



DEPARTMENT OF THE NAVY

NAVAL SEA SYSTEMS COMMAND
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IN REPLY REFER TO

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NAVSEA INSTRUCTION 5240.1B

From: Commander, Naval Sea Systems Command

Subj: METHODS AND STANDARDS PROGRAM FOR NAVAL SHIPYARDS

Ref: (a) NAVSEAINST 5240.2; Management Control System for
Industrial Processes in the Naval Shipyards

Encl: (1) Uniform Methods and Standards Program Details

1. Purpose. To establish Naval Sea Systems Command (NAVSEA) policy for developing and maintaining Uniform Methods & Standards (UM&S) by the Naval Shipyards. This instruction also sets policy for using UM&S for cost estimating and for incorporating process improvements into UM&S. This instruction is a major revision and should be read in its entirety.

2. Cancellation. This instruction supersedes NAVSEAINST 5240.1A of 25 November 1980.

3. Background

a. The objectives and benefits which development and application of UM&S will provide, as part of the Advanced Industrial Management (AIM) and Project Management process, include:

(1) Provide data for planning, scheduling, workloading, and performance measurement/improvement.

(2) Improve cost estimating practices and cost estimate quality.

(3) Provide UM&S database (repository) for Ship Availability Planning and Engineering Center (SHAPEC) software development. UM&S are created to provide a consistent baseline for use across the public naval ship maintenance and manufacturing community. Per Standardization Management Working Group (SMWG) policy, UM&S used as the basis for the Supervisor of Shipbuilding (SUPSHIP) Estimating Guide flat rate sheets. This will improve cost estimating practices by standardizing the

information used and reducing the varying efforts within the Navy.

(4) Promote standardization of repair processes and equipment.

(5) Link UM&S to industrial process management control improvement initiatives including technical work documents (TWDs)/Uniform Industrial Process Instructions (UIPIs).

(6) Produce UM&S that reflect process improvements and best work practices.

(7) Create corporate UM&S to be shared/utilized by all.

b. Real savings can be achieved as the naval ship maintenance community constantly improves and simplifies the methods by which work is accomplished, and ensure that these improvements are incorporated into new and updated UM&S to be used in estimating work. Through this process, savings can be achieved and passed on to the customer through performance of otherwise unfunded or deferred naval ship maintenance work.

4. Policy

a. UM&S will be developed, updated, and applied by the Naval Shipyards in accordance with enclosure (1) and consistent with the AIM and SHAPEC processes. Approved UM&S will be used as the basis for estimating labor hours required to accomplish work and for assessing productivity. Three types of standard allowance data are used in UM&S to address the different types of work and resource requirements in Naval Shipyards. They are as follows:

(1) Type E, Engineered - Standard allowances developed and maintained by individuals trained in accepted industrial engineering work measurement techniques.

(2) Type D, Documented - Standard allowances developed to provide flexible, maintainable, and auditable UM&S which have detailed development documentation filed.

(3) Type A, Estimated - Standard allowances developed to cover low volume work or work which must be accomplished by a date which does not allow time to develop a labor standard using one of the higher type UM&S development methods.

b. Since most naval ship maintenance workload consists of highly variable or job-shop type tasks, UM&S will typically be developed utilizing Type D or Type A standard allowance data. Only highly repetitive operations warrant the time and effort required to generate Type E data.

c. Type O, Other, is a category used to identify non-standard allowances for tasks which may be accomplished during the job but have no established labor standards associated. Allowances of this type are task specific and are estimated on a case basis by the job developer at the time of writing the job, for that job only.

d. All requirements-based changes (e.g., Cumbersome Work Practices or environmental regulations), method improvements, beneficial suggestions, continuous process improvements, and other improvement initiatives which relate to labor expenditure shall be incorporated into UM&S.

e. Existing UM&S will be reviewed for continuing need and applicability. These UM&S shall be canceled, revised, or verified as reviewed with no change required on a periodic basis. The complexity, criticality, and variability of the process as defined in reference (a) determine the periodic basis.

f. Existing UM&S allowances will be considered acceptable for estimating purposes provided there has been no change in the method/process. Changes to method due to process improvement or regulatory changes shall be reason for requesting a revision to the UM&S by procedure of this instruction.

g. Performance and variance analysis shall be accomplished when return costs indicate the need. This process can also be requested via the UM&S Feedback Sheet.

h. UM&S shall be developed by Naval Shipyards and shared for use by all public naval ship maintenance activities. They shall be developed with the knowledge and input of the other Naval Shipyards so that development resources are not duplicated. Specific requirements, or inability to utilize the process within an individual Naval Shipyard, can be handled with that Shipyard writing a supplement to the UM&S for local use.

i. UM&S data shall also be used to develop higher level, flat rate SUPSHIP estimates as applicable. In turn, for SUPSHIP/Naval Shipyard co-planned availabilities, Naval Shipyards

may utilize SUPSHIP data provided on 2E-Specs to develop estimates.

j. UM&S are not intended to be used as technical work documents.

k. This instruction does not cancel or otherwise diminish the validity of existing labor standards written for Naval Shipyard use (e.g., Engineered Methods and Standards (EM&S), Uniform Engineered Method and Standards (UEM&S), and Estimated Standards). However, these documents are subject to the same review requirements as UM&S and all subsequent revisions of these documents shall be as UM&S.

5. Responsibilities

a. NAVSEA 04X shall provide oversight of the policies and implementation of the UM&S program. NAVSEA 04X shall also provide and maintain indices and an interchange repository for UM&S.

b. Naval Shipyards shall develop, apply, and maintain UM&S as required by this instruction, using sound Industrial Engineering work measurement principles and techniques.



