



**Nuclear Quality Repair Manual
#ND-NRM-1-Q-000 Edition 2
Chalmers & Kubeck, Inc.
Nuclear Division
150 Commerce Drive
Aston, PA 19014-0447**

NBIC Category 2 Repair/Replacement of Class 2 and 3 pumps, pump parts, and appurtenances; Class 2 and 3 Line valves, safety valves and piping components; Class 2 and 3 Pressure Vessels at the above location and sites controlled by this location.

Approved Nuclear Quality Oversight Manager	 Ed Lawrence	12/8/15 Date	
Approved Nuclear Division President	 Jim Moore, Sr.	12/8/15 Date	
Accepted Authorized Nuclear Inspection Supervisor	 Salvatore Catalano	Date 12/9/2015	

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Revision History

Revision	Change Description	Effective Date	Approved By
0	Initial Issuance	8/22/12	 Jim Moore, Sr.
1	Updated to address NBIC 2015 Requirements as well as ANIS General Comments	11/17/15	 Jim Moore, Sr.
Edit 2/ Rev 0	Updated to address NR Survey Team Changes	12/9/15	 Jim Moore, Sr.

Note: Revisions to this manual will be controlled in their entirety and by the usage of revision bars in the right margin to mark the impacted areas.

Reviewed by: Ed Lawrence/ Date: 12/8/15

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Policy Statement

This Nuclear Quality Repair Program, which has been developed in accordance with the National Board Inspection Code (NBIC) – Part 3 - 2015, 10CFR50 Appendix B, 10CFR50.55(a) and with additional requirements of the American Society of Mechanical Engineers (ASME) Section XI. When required, this program may be supplemented to be consistent with the Owner's Quality Assurance Program.

This Nuclear Quality Repair Program has been developed for controlling the quality of activities as a Category 2 performed during Repair/Replacement Class 2 and Class 3 pumps, pump parts and appurtenances: Class 2 and 3 line valves, safety valves and piping components; Class 2 and 3 Pressure Vessels at the above location and sites controlled by this location including those Items originally stamped with the ASME "N" or "NV" symbol, (i.e., safety/relief valves). This includes Items classified as "Safety Related" by the Owner, in nuclear power plant systems that are within the scope of the applicable edition and addenda of ASME Section XI identified by the owner.

The Nuclear Quality Oversight Manager (NOM) shall have sufficient authority, direct access to responsible levels of management, organizational freedom, and access to work to perform assigned responsibilities, including sufficient independence from cost and schedule when opposed to safety function considerations. These verification functions include the following:

- (1) identifying quality problems
- (2) initiating, recommending, or providing solutions to quality problems through designated channels
- (3) verifying implementation of solutions
- (4) assuring that further processing, delivery, or use of an item is controlled until proper disposition of a nonconformance, deficiency, or unsatisfactory condition has occurred, including concurrence by the ANI.

Individuals or groups assigned the responsibility of inspection, testing, checking, or otherwise verifying that an activity has been correctly performed, is independent of the individual or group directly responsible for performing the specific activity.

The quality of all Repair/Replacement activities shall be controlled at all points necessary to ensure conformance with the requirements of the Code(s), the applicable Jurisdiction, 10CFR50.55(a) and this Nuclear Quality Repair Program.

When required by context, the singular shall be interpreted as the plural, and vice-versa; and the feminine, masculine or neuter gender shall be treated as such other gender as appropriate.

The Nuclear Division has my full support in fulfilling the requirements of this Nuclear Quality Assurance Repair Program, the Code and relevant jurisdictional requirements.

Jim Moore, Sr.

Nuclear Division President

Date

12/8/15

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1.0 ORGANIZATION

This section describes the controls to be implemented as required by 10CFR50 Appendix B, and Part 3 of the NBIC, and ASME Section XI.

The organizational structure, functional responsibilities, levels of authority, and lines of communications for activities affecting quality is described in following text and illustrated in the Organizational Chart . (Exhibit 1). The organizational structure and responsibility assignments are such that:

- Quality is achieved and maintained by those assigned responsibility for performing work
- Quality achievement is verified by those not directly responsible for performing the work
- The individuals identified throughout this program that are responsible for establishing and executing this program may delegate the performance of any or all of the work to others under their direct supervision but shall retain responsibility for the work or activities.

1.1 Nuclear Division President .

Establishes overall expectations for effective implementation of this quality assurance program and is responsible for obtaining the desired end result. The Nuclear Division President is responsible for assuring that an appropriate quality assurance program has been established.

The Nuclear Division President shall provide for suitably controlled conditions which include the use of appropriate equipment, suitable environmental conditions and assurance that prerequisites for activities have been satisfied. The Nuclear Division President shall provide for any special controls, processes, resources, test equipment, tools, training and skills to attain the required quality of activities and items and for verification of that quality.

1.2 Nuclear Quality Oversight Manager (NOM) -

Responsible for the preparation, revision control approval and issuance of this Nuclear Quality Repair Manual and the administration and oversight of the Nuclear Quality Assurance requirements related to this program both in the shop and at field locations.

The NOM shall regularly assess the adequacy and effective implementation of the quality assurance program and is responsible for determining the overall effectiveness of this program and shall report periodically through status memos and/or meetings to the Nuclear Division President on the effectiveness.

The NOM shall have the current edition of the National Board Inspection Code (NBIC) have available copies of the original code of construction appropriate to the intended scope of work and the applicable edition and addenda of ASME Section XI, as required by the regulatory authority and identified by the Owner.

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Original codes of construction for a particular Repair/Replacement Plan shall be provided by the Owner unless alternate arrangements are established in advance and outlined in the customers purchase order requirements.

The NOM is responsible for maintaining an agreement with an Authorized Inspection Agency and interfacing with the Authorized Inspection Agency including the Authorized Nuclear Inspector Supervisor (ANIS), Authorized Nuclear Inspector (ANI) and/or Authorized Nuclear In-service Inspector (ANII), as necessary

The NOM is also responsible for interfacing with the Owner and the Owner's Authorized Nuclear In-service Inspector (ANII) for Quality Issues, as necessary.

Maintains and controls the Nuclear Approved Suppliers List (Exhibit 12).

The Nuclear Quality Oversight Organization also consists of the following positions:

1.2.1 Nuclear Quality Auditors including Lead Auditor

Report directly to the NOM. They meet the requirements of NQA-1 2008/09 Requirement 2 and ANSI N45.2.23. They are responsible for conducting both internal and external audits of C&K, Inc. nuclear related activities and suppliers to ensure full compliance with both program and contract related requirements

1.2.2 Nuclear Quality Control Inspectors

They report directly to the NOM. They meet the requirements of NQA-1 2008/09 Requirement 2. They are responsible for ensuring that their certification, as applicable, is current for the areas of responsibility. They are also responsible performing inspections internally of defined quality criteria. This function may be contracted out to suppliers that meet the above requirements

1.2.3 Nuclear Quality Coordinators

They report to the NOM and are responsible for assisting in the overall review of the compliance of all aspects of this Nuclear Quality Repair Program. They will have basic Nuclear Quality Orientation Training provided by the NOM. They may be used to perform process verification activities, as needed.

1.2.4 Nondestructive Examination (NDE) Personnel

These services are contracted out to a certified approved supplier of the needed NDE activity. Personnel performing these activities will meet at a minimum the requirements of ASNT-TC-1A, Code accepted editions and for pre-service examinations NDE personnel shall meet CP-189 Code accepted edition and as supplemented by

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ASME XI IWA-2300 and limited by 10CFR50.55(a). Associated documentation shall be maintained by the NOM

NOTE: Future references in this program that apply to the Nuclear Valve Department Manager, Nuclear Pump Department Manager or Nuclear Machining & Maintenance Department Manager will be generically denoted as "Nuclear Department Manager". The Nuclear Weld Department Manager will be handled as a separate entity and defined below (described below in 1.2.6).

This generic reference, unless otherwise noted, denotes the assignment of departmental responsibility and will be dependent on the type of Item (e.g., pump, valve, etc.) being repaired/replaced or modified under the control of this program, including welding activities. The assigned responsibilities remain the same despite the generic title reference

1.2.5 Nuclear Department Managers [NDM] (pump, valves & machining Departments)

Will impose the requirements of this manual and will retain responsibility for activities and services when any work elements are subcontracted. They are also responsible for:

- Assuring that only qualified personnel are assigned to perform the work.
- Developing and using appropriate department level procedures or written instructions for each ASME Section XI Repair/Replacement project.
- Compiling and maintaining the list of controlled documents for the job as well as the controlled distribution of list of those documents.
- Interfacing as necessary with the Client/Customer to ensure proper understanding of job scope, work activities and coordination of any Nonconformance Reports (NCRs) (Exhibit 29).
- Developing a Repair/Replacement Plan as described in Section 9 of this program.
- Coordinating with approved suppliers of services.
- Ultimately assuring compliance with both program and contract/purchase order requirements. All Nonconformance(s) shall be properly identified, communicated to the appropriate individual and corrected. The NDM may, at any time, perform activities of their subordinates as long as they are properly qualified.
- Assigning a member of their department to coordinate purchasing activities for Nuclear Jobs in accordance with this program.

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- This includes them obtaining quotes for input to customer in response to their Request for Quote (RFQ) or other type of work inquiries
- Comparing received Purchase Orders (POs) issued order to RFQs using the Order Entry Review Form (Exhibit 9).
- Issuing Purchase Order (Exhibit 11) for the purchasing of services and/or materials.

1.2.6 Nuclear Weld Department Manager (NWDM)

The NWDM will impose the requirements of this program as they pertain to the welding activities and will retain responsibility for activities and services when any work elements are subcontracted.

The NWDM is also responsible for:

- Assuring that only qualified weld personnel are assigned to perform the work.
- Maintaining qualification records of Welders
- Developing and using appropriate department level procedures or written instructions for each Nuclear Weld Repair Activities.
- Interfacing as necessary with the Client/Customer to ensure proper understanding of job scope and coordination of any Nonconformance Reports (NCRs).
- Developing or providing input into Repair/Replacement Plans where welding is required as described in Section 9 of this program.
- Identifying the required weld materials and adequate controls are maintained.
- Coordinating with approved suppliers of services such as NDE.
- Approving the welding process and resolving any issues concerning them.
- Interfacing with the NDM and the customer as required. All communication will be documented and controlled as a non permanent record and kept within the associated Job File.
- The NWDM shall ensure that welding control is maintained for each welding related job. Weld material shall be purchased as specified by the customer documentation for the specific job only. Stock weld material shall not be used. The NWDM is responsible for maintaining qualification documentation for personnel who perform welding activities at C&K, Inc. on Continuity Report (Exhibit 22). An individual assigned to perform welding must be qualified to perform

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the assigned task. These documents shall be maintained in accordance with Section 18 of this program.

- Ultimately responsible for assuring compliance with this program and contract/purchase order requirements. Nonconformance(s) shall be properly identified, communicated to the appropriate individual and corrected.

1.2.7 Nuclear Department Foremen (NDF)

The Nuclear Department Foremen reports directly to the Nuclear Department Manager and are responsible for:

- Providing the written instructions to the Nuclear Department Workers (NDW) necessary to complete the assigned work.
- Verifying that the assigned worker is qualified to perform the assigned task.
- Providing oversight and support to the assigned workers to ensure that the job is completed successfully.
- Interfacing, as necessary, with the customer's engineering and/or representative as well as the C&K's Nuclear Quality Oversight Manager.
- Performing a final check of completed documentation to ensure accuracy.
- Verifying that completed work is properly prepared for return shipment to the customer.
- Ensure a properly prepared, reviewed and approved Repair/Replacement Plan, as described in Section 9 of this manual, has been completed prior to the start of work.
- Ensure that the assigned NDWs are properly indoctrinated and trained to perform the activity.
- Provide oversight of the NDW to ensure that each activity is completed successfully.
- Verify all activities have been successfully completed prior to presenting the documentation to the NDM.

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1.2.8 Nuclear Department Workers (NDW)

- Responsible for reviewing the supplied written instruction to ensure proper understanding, following those instructions, raising questions if not sure, identifying any nonconforming conditions that arise during the work and completing the work and associated documentation as directed.
- Reports directly to the NDF and are responsible for reading drawings, laying out job, verifying that M&TE is properly calibrated prior to using it, verifying equipment accuracy, logging M&TE IDs on all necessary forms and complying with provided written instruction. They shall also document any nonconformances and/or conditions adverse to quality identified during the performance of Nuclear Work.

1.2.9 Nuclear Weld Department Foremen (NWDF)

- Reports directly to the NWDM and is responsible for:
- Providing the written instructions to the Nuclear Welders (NW) necessary to complete the assigned work.
- Verifying that the assigned worker is qualified to perform the assigned task.
- Providing oversight and support to the assigned Welders to ensure that the job is completed successfully.
- Interfacing, as necessary, with the customer's engineering and/or representative as well as the Chalmers & Kubeck, Inc. (C&K, Inc.) Nuclear Quality Oversight Personnel.
- Performing a final check of completed documentation to ensure accuracy.
- Verifying that completed work is properly prepared for Return Shipment to the Nuclear Customer
- Ensuring a properly prepared, reviewed and approved Repair/Replacement Plan, as described in Section 9 of this program, has been completed prior to the start of work.
- Ensuring that the assigned NW is properly indoctrinated and qualified to perform the activity.
- Providing oversight of the NW & to ensure that each activity is completed successfully.

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- Verifying that all activities have been successfully completed prior to presenting the documentation to the Nuclear Weld Department Manager.

1.2.10 Nuclear Welders (also known as Technicians) (NW)

- NW is responsible for obtaining and maintaining necessary skills for performing welding activities.
- Responsible for reviewing the supplied written instruction to ensure proper understanding, following those instructions, raising questions if not sure, identifying any nonconforming conditions that arise during the work and completing the work and associated documentation as directed.
- Reports directly to the NWDF are responsible for reading drawings and written instructions, laying out job, verifying that M&TE is properly calibrated prior to using it, checking equipment accuracy, logging M&TE ids on all necessary forms and complying with provided written instruction. They shall also document any nonconformances and/or condition(s) adverse to quality identified during the performance of Nuclear Work.

1.2.11 Nuclear Shipping & Receiving Manager (NSRM)

Reports directly to Nuclear Division President and performs the following:

- Ensuring those received items are properly identified and properly controlled, segregated using Quality Hold Tags (Exhibit 10) or other markings until Nuclear Quality Oversight and/or the Responsible Nuclear Department can receive it.
- Responsible for ensuring that Nuclear Items are packaged and shipped in accordance with all pertinent shipping and packaging requirements.
- Responsible for purchasing of bulk material.
- Reviewing material requirements on purchase requests or quotes.
- Selecting an approved supplier from the Nuclear Approved Suppliers List (Exhibit 12) to issue purchase orders to or obtain quotes from.
- Reviewing order conformation from suppliers.
- Reviewing shipping & receiving documentation.
- Notifying NOM and NDM of the arrival of shipments.

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1.2.12 Nuclear Account Managers

- Responsible for coordinating all sales and business related activities associated with. Nuclear Departments and the customer.
- They are also responsible for following up with the Nuclear Customer in order to assess customer satisfaction. They report directly to the Nuclear Division President.

1.2.13 Nuclear Engineer

- At this time these services are subcontracted, if needed.

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2.0 NUCLEAR QUALITY REPAIR PROGRAM

This section describes the controls to be implemented as required by 10CFR50 Appendix B and Part 3 of the NBIC. This documented Quality Repair Program has been planned, implemented, and shall be maintained in accordance with the National Board Inspection Code (NBIC) and 10CFR50 Appendix B.

The program shall be applied to and provide control for all activities affecting quality associated with the Repair/Replacement of nuclear Items, which includes ASME Code stamped components and those items classified as %Safety Related+ by the Owner. The Nuclear Quality Repair Program consists of this program document, supporting implementing procedures and written instructions established to assist in the implementation of processes. The program shall be reviewed periodically throughout the year through audits and surveillances with the results reported to Nuclear Division Management through memos and meetings. This review and reporting will include any Nonconformances and Corrective Action Items associated with this program.

2.1 Nuclear Quality Repair Manual

The Nuclear Quality Repair Manual, hereafter called program, shall be maintained and reviewed annually by the NOM to assure that it remains current and up to date. This will be documented via a memo to file unless changes are required then the document will be revised accordingly. The NOM shall review the NBIC Code Edition and jurisdictional regulation changes as they are made available to the public. All required revisions to this program, procedures and instruction, as a result of Code requirements, shall be made and implemented prior to the mandatory implementation date which is usually six (6) months after the date of issue.

2.1.1 The program shall be revised by section except for exhibits. All revised areas shall be identified by a vertical line in the right margin. The vertical lines for areas of previous revisions shall be removed. The revision level shall be shown on each page of that section including the cover page. The Revision History Page is used to track the overall Summary of changes to the Manual. Exhibits may be revised individually if no technical information is changed. Exhibits revisions will be incorporated at the next manual revision.

2.1.2 The NOM shall be responsible for advising the Authorized Nuclear Inspection Agency of any proposed changes to this program. All revisions to this program shall be reviewed and approved by the Nuclear Division President and the NOM. Each revision shall be reviewed and accepted by the Authorized Nuclear Inspector Supervisor before putting such changes into effect. The NOM shall inform the Authorized Nuclear Inspector of all revisions and shall make a current copy available to the Authorized Nuclear Inspector.

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2.1.3 Each Nuclear Quality Repair Manual shall be identified on the Cover Page as either ~~%Controlled+~~ or ~~%Uncontrolled+~~. Controlled copies shall be assigned a serial number, maintained and distributed as required by Section 7 Document Control of this program. Uncontrolled copies of this program shall not be used for performing activities which affect quality

2.1.4 A controlled copy of this program is made available to all individuals who are required to perform activities that affect quality and to the Authorized Nuclear Inspector. Controlled or uncontrolled copies may be distributed to outside personnel or organizations as deemed necessary by the NOM. This program shall be controlled in accordance with Section 7 Document Control of this program.

2.1.5 In case of conflict between Code and this program, the Code takes precedence. In case of conflict between this program and implementing departmental procedures or instructions, this program takes precedence. The Manager responsible for the conflicting procedure or instruction shall be notified by the NOM and that procedure or instruction revised by them prior to continuing work with that procedure or instruction

2.2 Nuclear Quality Repair Program Procedures

Each Manager assigned the responsibility for the activity shall be responsible for the creation of any and all required written procedures or written instructions prior to performing the activity. All written procedures or instructions are required to be reviewed and accepted by the responsible Manager with concurrence from the NOM prior to implementation. Each Quality Repair Procedure or written instruction shall be controlled as required by Section 7 Document Control of this program. Uncontrolled copies of Quality Repair Procedures shall not be used for performing activities which affect quality. Initial Approvals and Subsequent Revision Approvals will be documented on the Revision History Sheet of the Procedure.

2.3 Indoctrination and Training

This program provides for indoctrination, training, and qualification as necessary of personnel performing or managing activities affecting quality to ensure that suitable proficiency is achieved and maintained. Indoctrination and training shall be commensurate with scope, complexity, importance of the activities, and the education, experience, and proficiency of the person.

2.3.1 Indoctrination

All personnel, performing or managing activities affecting quality shall receive indoctrination in their job responsibilities as applicable to this program including general criteria, technical objectives, requirements of

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applicable codes and standards, regulatory commitments, company procedures, and quality assurance program requirements. Basic indoctrination of personnel to their job is handled by the responsible Nuclear Department Foremen (NDF) in the form of a job briefing or orientation prior to the start of work. The NOM shall develop and maintain instructions that include at least the Learning Objectives or a lesson plan, to be administered during the indoctrination to this program. Any contracted personnel utilized in support of activities will receive Job Task Briefing or orientation from the NDF assigned the job at a minimum prior to starting work.

