PATS-1361 (Rev. 11/85)

EG&G Idaho, Inc. STANDARD PRACTICE DOE Weld Evaluation Project	Title: ESTABLISHING HOMOGENEOUS GROUPS AND BOUNDARIES	No.: WEP 3.1.3
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		Date: 08/18/86
	Approved:	REVISIONS: Vertical line, right margin
Reviewed By:		

1. PURPOSE AND SCOPE

To define the process for selection and evaluation of welds for the Tennessee Valley Authority (TVA) Watts Bar Nuclear Plant Unit 1 (WBN-1). This process will be implemented through homogeneous groups that are developed from one of three sources: employee concerns, miscellaneous quality indicator reports, and a general selection of all safety-related welds not addressed by the other sources. Once the homogeneous groups are defined, they are further refined by a bounding process.

DRR WEP 438

2. RESPONSIBILITY AND PRACTICE

2.1 Examination Preparation/Data Analysis (EP/DA) Component Selection Group shall prepare and maintain the weld/component data base according to Reference 4.1.

2.2 Employee Concern/Quality Indicator (EC/QI) personnel shall establish homogeneous groups from employee concerns, miscellaneous quality indicator reports, and the general selection, as directed in Appendix A, B, and C, respectively. EC/QI shall also prepare and establish groups due to re-bounding in accordance with Appendix D.

2.3 EC/QI shall bound the homogeneous groups by considering, as an example, the following criteria.

a. Assignment of these groups should maximize the isolation of welds or components associated with each suspected problem.

b. Homogeneous groups with common component populations shall be consolidated to maximize the number of problems addressed by each group.

2.4 EC/QI shall overlay the bounded homogeneous groups selected from the four sources and remove from the general populations any areas already addressed by the other sources.

2.5 EC/QI shall resolve any overlap of effort from among the sources.

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APPENDIX A

ESTABLISHING HOMOGENEOUS GROUPS
FROM EMPLOYEE CONCERNS

1. Examination Preparation/Data Analysis (EP/DA) Component Selection Group shall generate a master list of all Tennessee Valley Authority (TVA) employee concerns to be considered by the Weld Evaluation Project (WEP).

2. EC/QI shall assess each of the concerns appearing on the approved employee concern list to ensure compatibility with the objectives and commitments of WEP as described in the Project Management Plan. The following concerns shall be eliminated from further consideration:

   a. Those that are associated only with welding programs of organizations other than TVA

   b. Those that are limited to systems or components which are not safety-related as defined by the TVA WBN Final Safety Analysis Report (FSAR) and implementing TVA drawings and specifications

   c. Those associated with problems which do not imply a violation of the welding program requirements invoked by the TVA WBN FSAR and implementing TVA drawings and specifications

   d. Those that reflect obvious misperception of actual conditions.

3. EC/QI shall group the remaining employee concerns into categories.

   a. Categories shall be based on subjects such as the following and uniquely identified.

      1. Welder certification/qualification

      2. Inspector qualification/certification

      3. Weld filler control

      4. Base metal/material

      5. Documentation

      6. Workmanship/specific weld characteristics

      7. NDE processes/procedures

      8. Weld processes/procedures

APPENDIX B

ESTABLISHING HOMOGENEOUS GROUPS
FROM MISCELLANEOUS QUALITY INDICATOR REPORTS

1. The term miscellaneous quality indicator reports shall include but not be restricted to the following:

   Stop Work Order (SWO)
   NRC-identified overview problems
   INPO findings
   Authorized Inspection Agency SIS reports
   Findings from the Black and Veatch review
   10 CFR 50.55(e) reports
   Allegations to NRC
   Significant Conditions Reports (SCR)
   Preoperational Test Deficiency Reports (PTDR)
   Corrective Action Reports (CAR)
   Nonconformance Reports (NCR)

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2. The Employee Concerns/Quality Indicator Assessment (EC/QI) group shall gather miscellaneous quality indicator reports for evaluation.

3. EC/QI shall separate the welding-related miscellaneous quality indicator reports by category.

4. EC/QI shall assign a cognizant quality engineer to evaluate each individual category.

5. The responsible quality engineer shall evaluate the miscellaneous quality indicator reports according to the following criteria.

   a. Verify that disposition of nonconformance was provided.

   b. Verify that the disposition was implemented.

   c. Review the disposition and verify that if additional noncompliant welds were indicated in the nonconformance description, that the miscellaneous quality indicator report disposition corrected all of the noncompliant welds.

   d. Categorize the subjects of the miscellaneous quality indicator reports for detection of trends.

   e. Identify and review for adequacy, any miscellaneous quality indicator reports with technical justifications having as-is dispositions.

6. Categorize as follows the individual problems identified in the homogeneous groups.

APPENDIX C

ESTABLISHING HOMOGENEOUS GROUPS
FROM THE GENERAL SELECTION

1. Using the data base prepared according to Standard Practice WEP 3.1.2, Preparing and Maintaining the Weld/Component Data Base, the Employee Concern/Quality Indicator Assessment (EC/QI) personnel shall separate the plant safety-related welds into four categories: (1) pipe welds, (2) structural welds, (3) HVAC duct, and (4) other.