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UNIFORM METHODS AND STANDARDS PROGRAM DETAILS

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I. INTRODUCTION. In support of best practices and performance at each Naval Shipyard, as well as SHAPEC reusability of planning products, UM&S shall be shared between the Naval Shipyards and SUPSHIP activities. To meet this goal, UM&S shall be developed to the requirements identified in this instruction and exchanged between the Naval Shipyards and provided to the SUPSHIP's for use at each activity.

1. Definitions:

a. Uniform Method & Standard (UM&S) - A document which identifies the method by which process tasks are performed. A UM&S identifies trade skill(s) required to accomplish each task, identifies standard allowance to be used to create the labor estimate for the job, and identifies type of method used in the development of the allowance for each task.

b. Labor Standard Allowance - The normal time plus authorized policy allowances which are determined as necessary for a qualified worker, working at a pace which is ordinarily used under capable supervision with the standard utilization of existing resources, to do a defined amount of work of specified quality when following the prescribed method.

c. Authorized Policy Allowances - Allowances which are factored into the labor standard allowance for the following: personal time, expected fatigue, and allowable delays (PF&D) of 10% for a waterfront task, and 8% for an inside shop task; clean up at the start and end of shift; and to put on and remove special clothing.

d. Types of Labor Standard Allowance Data:

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(1) Type E, Engineered - Standard allowances for work which provides a sufficiently high value to justify the time and effort required to develop and maintain by an individual trained in accepted industrial engineering work measurement techniques. Type E standard data is; (1) developed by the application of standard allowance data, predetermined time systems, time study, rated work sampling, or a combination of these techniques; (2) at least 80% of the total time included in the standard is based on data, elements, or other standards which have at a minimum a statistical accuracy of +/- 10% at a 95% confidence interval; and (3) backup data for the standard contains a method analysis; description of the job, process, or procedures; and documentation of the technique used in the development and the statistical reliability.

(2) Type D, Documented - Standard allowances for repetitive work which is too variable to economically justify establishing Type E standard data. This type of standard data shall provide the Naval Shipyards with flexible, maintainable, and auditable UM&S which have documentation allowing easier maintenance and accountability. Type D standard data is developed from a rated work sampling or time study. There will be no statistical reliability information required for this type standard due to the few studies required to develop the allowance information. A type D standard shall be created or reviewed by an experienced planner, technician, or engineer.

(3) Type A, Estimated - Standard allowances developed and maintained in lieu of having the trained personnel available to produce Type E or D standard data. Type A standard data may also be used to cover lower volume work than requires Type E or D, or to cover work which must be accomplished by a date which does not allow time to develop a labor standard using one of the higher type development methods. A type A standard shall be created or reviewed by an experienced planner, technician, or engineer.

e. Type O, Other - Non-standard allowances for tasks which may be accomplished during the job but have no established labor standards associated. Allowances of this type are task specific and are estimated on a case basis by the job developer at the time of writing the job, for that job only.

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2. Process Improvements. A requirement of UM&S development is to take a lead role in identifying and implementing process improvements as an inherent part of the development effort. While maintaining UM&S, identify process improvements and include the improvement into the revised UM&S. All Process improvements must be forwarded to the UM&S Coordinator at Puget Sound Naval Shipyard (Code 248.32) and Norfolk Naval Shipyard (Code 240) for coordination of them being included into UM&S to ensure that the best process is used in estimating the job.

II. PREPARATION AND CONTROL OF UM&S

1. Numbering. All UM&S shall be identified with the numbering structure described in this instruction. The UM&S numbers will be assigned by the lead Shipyard and will be applicable at all Shipyards. UM&S Coordinators shall issue UM&S numbers and maintain a log of UM&S numbers issued. This number shall consist of digits as follows:

a. Four-digit ship's system identification number, determined as follows:

(1) The system identification number shall be the first four digits of the Expanded Ship Work Breakdown Structure (ESWBS) for surface ships, or the Ship Work Authorization Boundaries (SWAB) for submarines, for the system to which the UM&S applies. ESWBS are defined in NAVSEA S9040-AA-IDX-010/SWBS 5d, Volume I and SWAB are defined in SUBMEPP 4700-087-1101.

(2) If an ESWBS/SWAB number does not apply, the four digit Federal Supply Class numbering system shall be used to fill the data field.

(3) If the Federal Supply Class numbering system does not apply, the applicable shop or code number shall follow a lead numeral of zero (or two zeros) to fill the four digit data field.

(4) If the shop or code number also does not apply, use four zeros to fill the data field.

b. A ship's system identification number, assigned to a UM&S from a current ESWBS/SWAB manual, will remain regardless of subsequent changes to the ESWBS/SWAB manual.

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c. Serial number. This number shall consist of the following, in the order presented:

(1) Single-digit code which identifies the originating activity:

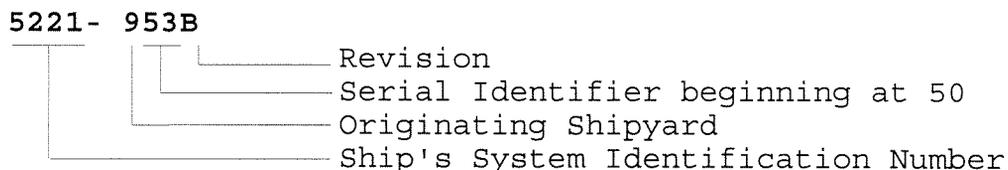
- 1. Portsmouth Naval Shipyard
- 4. Norfolk Naval Shipyard
- 9. Puget Sound Naval Shipyard
- 0. Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility

(2) Two-digit serial identifier from 50 through 99: Each originating Shipyard must make certain that no serial number (originating Shipyard plus serial identifier) applies to more than one UM&S or UIPI/IPI which has the same system identification number.

(3) Revision Identifier. Each revision shall be identified with a single uppercase letter from A through Z, used consecutively. Revision identifier letters I and O are not to be used. Revisions J and P will indicate, in the Description of Revision/Change, that the preceding identifier was not used.