The Nuclear Division President and /or the responsible Nuclear Department Manager shall notify the NOM of any general need for indoctrination of any assigned personnel. They may use the Indoctrination & Training Assignment . (Exhibit 2) to document this training.

Indoctrination shall be completed and documented on an Indoctrination and Training Record . (Exhibit 3) prior to those individuals performing activities that affect quality. The NOM shall also maintain an ongoing Indoctrination & Training Log . (Exhibit 4) listing each individual who has received the required indoctrination. Each revision to this program shall require additional indoctrination. This additional training may be in the form of reading assignments at the discretion of the NOM and shall be documented as described above.

2.3.2 Training

The need for a formal training program for personnel performing or managing activities affecting quality has been determined by management. Training shall be provided as needed to achieve initial proficiency, maintain proficiency, and adapt to changes in technology, methods, or job responsibilities. As a minimum, each individual assigned an activity which affects quality shall be trained on the written procedures or instructions to be used while completing the activity. This may consist of job orientation session. General nuclear process training is also provided to all Nuclear Division Personnel.

Each NDM shall develop a training matrix or required skills sheet which identifies all activities/skills and the minimum required training for each department position. Each NDM shall then complete a training matrix or skill sheet for each individual. This sheet shall be reviewed when assigning personnel to work jobs. Only individuals qualified or determined to be capable of performing with the identified skill or training may perform the assigned task.

Each NDM responsible for the activity shall develop and maintain a plan or methodology to be used during the training of all personnel assigned activities that affect quality. This includes on-the-job-training. On-the-job

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training shall be used if direct hands-on applications or experience is needed to achieve and maintain proficiency.

All training shall be completed and documented within the individual's personnel file prior to the individual performing activities that affect quality. Each Manager shall also maintain an ongoing skills achievement and development listing for each individual.

2.3.2.1 A grandfathering process may be employed, where Nuclear Management may certify/qualify a worker based on the worker's previously acquired documented knowledge, training, experience and/or demonstrated capabilities a means to establish the qualification of personnel provided it is supplemented with performance observations by their foreman/supervisor. This method must also be documented on C&K Personnel Grandfather Statement (Exhibit #38) and maintained within personnel files.

2.3.2.2 Each revision to a written procedure will require additional training. This additional training may be in the form of reading assignments at the discretion of the NDM responsible for the assignment and shall be documented using a memo to file at a minimum.

2.4 Qualification Requirements

In addition to the indoctrination and training described above, individuals assigned responsibilities as:

- Nondestructive Examination (NDE) personnel,
- Inspection and test personnel,
- Lead Auditors/auditors and
- Welders

shall be required to receive additional training, be qualified and certified as described below, prior to performing the activity.

Although the NDE activities are contracted services to approved suppliers, the NOM working with the responsible department and/or customer, shall establish written guidance to evaluate and accept documentation from approved suppliers for the needed services regarding the qualification of NDE personnel, inspection and test personnel and Lead Auditors and to assure that only those personnel who meet the requirements are permitted to perform these activities.

The NWDM shall establish written procedures for the qualification of Technicians to assure that only those personnel who meet the requirements are permitted to perform these activities.

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2.4.1 Nondestructive Examination (NDE) Personnel

These activities will be contracted out to service suppliers qualified under this program for the required service.

2.4.1.1 Repair/Replacement NDE

Personnel performing nondestructive examination required for Repair/Replacement activities shall be qualified and certified in accordance with the original Code of Construction identified in the Repair/Replacement Plan or IWA-2300 of ASME Section XI. When personnel perform visual examinations, specifically VT1, VT2 or VT3 examinations that are required to meet ASME Section XI shall be qualified in accordance with CP-189 and shall have received additional training as required by Appendix VI of ASME Section XI.

The NOM shall review the contractors program or establish a written practice for the qualification and certification of NDE personnel as specified in the Original Code of Construction identified in the Repair/Replacement Plan or IWA-2300 of ASME Section XI

2.4.1.2 Pre-service NDE

Personnel performing nondestructive examination required for pre-service examinations activities shall be qualified and certified in accordance with IWA-2300 of ASME Section XI. Performance of pre-service examinations shall be limited to only VT-1 and VT-3 examinations. All surface or volumetric pre-service examinations required to meet ASME Section XI following a Repair/Replacement activity performed by C&K, Inc. shall be the responsibility of the Owner.

The NOM shall establish controls to ensure that NDE Personnel meet the qualification and certification as specified in IWA-2300 of ASME Section XI.

2.4.1.3 Subcontracted NDE Services

The NOM may utilize properly qualified and certified NDE subcontractors provided their NDE written practice, NDE procedures and NDE personnel qualifications have been reviewed and accepted as meeting the requirements above and the individual or organization has been evaluated and accepted as an Approved Supplier as described in Section 8 of this Nuclear Quality Repair Manual prior to use.

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2.4.1.4 Records

The NOM shall maintain all NDE records such as written practices, procedures and personnel qualifications and certifications, including documented review and acceptance, as described in Section 18 Quality Assurance Records of this program. These documents will be included with the job folder as an electronic record.

2.4.2 Inspection and Test Personnel

Those Nuclear Quality Control Inspectors performing the following activities

- Receiving inspection
- Source verification
- In-process inspection
- Final pressure testing
- Final functional testing

shall receive training for assigned activities and be qualified and certified to perform these tasks. The NOM shall ensure that necessary training is provided for the qualification and certification of inspection and test personnel. Written guidance shall be established. This may include having personnel attend external training certification courses, if needed.

The written guidance shall provide for:

- The initial capabilities of a candidate shall be determined by an evaluation of the candidate's education, experience, training, and either test results or capability demonstration.
- The job performance of inspection and test personnel shall be re-evaluated at periodic intervals not to exceed 3 years. Re-evaluation shall be by evidence of continued satisfactory performance or redetermination of capability in accordance with the requirements of section 2.3 above and documented on Maintenance of Proficiency of Test Personnel (Exhibit 6) and subsequently Annual/Triennial Evaluation form - (Exhibit 7). If during this evaluation or at any other time, it is determined by the NOM that the capabilities of an individual are not in accordance with the qualification requirements specified for the job, that person shall be removed from that activity until such time as the required capability has been demonstrated.
- Any person who has not performed inspection or testing activities in the qualified area for a period of 1 year shall be re-evaluated.

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Note: Qualification and Certification of inspection and test personnel shall be documented on the Qualification and Certification of Inspection and Test Personnel Record – (Exhibit 5).

2.4.3 Lead Auditor

The NOM shall ensure each Lead Auditor is properly qualified and certified using Lead Auditor Qualification and Certification . (Exhibit 8) prior to assigning any audit activities. The NOM shall develop and provide, or contract an outside agency to provide and administer, the required training and examination. The Lead Auditor organizes and directs audits; reports audit findings, and evaluate corrective action. An individual shall meet the requirements of sections 2.4.3.1 through 2.4.3.6 below prior to being designated a Lead Auditor. This individual must meet the defined requirements of NQA-1 and ANSI/ASME N45.2.23

2.4.3.1 Communication Skills.

The prospective Lead Auditor shall be capable of communicating effectively, both in writing and orally. These skills shall be attested to in writing by the NOM and documented on Lead Auditor Qualification and Certification.

2.4.3.2 Training.

Prospective Lead Auditors shall receive training to the extent necessary to assure auditing competence including:

- (a) knowledge and understanding of the National Board Inspection Code (NBIC), the American Society of Mechanical Engineers (ASME) NQA-1, ASME Boiler and Pressure Vessel Code Sections III and XI, and other nuclear-related codes, standards, regulations, and regulatory guides, as applicable
- (b) general structure of quality assurance programs as a whole and applicable elements as defined in ANSI/ASME NQA-1 and 10CFR50 Appendix B
- (c) auditing techniques of examining, questioning, evaluating, and reporting; methods of identifying and following up on corrective action items; and closing out audit findings
- (d) planning audits of activities affecting quality
- (e) on-the-job training to include applicable elements of the audit program

The prospective Lead Auditor may provide documented evidence of any prior training. The NOM may review and accept this evidence or may choose to provide additional training deemed necessary.

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2.4.3.3 Audit Participation. Prospective Lead Auditors shall participate in a minimum of five quality assurance audits within a period of time not to exceed 3 years prior to the date of qualification, one audit of which shall be a nuclear quality assurance audit within the year prior to qualification. Participation in independent assessments including team assessment activities such as operations readiness reviews and regulatory inspections/surveys may be used to satisfy up to four of the five required quality assurance audits, provided that the activities can demonstrate the following:

- (a) independence from the functional areas being assessed
- (b) planning that establishes the scope of the activities and associated evaluation criteria
- (c) performance by technically qualified and experienced personnel
- (d) results that are documented and reported to management
- (e) appropriate corrective action initiated and tracked to resolution

Such participation shall be subject to review and acceptance by the NOM prior to their use for qualification.

The prospective Lead Auditor may provide documented evidence of any prior audit participation. The NOM may review and accept this evidence or may choose to provide for additional audits deemed necessary.

2.4.3.4 Examination. Prospective Lead Auditors shall pass an examination, provided by the NOM or an acceptable outside agency that shall evaluate comprehension of and ability to apply the body of knowledge identified above. The examination may be, written, practical, or any combination thereof.

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2.4.3.5 Maintenance of Proficiency. Lead Auditors shall maintain their proficiency through one or more of the following:

- (a) regular and active participation in the audit process
- (b) review and study of codes, standards, procedures, instructions, and other documents related to quality assurance program and program auditing
- (c) participation in training program(s)

Based on annual assessment, management may extend the qualification, require retraining, or require requalification.

Each Lead Auditor shall maintain a record of proficiency using the Maintenance of Proficiency for Inspection and Test Personnel (Exhibit 6) or Lead Auditor Qualification and Certification (Exhibit 8)) and subsequently Annual/Triennial Evaluation form - (Exhibit 7).

2.4.3.6 Requalification. Lead Auditors who fail to maintain their proficiency for a period of 2 years or more shall require requalification. Requalification shall include retraining in accordance with the requirements of section 2.4.3.2 above, reexamination in accordance with 2.4.3.4 above, and participation as an Auditor in at least one nuclear quality assurance audit.

2.4.4 Auditors

Auditors are participants in an audit. Auditors shall have, or be given, appropriate training or orientation to develop their competence for performing audits. Competence of personnel for performance of the various auditing functions shall be developed by one or more of the following methods: This individual must meet the defined requirements ANSI/ASME N45.2.23 as well as NQA-1.

- (a) orientation to provide a working knowledge and understanding of the NBIC, 10CFR50 Appendix B and the procedures for implementing audits and reporting results.
- (b) general and specialized training in audit performance where the general training shall include fundamentals, objectives, characteristics, organization, performance, and results of quality auditing and the specialized training shall include methods of examining, questioning, evaluating, and documenting specific audit items and methods of closing out audit findings.
- (c) On-the-job training, guidance, and counseling under the direct supervision of a Lead Auditor. Such training shall include planning, performing, reporting, and follow-up action involved in conducting audits.

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A properly qualified and certified Lead Auditor may provide the necessary orientation and guidance to each Auditor prior to performing the audit. The Lead Auditor shall evaluate and document each auditor's qualifications on the Audit Plan prior to each audit performed.

2.4.5 Technical Specialists

The NOM shall determine whether an individual may function as a Technical Specialist to assist the Lead Auditor while performing audits. The following may be used as a basis for determining this: Individual's background, experience, knowledge and/or education. In the absence of a written procedure, a properly qualified and certified Lead Auditor may provide the necessary orientation and guidance to each Technical Specialist prior to performing each audit. The Lead Auditor shall evaluate and document each Technical Specialist's qualifications within the Audit File prior to each audit performed.

2.4.6 Subcontracted Lead Auditors, Auditor or Technical Specialists

The NOM may utilize properly qualified and certified subcontracted Lead Auditors, Auditors or Technical Specialists provided their qualifications and certifications have been reviewed and accepted prior to use and the individual or organization has been evaluated and accepted as an approved supplier as described in Section 8 of this program. Lead Auditors must meet the requirements as defined in NQA-1 and ANSI/ASME N45.2.23 as applicable

2.4.7 Welders

The NWDM shall be responsible for developing and implementing written procedures for the qualification and certification of welders and welding operators. Welders and welding operators shall be qualified for the process(s) used and shall be in accordance with the requirements of the original code of construction, the construction standard, code selected for a Repair/Replacement activity and Section IX and ASME Section XI of the ASME Code. The NWDM shall assign each welder and welding operator a unique identification whereby welded joints are identified as to the welder who made them.

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2.4.8 Records of Qualification

- (a) The qualification of inspection and test personnel, Lead Auditor, Auditors, Technical Specialists shall be certified in writing and include the following information:
- (1) employer's name
 - (2) identification of person being certified
 - (3) activities certified to perform
 - (4) basis of qualification
 - (a) education, experience, indoctrination, and training
 - (b) test results, where applicable
 - (c) capability demonstration results
 - (5) results of periodic evaluation
 - (6) results of physical examinations, when required
 - (7) signature of employer's designated representative who is responsible for such certification
 - (8) date of certification or recertification and certification expiration, as appropriate
- (b) The NOM shall identify any special physical characteristics needed in the performance of each activity, including the need for initial and subsequent physical examination.
- (c) The NOM may use an independent source which has been evaluated and approved for use to administer qualification examination activities but shall retain responsibility for conformance of the examination and its administration. Integrity of the examination shall be maintained by the NOM or certifying agency through appropriate confidentiality of files and, where applicable, proctoring of examinations. Copies of the objective evidence regarding the type(s) and content of the examination(s) shall be retained by the NOM in accordance with the requirements of Section 18 of this program.

2.4.9 Records

All records of the implementation for indoctrination and training, qualifications and certifications described above shall be maintained as required in Section 18 of this program. All records shall be made available to the Authorized Nuclear Inspector.

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3.0 ORDER ENTRY REVIEW

This section describes the controls to be implemented as required by 10CFR50 Appendix B, Part 3 of the NBIC and ASME Section XI.

3.1 Order Entry Review

3.1.1 The Nuclear Department Manager (NDM) in conjunction with the NOM shall review the customer's purchase orders (PO)/contracts for all Code or safety related services and document the review and acceptance on the Order Entry Review Form . (Exhibit 9). Customer requirements defining the services being supplied from their issued PO are transferred to a Purchase Order . (Exhibit 11) upon completion of the Order Entry Review Form for work being performed by internal Departments. Changes to all of the above are processed in the same manner as the original.

3.1.2 Order Entry Reviews shall be performed to ensure sufficient information is provided regarding the specified services including any regulatory, customer specific and quality requirements needed to complete the work, stated and accepted by Chalmers & Kubeck, Inc. Nuclear Division.

3.1.3 Each PO for internal services and/or PO/Contract for external services/item purchases shall include but is not limited to:

- Scope of Work including identification of the item(s) to be repaired/replaced

NOTE: Any work that is described as "Maintenance Exemptions" . (Exhibit 41), shall be exempt from the preparation of a Repair/Replacement Plan(s) and not subject to the review and concurrence by the ANI, nor shall the preparation of a National Board Code Data Report be required. All other aspects of this program however shall apply to work which is categorized as "Maintenance".

- Technical requirements, which is required to be addressed in the Repair/Replacement Plan described in Section 9 of this program, including:
 - (1) applicable Code Edition, Addenda, and Code Cases of Section XI provided by the customer.
 - (2) Construction Code Edition, Addenda, Code Cases, and Owner's Requirements used for the following:
 - (a) construction of the item to be affected by the repair /replacement activity
 - (b) construction of the item to be installed by the repair / replacement activity

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- (c) performance of the Repair/Replacement activities
- (3) The following items, when applicable to the specific Repair/Replacement activity, shall be documented.
 - (a) a description of any defects and nondestructive examination methods used to detect the defects
 - (b) the defect removal method, the method of measurement of the cavity created by removing a defect, and, when required by IWA-2600, requirements for reference points
 - (c) the applicable weld procedure, heat treatment, nondestructive examination, tests, and material requirements
 - (d) the applicable examination, test, and acceptance criteria to be used to verify acceptability
- (4) description of the Repair/Replacement activities to be performed
- (5) expected life of the item after completion of the Repair/Replacement activity, when less than the remainder of the previous intended life (design life when specified by the Design Specification) of the item;
- (6) whether application of the ASME Code Symbol Stamp is required in accordance with IWA-4143;
- (7) documentation in accordance with IWA-6000.
 - Quality requirements
 - Regulatory requirements
 - Special customer requirements
 - Required documentation
 - Nonconformance(s)
 - Spare and Replacement Parts

3.1.4 The NOM shall review the Client's Purchase Order/contract and verify the information identified above has been included and the Nuclear Department Manager has completed the Order Entry Review Form properly. Review and acceptance by the NOM shall be documented on the Order Entry Form by signature and date. Any required information identified above that has not been addressed by the Client shall be reconciled by the Nuclear Department Manager prior to beginning any Repair/Replacement activities. Any required information identified above that is to be completed or supplied by Chalmers & Kubeck, Inc. shall be reviewed and accepted by the Client prior to beginning any Repair/Replacement activity.

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4.0 Design Control

- 4.1** ASME Section XI establishes that the Owner has overall responsibility for design activities in conjunction with Repair/Replacement activities. All design related input shall be provided by the Nuclear Client/Owner. Therefore Chalmers & Kubeck, Inc. does not perform any design functions associated with Repair/Replacement activities. Any recommended design changes shall be presented to the Client/Owner for their documented review and approval prior to implementation.
- 4.2** The Nuclear Department Manager (NDM) must ensure that the necessary design specification, drawings, or other specifications or instructions furnished by the Client/Owner satisfy the Code Edition and Addenda of the Owner's design specification and any supplemental Owner Requirements. The NDM shall provide any additional internal procedures, and instructions that may be necessary for Chalmers & Kubeck, Inc. to carry out the work. Noted specifications and drawings will need concurrence from the Client/Owner prior to use.
- 4.3** The NDM shall indicate review and acceptance of all Client/Owner supplied drawings, specifications and instructions by initialing and dating the document when listing these requirements in the Repair/Replacement Plan. All additional specifications, drawings, procedures, and instructions created by the NDM shall be reviewed and approved by the NDM and the NOM then submitted to the customer to verify compliance to their Design Specifications and received their concurrence via either a sign-off on the document or an email stating such, as applicable. The NOM shall ensure that the appropriate quality standards have been specified and are included in all quality records.

Note: Any necessary engineering design support may be subcontracted to an approved supplier of that service

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5.0 PROCUREMENT DOCUMENT CONTROL

This section describes the controls to be implemented as required by 10CFR50 Appendix B, Part 3 of the NBIC and ASME Section XI.

The Nuclear Purchasing Activities shall be the responsibility of the Nuclear Department Manager, as appropriate. Using Purchase Orders . (Exhibit 11) for procurement of material, items and services. Purchase Orders shall include requirements to the extent necessary provided by the Client/Owner to ensure their compliance with the Client/Owner's design specification and ASME Section XI IWA-4000. Purchase Orders shall be developed and then presented to the NOM for review and concurrence prior to issuance. These reviews shall be documented via the signature on the Purchase Order.

In either case only suppliers that appear on the current Nuclear Approved Suppliers List (NASL) may be utilized. This NASL is controlled and maintained by the NOM. The Nuclear Approved Supplier List . (Exhibit 12) is described in Section 8 of this program.