2. EC/QI personnel shall separate these four categories to establish homogeneous groups:

   a. Divide pipe welds into three basic groups:

      1. ASME large bore.

      2. ASME small bore.

      3. ANSI B31.1, B31.5.

   b. AWS structural welding basically uses the same process throughout; therefore, separate this category into five groups by discipline (application) as follows:

      1. Welds associated with civil structural welds.

      2. Welds associated with piping systems hangers and supports.

      3. Instrumentation supports and hangers.

      4. Welds associated with electrical.

      5. Welds associated with HVAC system supports and hangers.

   c. HVAC duct.

   d. Other; all safety related welds that are either not included in, or that are included but cannot be adequately evaluated by examination of the subject categories identified above.

3. EC/QI personnel shall further divide the homogeneous groups identified in Paragraph 2, above, by time periods that reflect major occurrences which may have had an effect on the way welds were produced and/or accepted.

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1. PURPOSE AND SCOPE

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2. RESPONSIBILITY AND PRACTICE

2.1 Examination Preparation/Data Analysis (EP/DA) Component Selection Group shall prepare and maintain the weld/component data base according to Reference 4.1.

2.2 Employee Concern/Quality Indicator (EC/QI) personnel shall establish homogeneous groups from employee concerns, miscellaneous quality indicator reports, and the general selection, as directed in Appendix A, B, and C, respectively. EC/QI shall also prepare and establish groups due to re-bounding in accordance with Appendix D.

2.3 EC/QI shall bound the homogeneous groups by considering, as an example, the following criteria.

a. Assignment of these groups should maximize the isolation of welds or components associated with each suspected problem.

b. Homogeneous groups with common component populations shall be consolidated to maximize the number of problems addressed by each group.

2.4 EC/QI shall overlay the bounded homogeneous groups selected from the four sources and remove from the general populations any areas already addressed by the other sources.

2.5 EC/QI shall resolve any overlap of effort from among the sources.

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2.6 EC/QI shall develop a master list of homogeneous groups and boundaries including the data from all four sources.

2.7 The EC/QI Manager shall approve the master list.

2.8 Project Support Activities (PSA) shall control the master list of homogeneous groups as a quality document and assign unique identifiers.

2.9 EC/QI shall establish an approach for examining the individual homogeneous groups according to Reference 4.2.

3. DEFINITIONS

Homogeneous Groups--Groups of components that are evaluated as having common weld quality.

4. REFERENCES

4.1 Standard Practice WEP 3.1.2, "Preparing, Verifying, Populating, and Maintaining the Component Data Base." DRR WEP 438

4.2 Standard Practice WEP 3.1.4, "Establishing a Homogeneous Group Assessment Plan."

4.3 Standard Practice WEP 3.1.6, "Identifying Random Samples From Homogeneous Groups."

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APPENDIX A

ESTABLISHING HOMOGENEOUS GROUPS
FROM EMPLOYEE CONCERNS

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      6. Workmanship/specific weld characteristics

      7. NDE processes/procedures

      8. Weld processes/procedures

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9. Other concerns related to welding.

4. EC/QI shall further categorize the individual items identified.

   a. Specific--A group of components formed to address a specific problem and that will be 100% evaluated.

   b. Special--A group of components formed to address a specific problem that will be statistically evaluated.

5. EC/QI shall refine these categories to bounded homogeneous groups considering the following criteria, as appropriate.

   a. Assignment of these groups should maximize the isolation of welds or components associated with each suspected problem

   b. Homogeneous groups with common component populations shall be consolidated to maximize the number of problems addressed by each group.

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APPENDIX B

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FROM MISCELLANEOUS QUALITY INDICATOR REPORTS

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   d. Categorize the subjects of the miscellaneous quality indicator reports for detection of trends.

   e. Identify and review for adequacy, any miscellaneous quality indicator reports with technical justifications having as-is dispositions.

6. Categorize as follows the individual problems identified in the homogeneous groups.

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a. Specific--A group of components formed to address a specific problem and that will be 100% evaluated.

b. Special--A group of components formed to address a specific problem that will be statistically evaluated.

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APPENDIX C

ESTABLISHING HOMOGENEOUS GROUPS
FROM THE GENERAL SELECTION

1. Using the data base prepared according to Standard Practice WEP 3.1.2, Preparing and Maintaining the Weld/Component Data Base, the Employee Concern/Quality Indicator Assessment (EC/QI) personnel shall separate the plant safety-related welds into four categories: (1) pipe welds, (2) structural welds, (3) HVAC duct, and (4) other.

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APPENDIX D

ESTABLISHING RE-BOUNDED GROUPS
FROM WEP INSPECTION RESULTS

EQ/CI shall establish re-bounded homogeneous groups considering the following criteria, as appropriate.

1. If a component is deemed Unsuitable-For-Service, evaluate the deviation to determine the root cause.

2. Determine the degree of homogeneity associated with the deviation in relation to the initially bounded group. This evaluation may result in a new bounded group that is, less than , or extends beyond the initial groups boundaries.

3. Use the data base, Reference 4.1, to perform re-bounding.

4. Sample re-bounded populations in accordance with Reference 4.3

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