the Craft Determination

- Documenting Skill of the Craft Determination:
  - Stations should formally document method for determining Skill of the Craft within their procedures or processes.

Evaluation Methods to Validate Skills

- Planning methods should not differentiate between station and supplemental personnel.
- Where there is no accredited training program or no basis to determine skill of the craft other evaluation methods are available such as: Skills, Task Performance, Standardized Task

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