Each supplier is required to maintain a Quality System Program.

The Nuclear Approved Supplier List will identify the specific Quality System Program, including revision level, which has been surveyed and audited by Chalmers & Kubeck, Inc. for the items and/or services approved to supply and any limitations.

Measures have been established in Section 8 of this program to ensure that all purchased material, items and services conform to the requirements of the procurement documents prior to use.

Note: The Purchase Order - (Exhibit 11) will also be used for internal service support between Departments. The structure and information will be consistent with that of an external PO. However, there will be no need for separate audits of the Departments and Quality Program beyond those currently performed Audits of C&K, Inc. under this program.

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5.1 CONTENT OF THE PROCUREMENT DOCUMENTS

Procurement documents, which include the purchase order, contracts and any attachments thereto, issued at all tiers of procurement shall include provisions for the following, as deemed necessary by the Nuclear Department Manager (NDM), Nuclear Weld Department Manger (NWDM) and the Nuclear Quality Oversight Manager (NOM).

Scope of Work

Procurement documents shall include a statement of the scope of the work to be performed by the supplier.

Technical Requirements

Technical requirements shall be specified in the procurement documents. These requirements shall be specified, as appropriate by reference to specific drawings, specifications, ASME Code Edition, Addenda, Code Class and Code Cases, Owner Requirements, standards, regulations, procedures, or instructions, including revisions thereto that describe the items or services to be furnished. The procurement documents shall identify appropriate test, inspection, and acceptance criteria for determining acceptability of the item or service.

Quality Assurance Program Requirements

The Purchase Order shall identify the specific Quality System Program including revision level to be used. The procurement documents shall require the supplier to incorporate appropriate quality assurance program requirements in sub tier procurement documents. These documents will be reviewed by Nuclear Quality Oversight prior to transmittal.

Right of Access

The procurement documents shall provide for access to the supplier's and sub tier supplier's facilities and records for surveillance, inspection or audit by Chalmers & Kubeck, Inc, its designated representative and others authorized by Chalmers & Kubeck, Inc.

Documentation Requirements

The procurement documents shall identify the documentation required to be submitted for information, review, or approval by Chalmers & Kubeck, Inc. The time of submittal shall also be established. When Chalmers & Kubeck, Inc requires the supplier to maintain specific records, the retention times and disposition requirements shall be prescribed.

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Nonconformances

The procurement documents shall specify Chalmers & Kubeck, Inc's requirements for the supplier reporting of nonconformance(s) as described in Section 16 of this program including 10CFR21 reporting requirements.

Spare and Replacement Parts

The procurement documents shall specify the supplier's requirements to identify spare and replacement parts or assemblies and the related data required for ordering these parts or assemblies.

5.2 PROCUREMENT DOCUMENT REVIEW

The issuing NDM shall perform an initial review of the developed PO to ensure that all known requirements have been adequately addressed. Once completed, the document is to be forwarded to NOM for concurrence. This may occur concurrently but prior to the PO being issued. These reviews must be documented using Order Entry Review Form . (Exhibit 9). A review of the procurement documents and changes thereto, shall ensure that appropriate provisions provide the assurance that items or services will meet the specified requirements. Technical or quality assurance program changes made as a result of bid evaluations or negotiations shall be incorporated into the procurement documents prior to their issuance to the sub-supplier. The NOM shall have access to pertinent information and have an adequate understanding of the requirements and intent of the procurement documents prior to issuance

5.3 PROCUREMENT DOCUMENT CHANGES

Procurement document changes affecting the technical or quality assurance program requirements shall be subject to the same degree of control as utilized in the preparation of the original documents.

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6.0 INSTRUCTIONS, PROCEDURES AND DRAWINGS

This section describes the controls to be implemented as required by 10CFR50 Appendix B and Part 3 of the NBIC.

Activities affecting quality and services shall be prescribed by and performed in accordance with documented instructions, Traveler - (Exhibit 20), procedures, or drawings that include or reference appropriate quantitative or qualitative acceptance criteria for determining that prescribed activities have been satisfactorily accomplished. The activity shall be described to a level of detail commensurate with the complexity of the activity and the need to assure consistent and acceptable results.

The NOM, the NDM, and the NWDM share in the responsibility for determining the need for and level of detail necessary for each job. This detail shall be determined based upon complexity of the task, the significance of the item or activity, work environment, and worker proficiency and capability (education, training, and experience) as well as the customer input. The NDM responsible for the activity being performed shall also be responsible for the development of their written instructions or Traveler for the job needed to ensure quality results.

This program, associated procedures, drawings, written instructions or Travelers have been developed, approved, and maintained in accordance with Sections 6 & 7 of this program.

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7.0 DOCUMENT CONTROL

This section describes the controls to be implemented as required by 10CFR50 Appendix B and Part 3 of the NBIC.

The preparation, issue, and change of documents that specify quality requirements or prescribe activities affecting quality such as instructions, procedures, and drawings shall be controlled to ensure that correct documents are being employed. Such documents, including changes thereto, shall be reviewed for adequacy and approved for release by the Nuclear Department Manager responsible for the Nuclear Job.

The following controls shall be applied to documents and changes thereto:

(a) the identification of controlled documents

The responsible Nuclear Department Manager shall maintain a List of Controlled Documents . (Exhibit 13), for each related job. The documents to be controlled shall include the procedures, instructions, specifications and drawings pertinent to that job.

(b) the specified distribution of controlled documents for use at the appropriate location

The responsible Nuclear Department Manager (NDM) shall distribute documents and revisions as stipulated on the List of Controlled Documents. The responsible NDM shall distribute only the latest revision except as permitted by the Nuclear Quality Oversight Manager using the Document Transmittal Form . (Exhibit 15).

(c) the identification of individuals responsible for the preparation, review, approval, and distribution of controlled documents. The List of Controlled Documents shall identify each responsible individual.

(d) the review of controlled documents for adequacy, completeness, and approval prior to distribution. The responsible NDM shall ensure each document has been properly prepared, reviewed and approved before distribution.

Only controlled documents may be used while performing activities which affect quality. The assigned Nuclear Department Foremen (NDF) as well as the workers is responsible for ensuring the correct documents are being used.

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Controlled documents, such as procedures, may be maintained electronically for use by individuals responsible for performing activities which affect quality. Any electronically controlled documents may be printed for use as a controlled document provided the document includes a watermark or other indication, which indicates %Working Copy+; the expiration date for use is not to exceed two (2) weeks from the date printed. Working Copy Documents must still be compared by the user to the electronic document on file to ensure proper revision level prior to each use. The %Working Copy+ID on the document serves as proof of satisfactory review. Only those individuals responsible for the preparation, review and approval of documents shall have access to make changes to those documents on the List of Controlled Documents . (Exhibit 13).

Any required printed documents may be distributed by the responsible NDM or NOM. Printed documents shall include indication such as the associated job number and shall be listed on a Controlled Distribution List . (Exhibit 14). Distribution of controlled documents may be controlled by use of a Controlled Distribution List .

7.1 DOCUMENT CHANGES

Any changes or revision to controlled documents shall be prepared, reviewed, and approved in the same manner as the original. Updated documents will be distributed in the same manner as the original.

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8.0 CONTROL OF PURCHASED ITEMS AND SERVICES

This section describes the controls to be implemented as required by 10CFR50 Appendix B and Part 3 of the NBIC. The procurement of items and services shall be controlled to ensure conformance with specified requirements. Such control shall provide for the following as appropriate: source evaluation and selection, evaluation of objective evidence of quality furnished by the supplier, source inspection, audit, and examination of items or services upon delivery or completion.

8.1 SUPPLIER EVALUATION AND SELECTION

8.1.1 Supplier Evaluation

Note: That the term Supplier also include vendors

The Nuclear Quality Oversight Manager shall be responsible for all activities related to evaluation of Suppliers Quality Program and shall keep the Nuclear Approved Suppliers List . (Exhibit 12) current and accurate for use by anyone required to procure material or services for a nuclear job. Lead Auditor shall provide feedback to NOM regarding the performance by a selected supplier.

Prior to award of a contract, the NOM shall evaluate the Supplier's capability to provide items or services in accordance with the requirements of the procurement documents provided from the responsible Nuclear Department Manager and/or Nuclear Client. After proper evaluation and approval of a supplier for use, the NOM shall list the supplier on the Nuclear Approved Supplier List for use in the procurement of Nuclear Materials or Service. Chalmers & Kubeck, Inc. shall not use unapproved suppliers of source materials.

8.1.2 Use of Nuclear Industry Assessment Committee (NIAC) Assessment Reports

C&K, Inc. is currently a Member of the Nuclear Industry Assessment Committee (NIAC).

8.1.2.1 NIAC assessment reports may also be evaluated and used in lieu of actually performing an audit or survey for service/material providers covered by NIAC's Assessment Process.

8.1.2.2 The above process is defined in the following sections and must be documented.

8.1.2.3 NOM will review the NIAC Supplier Assessment Report requested from a NIAC member company to ensure the following items are included and recorded on C&K Evaluation Form of NIAC Assessments, identified as (Exhibit 37): The actual review may be delegated to a Lead Auditor.



- NIAC Assessment Scope
- NIAC Assessment Plan
- NIAC Scheduling and Assessment Concurrence Letter
- NIAC Assessment Report
- Findings, observations, or comments, as applicable
- Completed audit checklist
- Lead Auditor qualification records
- Record of the closure of findings

8.1.2.4 NOM will then perform an evaluation of the actual report content to ensure that it satisfies the following criteria. The result will be added to the C&K NIAC Assessment Evaluation Form - (Exhibit 37):

- Scope of the audit is satisfactory for scope of work required by C&K.
- Assessment occurred at the location required for the C&K procurement and usage.
- Quality Program revision recorded on assessment.
- Adequate objective evidence to support the assessment conclusion.
- Adequate basis for identified findings, observations, or recommendations.
- Impact of findings, observations, or recommendations on C&K.
- Evidence to show status of findings (closure, anticipated closure dates, follow-up on closure).
- Follow-up action required to verify closure of audit findings.
- Items marked as "N/A" or "N/R" are adequately justified.
- Acceptable Lead Auditor and/or Auditor certification records included.

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8.1.3 Sources of Items and Services

Accredited Material Organizations

For ASME material applications, an ASME Certified Material Organization or Certificate Holder may be added to the Nuclear Approved Supplier List, without survey or audit by Chalmers & Kubeck, Inc Nuclear Quality Oversight Manager, to provide materials, source materials and/or services provided the NOM has reviewed and accepted a copy of the Quality System Certificate or Certificate of Authorization and Nuclear Quality Repair Manual and verified the scope of activities. Material certifications must accompany this material.

If the above method cannot be utilized then the Certified Material Organization or Certificate Holder for supply of Safety Related materials and services must be audited as described below.

Qualified Material Organizations

For ASME application, the qualification of Material Organizations by Chalmers & Kubeck, Inc, shall be limited to the furnishing of material or subcontracted services to Chalmers & Kubeck, Inc.

Evaluation of a Qualified Material Organization's program by Chalmers & Kubeck, Inc.

Evaluation of a Material Organization's Quality Assurance Program by Chalmers & Kubeck, Inc. shall be performed in accordance with the requirements of (a) through (i) below or a NIAC Audit/Assessment may be determined to be acceptable using the method previously discussed.

- a) The Quality Assurance Program shall be surveyed, accepted, and audited by Chalmers & Kubeck, Inc. on the basis of its compliance with the applicable material requirements of ASME Section III NCA-3800.
- b) The Quality Assurance Manual (NCA-3853.1) shall be Chalmers & Kubeck, Inc. guide for surveying and auditing the qualified Material Organization's continued compliance with the accepted Quality Assurance Program.
- c) The Qualified Material Organization shall make available for an on-site review by Chalmers & Kubeck, Inc. any procedures, process sheets, or drawings as are necessary to understand the program. The Qualified Material Organization shall keep a controlled copy of the manual on file and in a place and manner readily available to Chalmers & Kubeck, Inc
- d) The Qualified Material Organization shall notify Chalmers & Kubeck, Inc. of proposed revisions to its Quality Assurance Manual. Chalmers & Kubeck, Inc. shall evaluate and accept such revisions prior to the implementation of the revisions on purchased materials or services.

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- e) When the qualified Material Organization's scope of activities includes approval and control of suppliers (NCA-3855.3), this activity shall be included in the Quality Assurance Manual, and shall be reviewed by Chalmers & Kubeck, Inc. During surveys or audits of Qualified Material Organizations, Chalmers & Kubeck, Inc. shall review objective evidence that the Qualified Material Organization's control of suppliers is adequate to assure compliance with the applicable material requirements.
- f) When the Qualified Material Organization's scope of activities includes shipment of material to parties other than the party performing the qualification, control of this activity shall be included in the Quality System Manual and shall be reviewed by Chalmers & Kubeck, Inc. During surveys or audits of Qualified Material Organizations, Chalmers & Kubeck, Inc. shall review objective evidence that the Qualified Material Organization's control of shipments is adequate to assure compliance with the applicable material requirements.
- (g) Audits by Chalmers & Kubeck, Inc. of Qualified Material Organizations shall meet the following requirements:
- (1) Chalmers & Kubeck, Inc. shall include audit frequency in their manual.
 - (2) Audit frequencies shall be commensurate with the schedule of production or procurement, but shall be conducted at least once triennially during the interval in which materials are controlled or services are performed by the Material Organization being evaluated.
 - (3) Audits shall meet the requirements of Section 19 of this program.
- (h) The NOM shall supplement triennial audits covering all the elements of a previously approved Supplier's Quality Assurance Program with Annual Performance Assessments and inquiries documenting the effectiveness of the Material Organization's Quality Assurance Program. Performance Assessments shall meet the following requirements and documented in a written report by the individual performing the assessment:
- (1) Assessment frequencies shall be commensurate with the schedule of production or procurement, but shall be conducted on an annual basis reviews are conducted in which materials or source materials are controlled, or services are supplied by the Material Organization being evaluated.

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(2) Assessments shall include a documented review of the qualified Material Organizations history of conditions adverse to quality, nonconformances, and corrective actions.

(3) Assessments shall include a documented review of periodic testing performed since the last assessment to demonstrate conformance of sample materials to selected requirements of the material specification. Such testing shall be conducted during the period since the last assessment by the party performing the evaluation.

8.1.4 Approved Supplier of Services

For applications related to this program the NOM shall be responsible for the approval of and control of activities performed by suppliers of subcontracted services.

The following limitations apply to all Approved Suppliers:

- (a) Approved suppliers shall not approve other suppliers of materials or services that affect materials
- (b) Approved suppliers may adopt a limited scope Quality Assurance Program as approved by the NOM. Any and all limitations applicable to an Approved Supplier shall be listed on the Nuclear Approved Supplier List.

The NOM shall be responsible for establishing and verifying that the supplier's controls applicable to the activities performed are adequate by

- (1) surveying and auditing the supplier's established quality system that is consistent with the requirements of ASME Section III NCA-3800 in the same manner described above for qualification of Material Organizations, or
- (2) having the supplier perform the activities in accordance with controls established by Chalmers & Kubeck, Inc. by providing the necessary procedures, drawings, instructions or checklists required to perform the activities or by providing source verification as described below.

The approved supplier shall be listed on the Nuclear Approved Suppliersq List identifying the specific activities approved to perform and all limitations.

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8.1.5 Approval and Control of Suppliers of Safety Related Material and Services

Prior to award of a contract or purchased via a purchase order, Chalmers & Kubeck, Inc. shall evaluate the Supplier's capability to provide items or services in accordance with the requirements of the procurement documents. Supplier evaluation and selection and the results there from shall be documented and shall include one or more of the following:

- (a) Supplier's history of providing an identical or similar product that performs satisfactorily in actual use. The supplier's history shall reflect current capability.
- (b) Supplier's current quality records supported by documented qualitative and quantitative information that can be objectively evaluated.
- (c) Supplier's technical and quality capability as determined by a direct evaluation of the facilities, personnel, and the implementation of the supplier's quality assurance program.

The Approved Supplier shall be listed on the Nuclear Approved Suppliersq List identifying the specific activities approved to perform and all limitations.

8.1.5.1 Items supplied by an Owner

- a. Items to be used during a Repair/Replacement Activity for a specific Owner may be supplied to C&K , Inc. by that Owner provided that the relevant documentation is presented by the Owner that assure compliance with the applicable Code and Owner Requirements associated with the specific Repair/Replacement Activity.
- b. This shall typically include records such as, Certified Material Test Reports, C of C's, Code Data Reports or other records or documents that would normally be otherwise required to be provided, if the Item(s) were directly procured by C&K from an approved supplier other than the Owner.
- c. When Items are secured directly from the Owner, C&K, Inc. shall not be required to perform an audit or surveillance of the Owner's QA Program, nor shall the Nuclear Approved Vendor List be required to be updated to reflect that the Owner is an approved supplier provided all of the following are met:

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- The Items provided by the Owner were procured under the Owner's 10CFR50 Appendix B Program as approved by the United States Nuclear Regulatory Commission (NRC),
- The Items used are only utilized in the specific Repair/Replacement Activity for which the Items were intended and supplied by the Owner,
- The Repair/Replacement Plan denotes what specific Items were utilized and denotes that they were supplied by the Owner and,
- All supplied documentation provided by the Owner is made available for review and concurrence by the ANI prior to initiating actual work on the Repair/Replacement Plan.

8.1.5.2 Sources of ASME Code stamped components, parts or appurtenances

The NOM shall verify any suppliers of ASME Code stamped components, parts or appurtenances do have a valid ASME Certificate of Authorization for the components being purchased through an appropriate means such as Internet or request of copy of current Certificate.

8.1.6 SUPPLIER SELECTION

Nuclear Department Manager responsible for the job shall select the appropriate supplier based on:

- The supplier listed on the Nuclear Approved SuppliersqList having been properly evaluated for the material or services being purchased.
- Supplier's history of providing an identical or similar product that performs satisfactorily in actual use. The supplier's history shall reflect current capability.
- Supplier's current quality records supported by documented qualitative and quantitative information that can be objectively evaluated.
- Supplier's technical and quality capability as determined by a direct evaluation of the facilities, personnel, and the implementation of the supplier's quality assurance program.

8.2 BID EVALUATIONS

If bids are solicited, the bid evaluation by the responsible Nuclear Department Manager as well as Nuclear Quality Oversight Manager and shall include a determination of the supplier's capability to conform to the technical and Quality Assurance requirements. Prior to the award of the contract or PO, the responsible Nuclear Department Manager (NDM) shall resolve or obtain commitments to resolve unacceptable technical and quality assurance conditions with NOM assistance resulting from the bid evaluation.

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8.3 CONTROL OF SUPPLIER-GENERATED DOCUMENTS

The responsible NDM shall be the primary interface between Chalmers & Kubeck, Inc. and the supplier. The Nuclear Shipping & Receiving Manager shall ensure all required supplier-generated documents and changes are submitted in accordance with the procurement document requirements to the NDM and also forwarded to the NOM.

Each responsible NDM shall be responsible for the acquisition, processing, and recorded evaluation of the quality assurance, technical, inspection, and test documentation or data against acceptance criteria. NOM shall perform independent verification in this area, as appropriate. All documents shall be listed at least on the Controlled Documents List (Exhibit 14).

8.4 ACCEPTANCE OF ITEM(S) OR SERVICE(S)

Prior to offering the item or service for acceptance, the supplier shall verify and document that the item or service being furnished complies with the procurement requirements and a Certificate of Conformance shall be provided in addition to any specific documentation identified in the purchase order. Any items or services found to be nonconforming shall be handled as required in Section 16 of this program.