(4) Changes would be allowed to make editorial changes. An extensive editorial change would not require a revision.

d. An example of the UM&S numbering structure:



2. Content. Each UM&S shall, at a minimum, contain the following sections and information. Inclusion of other sections that will enhance the usability of the instruction is recommended.

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a. Cover Sheet. Attachment (1) provides a blank cover sheet for UM&S. The cover sheet shall present the following information:

(1) Title. Arrange the title so that the system or hardware to which the UM&S applies appears first, and the process or action appears second. For example: "Shafting, Main Propulsion; Machining of."

(2) UM&S Number. The assigned UM&S number obtained from the UM&S Coordinator.

(3) Effective Date. Enter the date of original issue or most recent revision as is applicable.

(4) Cancellations. List the identification and file number of any existing documents which the new UM&S cancels. If the new UM&S does not cancel any existing documents, enter the word "NONE."

(5) Sections. Identifies the sections appearing in the UM&S. A minimum inclusion of a Standard section is mandatory; a Method section is highly recommended for further detailing of task descriptions.

(6) Primary Trade Skill Designator (TSD). Enter the TSD of the lead trade or skill involved in the industrial process.

(7) Applicable Type Ship. The class(es) or type(s) of ships for which the UM&S is to be used. Table 1, following this paragraph, provides a one-digit code for various classes and types of ships.

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Table 1
SHIP CLASS CODES

A. ALL SHIPS	H. DD
B. ALL SURFACE SHIPS	M. SSBN
C. ALL SUBMARINES	N. SSN
D. CV/CVN	P. AMPHIBIOUS
E. CG	Q. AUXILIARY
F. FF/FFG	X. OTHER
G. DDG	

(8) Standard Distribution. This item is preprinted and requires no special action. This distribution is required for all instructions.

(9) Additional Distribution. Enter here the additional distribution, including local shops/codes. Distribute to all affected shops, applicable approval signature codes, and Engineering and Planning codes.

(10) Originator. Enter the following information for the originator:

- (a) Shipyard: Enter name of developing activity.
- (b) Code: Enter Branch Code.
- (c) Prepared By: Enter preparer's initials and last name.
- (d) Phone: Enter commercial area code, prefix, and extension. At the end include DSN, identified as such.
- (e) E-mail address: Enter preparer's work email address.

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(11) Approval. The originator shall send the final draft UM&S, via his or her supervisor, to the UM&S Coordinator for routing to obtain the approval signature by the local Chief Engineer.

b. List of References

NOTE: Local references will not be referenced on the original UM&S.

(1) List reference documents in the sequence in which the first mention of them appears in the text.

(2) Give a complete identification, including document number, title, and current revision/change (if applicable), and date of current edition, of reference documents. If a change or revision is issued for a reference document, the UM&S originator shall determine the need to change or revise the UM&S.

(3) This instruction will not be included in the UM&S reference list.

(4) If applicable, reference the corresponding Uniform Industrial Process Instruction(UIPI). If none apply then state this information as a Note to the Reference section.

c. List of Enclosures, Tables, and Illustrations (as applicable).

(1) Enclosures and tables may appear in any logical and useful format.

(2) List the enclosures and tables in the order in which the first mention of them appears in the text. Give a complete identification of enclosures.

(3) Enter the document number on all enclosures and tables.

d. Purpose/Scope. This describes the extent of coverage of the UM&S and its specific limitations. The following information should be included:

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(1) When necessary, the Scope paragraph shall contain specific information on applicability of UM&S revision to current and future Shipyard workload.

(2) Specific work areas and product types which are covered (or not covered) by the UM&S may be provided in the Scope paragraph.

e. General Notes: This section covers special information unique to this document such as special training, equipment, tools, and material which on a case basis are worth mentioning due to their effect on time and skills necessary to do the tasks. Identify the advantages and benefits of the process (e.g., where a study or research and development was accomplished, the origin of the technology or cost savings, process improvement, etc.). This section may also contain specific guidance on the application of the UM&S.

f. Method Section. When included as a part of the document, this section provides greater detail than the Standard section to identify task coverage of the UM&S. It identifies the detailed steps of the process in their proper sequence for accomplishment, and matches the task numbers in the Standard section.

(1) The method must allow quick reading of the UM&S to find out who does what and when. All the work to be done is spelled out as it occurs in sequence. The method tells how to proceed and who, Trade Skill Designator (TSD), in the work process is responsible for each step. Each step is numbered, beginning with the first action and proceeding sequentially through the last. See example in attachment (2).

(2) The method shall be written with specific attention given to making clear the scope of the work covered by the standard allowances. Where useful, to make it more plain, the method may also be used to describe what is not being included within the standard allowances.

g. Standard Section. This section identifies summarized steps of the process in their proper sequence for accomplishment, and matches the task numbers in the Method section (when utilized). It provides proper TSD information for each task. This section contains standard allowances for use in the

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development of the labor estimate with a unit of measure for the time value provided. It also identifies the type of allowance data for each task, E, D, A, or O (as defined in this instruction). Included are a basic Personal, Fatigue, and Delay (PF&D) allowance used in the development of UM&S of 8% for in shop work and 10% on ship. The allowance shall include allowable delays such as clean up at the start and end of shift, and time to put on and remove special clothing.

h. Feedback Section. UM&S shall contain a Feedback Record (see sample provided in attachment (1)). Process improvements will be identified as recommended or implemented on the Feedback Record and forwarded to the originator. When Feedback Records are received, the originator will review the feedback information, determine the necessary action, and provide a response to the author of the Feedback Record.