8.4.1 Methods of Acceptance

The NOM shall be responsible for the acceptance of items to an established standard and service from a supplier prior to use by Chalmers & Kubeck, Inc. Acceptance shall be documented by a supplier Certificate of Conformance, source verification, receiving inspection to predetermined and agreed criteria, post installation test at the nuclear facility site, or a combination of these methods. The preferred methods would be a Certificate of Conformance or Source Verification for acceptance of services and receiving inspection for acceptance of items.

8.4.1.1 Certificate of Conformance (C of C) – (Exhibit 39)

When a Certificate of Conformance is used, the NOM shall verify that:

- (a) The certificate identifies the purchased item or service, including the purchase order number.
- (b) The certificate shall identify the specific procurement requirements met by the item or service, such as codes, standards, and other specifications. This may be accomplished by including a list of the specific requirements or by providing, on-site, a copy of the purchase order and the procurement specifications or drawings, together with a suitable certificate. The procurement requirements identified shall include any approved

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changes, waivers, or deviations applicable to the subject item or service.

- (c) The certificate shall identify any procurement requirements that have not been met, together with an explanation and the means for resolving the nonconformances. Resolution of any supplier nonconformances shall be also be provided
- (d) The certificate shall be signed or otherwise authenticated by a person who is responsible for this quality assurance function and whose function and position are described in the supplier's quality assurance program.
- (e) The certification system, including the procedures to be followed in filling out a C of C and the administrative procedures for review and approval of the C of C, shall be described in the supplier's approved Quality Assurance Program.
- (f) The audits and assessments described above shall be used to verify the validity of supplier's C of C and the effectiveness of the certification system. Such verification shall be conducted by the Nuclear Quality Oversight Manager at intervals commensurate with the supplier's past quality performance not to exceed three (3) years

The Nuclear Quality Oversight Manager shall indicate review and acceptance of the C of C by signature and date on the form or similar document. The responsible Nuclear Department Manager shall provide an additional concurrence with their signature.

8.4.1.2 Source Inspection

Nuclear Quality Control Inspector shall be used to perform this activity. When source inspection is used, it shall be performed at intervals consistent with the importance and complexity of the item or service, and shall include monitoring, witnessing, or observing selected activities. Source inspection shall be implemented in accordance with plans to perform inspections, examinations, or tests at predetermined points as determined jointly by the NDM and the NOM and described on a Source Inspection Report (Exhibit 16).

Upon completion of source verification, the Nuclear Quality Control Inspector shall complete the Source Inspection Report and forwarded it to the NOM and a copy to the supplier. Any nonconforming conditions shall handled as required by Section 16 of this program.

Upon satisfactory completion of the receiving inspection and review of documentation, the Nuclear Quality Control Inspector shall identify

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the item using a Safety Related ID Tag . (Exhibit 18) indicating the item is acceptable for use.

8.4.1.3 Receiving Inspection

Nuclear Quality Control Inspector shall perform the receiving inspection. When receiving inspection is used, purchased items shall be inspected as necessary to verify conformance to specified requirements, taking into account source verification and audit activities and the demonstrated quality performance of the supplier\$. Receiving inspection shall verify by objective evidence such features as:

- (a) configuration
- (b) identification
- (c) dimensional, physical, and other characteristics
- (d) freedom from shipping damage
- (e) cleanliness

Receiving Inspection shall be coordinated with review of Supplier Documentation by the NOM when procurement documents require such documentation to be furnished. Receiving inspection, documentation review and acceptance shall be documented on a Receiving Inspection Report . (Exhibit 17).

Upon satisfactory completion of the receiving inspection and review of documentation, the individual performing the receiving inspection shall identify the item using a Safety Related ID Tag indicating the item is acceptable for use.

8.4.1.4 Acceptance of Services Only

In cases involving procurement of services only, such as auditing, nondestructive examination, machining, etc. the NOM shall accept the service by any or all of the following methods:

- (a) technical verification of data produced
- (b) surveillance and/or audit of the activity
- (c) review of objective evidence for conformance to the procurement document requirements
- (d) Personnel qualification and certification records

The NOM shall document the acceptance of services by signature and date on the Certificate of Conformance provided by the supplier.

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8.5 CONTROL OF SUPPLIER NONCONFORMANCES (NCRs)

As required in Section 4 of this program, all purchase orders (POs) to suppliers shall include instructions to the supplier that NCRs applicable to the item(s) or services(s) must be documented and submitted to the NOM for review, evaluation and disposition prior to completion of the activity and shipment.

Methods for control and disposition of supplier NCRs for items and services that do not meet procurement document requirements shall include similar information on the PO as listed below:

- (a) Any NCRs that occur during the performance of the assigned activity must be generated and documented by the supplier's responsible individual and provided to the NOM at the address listed on the PO, emailed or faxed.
- (b) NCRs submittals shall include supplier-recommended disposition (e.g., use-as-is or repair) and technical justification. :
 - (1) technical or material requirement are violated,
 - (2) requirements in supplier documents, which has been approved by Chalmers & Kubeck, Inc., are violated,
 - (3) nonconformance cannot be corrected by continuation of the original manufacturing process or by rework,
 - (4) the item does not conform to the original requirement even though the item can be restored to a condition such that the capability of the item to function is unimpaired
- (c) NOM will coordinate necessary technical reviews within C&K Inc. and provide direction back to the customer
- (d) No work shall be allowed to continue without written authorization and acceptance from NOM. This will be documented on the NCR or in email form.

These activities will be controlled and documented by the NOM incorporating the customer's nonconformance into the NCR. This could be achieved by simply attaching the customer's document to the NCR . (Exhibit 29) from this program.

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9.0 IDENTIFICATION AND CONTROL OF ITEMS

This section describes the controls to be implemented as required by 10CFR50 Appendix B and Part 3 of the NBIC.

The Nuclear Department Manager shall be responsible for:

- Maintaining traceability of all items which includes materials, components, parts and appurtenances to the required certifications (i.e. CMTR, C of C, Data Report, as applicable) and work control documents. This will be achieved using the Nuclear Job Number.
- Ensuring that only correct and accepted items are used or installed.
- Preventing use of incorrect or defective items and those which have not received the required examinations, tests, or inspections.

Any item found to be missing or incorrectly identified shall be handled as required by Section 16 of this program.

9.1 Item Identification

All materials, components, parts and appurtenances, used in the Repair/Replacement of a component, shall be identified and traceable to the certification received from the supplier from initial receipt up to and including return shipment.

Each component being repaired/replaced under the control of this program shall be identified and traceable to the Repair/Replacement Plan from the beginning of the Repair/Replacement activity up to and including final certification.

In both situations above, the Nuclear Job Number will be placed on all related documentation as well as actually on items via ID Tags or directly transferred onto the items by the NDM.

9.2 Physical Identification

Physical identification and the Nuclear Job Number shall be used to the maximum extent possible by use of the Safety Related ID Tag . (Exhibit 18) or markings directly on the item traceable to documentation, indicating acceptance for use. Where physical identification on the item is impractical or insufficient, physical separation, procedural control or other appropriate means shall be developed and employed by the applicable NDM with concurrence from the NOM. Identification markings shall be applied using markings or tagging that provide a clear and legible identification and do not degrade the function or service life of the item. Low stress die stamping is permitted only with concurrence by the Owner. Marker materials shall be halogen/chloride free. Markings or tags shall be transferred to each part of an identified item when subdivided and shall not be obliterated or hidden by surface treatment or coating unless other means of identification are substituted.

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When identification of an item will be obliterated or hidden due to the Repair/Replacement process, the identification of the item shall be verified by the Nuclear Quality Control Inspector and documented in the Repair/Replacement Plan prior to removing the identification. After processing is complete, the item identification shall be re-applied and/or logged into the Repair/Replacement Plan.

9.3 Limited Life Items

9.3.1 Limited Life Items

Items having limited calendar or operating life or cycles shall be identified by the NDM prior to the start of the work as part of the written instructions being provided. Nuclear Workers must check and verify expiration dates of materials prior to their use. Expired materials shall be removed from service, disposed of by the Worker with notification being made to their Foreman. Replacement material must be obtained through approval methods prior to use.

9.3.2 Maintaining Identification of Stored Items

The Nuclear Department Manager shall control any item(s) required to be stored in accordance with the control provided in this section.

9.3.3 Inventory Control of Items

All Items that are used in conjunction with this program shall have a single intended usage. Specifically, all Items shall be purchased exclusively for each Repair/Replacement Activity(s) and any surplus Items following the completion of the Repair/Replacement Activity(s) shall be considered as surplus and not be stored, retained or otherwise utilized for any other work associated with this program, including work for the same Owner.

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10.0 CONTROL OF SPECIAL PROCESSES

This section describes the controls to be implemented as required by 10CFR50 Appendix B, Part 3 of the NBIC.

All Repair/Replacement activities shall be controlled using a Repair/Replacement Plan. The Repair/Replacement Plans shall include the essential requirements for completion of the Repair/Replacement activities. Each Repair/Replacement Plan shall consist of, as a minimum, the Order Entry Review Form and Traveler. Measures shall be established to assure that special processes such as welding, heat treating and brazing are controlled in accordance with the rules of the applicable section of the ASME code and are accomplished by qualified personnel using qualified procedures including the document numbers and revisions to which the process conforms with space provided for reporting results of completion of specific operations at specified checkpoints of Repair/Replacement activities.

The Repair/Replacement Program, Plans, and evaluations shall be subject to review by enforcement and regulatory authorities having jurisdiction at the plant site.

The Repair/Replacement Plan shall include or make reference to all documentation necessary to verify all requirements have been satisfactorily completed.

The NDM shall begin the Repair/Replacement Plan during the initial review of the customers purchase order or contract and completion of the Order Entry Review Form . (Exhibit 9), which shall be included in the Repair/Replacement Plan.

The Repair/Replacement Plan shall be given a unique identification such as the job number which is traceable to the customers purchase order or contract and item being repaired/replaced. The NDM shall maintain a Log of Repair/Replacement Plans . (Exhibit 19).

Each Repair/Replacement Plan shall include a Traveler . (Exhibit 20) prepared by the NDM for controlling the performance of the Repair/Replacement process as well as the Nuclear Job Number. The Traveler shall control all aspects of Welding, Heat Treating, Brazing, and shall be reviewed for compliance to ASME Section XI by the Nuclear Department Manager. A copy shall be provided to the NOM once developed and the ANI/ANII for review and concurrence. The NDM shall forward the completed Repair/Replacement Plan to the NOM for review, concurrence and inclusion of all examination, inspection and testing requirements.

The NOM shall review the Repair/Replacement Plan with the ANI for acceptance and an opportunity to establish Hold Points.

Any revisions to the Repair/Replacement Plan are subjected to the same review and approval process as the original.

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10.1 Welding, Defect Removal, Metal Removal by Thermal Methods

The Nuclear Department Manager shall coordinate with the Nuclear Weld Department Manager when any welding, defect removal or metal removal by thermal methods is required or when any welding is required for fabrication or installation. Mechanical metal removal **not associated** with defect removal is not within the scope of this program provided that there is no encroachment on any minimum wall thickness for the Item. When welding is required as a result of defect or when metal removal encroaches on a minimum wall thickness for an Item, a sketch showing the location, size and depth of the cavity and weld shall be completed and included in the Repair/Replacement Plan by the Nuclear Weld Department Foreman.

10.2 Welding

The Nuclear Weld Department Manager shall ensure all welding performed is in accordance with the Owners Requirements and the Original Code of Construction except as permitted by IWA-4411 of ASME Section XI.

The Nuclear Weld Department Foreman shall be responsible for:

- Ensuring that required weld material is ordered as required for the particular job. **Note** unused purchased weld material will be disposed of upon the completion of the job.
- All welding shall be performed in accordance with Welding Procedure Specifications that have been qualified by Chalmers & Kubeck, Inc. Nuclear Weld Department Manager (NWDM)
- All Welders shall be qualified by Chalmers & Kubeck§ NWDM in accordance with the requirements of the codes specified by the Owner and that each Welder is active for the process using the Continuity Report . (Exhibit 22).
- All welding activities shall be documented on a Welding Record . (Exhibit 21) and included in the Repair/Replacement Plan.
- Issuing filler metal using a Weld Material Requisition Form . (Exhibit 23).
- Maintaining the Continuity Report

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10.3 Defect Removal

Defect Removal shall be accomplished in accordance with requirements of IWA-4420 of ASME Section XI.

All defect removal activities shall be documented on a Defect Removal Record . (Exhibit 24) and included in the Repair/Replacement Plan.

10.3.1 Metal Removal by Thermal Methods

Metal removal by thermal methods shall be accomplished in accordance with requirements of IWA-4461 of ASME Section XI. All metal removal by thermal methods activities shall be documented on a Defect Removal Record and included in the Repair/Replacement Plan.

10.3.2 Nondestructive Examination

The Nuclear Department Manager shall be responsible identifying the need for and the extent of any nondestructive examinations (NDE). This information shall be communicated to the NOM. The NOM shall ensure all NDE is identified in the Repair/Replacement Plan and is performed by properly qualified and certified NDE personnel using qualified procedures.

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11.0 INSPECTION

This section describes the controls to be implemented as required by 10CFR50, appendix B, Part 3 of the NBIC.

The NOM shall identify inspections required verifying conformance of an item or activity to specified requirements or continued acceptability of items in service. These inspections shall be planned and executed as described in the Repair/Replacement Plan. Characteristics subject to inspection and inspection methods shall be specified in written procedures or as work instructions included in the Repair/Replacement Plan. Inspection results shall be documented in the Repair/Replacement Plan or a separate inspection record. Inspection for acceptance shall be performed by properly qualified and certified inspection and test personnel other than those who performed or directly supervised the work being inspected. Such persons shall not report directly to the immediate supervisor responsible for the work being inspected.

11.1 Inspection Requirements

Inspection requirements and acceptance criteria shall include specified requirements contained in the applicable design documents or other pertinent technical documents approved by the responsible design organization.

11.2 Inspection Hold Points

Specific hold points established by the NOM, the Owner or the ANI shall be identified on the Traveler and as part of the Repair/Replacement Plan. Work shall not proceed without the specific consent of the designated representative that established the hold point. Consent to waive specified hold points may be given only by the designated representative and shall be recorded on the Traveler . (Exhibit 20) by the NOM prior to continuation of work beyond the designated hold point.

11.3 Inspection Planning

Characteristics to be inspected, methods of inspection and acceptance criteria shall be identified by the NOM and identified on the Traveler . (Exhibit 20).

11.4 In-Process Inspections

The NOM shall identify the extent of in-process inspections to be performed. Inspection of items under construction or otherwise in process shall be performed as necessary to verify quality. If inspection of processed items is impossible or disadvantageous, indirect control by monitoring of processing methods, equipment, and personnel shall be provided. Process monitoring shall be performed by properly qualified and certified inspection and test personnel. Both inspection and process monitoring shall be provided when control is inadequate without both.

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11.5 Final Inspections

Final inspections shall be performed by properly qualified inspection and test personnel. These inspections shall be documented and include a records review of the results and resolution of nonconformances identified by prior inspections.

Completed items shall be inspected for completeness, markings, calibration, adjustments, protection from damage, or other characteristics as required to verify the quality and conformance of the item to specified requirements.

Final inspections shall be documented on a Final Inspection Report . (Exhibit 25) by Quality Control Inspector and then reviewed for concurrence by the NOM. The Final Inspection Report shall be included in the Repair/Replacement Plan and made available to the ANI.

Any modifications, repairs, or replacements of items performed subsequent to final inspection shall require re-inspection or retest and approval similar to that originally performed to verify acceptability.

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12.0 TEST CONTROL

This section describes the controls to be implemented as required by 10CFR50 Appendix B and Part 3 of the NBIC.

The NOM shall be responsible to identify the need for and the extent of any testing requirements. The NOM shall ensure all testing requirements are identified in the Repair/Replacement Plan. Characteristics to be tested and test methods to be employed shall be specified in written procedures or instructions included in the Repair/Replacement Plan prepared by the NOM.

All testing shall be witnessed by properly qualified and certified inspection and test personnel. Test results shall be documented and their conformance with test requirements and acceptance criteria shall be evaluated by the NOM.

The applicable Nuclear Department Manager is responsible for the performance of all testing.

12.1 Test Requirements

12.1.1 Test requirements and acceptance criteria shall be provided by the Owner. Required tests, including, as appropriate, prototype qualification tests, production tests, proof tests prior to installation, construction tests, and computer program tests such as software design verification, factory acceptance tests, site acceptance tests, and in-use tests shall be controlled. Required tests shall be controlled under appropriate environmental conditions using the tools and equipment necessary to conduct the test in a manner to fulfill test requirements and acceptance criteria. The tests performed shall obtain the necessary data with sufficient accuracy for evaluation and acceptance.

12.1.2 Test requirements and acceptance criteria shall be based upon specified requirements contained in applicable design documents, or other pertinent technical documents that provide approved requirements.

12.1.3 If temporary changes to the approved configuration of an Item is subjected to a Repair/Replacement Activity is required for testing purposes, approval by the Owner is required prior to performing the test.

12.1.4 Post installation testing such as ASME Section XI System Leakage tests which require that an Item be reinstalled into the plant system and that the test be conducted by a VT-2 qualified individual are the responsibility of the Owner. These tests, although required by ASME XI are not within the scope of this program. If these type tests are the only tests that are required to be performed following a specific Repair/Replacement Activity to an Item, then the applicable NBIC Data Report (e.g., NR-1, NVR-1) as prepared by NOM shall denote that these tests were not conducted as part of the Repair/Replacement Plan

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12.2 Test Procedures and Instructions

12.2.1 Test procedures and/or instructions shall include or reference the test configuration and test objectives. They shall be developed for each test to be performed. Test procedures shall also include provisions for assuring that prerequisites and suitable environmental conditions are met, adequate instrumentation is available and used, appropriate tests and equipment are used, and necessary monitoring is performed. Prerequisites shall include the following, as applicable:

- (1) calibrated instrumentation
- (2) appropriate equipment
- (3) trained personnel
- (4) condition of test equipment and the item to be tested
- (5) suitable environmental conditions
- (6) provisions for data acquisition

12.2.2 As an alternative to the above, appropriate sections of related documents, such as ASTM methods, supplier manuals, equipment maintenance instructions, or approved drawings or Travelers with acceptance criteria, may be used. Such documents shall include or be supplemented with appropriate criteria as needed to assure adequate procedures for the test.

12.3 Test Records

12.3.1 A **Test Report** – (Exhibit 26) shall be completed for each test completed. The Test Report shall be signed by the inspection and test personnel who witnessed the test, if acceptable. The Test Report shall be signed by the individual performing the test as well as the NOM only after review and concurrence of the test results. The record shall also be signed by the NDM. The Test Report shall be included in the Repair/Replacement Plan and be made available to the ANI.

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13.0 CONTROL OF MEASURING AND TEST EQUIPMENT

This section describes the controls to be implemented as required by 10CFR50 Appendix B, Part 3 of the NBIC and ASME Section XI. All tools, gages, instruments, and other measuring and test equipment (M&TE) used for activities affecting quality shall be controlled, calibrated at specific periods, adjusted, and maintained to required accuracy limits.

The NOM is responsible for the control of all measuring and test equipment used for acceptance of items. The NOM shall maintain the Calibrated Measuring and Test Equipment List . (Exhibit 27) which shall be updated when equipment is added, deleted or the status has changed. The NOM shall provide written calibration procedures or ensure all procurement documents to Approved Suppliers of Calibration Services address the applicable requirements, when used.

13.1 SELECTION

The NOM is responsible for control of necessary M&TE. The NDM as well as the NWDM are responsible for the identification of necessary M&TE and the assurance that the individuals are capable of using the M&TE. Those individuals assigned to the aforementioned Managers to use the M&TE shall make their selection based on the type, range, accuracy, and tolerance needed to accomplish the required measurements for determining conformance to specified requirements. The equipment used shall be listed on the Calibrated Measuring and Test Equipment List controlled by the NOM. The equipment used shall be documented on the work control document (i.e. Repair/Replacement Plan, Traveler, Inspection Report, and Test Report as appropriate) and the Calibrated Measuring and Test Equipment Usage Log . (Exhibit 28).

13.2 CALIBRATION AND CONTROL

13.2.1 Calibration

The NOM is responsible for establishing the Control of Measuring and Test Equipment (M&TE) at prescribed times or intervals and whenever the accuracy of the M&TE is suspect. The prescribed times or intervals shall be listed on the Calibrated Measuring and Test Equipment List. Calibration shall be against and traceable to certified equipment or reference standards having known valid relationships to nationally recognized standards, or to international standards known to be equivalent to and verified against corresponding nationally recognized standards. Where no such standards exist, the basis for calibration shall be defined by NOM and/or NDM. The Nuclear Department Manager shall ensure that only authorized calibrated measuring and test equipment is utilized for this work.

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13.2.2 Reference Standards

Calibration is performed by a Certified Calibration Lab (ISO-17025 or equivalent). Documentation of Calibration shall be provided for all calibrations performed and it shall show traceability to National Institute of Standards and Technology (NIST). It should be noted that Reference Standards should have a minimum accuracy four times greater than that of the measuring and test equipment being calibrated to ensure that the reference standards contribute no more than one-fourth of the allowable calibration tolerance. Where this 4:1 ratio cannot be maintained, the basis for selection of the standard in question shall be technically justified by the calibration facility with the result being provided to the NOM for concurrence. In-house Calibration may be performed on M&TE where deemed appropriate by the NOM. Certified Nuclear Quality Control Inspectors shall be used to perform this activity using Certified Calibrated Standards.

13.2.3 Control

Calibration program shall identify or reference required accuracy and shall define methods and frequency of checking accuracy. The calibration method and interval of calibration shall be based on the type of equipment, stability characteristics, required accuracy, intended use, and other conditions affecting performance. Measuring and test equipment, which is overdue for calibration or found to be out-of-calibration, shall be tagged using Nonconformance Tag . (Exhibit 31) and/or segregated, or removed from service, and not used until it has been recalibrated. Measuring or test equipment consistently found to be out-of-calibration shall be pulled from service and sent out to be evaluated and repaired, if possible. .

13.2.3.1 Application. Measuring and Test Equipment shall be traceable to its application and use by documenting its use on the work control document such as a Dimensional Record . (Exhibit 40) or the Traveler as well as on the Calibrated Measuring and Test Equipment Usage Log . (Exhibit 28).

13.2.3.2 Corrective Action. When measuring and test equipment is lost, damaged, or found to be out-of-calibration, the validity of previous measurement, inspection, or test results, and the acceptability of items previously inspected or tested shall be evaluated. This evaluation shall cover from the problem date back to the last successful documented use but not to exceed the last date that the questionable M&TE was calibrated. The NOM is responsible for ensuring that this evaluation is performed and documented. These activities shall be documented on a Nonconformance Report, a Nonconformance Tag shall be attached to the item and all related Corrective Actions shall be controlled as described in nonconformance program.

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- 13.2.3.3 Handling and Storage.** Measuring and Test Equipment shall be properly handled and stored to maintain accuracy and prevent damage. Manufacturer's recommendation may be used in order to establish these controls.
- 13.2.3.4 Environmental Controls.** Measuring and Test Equipment shall be used and calibrated in environments that are controlled to the extent necessary and possible to ensure that the required accuracy and precision are maintained.
- 13.2.3.5 Pre-calibration Checks.** Measuring and Test Equipment and reference standards submitted for calibration shall be checked and the results recorded before any required adjustments or repairs are made.
- 13.2.3.6** All Controlled M&TE must be checked by the user for accuracy prior to use. Only equipment that passes this check may be used. Equipment that fails shall be tagged with Nonconformance Tag . (Exhibit 31) and presented to the NOM for resolution.
- 13.2.3.7 Status Indication.** Measuring and test equipment shall be suitably labeled with a sticker or similar method that shows at a minimum the item ID and Calibration Due Date, or with just an ID that is traceable back to the detailed Calibrated Measuring and Test Equipment List . (Exhibit 27).

13.2.4 Commercial Devices

Calibration and control measures are not required for commercial equipment such as rulers, tape measures, levels, etc. unless specified by the Nuclear Customer.

13.3 RECORDS

13.3.1 General

The Calibrated Measuring and Test Equipment List has been established and is maintained to indicate calibration status and the capability of Measuring and Test Equipment to satisfactorily perform its intended function. Each item has its own associated calibration record which is maintained electronically by the NOM.

13.3.2 Reports and Certificates

Calibration reports and certificates reporting the results of calibrations shall be provided to the NOM and include the information and data necessary for interpretation of the calibration results and verification of conformance to applicable requirements. Calibration reports and certificates shall be maintained as required by Section 18 of this program.

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14.0 HANDLING, STORAGE AND SHIPPING

This section describes the controls to be implemented as required by 10CFR50 Appendix B.

14.1 BASIC

The NSRM shall be responsible for all handling, storage and shipping activities. Handling, storage, packaging, shipping, and preservation of items shall be controlled to prevent damage or loss and to minimize deterioration. These activities shall be coordinated with the appropriate NDM as well as the NOM. These activities shall be conducted in accordance with established work and inspection instructions, drawings, specifications, shipment instructions, or other pertinent requirements specified for use by the nuclear customer.

14.2 SPECIAL REQUIREMENTS

When required, special equipment (such as containers, shock absorbers, and accelerometers) and special protective environments (such as inert gas atmosphere, specific moisture content levels, and temperature levels) shall be specified, provided and their existence verified. All special requirements shall be identified in the Repair/Replacement Plan and verified by a Nuclear Quality Control Inspector.

14.3 PROCEDURES

When required for critical, sensitive, perishable, or high-value items, specific procedures/instructions for handling, storage, packaging, shipping, and preservation shall be provided by the NDM to the Nuclear Shipping and Receiving Manager and verified as having been implemented by a Nuclear Quality Control Inspector.

14.4 TOOLS AND EQUIPMENT

Special handling tools and equipment shall be utilized and controlled where necessary to ensure safe and adequate handling. The Nuclear Shipping and Receiving Manager shall determine the need for any special handling tools or equipment and shall identify those needs in the Repair/Replacement Plan and/or procedures.

14.5 Special handling and Lifting Equipment

Nuclear Workers responsible for the usage of special handling and lifting equipment shall be experienced or trained.

14.6 MARKING OR LABELING

Marking or labeling shall be utilized as necessary to adequately maintain and control the item. This will be through the usage of a unique Nuclear Job Number.

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15.0 INSPECTION AND TEST STATUS

This section describes the controls to be implemented as required by 10CFR50 Appendix B, Section XIV.

15.1 BASIC

The NDM with the assistance of the NOM shall be responsible for activities required to identify the inspection and test status of each item. All inspections and test activities to be completed on a component or part shall be identified and controlled by the Repair/Replacement Plan and Traveler. Completed and accepted inspection and test activities shall be documented in the Repair/Replacement Plan or Traveler by the Nuclear Quality Control Inspector or qualified test personnel. All inspections and test activities to be completed on materials shall be controlled as described in Sections 11 & 12 of this manual.

15.2 RESPONSIBILITIES

- 15.2.1 NDM shall establish methods consistent with this manual for identifying and controlling inspections and tests status of material in accordance with the Nuclear Quality Repair Program and/or other specified requirements. They must also ensure that inspection personnel are qualified to perform at least the work being inspected but having not been involved with the necessary inspections.
- 15.2.2 The NOM should assure that the established methods for identifying the status of inspections and tests are defined and implemented in accordance with Program Requirements.
- 15.2.3 Chalmers & Kubeck, Inc. Nuclear Division Personnel are responsible for documenting the inspection and test status of material, equipment, and services in accordance with this program and customer requirements.

15.3 PROCESS

- 15.3.1 Inspection and test status shall be identified either on the items or on documents traceable to the items via a Nuclear Job Number. The Traveler shall be developed by the NDM.
- 15.3.2 The methods employed, such as Quality Control Hold Points, shall assure that items do not inadvertently bypass necessary inspections and tests points.
- 15.3.3 Routine work status will be maintained by the Nuclear Department Foreman throughout their assigned job by using markings, tags, Travelers, physical segregation, and/or inspection records.
- 15.3.4 Nuclear Quality Control Inspectors will periodically monitor job for status. They also have the authority to stop work on a job when quality is in question or jeopardy.
- 15.3.5 Nonconforming items shall be clearly identified, segregated where possible and tagged.

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16.0 CONTROL OF NON-CONFORMING ITEMS

This section describes the controls to be implemented as required by 10CFR50 Appendix B and Part 3 of the NBIC.

16.1 BASIC

Items that do not conform to specified requirements shall be controlled to prevent inadvertent installation or use. The NOM shall be responsible for verifying implementation of the controls identified in this Section. Controls shall provide for identification, documentation, evaluation, segregation when practical, and disposition of nonconforming items, and for notification to affected organizations.

16.2 RESPONSIBILITIES

- 16.2.1 The NOM is responsible for the assignment of the nonconformance number and assuring that the disposition of nonconforming conditions is adequate. NOM shall verify that nonconformance(s) (NCRs) have been evaluated, as applicable for 10CFR Part 21 impact. The NOM has the authority to stop work when the quality of the work provided is in question.
- 16.2.2 NDM is responsible for the review and approval of dispositions associated with nonconforming conditions. They are responsible for ensuring that the dispositions are completed. They are also responsible for providing copies of generated nonconformances (NCRs) to the NOM for evaluation and trending.
- 16.2.3 The NDF for the area or project in which a nonconformance has occurred shall provide input relative to identified nonconformance(s), recommended dispositions and any actions taken to address the conditions. They shall ensure that no additional work is performed until the NCR has been adequately addressed.
- 16.2.4 Any Nuclear Division Personnel may generate a nonconformance. They must utilize Nonconformance Report and present the generated nonconformance to their responsible Nuclear Department Manager for review and then to the NOM for assignment of a tracking number and review for 10CFR21 applicability.
- 16.2.5 Per the above referenced procedures, nuclear personnel must also be aware of counterfeit and fraudulent materials issues. If identified they too must be documented on a Nonconformance Report . (Exhibit 29).

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16.3 IDENTIFICATION

Any individual who suspects an item is nonconforming is responsible for notifying the NOM. The NOM shall investigate the item to determine the validity of the suspected nonconformance. If a nonconformance has been validated, the NOM shall document the issue on a Nonconformance Report . (Exhibit 29). The NOM shall maintain the Nonconformance Report Log . (Exhibit 30). The item shall be tagged with a red Nonconformance Tag . (Exhibit 31). The work control document (i.e. R/R Plan, Traveler, Inspection or Test Reports as applicable) shall be noted with the NCR Number.

16.4 SEGREGATION

- (a) Nonconforming items shall be segregated, when practical, by placing them in a clearly identified and designated hold area until completion of the disposition.
- (b) When segregation is impractical or impossible due to physical conditions such as size, weight, or access limitations, the attachment of the Nonconformance Tag described above shall be employed to preclude inadvertent use of a nonconforming item.

16.5 EVALUATION

16.5.1 Control

Nonconforming items shall be evaluated by the NOM and recommended dispositions shall be proposed by the assigned individual. Further processing of a nonconforming item shall be controlled pending the evaluation and an approved disposition by authorized personnel. Delivery, installation, or use is strictly prohibited.

16.5.2 Responsibility and Authority

The responsibility and authority for the evaluation and disposition of nonconforming items shall be as defined. Responsibility for the control of further processing, delivery, installation, or use of nonconforming items shall be designated in writing as part of the Nonconformance Report.

16.5.3 Personnel

Personnel performing evaluations to determine a disposition shall have

- (a) demonstrated competence in the specific area they are evaluating
- (b) an adequate understanding of the requirements

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16.5.4 Disposition

A disposition, such as use-as-is, reject, repair or rework of nonconforming items shall be made and documented. Technical justification for the acceptability of a nonconforming item dispositioned repair or use-as-is shall be documented and presented to the ANI for concurrence. Nonconformance(s) to design requirements that are dispositioned use-as-is or repair shall be subject to design control measures commensurate with those applied to the original design. Required as-built records shall reflect the use-as-is or repair condition. All "Use as Is" and "Repair" dispositioned nonconformance(s) shall be accepted by the Owner.

16.6 Re-examination

Repaired items shall be re-examined by Nuclear Quality Control Inspector and the ANI in accordance with applicable procedures or written instruction and with the original acceptance criteria unless the disposition has established alternate acceptance criteria.

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17.0 CORRECTIVE ACTION

This section describes the controls to be implemented as required by 10CFR50 Appendix B and Part 3 of the NBIC.

17.1 Basic

The NOM is responsible for establishing the control associated with corrective actions. It is the responsibility of the applicable Nuclear Department Manager to ensure that this is completed in a timely manner. Any condition adverse to quality that cannot be corrected via normal rework shall be addressed as a corrective action. All nonconforming items shall be evaluated by the NOM for required corrective actions. Conditions adverse to quality shall be identified promptly and corrected as soon as practicable.

The NOM or the individual identifying the condition shall document the problem on a Corrective Action Report (CAR) . (Exhibit 32). All CARs shall be entered onto the Corrective Action Report Log . (Exhibit 33). The NOM shall identify all items affected by the corrective action by placing a Quality Hold Tag . (Exhibit 10) on the item(s) as applicable and segregating when possible. The NOM shall notify all individuals or organizations which could be affected by the condition adverse to quality and shall evaluate all corrective actions for 10CFR21 reporting. The relevant Nuclear Department Manager shall support this evaluation

In addition to the corrective action taken, the cause of the condition and corrective action taken to preclude recurrence shall be determined. The identification, cause, and corrective action for significant conditions adverse to quality shall be reported by the NOM to appropriate levels of management through a summary report..

The NOM shall verify and document the completion of corrective actions and corrective action taken to preclude recurrence, assure that the Corrective Action Report is closed and the Corrective Action Report Log is updated before the affected item(s) may continue with further processing..

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18.0 QUALITY ASSURANCE RECORDS

This section describes the controls to be implemented as required by 10CFR50 Appendix B and Part 3 of the NBIC.

18.1 BASIC

Every individual completing a document that affects quality is required to control these documents as described in this section.

The control of quality assurance records begins concurrent with an activity and is completed at the time of final certification of the Repair/Replacement activity. Quality assurance records shall furnish documentary evidence that items or activities meet specified quality requirements. Quality assurance records shall be identified, generated, authenticated, and maintained and their final disposition specified. The NOM shall provide a written procedure defining control requirements and responsibilities for these activities.

The relevant Nuclear Department Manager shall verify all documents received have been generated correctly and shall verify their authenticity as described below prior to filing as records. Any document found not to meet these requirements shall be returned to the appropriate Nuclear Department Manager responsible for the activity.

All quality records shall be completed in BLACK or BLUE ink not in pencil, be legible with both a printed name and signature of the individual completing the document along with date completed

18.2 GENERATION OF RECORDS

- (a) Records shall be legible.
- (b) Records shall be traceable to associated items and activities and accurately reflect the work accomplished or information required.
- (c) Records to be generated, supplied, or maintained shall be specified in applicable documents, such as design specifications, procurement documents, test procedures, and operational procedures.

18.3 AUTHENTICATION OF RECORDS

- 18.3.1 Documents shall be considered valid records only if stamped, initialed, or signed and dated by authorized personnel or otherwise authenticated. Corrections shall be completed by the individual responsible for creating the document, except that when that individual is no longer employed by Chalmers & Kubeck, Inc. in this case, the Nuclear Department Manager is permitted to make the correction only after verifying the activity performed. Corrections shall be completed by one-line through the incorrect information, adding the correct information and then initial and date. Corrections to documents shall be reviewed and approved by the responsible individual from the originating or authorized organization.

18.3.2 Electronic documents shall be authenticated with comparable information as stated in 18.2 above, as appropriate

- (a) with identification on the media; or
- (b) with authentication information contained within or linked to the document itself.

18.4 CLASSIFICATION

NOM shall be responsible for providing all records identified as Lifetime Records to the nuclear customer at the completion of the related work, while maintaining electronic copies of the records consistent with applicable regulatory and specific Code requirements.

18.4.1 Lifetime Records. The records listed in Table 1 shall be classified as Lifetime Records. C&K, Inc. as a company shall be responsible for the retention and maintenance of those records for a minimum of 5 years. NOM shall provide the Owner with copies of this documentation as required by the associated Procurement Documents for each job. The listed documentation shall be made available for the ANI review upon request.

Table 1

Quality Record	Responsibility
Index	NOM
NR-1 & NVR-1 Forms	NOM
C&K Nuclear Repair Manual	NOM
C&K Nuclear Implementing Procedures, written instruction, Travelers, etc.	NDM
NASL Supplier Surveys/Audits Reports/Evaluations	NOM
Internal Program Audits/Audit Reports	NOM
Corrective Action Reports per Job	NOM
Shop & Supplier Nonconformances-Dept. generated per job	NDM
Nuclear QA/QC Personnel Training Records	NOM

Table 1 (cont.)

M&TE Calibration Records and Controls	NOM
NDE Procedures and Associated Personnel Qualification Per job	NOM
Nuclear Department Personnel Training /Qualification Records	NDM
Receipt & Shipping Documents	NDM
Special Process Documentation including Weld Procedures.	NDM
Dimensional Records	NDM
Procurement/Purchasing Documentation including Order Entry Review Forms	NDM
Certified Material Test Reports	NDM
Heat Treatment Records	NDM
Certificates of Conformance if not part of Job Package	NDM
Final Job Completion Report	NDM.

18.5 RECEIPT CONTROL OF RECORDS

The relevant NDM or NWDM, as appropriate, shall be responsible for the receipt of records designated by the Owner and/or developed as part of this program. They are also responsible for organizing and implementing the requirements of Section 18 of this program. Receipt controls shall provide a method for identifying the records received, receipt and inspection of incoming records, and submittal of records to storage.

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18.6 STORAGE

18.6.1 General

Quality Records will also be maintained in electronic format (in PDF) by scanning hard copies of documentation. Scanned records will be legible, printable and stored on the C&K, Inc. Server by the Departments under their controlled file folder.

Note 1: The server is backed up on a daily basis to a backup server and tape. The tapes are stored at an offsite location. Weekend data is processed in the similar manner except the tapes cover the entire weekend.

Note 2: The responsible Nuclear Department Manager or Nuclear Quality Oversight Manager, may also maintain a reference or "for information" copy of records within their departments, if desired. It may be in electronic format

Hardcopy Records shall be stored at a predetermined location(s) in facilities, containers, or a combination thereof, constructed and maintained in a manner that minimizes the risk of loss, damage, or destruction from

- (1) natural disasters such as winds, floods, or fires
- (2) environmental conditions such as high and low temperatures and humidity
- (3) infestation of insects, mold, or rodents
- (4) dust or airborne particles
 - Activities detrimental to the records shall be prohibited in the storage area.
 - Access to the processing, storage, and retrieval of records shall be limited to personnel authorized by the Department Managers..
 - Provisions shall be made to prevent damage from harmful conditions (such as excessive light, stacking, electromagnetic fields, temperature, and humidity), as applicable to the specific media utilized for record storage.