3. Review Cycle

a. UM&S will be reviewed for continuing need and applicability. These UM&S shall be canceled, changed, revised, or verified as reviewed with no change required on a periodic basis. The periodic basis is determined by the complexity, criticality, and variability of the individual process item as defined in reference (a). The developing Shipyard shall maintain a database which tracks review due dates for each UM&S for which they have ownership.

b. The originator determines whether a revision is necessary, and ensures the UM&S is current, applicable, and prescribes the best method for accomplishing the process. The originator shall also verify that all references involved in the UM&S are current.

c. If a revision is necessary to make the UM&S current, then the originator is responsible for developing and issuing the revised document.

4. Revisions. A UM&S requiring revision will be reissued completely, including cover sheet with new signatures, in accordance with the procedures detailed in this paragraph.

a. The originator shall incorporate process and requirement changes which affect the standard allowances issued,

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as necessary, keeping with the approved format, and making revision notations. The final revised UM&S is forwarded to the UM&S Coordinator for distribution for comment locally and to the other Naval Shipyard UM&S Coordinators. The comment package shall be returned to the originator for incorporating comments into final draft within thirty (30) days; otherwise, a response of "no comment" will be documented. The final UM&S is returned to the UM&S Coordinator to route for signature (or the originator may obtain the signatures per local policy).

b. Revisions shall be documented on the "Revision/Change Sheet". See the sample provided in attachment (2).

c. Upon obtaining the approval signature, the revised UM&S is distributed as noted on the UM&S cover sheet.

d. The originating Shipyard's UM&S Coordinator shall notify the NAVSEA UM&S Repository Coordinator that the revision has been issued and ensure that the index of documents is updated.

5. Changes. Changes are only allowed for the correction of typographical and administrative information. Standard allowances may never be changed without a revision to the document. Changes may be accomplished in the electronic master file by the originating Shipyard without the need for an approval signature from the Chief Engineer. Changes will be identified by number, brief description, who accomplished the change, and the date it was accomplished on the Revision/Change Sheet included in the electronic master file (see the sample provided in attachment (1)). All changes shall be annotated on the cover sheet (of all hard and electronic copies) with the characters "CH-" followed by the change number and date of the change. Originators shall notify UM&S Coordinators of changes. UM&S Coordinators shall in turn notify the NAVSEA UM&S Repository Coordinator and verify that the latest edition is maintained in the electronic master file and that the electronic index has been changed to reflect the latest information.

6. Cancellation of UM&S. To cancel a UM&S, the requesting party shall submit a written or e-mailed request to the UM&S Coordinator. The request must state the reason or the circumstance for cancellation. The UM&S Coordinator shall route a copy of the request to all Shipyards for review. Objections to

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cancellation must be resolved by the originator of the UM&S. If all Shipyards approve the cancellation, then the UM&S Coordinator shall:

a. Notify the NAVSEA UM&S Repository Coordinator of the cancellation and ensure that the index of documents is updated.

b. Notify standard and additional distribution maintained on the cover sheet of the UM&S.

c. Place a copy of the cancellation document in the UM&S history file.

7. Electronic File Preparation and Sharing

a. The UM&S shall be stored for exchange purposes in one MS-Word document. There will be rare exceptions to the one document rule, only when the standard allowance tables completely require a separate document will it be acceptable to add a separate MS-Excel file. The goal is for the electronic document to be one individual file, thus when possible pull any tables created in MS-Excel into the MS-Word file. In the development and revision of UM&S, utilize Arial True Type Font only. The body of the document, including narratives in the Method and Standard sections, shall be in a 12 point font; while the tables in the Method and/or Standard sections or enclosures will vary in font size as is necessary for the table development.

b. Electronic files for UM&S shall conform to a common file naming structure. The format to name these documents shall utilize the number with revision letter preceding the file type (DOC for MS-Word files, and XLS for MS-Excel files). For example, UM&S 4320-956 revision A, titled "PUMP, GOVERNOR AND TURBINE STEAM ADMISSION VALVE; SHOP REPAIR" would be electronically identified as 4320956A.DOC and if there were an associated MS-Excel file this would be electronically known as 4320956A.XLS. UM&S changes will not be identified in the file naming structure.

c. The following are basic typing guidelines. It is recognized that each UM&S is a unique document and will need to vary in formatting for the Tables which are in the Method and/or Standard sections or enclosures of the document. However, by

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following the same general guidelines the final product will be more acceptable.

(1) Headers are to be in the upper right corner on the first page of the document and alternate upper left and upper right corner on every page thereafter.

(2) In general follow the UM&S format in attachment (2).

(3) Type the page number in the center of the page, approximately 0.5" from the bottom of the page. Pages prior to the Sections are in lower case Roman numerals, i, ii, iii, etc. The Sections, as well as enclosures, attachments, and appendices are in Arabic numerals, and should be numbered using any logical manner.

(4) Enclosures, attachments, and appendices should be labeled as Enclosure (1), Attachment (1), or Appendix A, with the next line reading Page 1 of total pages, if there are more than one page in the enclosure, attachment, or appendix. Tables will be labeled numerically as they appear in the document.

(5) The paragraph numbering within each section begins with 1, and progresses sequentially (i.e., the paragraph numbering would be 1., 1.1, 1.1.1, 1.1.2, 1.2, 1.2.1, 2., 2.1, 2.1.1, etc.). The lead number will change with major process completion.

(6) In an enclosure, if an attachment is necessary, refer to it as "attachment (#)." In the body of the document, refer to the attachment as "attachment (#), Page 2 of 5 to enclosure (#)."

III. UNIFORM METHOD AND STANDARD SUPPLEMENT SYSTEM

1. Background. UM&S Supplements are intended to bridge the gap between the approved UM&S and its application at each Shipyard. However, supplements are not intended to change the method/process, or deviate from the approved process/procedure described in the UM&S or related UIPI(s). Use of a supplement is appropriate for the following local applications:

a. Referencing of local instructions.

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b. Incorporating differing requirements based on mandated legal requirements, such as environmental requirements.

c. Incorporating activity specific management requirements, such as safety or quality requirements.

d. Incorporating additive information for application of the UM&S.