18.6.2 Facility Types

NOM shall provide copies of all associated Quality Records for work to the customer. C&K, Inc. will be using electronic document control and storage as the primary means of control. These records shall be backed up on removable storage media and stored at an offsite location.

C&K, Inc. may also utilize the following method to meet storage requirements, if appropriate.

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18.6.2.1 Single storage that consists of fire proof cabinets or container(s) with a minimum two-hour fire rating.

18.6.3 Temporary Storage

When temporary storage of records (such as for processing, review, or use) is required, the storage container or the defined electronic method shall provide adequate controls until permanent source is needed.

18.7 RETENTION

18.7.1 Records shall be maintained for their established retention periods.

18.7.2 Specific Record retention periods may be predetermined and established in addition to those defined on the tables with a Nuclear Customer, as appropriate.

18.8 MAINTENANCE OF RECORDS

18.8.1 The department responsible for completing the work shall be responsible for records maintenance. Access is limited to at least the NDM. The list is controlled by NOM. A list of records added to the electronic storage by file name/assigned nuclear job number shall be established and maintained by the NDM. Nuclear Quality Oversight Manager through audits and surveillances shall assure the adequacy of the maintenance and established controls.

18.8.2 Records shall be protected from damage or loss.

18.8.3 Record controls shall provide for retrievability within planned retrieval times based upon the record type or content.

18.8.4 The methods for record changes shall be documented.

18.8.5 Checks of the data accessibility shall be performed at least once per calendar year. Any problems shall be immediately corrected.

18.8.6 Director of Information Technology shall ensure that the electronic records remain retrievable.

18.8.7 Provisions shall be established to ensure the following if records are duplicated or transferred to the same media or to a different media for the purposes of maintenance or storage:

- duplication or transfer is appropriately authorized
- record content, legibility, and retrievability are maintained

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19.0 AUDITS

This section describes the controls to be implemented as required by 10CFR50 Appendix B, applicable version of NQA-1 Requirement 18, and Part 3 of the NBIC.

19.1 BASIC

Both internal and external supplier audits shall be performed to verify compliance to established Quality Assurance Program requirements, to verify that performance criteria are met, and to determine the effectiveness of the program. These audits shall be performed in accordance with written procedures or checklists by personnel who do not have direct responsibility for performing the activities being audited.

Internal Audits shall be performed at least annually of the Chalmers & Kubeck (C&K) Nuclear Quality Repair Program. All audit results shall be documented and reported to the NOM. For Internal Audits, once the NOM has reviewed the results then an exit meeting will be conducted with C&K Management as well as the NDM and NWDM to review the results.

External Supplier Audits shall be performed at least once per three years with annual reviews of their performance being performed and documented. External Audit results will be discussed with the Supplier as part of an audit exit meeting also. Any follow-up action shall be taken by Nuclear Quality Oversight Manager.

19.2 SCHEDULING

The NOM or Lead Auditor shall provide a schedule of both internal and external supplier audits. Audits shall be scheduled in a manner to provide coverage and coordination with ongoing activities, based on the status and importance of the activity. Scheduled audits shall be supplemented by additional audits of specific subjects when necessary to provide adequate coverage, as determined by the NOM

19.3 PREPARATION

19.3.1 Audit Plan

The Lead Auditor shall develop an audit plan for each audit. This plan shall identify the audit scope, requirements, audit personnel, activities to be audited, organizations to be notified, applicable documents, schedule, and written procedures or checklists.

19.3.2 Personnel

Audit personnel shall have sufficient authority and organizational freedom to make the audit process meaningful and effective.

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19.3.3 Selection of Audit Team

The NOM shall identify an audit team prior to the beginning of each audit except the Nuclear Division President shall identify the audit team when auditing of this Program is required. This team shall contain one or more auditors, one being designated as a Lead Auditor who organizes and directs the audit. The audit team shall have experience or training commensurate with the scope, complexity, or special nature of the activities to be audited. The audit team shall be certified as described in Section 2 of this program.

19.4 PERFORMANCE

The Lead Auditor shall select the areas to be audited and present for concurrence to the NOM. Areas selected for audit shall be identified on an audit plan, incorporated into Audit Checklist and evaluated against specified requirements of the Quality Program being audited. Objective evidence shall be examined to the depth necessary to determine if these elements are being implemented effectively. Conditions requiring prompt corrective action shall be reported immediately to management of the audited organization.

19.5 REPORTING

The Audit Report shall be signed or otherwise endorsed by the Lead Auditor and issued to the management of the audited organization and the NOM.

The contents of the report shall

- (a) describe the audit scope
- (b) identify Auditors and persons contacted
- (c) summarize audit results, including a statement on the effectiveness of the elements audited
- (d) describe each reported adverse audit finding

The Audit Report shall include a request for an appropriate response described in 19.6 below within a specified time to any adverse findings noted.

19.6 RESPONSE

Management of the audited organization or activity shall investigate adverse audit findings, schedule corrective action, including measures to prevent recurrence of significant conditions adverse to quality, and notify the NOM in writing of action taken or planned. Audit responses shall be evaluated by assigned Lead Auditor.

19.7 FOLLOW-UP ACTION

Follow-up action, including re-audit of deficient areas, shall be taken to verify that corrective action is satisfactorily accomplished as scheduled and as determined by the NOM.

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19.8 RECORDS

Audit Records shall include audit plans, Audit Reports, written replies, and the record of completion of corrective action shall be handled as described in Section 18 of this program. Audit records shall be made available to the Authorized Nuclear Inspector.

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20.0 AUTHORIZED NUCLEAR INSPECTOR

This section describes the controls to be implemented as required by Part 3 of the NBIC and ASME Section XI.

The NOM shall be responsible for:

- Maintaining an inspection contract with an Accredited Authorized Inspection Agency in accordance with NB-360, Criteria for Acceptance of Authorized Inspection Agencies for New Construction, NB-369, Qualification and Duties for Authorized Inspection Agencies (AIA) Performing In-service Inspection Activities and Qualification of Inspectors of Boilers and Pressure Vessels.
- Keeping the Authorized Nuclear Inspector (ANI), who is qualified in accordance with the Rules for National Board In-service and New Construction Commissioned Inspectors, informed of the status of this program and any Repair/Replacement activities performed.
- Ensuring the latest documents including this program has been made available to the Authorized Nuclear Inspector
- Consulting with the ANI prior to beginning any Repair/Replacement activities in order that the ANI may select any witness or hold points deemed necessary.
- Providing the ANI any assistance necessary or required to perform their duties required by the Code.
- Providing the Authorized Nuclear Inspector Supervisor (ANIS) any assistance necessary or required to perform the required audits of Chalmers & Kubeck, Inc. and the ANI.

The ANI shall not sign Form NR-1 or NVR-1, as applicable, unless satisfied that all work carried out is in accordance with the NBIC, ASME Section XI, and any jurisdictional requirements and this program.

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21.0 INTERFACE WITH THE OWNER'S REPAIR/REPLACEMENT PROGRAM

The NOM shall be responsible for interface with the Owner's agent responsible for the Owner's Repair/Replacement Program.

- a) The Repair/Replacement Plan may be subject to the acceptance of the applicable jurisdiction and the Owner's Authorized Nuclear In-service Inspector (ANII), prior to the start of any Repair/Replacement activities. If either of these reviews is required it shall be identified in the purchase order requirements from the customer and shall be indicated on the Traveler.
- b) Repair/Replacement activities of nuclear components shall meet the requirements of the applicable Edition and Addenda of Section XI of the ASME Boiler and Pressure Vessel Code and permitted ASME Code Cases as identified by the Customer in the purchase order requirements to C&K, Inc. as well as any supplementary Jurisdictional requirements.
- c) Documentation of the Repair/Replacement activities of nuclear components shall be recorded on the National Board Report of Nuclear Repair/Modification or Replacement activities, Form NR-1, or Form NVR-1, as applicable. The completed forms shall be signed by the NOM and the ANI.
- d) For Repair/Replacement activities that involve design changes as specified in the NBIC, Form NR-1, or Form NVR-1, as applicable, shall indicate the responsible organization satisfying Owner's design specification requirements.
- e) The NOM shall provide a copy of the signed Form NR-1, or Form NVR-1, as applicable, to the Owner, the Jurisdiction if required and the Authorized Nuclear Inspection Agency.
- f) The original Form NR-1 or Form NVR-1 shall be registered with the National Board.
- g) The NOM shall provide a nameplate/stamping, as described in Section 22 of this program for all Repair/Replacement activities performed on all nuclear Items unless otherwise required by the Owner's purchase order requirements.

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22.0 Code Symbol Stamps, Nameplates and Data Reports

The %NR+Symbol Stamp is at all times the property of the National Board and shall be returned upon demand. If Chalmers & Kubeck, Inc. discontinues the use of the %NR+Symbol Stamp or if the Certificate of Authorization has expired and no new Certificate of Authorization has been issued, the %NR+Symbol Stamp shall be returned to the National Board. %C&K, Inc.+may be used as an abbreviation for nameplate stamping.

Chalmers & Kubeck, Inc. shall not permit other organizations to use the %NR+Symbol Stamp. The NOM shall be responsible for keeping the NB Code Symbol %NR+Stamp in a secure location. Only after final review and acceptance of the Repair/Replacement Plan and Traveler by the NOM and the ANI, may the %NR+Symbol Stamp be issued for the preparation of the required nameplates.

After final review and acceptance by the NOM, the Repair/Replacement Plan, Traveler and the completed NB Form NR-1, or Form NVR-1, as applicable, shall be submitted to the ANI for final review and acceptance.

The ANI shall not sign Form NR-1 . or NVR-1 . unless satisfied that all work carried out is in accordance with the NBIC, ASME Section XI and any jurisdictional requirements and this program.

The original Form NR-1, or Form NVR-1, as applicable, shall be registered with the National Board.

NOM will maintain the NB Registration Log (Exhibit 34). The NOM shall maintain a single log documenting unique and sequential R- Numbers for Form NR-1/NVR-1 Reports that are registered with the National Board.

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23.0 TERMS AND DEFINITIONS

<i>Accept As Is</i>	Only applicable when all requirements of this program and Code have been satisfied
<i>Certified Material Organization</i>	Organization that is audited and granted a Quality System Certificate directly by ASME and may therefore supply any company with ASME materials
<i>Alteration</i>	Any change in the item described on the original Manufacturers Data Report that affects the pressure containing capability of the pressure-retaining item. Non-physical changes such as an increase in the maximum allowable working pressure (internal or external), increase in design temperature, or a reduction in minimum temperature of a pressure-retaining item shall be considered an alteration.
<i>Approved Supplier:</i>	A supplier that has been evaluated and approved by C&K Nuclear Quality Oversight, a Material Organization or Certificate Holder in accordance with the requirements of NCA-3800.
<i>Appurtenance:</i>	An item intended to be attached to a completed and stamped component that has work performed on it requiring verification by an Inspector.
<i>ASME</i>	American Society of Mechanical Engineers
<i>Audit:</i>	A documented evaluation performed to verify, by examination of objective evidence, that those selected elements of a previously approved quality program have been developed, documented, and implemented in accordance with specified requirements. An audit does not include surveillance or inspection for the purpose of process control, or acceptance of material or items.
<i>Authorized Inspection Agency: (NBIC)</i>	<p><u>New Construction:</u> An Authorized Inspection Agency is one that is accredited by the National Board meeting the qualification and duties of NB-360, <i>Criteria for Acceptance of Authorized Inspection Agencies for New Construction</i>.</p> <p><u>In-service:</u> An Authorized Inspection Agency is either:</p> <ol style="list-style-type: none"> a. a jurisdictional authority as defined in the National Board Constitution; or b. an entity that is accredited by the national Board meeting NB-369, <i>Qualifications and Duties for Authorized Inspection Agencies Performing In-service Inspection Activities and Qualifications for Inspectors Boilers and Pressure Vessels; NB-371, Accreditation of Owner-User Inspection Organizations (OUIO) or NB-390, For Federal Inspection Agencies (FIAs) Performing In-service Inspection Activities</i>.
<i>Authorized Inspection Agency: (Section III)</i>	An organization that is empowered by an enforcement authority to provide inspection personnel and services as required by this Section.



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<i>Authorized Nuclear Inspector Supervisor:</i>	An Authorized Nuclear Inspector Supervisor is an employee of an Authorized Inspection Agency who has been assigned by that agency to oversee and direct the work of one or more Authorized Nuclear Inspectors and who has qualifications for and has been properly qualified for Division 1 or Division 2.
<i>Authorized Nuclear Inspector:</i>	An Authorized Nuclear Inspector is an employee of an Authorized Inspection Agency who has qualifications for and has been properly qualified for Division 1 or Division 2.
<i>ASME Certificate Holder:</i>	An organization holding a Certificate of Authorization or Certificate of Authorization (Supports) issued by the <i>ASME</i> .
<i>ASME Certificate of Authorization:</i>	a document issued by the <i>ASME</i> that authorizes the use of an ASME Code Symbol Stamp for a specified time and for a specified scope of activity.
<i>Certificate of Compliance:</i>	a written statement attesting that the materials are in accordance with specified requirements.
<i>Certificate:</i>	a Certificate of Authorization, Certificate of Accreditation, Quality System Certificate (Materials), or Owner's certificate issued by the Society.
<i>Certification:</i>	the act of verifying and attesting in writing that the documents, processes, procedures, items, or the qualifications of personnel are in accordance with specified requirements.
<i>Certified Material Test Report (CMTR):</i>	a document attesting that the material is in accordance with specified requirements, including the actual results of all required chemical analyses, tests, and examinations.
<i>Code</i>	ASME Boiler & Pressure Vessel Code, Section III, Division 1, Nuclear Power Plant Components and referenced sections, National Board Inspection Code and ASME Section XI, Div. 1
<i>Code Addenda:</i>	additions and revisions to individual sections of the Code published annually.
<i>Code Cases:</i>	documents issued by the Society to clarify the intent of existing Code requirements or to provide alternative rules for construction.
<i>Code Class:</i>	the classification, specified by the Owner (or his designee) and included in the Design Specification that establishes the rules for design and construction of items.



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<i>Code Editions:</i>	documents issued at 2-year intervals by the Society that include all revisions and additions previously included in Addenda and corrections included in Errata published since the previous Edition.
<i>Construction Code:</i>	Nationally recognized Codes, Standards, and Specifications (e.g., ASME, ASTM, USAS, ANSI, API, AWWA, AISC, MSS, AWS) including designated Cases, providing construction requirements for an item.
<i>Compliance:</i>	Conforming to the Code, a specification, or a procedure.
<i>Component support:</i>	A support for a vessel, pump, or storage tank. A support that is attached to a valve may be classified as a component support when identified in the Design Specification.
<i>Component:</i>	A vessel, concrete containment, pump, pressure relief valve, line valve, storage tank, piping system, or core support structure that is designed, constructed, and stamped in accordance with the rules of a Construction Code.
<i>Job Controlled Document List</i>	A compiled list of controlled documents for a particular Nuclear Job that lists the document title, current revision level, issued location and the person who has been issued the document at a minimum. These are to be established by the responsible Nuclear Department Manager
<i>Corrective action:</i>	Measures taken to rectify conditions adverse to quality, and, where necessary, to preclude repetition. ASME XI are also included in this definition which are action taken to resolve flaws and relevant conditions, including supplemental examinations, analytical evaluations, Repair/Replacement activities, and corrective measures.
<i>Corrective Measures:</i>	Actions (such as maintenance) taken to resolve relevant conditions, but not including supplemental examinations, analytical evaluations, and Repair/Replacement activities.
<i>Data Report Form:</i>	The form approved by the ASME or NB that is used to record the required Code Data.
<i>Data Report:</i>	A document that certifies that an item was constructed/repared or replaced in accordance with the requirements of the ASME or NBIC as applicable.
<i>Defective material:</i>	Material that does not meet specified requirements.
<i>Demonstration</i>	A program of making evident by illustration, explanation, and completion of tasks documenting evaluation of an applicant's ability to perform code activities, including the adequacy of the applicant's quality program, and by a review of the implementation of that program at the address of record and/or work location.
<i>Discrepancy:</i>	A condition outside of an established tolerance or requirement.



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<i>Document control:</i>	Those measures established to control the preparation, review, release, issuance, and disposition of documents, such as design calculations, purchase orders, specifications, instructions, procedures, and drawings, including changes thereto, that describe or document activities affecting quality.
<i>Enforcement Authority:</i>	A regional or local governing body, such as a state or municipality of the United States or a Canadian province, empowered to enact and enforce boiler and pressure vessel legislation.
Examination (NBIC)	In process work denoting the act of performing or completing a task of interrogation of compliance. Visual observations, radiography, liquid penetrant, magnetic particle, and ultrasonic methods are recognized examples of examination techniques.
<i>Examination: (ASME)</i>	Specific actions by qualified personnel using qualified procedures to verify that items, fabrication processes, and pre-service requirements are in conformance with specified requirements. This term, when used in conjunction with qualification of personnel to perform quality related activities, shall mean a written examination.
<i>Final Job Completion Report</i>	The Final Documentation provided to the customer upon completion of the specified work.
<i>Full penetration weld:</i>	a nonstandard welding term for complete joint penetration.
<i>Grandfathering</i>	C&K Nuclear Management may certify/qualify a worker based on the worker's previously acquired documented knowledge, training, experience and/or demonstrated capabilities. This determination must be documented within the individual's personnel file or records,
<i>Hold Point:</i>	a designated stopping place during or following a specific activity at which inspection or examination is required before further work can be performed.
<i>Hydrostatic Test:</i>	the pressurization of an item to a test pressure using water or other liquid as a testing medium with the required examination prescribed by the Code.
Inspector	See National Board Commissioned Inspector.
<i>Instructions:</i>	Detailed written directions provided to persons or organizations to ensure proper completion of a task.
<i>Item:</i>	A material, part, appurtenance, piping subassembly, component, or component support.



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<i>Joining:</i>	The act of connecting two or more items to one another, by welding, brazing, bolting, or other mechanical means.
Jurisdiction	A governmental entity with the power, right, or authority to interpret and enforce law, rules, or ordinances pertaining to boilers, pressure vessels, or other pressure-retaining items. It includes National Board member jurisdictions define as "Jurisdictional Authorities".
Manufacturers Documentation	The documentation includes technical information and certification required by the original code of construction.
<i>Material Organization (Metallic):</i>	An organization accredited by holding Quality System Certificate issued by the Society, or qualified by a Certified Material Organization or Certificate Holder, in accordance with the requirements of Section III, NCA-3800.
<i>Material Specification:</i>	A document that establishes the requirements for a material.
<i>Maintenance</i>	Those normal functions performed to maintain equipment.. Maintenance is not within the scope of this program and does not require the preparation of a repair replacement plan. While a repair replacement plan is not required, these activities are not exempted from other requirements of this program (e.g., examination, testing, records, etc.) A list of Maintenance Exemptions are contained in the Exhibit Section of this program.
<i>Material</i>	For Section III, Division 1, metallic materials manufactured to an SA, SB, SFA, or any other material specification permitted in Section III and that are manufactured, identified, and certified in accordance with the requirements of Section III. For Section III, Division 2, metallic materials, as well as to nonmetallic materials, conforming to the specifications permitted in Section III.
<i>Mechanical Assembly</i>	The work necessary to establish or restore a pressure retaining boundary, under supplementary materials, whereby pressure-retaining capability is established through a mechanical, chemical, or physical interface, as defined under the rules of the NBIC.
<i>Monitor:</i>	Observe or check compliance with this program and the Owner's or Certificate Holder's Quality System Program. This activity is not necessarily documented or required to be continuous.
<i>N Certificate Holder (Division 1):</i>	The organization assuming responsibility for Code compliance with respect to material, design, fabrication, installation, examination, testing, inspection, certification, and stamping of items requiring an ASME Certification N Mark.



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<i>NA Certificate Holder:</i>	The organization that performs those activities required to place and attach components to their support structures and joins items requiring an ASME Certification NA Mark.
National Board	The National Board of Boiler and Pressure Vessel Inspectors.
National Board Commissioned Inspector	An individual who holds a valid and current National Board Commission
<i>Nonconformance:</i>	A deficiency in a characteristic, documentation, or procedure that renders an item or activity unacceptable or indeterminate.
<i>NPT Certificate Holder:</i>	An organization that fabricates parts, piping subassemblies, or appurtenances requiring an ASME Certification NPT Mark.
öNRö Certificate Holder	An organization in possession of a valid öNRö Certificate of Authorization issued by the National Board.
<i>Nuclear Facility:</i>	The location where spent nuclear fuel or high level radioactive materials and wastes are processed, stored, or prepared for shipment or disposal. This may include portions of nuclear power plant sites.
<i>Nuclear Power System item:</i>	An item that is designed to provide a pressure containing barrier or is a pressure retaining member in the system, or an item that is designed as a core support structure or a support.
<i>Owner:</i>	The organization legally responsible for the construction and/or operation of a nuclear facility including but not limited to one who has applied for, or has been granted, a construction permit or operating license by the regulatory authority having lawful jurisdiction.



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<p><i>Owner Requirements</i></p>	<p>Those requirements prepared by or for the Owner that (1) define the requirements for an item when a Construction Code is not specified; (2) address plant-specific requirements of the Construction Code that must be identified by the Owner; or (3) invoke plant specific requirements that are in excess of a Construction Code requirements.</p>
<p>Pressure Test</p> <p>Includes:</p> <p>System Leakage System Hydrostatic and System Pneumatic Tests as contained in ASME XI.</p>	<p>Prior to initial operation, the a repaired or replaced Item shall be pressure tested in accordance with either the original code of construction code requirements or at the time of reinstallation at a Nuclear Plant, subject to a VT2 System Leakage Test, System Pneumatic Test or System Hydrostatic Test conducted in accordance with ASME XI. Pressure tests that are performed win accordance with ASME Section XI shall be the responsibility of the Owner and outside the scope of this program.</p>
<p><i>Qualified Material Organization</i></p>	<p>Organization that is audited by an individual ASME N Certificate Holder and given approval by the N Certificate holder to supply ASME materials, but only to the N Certificate holder that performed the audit.</p>
<p><i>Quality System Program: (ASME)</i></p>	<p>A controlled system of planned and systematic actions required to provide adequate confidence that items designed and constructed are in accordance with the rules of the Code.</p>
<p><i>Quality Assurance:</i></p>	<p>Quality assurance comprises all those planned and systematic actions necessary to provide adequate confidence that all items designed and constructed are in accordance with the rules of this Section.</p>
<p><i>Quality System Certificate:</i></p>	<p>A Certificate issued by ASME that permits an organization to perform specified Material Manufacturer or Material Supplier activities in accordance with Code requirements.</p>
<p><i>Quality System Program: (NBIC)</i></p>	<p>A documented system of actions required to provide adequate confidence that materials conform to the requirements of the material specification and the rules of Section III.</p>
<p><i>Regulatory Authority:</i></p>	<p>A Federal Government Agency, such as the United States Nuclear Regulatory Commission, empowered to issue and enforce regulations concerning the design, construction, and operation of nuclear power plants.</p>



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<i>Repair (NBIC)</i>	The work necessary to restore pressure-retaining items to a safe and satisfactory operating condition.
<i>Refurbishment</i>	Restoration of an item or equipment back to its Original Design Specifications
<i>Replacement</i>	The act or process of replacing an item with the same (like-for-like) or similar item. This must be authorized by the Nuclear Customer. (Limited to parts and materials).
<i>Re-rating</i>	A change to all or a portion of a component or component support by changing its design ratings (e.g., internal or external pressure or temperature), whether or not physical work is performed on the item. Also see Alteration.
<i>Rework</i>	Refer to <i>repair</i> .
<i>Service</i>	An activity performed by a subcontractor such as designing, rigging, temporary bolting, and nondestructive examination.
<i>Special process:</i>	A process, the results of which are highly dependent on the control of the process or skill of the operator, or both.
<i>Supplier:</i>	Any individual or organization that furnishes materials or services in accordance with a procurement document.
<i>Support:</i>	A metal element, excluding an intervening element that transmits loads between nuclear power plant components and the building structure. A support may be either a component support or a piping support.
<i>Survey:</i>	A documented evaluation of an organization's ability to perform Code activities as verified by a determination of the adequacy of the organization's quality program and by a review of the implementation of that program at the location of the work.
<i>Testing:</i>	An element of verification for the determination of the capability of an item to meet specified requirements by subjecting the item to a set of physical, chemical, environmental, or operating conditions.
<i>Traceability:</i>	The ability to verify the history, location, or application of an item by means of recorded identification.

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<i>Use-as-is:</i>	The disposition assigned an item previously identified as nonconforming after reconciling design output documents with the item's as-built condition and verifying that applicable requirements of this program have been met.
<i>Verification:</i>	A review to ensure that activities have been performed and documented in accordance with applicable requirements.

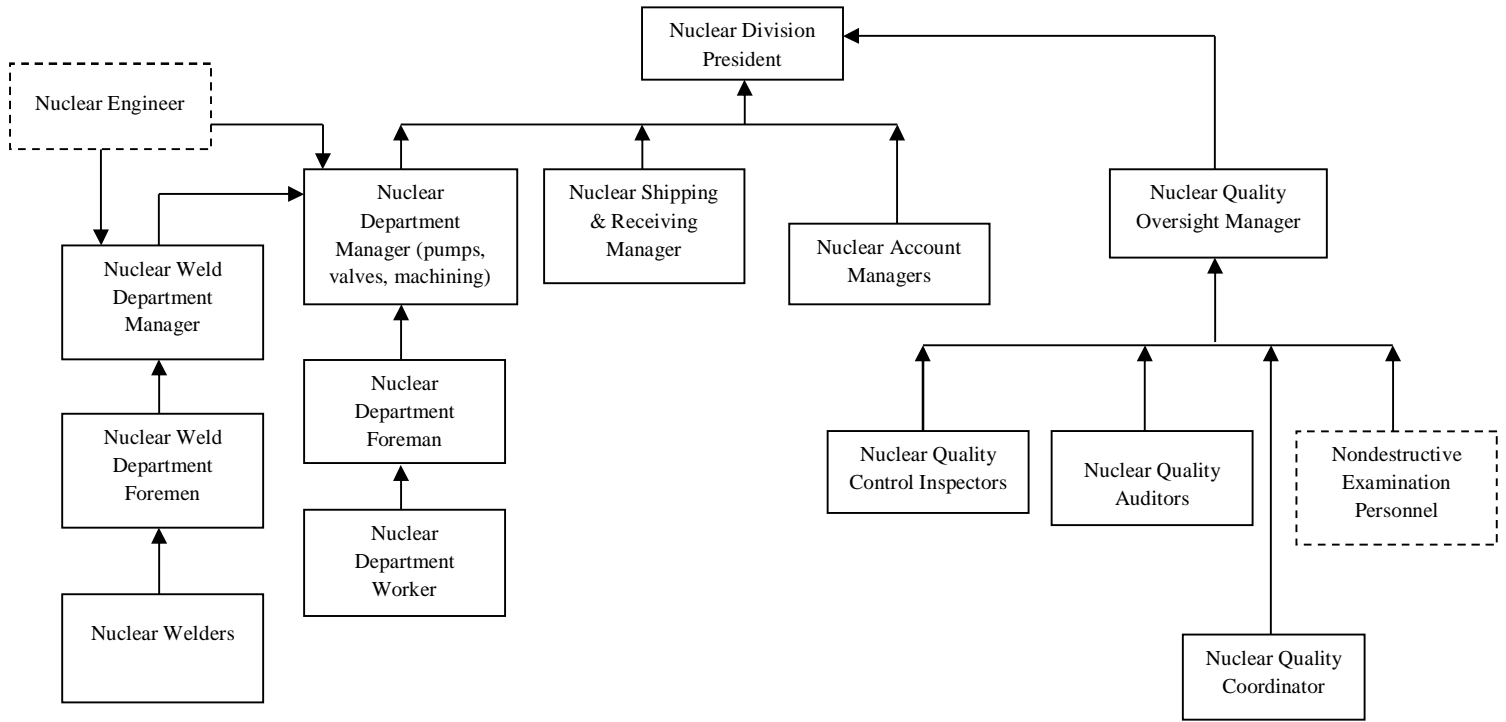


24.0 Exhibits Exhibits Table of Contents

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4	Indoctrination / Training Log	1	0
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6	Maintenance of Proficiency for Inspection and Test Personnel	1	0
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27	Calibrated Measuring and Test Equipment List	1	0
28	Calibrated Measuring and Test Equipment Usage Log	1	0
29	Nonconformance Report (NCR)	1	0
30	Nonconformance Report Log	1	0
31	Nonconformance Tags	1	0
32	Corrective Action Report	1	0
33	Corrective Action Report Log	1	0
34	NB Registration Log	1	0
35	Intentionally left blank	2	0
36	Intentionally left blank	1	0
37	C&K Evaluation Form for NIAC Assessments	1	0
38	C&K Personnel Grandfather Statement	1	0
39	Certificate of Conformance	1	0
40	Dimensional Record	1	0
41	Maintenance Exemptions	3	0

Note: These documents are samples/examples of typical ones to be used in support of this program. Equivalent Documents may be substituted as long as the identified information is contained on the equivalent document. If continuation sheets are needed, appropriately label each sheet including page numbering

Exhibit 1 Organizational Chart



Note: The dotted boxes for NDE and Nuclear Engineering Services indicate where these services are currently contracted out to Approved Service Providers or the option exist.

Exhibit 5
Qualification and Certification of Inspection and Test Personnel Record

Name: _____

Activities certified to perform:

- Receiving Inspection
- Mechanical Inspection
- Source Inspection
- In-process Inspection
- Final Pressure Testing
- Final Operational Testing

Initial capabilities:

Education: _____

Experience: _____

Training: _____

Periodic Evaluation _____

Test Results: _____ Date completed _____

Capability Demonstration Results: _____ Date completed _____

Date Certified _____ Expiration Date _____

Signed _____ Date _____
 Nuclear Quality Oversight Manager

Exhibit 7
Annual/Triennial Evaluation
(for Inspection and Test Personnel may also be used for Auditors)

Inspection and Test Personnel	
Lead Auditor	

Based on the Maintenance of Proficiency attached, _____ has been found acceptable and is re-qualified as a _____.

Signed _____ Date _____
Nuclear Quality Oversight Manager



**Exhibit 8
Lead Auditor Qualification and Certification**

RECORD OF LEAD AUDITOR QUALIFICATIONS		NAME:	DATE:
Check as appropriate: Lead Auditor Auditor			
I. QUALIFICATION POINT REQUIREMENTS			CREDITS
EDUCATION – UNIVERSITY/DEGREE/DATE		4 CREDITS MAX.	
1. Undergraduate Level 2. Graduate Level			
EXPERIENCE – COMPANY/DATES		9 CREDITS MAX.	
1. Technical (0-5 credits) and Nuclear Quality Assurance (3 credits), or 2. Nuclear Industry (1 credit), or Nuclear Quality Assurance Auditing (4 credits) Quality Assurance (2 credits), or Auditing (3 credits.)			
PROFESSIONAL ACCOMPLISHMENT – CERTIFICATE/DATE		2 CREDITS MAX.	
1. P.E. 2. Society			
MANAGEMENT – JUSTIFICATION/EVALUATOR/DATE		2 CREDITS MAX.	
Explain:			
Evaluated By: (Name & Title) _____		Date: _____	
TOTAL CREDITS:			
II AUDIT COMMUNICATION SKILLS			
Evaluated By: (Name & Title) _____		Date: _____	
III AUDIT TRAINING COURSES			
Course Title or Topic:			
1.		Date: _____	
2.		Date: _____	
IV AUDIT PARTICIPATION (use additional sheets if needed)			
	Location:	Audit:	
1.		Date: _____	
2.		Date: _____	
3.		Date: _____	
4.		Date: _____	
5.		Date: _____	
V EXAMINATION	Passed	Failed	Date: _____
VI QUALIFICATION CERTIFIED BY			Date Certified: _____
(Signature & Title) _____			
VII ANNUAL EVALUATION			
(Signature & Date)			

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Exhibit 8 Cont.
Additional Info for Lead Auditor Qualification and Certification, if needed

Communication Skills

Evaluated By	Date

Training

Course	Date

Audit Participation

Audit	Date	Nuclear/Non-Nuclear

Examination

Examination By	Date

Based on communication skills, training, audit participation and examination results, this candidate has met all the requirements of the Nuclear Quality Assurance Program and is designated as a Lead Auditor.

Signed _____ Date _____
Nuclear Quality Oversight Manager

Exhibit 9 Order Entry Review Form

Job# _____ Work Order# _____

Nuclear Safety Related Nuclear Repair (NR) Repair Plan #: _____

Client Name/Address _____

Contract/Purchase Order # _____

Client Contact(s) Name/Phone No. _____

Client Email Address _____

Client Fax No. _____

Information provided by the Client: (provide attachments as necessary)

Scope of Work including identification of the item(s) to be repaired/replaced _____

Technical Requirements, which is required to be addressed in the **Repair/Replacement Plan** described in Section 9 of the Nuclear Quality Repair Manual, including:

1. applicable Code Edition, Addenda, and Cases of Section XI _____
2. Construction Code Edition, Addenda, Cases, and Owner's Requirements used for the following:
 - a. construction of the item to be affected by the repair /replacement activity _____
 - b. construction of the item to be installed by the repair / replacement activity _____
 - c. performance of the Repair/Replacement activities _____
3. The following items, when applicable to the specific Repair/Replacement activity, shall be documented:
 - a. a description of any defects and nondestructive examination methods used to detect the defects _____
 - b. the defect removal method, the method of measurement of the cavity created by removing a defect, and, when required by IWA-2600, requirements for reference points _____
 - c. the applicable weld procedure, heat treatment, nondestructive examination, tests, and material requirements _____
 - d. the applicable examination, test, and acceptance criteria to be used to verify acceptability _____
4. description of the Repair/Replacement activities to be performed _____
5. expected life of the item after completion of the Repair/Replacement activity, when less than the remainder of the previous intended life (design life when specified by the Design Specification) of the item _____
6. whether application of the ASME Code Symbol Stamp is required in accordance with IWA-4143 _____
7. documentation in accordance with IWA-6000 _____

Quality requirements _____

Regulatory requirements _____

Special customer requirements _____

Required documentation _____

including Lifetime & _____

Nonpermanent Records _____

Nonconformances _____

Spare and Replacement Parts _____

Approved Nuclear Dept. Manager _____ **Date** _____

Approved Nuclear Quality Oversight Manager _____ **Date** _____



Exhibit 10

QUALITY HOLD TAG

C&K Nuclear Job #: _____

Supplier: _____

Purchase Order #: _____

Quantity: _____

Impacted Item(s) Description: _____

Reason for Hold

C of C not received

CMTR not received

C of C is incorrect

CMTR is incorrect

Other: _____

Prepared By: _____ Date: _____

Print & sign



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Exhibit 11 (cont.)

Notes:

- Packaging, handling, shipping and storage shall be in accordance with ANSI N45.2.2/NQA-1 Subpart 2.2 Level B, as applicable.
- Process this order in accordance with applicable 10CFR50 Appendix B/NQA-1 Nuclear Quality Requirements.
- Material identification requirements . all material supplied shall be traceable to the required documentation furnished. This includes any special markings such as Heat Numbers, etc.
- Provide Chalmers & Kubeck, Inc. (C&K, Inc.) with Certified Material Test Report for all requested materials.
- 10CFR21 Reporting requirements are applicable
 Notification shall be made to:
 Chalmers & Kubeck, Inc. - Nuclear Division
 Nuclear Quality Oversight Manager
 150 Commerce Drive
 P.O. Box 2447, Aston, PA 19014-0447
- Access to the suppliers and their subcontractors facilities shall be granted to C&K, Inc. Nuclear Division or its authorized agent to perform surveys, audits, surveillances and inspections of the work and for just cause after completion of the order.
- The applicable technical and Quality Assurance Requirements of this P.O. shall be extended to lower tier suppliers
- All work shall be performed in accordance with you accepted Quality Program (list Manual, revision level and date).

Other: (List any other necessary requirements below)

					Total

Requisition by: _____ Date: _____

Purchasing Authority: _____ Date: _____

Nuclear Quality Oversight: _____ Date: _____



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Exhibit 13 List of Controlled Documents

Document Identification	Distribution to	Preparation By	Review By	Approval By

**Exhibit 15
Document Transmittal Form**

To: _____ Date: _____

From: Nuclear Department Manager
Chalmers & Kubeck, Inc.
Nuclear Division
100 Commerce Drive
Aston, PA 19014-0447

Subject: Transmittal and Return Receipt Request for
copies of Controlled Documents

The following copies of controlled documents are provided to you as you are identified as a Controlled Copy Holder
Please sign and date below, indicating your receipt of these documents and that any previous revisions have been destroyed.

Serial Number	Document Number	Title	Rev	Receipt Signature	Date

If no response is received within 15 working days, your controlled copies will become uncontrolled and you will not be notified of any revisions thereto (This provision is not applicable to AIA personnel.) If there are any questions, please contact us.

As a Controlled Copy Holder, it is your responsibility to destroy any previous revisions of these documents. By signing and returning this transmittal, you are stating that this action has been completed.



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Exhibit 17 Receiving Inspection Report

Report No. RIR-XXX
C&K Job No. _____

Chalmers & Kubeck, Inc. Purchase Order No. _____

Supplier's Name and location

Items to be inspected _____

	Accepted	Rejected	Remarks
(a) configuration (i.e. Qty. 3 sheets 3/16" x 4ft x 3ft)			
(b) identification (i.e. markings, see the material specification)			
(c) dimensional, physical, and other characteristics			
(d) freedom from shipping damage			
(e) cleanliness			
(f) other characteristics defined in the Purchase Order			
(g) List M&TE used:			
Notes			

Unique Identification assigned _____

Receiving Inspector _____ Date _____

Documentation Reviewed	Accepted	Rejected	Remarks
Supplier's Certificate of Compliance			
Certified Material Test Report			
Certificate of Conformance/Compliance			
Manufacturer's Code Data Report			
Other:			
Notes			

Item(s) received and accepted as:

ASME Material

ASME Stamped component or part

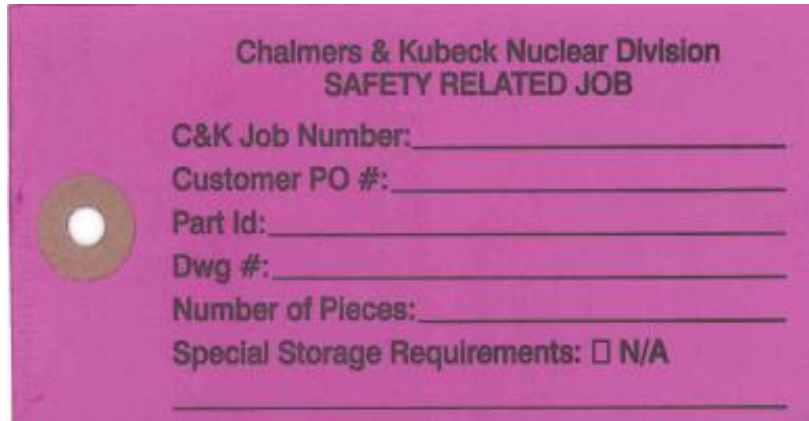
Safety Related Material

Nuclear Quality Oversight Manager

Date

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**Exhibit 18
Safety Related ID Tag**



**Chalmers & Kubeck Nuclear Division
SAFETY RELATED JOB**

C&K Job Number: _____

Customer PO #: _____

Part Id: _____

Dwg #: _____

Number of Pieces: _____

Special Storage Requirements: N/A

This tag shall be used to identify all materials, components, parts and appurtenances, used in the Repair/Replacement of a component. A unique Job Number is assigned to every Repair Job received at C&K.