2. Responsibilities/Procedures

a. UM&S Coordinator will:

(1) Review the approved UM&S and assign development of supplemental information as necessary.

(2) Assure that supplements are identified by number consecutively as they are developed/approved for each UM&S, for local application. Cover sheets for supplemented UM&S (hard and electronic copies) shall be annotated with the supplement number and date (see sample in attachment (2)).

(3) Prepare an Index of Supplements listing all supplements and insert after the cover sheet of the approved UM&S (see sample in attachment (2)) within the local supplement system.

(4) Maintain a file of locally supplemented UM&S. Distribution, other than local, of supplements is not required.

(5) Assure that UM&S supplements are approved by the local Chief Engineer. Signature of the Chief Engineer shall be managed locally, an example may be found in attachment (2).

b. The supplement system for each Shipyard will be maintained within its own electronic library system, in a fashion accepted locally. It will be the responsibility of the individual applying the UM&S to assure that they have also checked for any local supplement information prior to using the UM&S.

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IV. APPLICATION OF LABOR STANDARD INFORMATION

1. Those who are tasked with applying UM&S to write a job shall use a work-up sheet to document; the TSD, the man-hours estimated to perform that job, and the serial number of the applicable source of the standard allowance data. Valid sources include UM&S, EM&S, UEM&S, Estimated Standards, and 2E-Specs. All Type O allowances and adjustments developed by the job writer shall also be documented on the work-up sheet.

2. Application of the UM&S is for the development of the labor portion of the estimate only. Estimate of material will be provided as an additional effort based on identified material ordering rules of the estimating activity.

3. Approved UM&S will be used to the greatest extent possible as the basis for developing labor estimates. Work methods sometimes change from that described in the UM&S, but it will still be used as the basis for the labor portion of the budget quality estimate.

a. Labor standards should be applied as much as possible. Regardless of how "current" a standard might be, it provides consistency to the estimating process. Consistency is the most important reason for using standards, because it provides a standard to measure performance.

b. When no standard allowance data exists, estimates are to be based on non-standard, Type O allowances developed by the job writer for that job only. Such allowances shall be for specifically identified and quantified work when known. When the scope of work cannot be specifically identified and qualified, the Type O allowance is to be based on "average conditions". Average conditions are defined as those conditions that are expected to be found 50% or more of the time.

c. When the work scope is greater or less than the method defined in the UM&S and/or when technical factors (such as location, work space environment, and economies of scale) justify an increase or decrease beyond what is covered in the UM&S, it is appropriate for the job writer to calculate man-hour adjustments. Adjustments (positive or negative) shall be considered Type O allowances and shall be applied in addition to the standard

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allowance data provided in the UM&S; and the resulting total is the labor portion of the budget quality estimate. All adjustments must be considered on a case by case basis and must be documented on estimate work-up sheets.

d. Standard allowance data does not provide for avoidable delays, lack of resources, lost time, inefficient practices, and rework. The existence of these conditions is not construed as being inherent in the meaning of "average conditions", regardless of any past policies, practices, and procedures. Time consideration for these conditions is provided for in the Shipyard and management reserves, as applied by the responsible business agent and project superintendent/manager.

e. Allowances for minor unavoidable delays are included in the UM&S. Minor unavoidable delays are defined as only those that are an inherent part of the work process, not a delay that could be avoided by proper planning, coordination, and workforce management.

f. Past expenditures are not acceptable elements of a labor estimate. Expenditures that exceed the estimate must never be allowed to establish new labor estimates.

g. Labor estimates must be benchmarked against the best performance anywhere in the public or private sector. In cases where the estimate is significantly higher than the benchmark, Industrial Engineering will be notified to review the UM&S for revision.

4. The Job Summary Review is the official meeting to provide all information needed to plan and schedule the work represented in the Job Summary. These meetings provide a forum for exchanging ideas, identifying problem areas, evaluating the estimate against benchmarked performances, and reaching a consensus on the best way to accomplish the work.

a. Naval Shipyards must relentlessly search for opportunities to reduce costs. One of the most valuable occasions to review Shipyard processes and lower costs is in the Job Summary Review Process. The reviews must challenge past practice and the existing work methods and find less costly ways to complete work. Appreciation of this change and responsibility

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for cost reductions, demands scrutiny of any increase of an estimate beyond that provided in the Preliminary Job Summary.

b. Cost information provided on the Preliminary Job Summary is established by Engineering and Planning Department, based on approved UM&S. The UM&S are developed to recognize the accepted method of work performance, as well as needed crew size and duration. The cost information should also recognize appropriate benchmark estimates and costs for similar work. The effort to document and "reuse" standard information will ensure that the projects receive the true "bare bones-zero based" estimates for performance of work in the Preliminary Job Summary. It is therefore imperative that the Job Summary Review process be disciplined to not allow estimates for performance of work to be raised.