Each component being repaired/replaced under the control of the Nuclear Quality Repair Manual shall be identified and traceable to the Repair/Replacement Plan from the beginning of the Repair/Replacement activity up to and including final certification and installation.



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Exhibit 20 Traveler Continuation

Repair/ Replacement Plan No. _____ Revision _____ Page _____ of _____
C&K Job No.: _____

Drawing/Sketch No. _____ Revision _____

Use as many sheets as necessary to control the Repair/Replacement activity

Step	Operation	Procedure/Rev.	Performed by	QA/QC	Customer	ANI/ANII

Final Reviews:

Approved Nuclear Department Mgr. _____ Date _____

Approved Nuclear Weld Dept Mgr _____ Date _____

Approved Nuclear Quality Oversight _____ Date _____

Mgr _____

Accepted Authorized Nuclear Inspector (ANI) _____ Date _____



**Exhibit 21
Welding Record**

C&K Job No. : _____

Repair/ Replacement Plan No. _____

Drawing/Sketch No. _____ Revision _____

Weld Number, if applicable _____ Welding Procedure Specification _____ Revision _____

Welder Name: _____

Welder/Welding Operator Identification _____

Filler Metal Identification _____

Other:



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Exhibit 22 Continuity Report - Sample (See Weld Shop Manager for current data)

Name	Stamp Process / Method	Status	Original Date	Weld Date	Expiration
ALBRAND, JIM	CK-2	Active			
	GMAW\Semi-Automatic		4/12/1993	3/3/2010	9/3/2010
	GTAW\Manual		6/10/1983	4/2/2010	10/2/2010
BADEN, JIM	29	Active			
	SMAW\Manual		6/10/1983	4/1/2010	10/1/2010
	GMAW\Semi-Automatic		3/16/2011	2/3/2012	8/3/2012
CAMPBELL, FRANCIS	29	Active			
	GTAW\Manual		12/10/2010	1/30/2012	7/30/2012
	SMAW\Manual		12/10/2010	1/31/2012	7/31/2012
CAMPBELL, FRANCIS	CK-11	Active			
	GMAW\Semi-Automatic		1/9/2003	1/31/2012	7/31/2012
	GTAW\Manual		10/5/1998	2/8/2012	8/8/2012
CONNOR, JOHN	CK-5	Active			
	SMAW\Manual		10/5/1998	2/3/2012	8/3/2012
	GMAW\Semi-Automatic		5/8/1995	9/22/2010	3/22/2011
CONOR, JOHN	CK-5	Active			
	GTAW\Manual		9/24/1988	9/20/2010	3/20/2011
	SMAW\Manual		9/24/1988	9/20/2010	3/20/2011
DUAIME, SCOTT	30	Active			
	GMAW\Semi-Automatic		5/13/2011	2/1/2012	8/1/2012
	GTAW\Manual		2/8/2011	2/7/2012	8/7/2012
ELDRETH JR., MIKE	30	Active			
	SMAW\Manual		2/8/2011	2/1/2012	8/1/2012
	GMAW\Semi-Automatic		10/6/2009	1/31/2012	7/31/2012
ELLSWORTH, MARK	17	Active			
	GTAW\Manual		10/4/2006	2/3/2012	8/3/2012
	SMAW\Manual		10/4/2006	2/1/2012	8/1/2012
ELLSWORTH, MARK	12	Active			
	CK-12	Active			
	GMAW\Semi-Automatic		1/6/2000	2/6/2012	8/6/2012
FARREN, MIKE	CK-12	Active			
	GTAW\Manual		2/25/1998	1/30/2012	7/30/2012
	SMAW\Manual		2/25/1998	2/3/2012	8/3/2012
FARREN, MIKE	CK-1	Active			
	GMAW\Semi-Automatic		2/6/1990	2/8/2012	8/8/2012
	GTAW\Manual		8/29/1988	1/31/2012	7/31/2012
GARRITY, ART	CK-1	Active			
	SMAW\Manual		6/30/1988	2/3/2012	8/3/2012
	GMAW\Semi-Automatic		2/6/1990	2/8/2012	8/8/2012
HALL, KEVIN	CK-8	Active			
	26	Active			
HALL, KEVIN	26	Active			
	GMAW\Semi-Automatic		8/23/2004	2/2/2012	8/2/2012
HALL, KEVIN	26	Active			
	GTAW\Manual		7/12/2010	1/30/2012	7/30/2012



Exhibit 23
Weld Material Requisition Form

PO. #: _____ C&K Job #: _____

Date of Requisition: _____ Associated Drawing #ø: _____

Welderø Name: _____ Symbol: _____

(Print)

Field Weld #:	Item #:

Weld Procedure Specification or Welding Technique Sheet (List Below)

Weld Material Requested (List Below)

Filler Material (if needed)

Type	Size	HT #	Lot #	Quantity



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Exhibit 23 (cont.) Weld Material Requisition Form

PO #: _____ **C&K Job #:** _____

Date of Requisition: _____ Associated Drawing #ø: _____

Welderø Name: _____ Symbol: _____

Weld Material Received:(List below)

Issued By: _____ Date: _____

Received By: _____ Date: _____

**Exhibit 24
Defect Removal Records**

PO #: _____ C&K Job #: _____

Performed by: _____ Date _____ DRR # _____

Repair/ Replacement Plan No. _____ Item Identification _____

Drawing/Sketch No. _____ Revision _____

Defect detected by: Visual or Surface Examination Volumetric Examination

Defect Removal or Mitigation by: Defect removal by mechanical processing IAW IWA-4462

Defect removal by thermal methods IAW IWA-4461

Defect removal or mitigation by welding or brazing IAW IWA-4411

Defect removal or mitigation by modification IAW IWA-4340

Additional defects found Yes No Describe _____

Defect Evaluation and Examination

Defect removal area examination by : Visual or Surface Volumetric Report No. _____

Defect removed completely Defect within acceptance criteria

Resulting section thickness _____ Minimum section thickness _____

Thickness measurement by _____ Calibrated Equip. I.D. _____

Repair welding required: Yes No Welding Record attached Yes No

Examination following welding as specified in IWA-4422.2.2 and IWA-4520:

Visual Surface Volumetric Report No. _____

Remarks:

Acceptance of Defect Removal and Repair

Nuclear Department Manager _____ Date _____

Nuclear Weld Dept. Manager _____ Date _____

Nuclear Quality Oversight Manager _____ Date _____

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**Exhibit 24 (cont.)
Defect Removal Records**

PO #: _____ C&K Job #: _____

MATERIAL TYPE:

AMOUNT REMOVED:

DESCRIPTION OF METHOD USED:

**Exhibit 25
Final Inspection Report**

Inspection Report No. IR-XXX
 C&K Job #: _____

Repair/ Replacement Plan No. _____ Item Identification _____

Type of observation:
Results or acceptability:
Reference to information on action taken in connection with nonconformances:
Remarks:

Quality Control Inspector _____ Date _____

Nuclear Quality Oversight Manager _____ Date _____

Exhibit 26 Test Report

Test Report No. TR-XXX

C&K Job #: _____

Repair/ Replacement Plan No. _____ Item Identification _____

Test Performed by _____ Date _____

Tester or Data Recorder:
Type of observation:
Results and acceptability:
Action taken in connection with any deviations:
Remarks:

Test Witnessed by Quality Control Inspector _____ Date _____

Test Results Reviewed and Accepted
Nuclear Quality Oversight Manager _____ Date _____



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Exhibit 29 Nonconformance Report (NCR)

C&K Job #: _____

Shop NCR

Supplier NCR

Nonconformance Report No.: _____

Date: _____

Repair/Replacement Plan No.: _____

Item Identification: _____

Customer: _____

Customer PO #/Contract #: _____

Item(s) nonconforming condition (include any identification markings)

Requirement violated

NCR tag attached Yes No

Item segregated Yes No

CAR Required? Yes No

CAR No.: _____

10CFR21 Applicability: Yes *

No

* - If applicable, attach review to this NCR.

Initial actions taken:

By: _____
Name & date

Disposition assigned to: _____

Nuclear Oversight Manager: _____ Date: _____

Disposition

Technical justification

(Below please print name, signature & title)

Disposition provided by: _____ Date _____

Technical justification provided by: _____ Date _____

Nuclear Oversight Manager: _____ Date _____

Disposition accepted by ANI: _____ Date _____

Disposition completed by: _____ Date _____

Reexamination completed by: _____ Date _____ Report No. _____

Completed disposition verified and tag removed by: _____ Date _____

Final review by Nuclear Quality Oversight Manager: _____ Date _____

Final review by ANI: _____ Date _____



**Exhibit 31
Nonconformance Tags**

8/01 **SHOP NonConforming**

Job Num: _____
Reason: _____

Prepared By: _____ Date: _____

8/96 **SUPPLIER NonConforming**

Job Num: _____
Reason: _____

Prepared By: _____ Date: _____

Exhibit 32 Corrective Action Report

Customer:				C&K Job #	
Responsible Organization				CAR No.	
				NCR No.	
Responsible Individual				Required Response Date	
Originator		Title		Date	
Description of Unsatisfactory Condition:		<u>Use attachments as necessary</u>			
Initial Root Cause Analysis for Corrective Action:		<u>Use attachments as necessary</u>			
10CFR Part 21 Reportable	Yes	No	Basis of Conclusion	Performed By/Date	
Proposed Action To Prevent Recurrence:		<u>Use attachments as necessary</u>			
Scheduled Completion Date		Responders Name		Date	
Nuclear Quality Oversight Manager Approval					Date
Follow Up Verification					
Performed By					Date
Scope of Verification					
Verification Results		<u>Use attachments as necessary</u>			
CAR Closure	Nuclear Quality Oversight Manager Approval				Date
	ANI Concurrence				Date
Comments:					

Note: N/A not applicable boxes.

Exhibit 37
C&K Evaluation Form of NIAC Assessments

NIAC Assessment No.: _____
 Company Performing Assessment: _____ NIAC ID: _____
 Lead Auditor: _____
 Supplier Name: _____ Date Assessment Performed: _____
 Supplier Address: _____
 Scope of Commodity or Service: _____ Date Reviewed: _____

The Assessment Report Records Package provided by the above named company has been reviewed for the following attributes:

No.	Attributes	Yes	No	N/A
1	Verify the scope of the audit is satisfactory for scope of work required by C&K	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Verify the report contains the NIAC Assessment Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Verify the report contains the NIAC Scheduling and Assessment Letter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Verify the NIAC Report contains the findings, observations or comments (as applicable)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Verify the audit checklist is completed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Verify the Lead Auditor Qualification Records are included	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Verify that a record or closed findings is included, as appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Verify that the Assessment occurred at the location required for C&K.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Verify that the report contains reference to the Quality Program Document and its current the revision level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Verify that adequate objective evidence is included to support the assessment conclusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Verify that an adequate basis is documented for identified findings, observations or recommendations,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Determine if any open findings, observations or recommendations will have an impact on C&K.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Determine if follow-up action by the reviewer is required to verify closure if findings are not closed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Verify that items marked as « N/A » or « N/R » are adequately justified.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Prepared By: _____
 Title: _____

Reviewed By: _____
 Title _____

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Exhibit 38
C&K Personnel Grandfather Statement

Based on the review of the following individual's resume including experience and previous training, interviews, performance observations and provided training/certification documentation, _____ (list individual's name) is being grandfathered into his current position _____ (list position title). Future promotions, advancements or completed skill enhancement training activities will be documented and evaluated by their Responsible Supervisor and/or Manager. Those evaluations will be documented and maintained within their personnel file.

Print name/signature
date
Title

Exhibit 39
Certificate of Conformance

Chalmers & Kubeck, Inc.
Nuclear Division
 100 & 150 Commerce Drive, Aston, PA 19014
 Phone (610)494-4300 Fax (610)485-1484 Main
 Phone (610)494-7030 Fax (610)497-9777 Valve Shop

Certificate of Conformance

To:

Attention:

Date:

Customer's Purchase Order Number: _____ Change Order#: _____

C&K Job Number: _____ Repair/Replacement Plan #: _____

(6) Item Description :	Customer Part\Model Number\Identification	Quantity

(7) Approved Changes/Deviations/or Nonconformances:

(8) We hereby certify that the above part(s) and quantity(ies) ha(ve)s been worked in conformance with the specifications and requirements called for on the drawings and documents pertaining to the referenced Customer Purchase Order is on file at Chalmers & Kubeck. Specified reports have been previously provided.

All work performed in the process of repairing and/or refurbishment or the identified item(s) or area(s) of the [Description of item(s)] to meet the specified requirements was completed in accordance with processes in agreement with the with the C&K, Inc. Nuclear Quality Program as defined in Manual ND-NRM-1-Q-000, Edition ____, Rev. ____.

(9) Responsible Department:

Name: _____
 Print, Sign Title & Date

(10) Nuclear Quality Representative:

Name: _____
 Print, Sign Title & Date



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Exhibit 40 Dimensional Record

Chalmers & Kubeck, Inc. Nuclear Div.			Nuclear Dept: _____			R/R Plan #:		C&K Nuclear Job #:			
Customer Name:				Purchase Order #		PO Due date:			Page of		
Part #		Drawing #		DWG Item			Rev. #	Sub			
Job Description:				Serial #		Critical Dimensions: When +/- .002 or less needs Second check. Mark %Out of Tolerance+dimensions with an %±					
Critical Dimension %" ↓			Rough Dimension			Finish Dimension			M&TE & Standards Used for FD or CD		
Line Item	Drawing Dimension	Operator Initials:	Drawing Dim.	Actual Dim	Sign off	Actual Dim	Sign off	Checked by			
Reviewed By: _____ Print/Sign/Date				Comments							

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Exhibit 41 Maintenance Exemptions

Maintenance Those normal functions performed to maintain equipment and systems operable. Maintenance is **not** within the scope of this Program and does not require the preparation of a repair replacement plan. While a Repair Replacement plan is not required, these activities **are not** exempted from other requirements of this program (e.g., examination, testing, records, etc.)

The maintenance exemptions for an Item include, but are not limited to the following:

- Installation of Class 2 or Class 3 mechanically installed heat exchanger tube plugs and/or mechanically installed tube stabilizers.
- Disassembly and re-assembly of mechanical joints except where a replacement has taken place.
- Lapping and mechanical resurfacing of line valve sealing surfaces and discs where no pressure boundary material is removed. Hard facing/cladding by themselves shall not be considered as pressure boundary material.
- Use of injection sealants and application of paints and nonmetallic coatings.

NOTE: The use of an injection sealant in itself is excluded from the requirements of this Program. However, preparatory activities which may be necessary to facilitate the use of injection sealants may require the generation of a Repair/Replacement plan.

- Thread chasing and dressing.
- Repair/Replacement Activities of Class 2 or 3 Nuclear Item, specifically piping, valves and fittings and associated supports of one (1) in NPS and less.

NOTE: Although the above noted provisions provide a size exemption for piping, valves, fittings and associated supports and the need for the generations of a R&R PLAN, all materials shall be procured and controlled in accordance with the requirements of this Program and the primary stress levels shall be consistent with the requirements of the applicable Construction Code. The replacement of pressure retaining bolting associated with size exempt piping, valves, and fittings shall also be exempt from the generation of a R&R PLAN.

While the Repair/Replacement activities of the above items are exempt from the preparation of a repair replacement plan, they are not exempt from other elements of this program (e.g., weld records, required tests, etc.).

- Re-packing of pumps or valves.
- Removal and reinstallation of the same component or support when the removal of component or support is solely for the purpose of testing, provided that no pressure retaining items or load bearing items within component or support are repaired or replaced due to test failure, and that the removal and reinstallation is accomplished exclusively by mechanical means.



- Pump seal (mechanical) replacement, except those mechanical seals which also provide structural functions or are identified as a pressure retaining item by the original component manufacturer.
- Buffing, lapping, polishing, and honing.
- Sandblasting.
- Replacement of rubber valve diaphragms, except elastomeric diaphragms constructed under ASME Code Case N-31.
- Replacement of instruments or permanently sealed fluid filled tubing systems furnished with instruments.
- Replacement of orifice plates not exceeding 1/2" nominal thickness, which are used only in flow measuring services.
- Metal removal, the amount to be established by the Owner, on pressure boundary or support material provided there is no encroachment on required minimum wall thickness including any design required thickness for corrosion allowance and provided that the metal is not being removed for the purposes of flaw removal or flaw evaluation activities.
- Machining of valve disks in order to achieve dimensional conformity PROVIDED the appropriate surface examination is performed (magnetic particle or liquid penetrant) if the disk surfaces have been hardened.
- Removal of arc strikes and weld spatter.
- Removal and replacement of a stem assembly on a valve except where the valve disk is integral to the stem assembly or provided that the stem is not included in the design document and classified as an ASME Code item.
- Removal and replacement of a nuclear Item pump impeller(s), pump drivers or other accessories and devices, unless they act as a component support, an intervening element of a component support, or have been classified as nuclear Class 2 or 3 pressure retaining items.
- Shim replacement on component supports.
- Removal and replacement of valve operators, controllers and position indicators.
- Removal and replacement of material which is not associated with pressure retaining or load bearing functions of a component, such as shafts, stems, trim, spray nozzles, bearings, bushings, springs, wear plates, packing, gaskets, and ceramic insulating material; and seals and valve seats unless the above items have specifically been classified as a nuclear Class 2 or 3 pressure retaining or load bearing items.
- Tack welds on bolted support connections solely for the purposes of anti-rotation. This will typically apply to double nut details where the jam nut (i.e., outer nut) is welded to a u-clamp to prevent the load bearing nut (inner nut) from rotating. Welding of any load bearing nut, if necessary, does require the preparation of a R&R Plan and shall be performed in accordance with an approved WPS.



- The removal and reinstallation of supports, by mechanical means, provided that no material is replaced or repaired.
- Corrective adjustment(s) made to component supports which are classified as nuclear Items, including the following: correction of detached or loosened mechanical connections, improper hot or cold positions of spring supports and constant load supports, misalignment of supports, or improper displacement settings of guides and stops, provided no repair or replacement is required.
- Installation of flanges, blanking plates and bolting materials used solely for testing purposes during the conduct of code work.

NOTE: While maintenance activities as described above do not require the use of a Repair Replacement Plan, certain maintenance activities on nuclear Items may result in post maintenance testing or examination requirements where the tests or examinations will be obligated to meet ASME Section XI or an OM Code (e.g., pumps and valves subject to the Inservice Testing Program).

- Replacement of a rupture disk.

NOTE: The replacement of a rupture disk in itself is excluded from the requirements of this Program. However, repair or replacement of any other pressure retaining portion of the rupture disk assembly is subject to the requirements of this program.