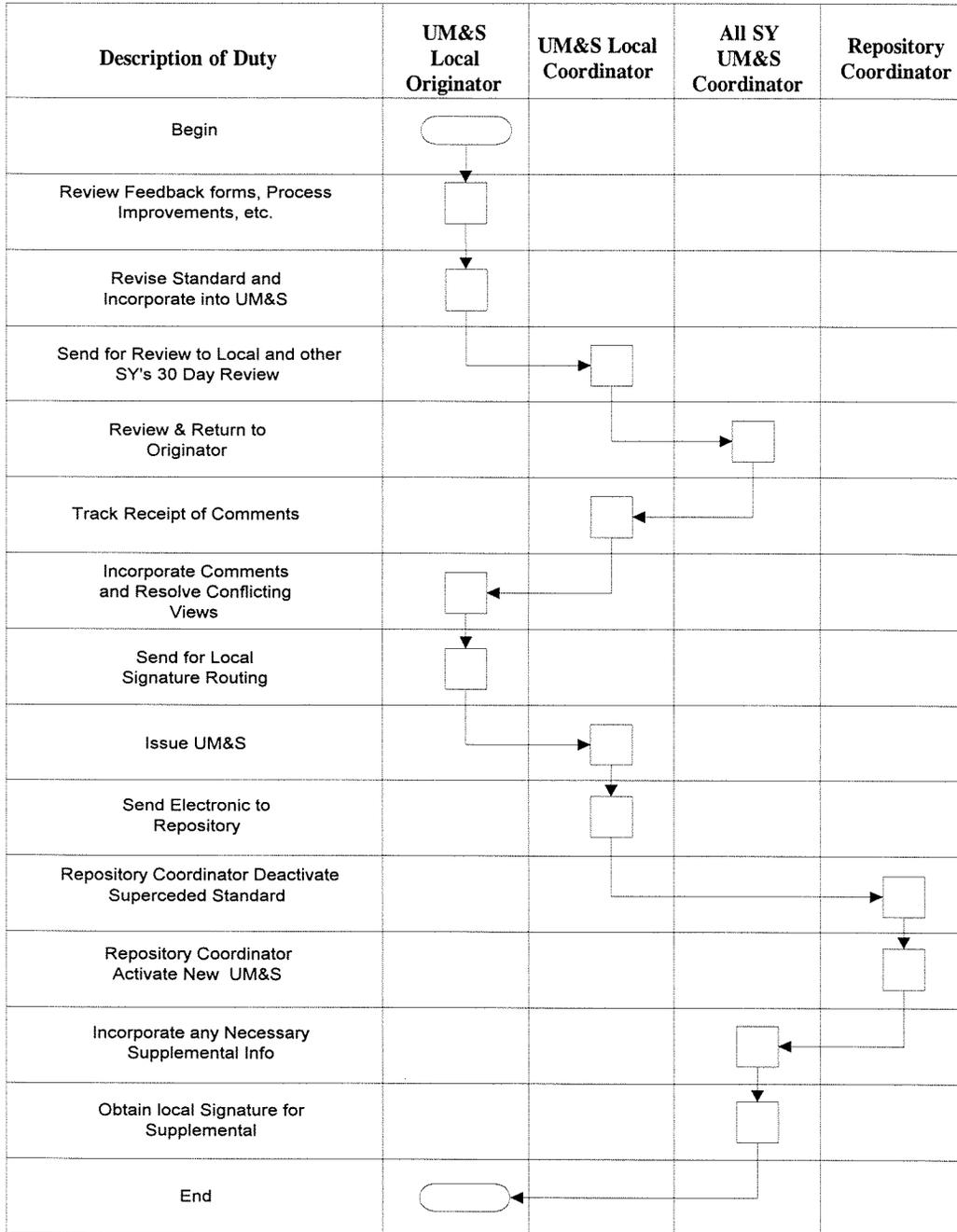
c. It is important that estimates provided on the Preliminary Job Summary will not be increased beyond that which is allowed by labor standards, with approved adjustments. The exceptions shall be when the UM&S has been incorrectly applied and/or when the scope of work in the Preliminary Job Summary is not inclusive of all the work required. Any exceptions will be addressed in accordance with NAVSEA project management policy.

Enclosure (1)

UNIFORM METHODS AND STANDARDS PROGRAM DETAILS

V. UNIFORM METHOD AND STANDARD DEVELOPMENT FLOWCHART

Uniform Method & Standard (UM&S)
Revision Process Flow



begin or end of process process step

BLANK FORMS



UNIFORM METHOD & STANDARD

UM&S NO: _____

EFFECTIVE DATE: _____

CANCELS: _____

TITLE:

SECTIONS:

- A. METHOD _____
- B. STANDARD _____ **X**
- C. FEEDBACK _____ **X**
- D. SUPPLEMENT(S) _____
- _____
- _____
- _____
- _____

APPLICATIONS:

PRIMARY TSD _____

APPL. TYPE SHIP _____

STANDARD DISTRIBUTION:

NAVSEA 04X REPOSITORY
 FKP7 (C/200 & C/248)
 All SHAPEC's

ORIGINATOR:

SHIPYARD: _____

CODE: _____

PREPARED BY: _____

PHONE: _____

E-MAIL ADDRESS: _____

ADDITIONAL DISTRIBUTION:

DISTRIBUTION STATEMENT E: Distribution authorized to DoD Components only; Administrative/Operational use, (insert date). Other requests shall be referred to (insert originating command).

APPROVED BY: _____

CHIEF ENGINEER: CODE

DATE: _____

Enclosure (1)
 Attachment (1)

SAMPLE UNIFORM METHOD & STANDARD

UNIFORM METHOD & STD.
4820-953A CH-1
PSNS-1

INDEX OF
PUGET SOUND NAVAL SHIPYARD SUPPLEMENTS

<u>NUMBER</u>	<u>SECTION</u>	<u>STEP</u>	<u>TITLE</u>
PSNS NO. 1	References	NA	Local PIs/IPIs Related to this UM&S

NAVSHIPYDPUGET SUPPLEMENT NO. 1

REFERENCES

<u>REF</u>	<u>NUMBER</u>	<u>TITLE</u>
(a)	0074-170A Ch-8	Process Instruction; Valve Parts & Misc Components - Hardfacing of

PURPOSE: To provide link of this UM&S to local IPIs as required by NAVSEA Inst. 5240.1B. Utilize reference (a) in determining work information for estimate development for hardfacing of valve parts, as necessary.

APPROVED BY: /S/
CHIEF ENGINEER: CODE 240

DATE: 8 July 1998

SAMPLE UNIFORM METHOD & STANDARD

UNIFORM METHOD & STD.

4820-953A CH-1

OPER. NO.	DESCRIPTION	INDEX	PAGE NO.
	REVISION/CHANGE SHEET		i
	INDEX		ii
	REFERENCES		iii
	ENCLOSURES		iii
	PURPOSE		iii
	SCOPE		iii
	GENERAL USE		iv
	METHOD		1
	STANDARD		1
	FEEDBACK		1
	DETAILED METHOD DESCRIPTION		ENCL 1
1	SHIPBOARD DISASSEMBLY; STANDARD TABLE FOR		ENCL 2, PG 1
2	SHIPBOARD REPAIRS; STANDARD TABLE FOR		ENCL 2, PG 1
3	SHOP REPAIR; STANDARD TABLE FOR		ENCL 2, PG 1
4	FINAL ASSEMBLY; STANDARD TABLE FOR		ENCL 2, PG 2
	ESTIMATE WORKSHEET		ENCL 3
	FEEDBACK RECORD SHEET		ENCL 4

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PSNS-1

LIST OF REFERENCES
(always use latest revision)

PSNS-1	(a) 0074-170A Ch-8	Process Instruction; Valve Parts & Misc Components - Hardfacing of
--------	--------------------	---

Note: No UIPI corresponds to this UM&S.

LIST OF ENCLOSURESENCL TITLE

- | | |
|-----|--|
| (1) | DETAILED METHOD DESCRIPTION |
| (2) | STANDARD TABLES FOR INLINE PARALLEL DISC GATE VALVES |
| (3) | ESTIMATE WORKSHEET |
| (4) | FEEDBACK RECORD FORM |

PURPOSE

Provide baseline method and standard man-hour allowance data in the form of a Uniform Method and Standard (UM&S) for use by the Engineering and Planning Department in preparing work documents.

SCOPE

1. Man-hour allowances are included for parallel disc gate valves.
2. This UM&S provides time for instruction, personal time, job study, procurement of tools and material, document preparation, productive work, and allowable delays.
3. All man-hour allowances are "SHOULD COST" values. Estimated man-hours are identified by "A". Engineered man-hours are identified by "E". Allowances are proportional to the work scope and can be adjusted with valid scope changes.
4. Estimates and allowances will not deviate from the UM&S unless the work required is not completely covered by the UM&S. However, in all cases the deviation from the standard must be approved by an approving authority and the reason for the deviation documented. The approving authority will be the Chief Engineer or a designated representative. The designated representative shall not be the individual planner.

SAMPLE UNIFORM METHOD & STANDARD

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5. The Detailed Method provided in enclosure (1) provides a short description of who does what in normal lay person terminology. Data Tables in enclosure (2) include a brief operation description applicable to the work performed by the various shop trade skill designators (TSD's) as well as the Standard Time.
6. This UM&S does not apply to any work under the cognizance of the Nuclear Engineering Department.
7. This Standard incorporates and supersedes the following standard:

4820-953A
8. The Estimate Worksheet, enclosure (3), can be used to assist in computing man-hour allowances.
9. The Feedback Record form, enclosure (4), can be used by authors, users, and Quality Assurance/Control codes to verify that this Uniform Method and Standard is technically correct and is being used properly by the Engineering and Planning Department.

GENERAL USE OF THIS DOCUMENT

1. A list of enclosures is provided on page iii.
2. The definition section on page 1 defines terms used in this and other UM&S's.
3. A detailed description of the work method is provided in enclosure (1). The process is broken down into the following primary operations: (1) onboard repairs and (2) shop repairs.
4. Standard man-hour allowances for each operation are provided in enclosure (2).
5. A worksheet to determine man-hour estimates is provided as enclosure (3).
6. A Feedback Record form, which may be used when conducting a review or audit, is provided as enclosure (4).

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A. METHOD

1. Definitions:

- 1.1 Standard allowances: Man-hour allowances were developed by on the job observation under typical conditions during overhaul, analysis of historical data, and standard interchange data.
- 1.2 Personal Time Allowance: A percentage factor (10% waterfront, 8% shop) is included in all man-hour allowances for personal time, fatigue, and allowable delays. Also, time for clean up at the start and end of shift, and donning and removing special clothing is included as an allowance.

2. General information and Requirements:

2.1 Engineering and Planning personnel shall:

- 2.1.1 Apply this UM&S to all work documents for parallel disc gate valves.
- 2.1.2 Compute all man-hour allowances using the standard tables provided as enclosure (2).
- 2.1.3 Provide TGI's and service Job Summaries to cover all support work and temporary service requirements not covered by enclosure (1).

3. Detailed Method Description:

- 3.1 A detailed method description is provided in enclosure (1). Reference (a) may be utilized for process information regarding hardfacing of valve parts.

PSNS-1

B. STANDARD. Standard man-hour allowances are provided in enclosure (2).

C. FEEDBACK. Enclosure (4) is a Feedback Record that can be used by authors, users, shop personnel, Quality Assurance/Control codes to verify that this UM&S is technically correct and is being used properly. Forward specific findings and/or recommendations for improvements related to this document to originator.

DETAILED METHOD DESCRIPTION

1. Shipboard Disassembly

- 1.1 Marine machinist will obtain work package and review contents for understanding of job. Read drawings and technical instructions.
- 1.2 Marine machinist remove mechanical operator from the valve.
 - 1.2.1 Provide rigging for this operation.
- 1.3 Marine machinist disassemble the valve, inspect the body and all of the parts, then fill out an inspection report.
 - 1.3.1 Provide rigging for disassembly.
- 1.4 Marine machinist clean the valve body and provide foreign material exclusion (FME) for the valve body.
- 1.5 Marine machinist tag and ship parts as necessary to the inside machine shop for shop repair/manufacture.

2. Shipboard Repairs

- 2.1 Marine machinist install FME plugs into remaining entry and exit points where system is open.
- 2.2 Marine machinist measure and lap seats. This is based on the time to accomplish the initial lapping and bluing. Lapping in excess of this time should be considered new work.
- 2.3 Marine machinist measure the seal ring area before and after polishing.
- 2.4 Marine machinist polish the seal ring area.
- 2.5 Marine machinist clean all parts not shipped to the machine shop.

3. Shop Repair

- 3.1 Machinist clean parts well enough for inspection (stem, discs & bonnet).
- 3.2 Machinist inspect and polish the stem.
- 3.3 Machinist prepare the stem for weld repair.

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- 3.4 Welder ceramic spray weld the stem.
- 3.5 Machinist finish machine and perform a visual inspection.
- 3.6 Machinist inspect the bonnet and skim cut the packing bore, back seat, and seal ring surfaces.
- 3.7 Machinist prep the bonnet for weld repair of the packing bore.
- 3.8 Welder shall perform a weld repair of the bonnet.
- 3.9 Machinist finish machine the bonnet.
- 3.10 Inspector perform a penetrant test (PT) of the welded area of the bonnet.
- 3.11 Machinist perform the final inspection of the bonnet.
- 3.12 Machinist perform initial inspection of each disc.
- 3.13 Machinist grind and lap each disc flat.
- 3.14 Machinist perform final inspection of each disc.

4. Final Assembly

- 4.1 Marine machinist assemble all parts and move onto the ship.
- 4.2 Marine machinist prepare the valve for final assembly.
- 4.3 Painter complete painting of valve body and bonnet.
- 4.4 Rigger provide rigging for valve during reinstallation into the system.
- 4.5 Inspector perform final FME inspection prior to reinstallation.
- 4.6 Marine machinist reassemble the valve.
- 4.7 Marine machinist install mechanical operator system.
- 4.8 Rigger provide rigging for installation of the mechanical operator.
- 4.9 Painter provide the final touch-up painting.
- 4.10 Marine machinist finalize and verify that all paper work is completed.

Enclosure (1)
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SAMPLE UNIFORM METHOD & STANDARD

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INLINE PARALLEL DISC GATE VALVES

OPER. NO.	DESCRIPTION	TSD	UNIT	MHR'S BY VALVE SIZE			STD
				5" - 8"	8" - 12"	12"-16"	
1.	Shipboard Disassembly						
1.1	Obtain work package & review	MH/MJ	Valve	1	1	2	A
1.2	Remove operator	MH/MJ	Operator	0.6	4.5	6	A
1.2.1	Provide rigging	R1	Operator	N/A	4	8	A
1.3	Disassemble valve, inspect & report	MH/MJ	Valve	2.5	4	7	A
1.3.1	Provide rigging	R1	Valve	N/A	12	16	A
1.4	FME/clean valve body	MH/MJ	Valve	2	3	4	A
1.5	Tag and ship parts	MH/MJ	Valve	2	2	2	A
2.	Shipboard repairs						
2.1	Install plugs	MH/MJ	Body	1	1.5	3	A
2.2	Measure & lap seats *	MH/MJ	Body	14	32	64	A
2.3	Measure seal ring area before & after polish	MH/MJ	Body	2	2	3	A
2.4	Polish seal ring area	MH/MJ	Body	2	2	2	A
2.5	Clean all parts not shipped to machine shop	MH/MJ	Body	4	6	8	A
3.	Shop Repair						
3.1	Clean parts (stem, discs & bonnet)	M5	Valve	2	2	2	A
	Stem						
3.2	Inspect & polish	M5	Stem	2	2	2	A
3.3	Prep for weld repair	M5	Stem	2.5	3	4	A
3.4	Ceramic weld	W1	Stem	11	12	13	A
3.5	Finish machine/inspection	M5	Stem	3.5	4	4.5	A
	Bonnet						
3.6	Inspect & skim cut packing bore, back seat and seal ring surfaces	M5	Bonnet	3.6	4.2	6	A
3.7	Prep for weld repair (packing bore)	M5	Bonnet	1.2	2	2.8	A
3.8	Weld repair **	W1	Bonnet	3	4	6	A
3.9	Finish machine	M5	Bonnet	3.2	4	4.6	A
3.10	Pt weld	GA	Bonnet	1	1.5	2	A
3.11	Final inspection	M5	Bonnet	1	1	1	A

Enclosure (2)

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SAMPLE UNIFORM METHOD & STANDARD

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OPER. NO.	DESCRIPTION	TSD	UNIT	MHRS BY VALVE SIZE			STD
				5" - 8"	8" - 12"	12"-16"	
Disc 2(ea)							
3.12	Initial inspection	M5	Disc	0.6	0.6	0.8	A
3.13	Grind/lap flat	M5	Disc	3.5	4	5	A
3.14	Final inspection	M5	Disc	0.5	0.5	0.5	A
4. Final Assembly							
4.1	Assemble all parts and move to ship	MH/MJ	Valve	2.5	3.5	4.5	A
4.2	Prep valve for final assy	MH/MJ	Valve	1	1.5	2	A
4.3	Paint valve parts	AA	Valve	3	3.5	4	A
4.4	Provide rigging for valve	R1	Valve	N/A	6	8	A
4.5	Final FME inspection	G2	Valve	1	1	1	A
4.6	Reassemble/pack valve	MH/MJ	Valve	5.2	10	12	A
4.7	Install operator	MJ/MH	Operator	3	4	6	A
4.8	Rig operator	R1	Operator	N/A	12	14	A
4.9	Final touch-up painting	AA	Valve	2	2.5	3	A
4.10	Verify/finalize paper work	MH/MJ	Valve	1.5	1.5	1.5	A

SPECIAL NOTES:

- * Lapping time for each valve varies considerably depending on location, valve position and seat condition. Time in standard is base time to accomplish initial lapping and bluing. Lapping in excess of this time should be considered new work.
- ** Weld data for bonnet repair obtained from local labor standard (latest revision).

Enclosure (2)
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