nuclear power services, inc.

WORK PROCEDURE NO.	DATE	REVISION	PROJECT: BYRON STATION
3.0.4	11/23/82	C	

TITLE: DESIGN CONTROL - NEW DESIGN

SCOPE OF REVISION

Revision C

Total Rewrite

EXHIBITS

Exhibit 3.4
Structural Document Flow Chart

Exhibit 3.5
Subsystem Log

Exhibit 3.6
Structural Analysis Index Sheet

Exhibit 3.7
Support Design Review Checklist

Exhibit 3.8
Calculational Sheet

Exhibit 3.9
Conceptual Pipe Support Detail Sht.

Exhibit 3.10
Final Pipe Support Detail Sheet

Exhibit 3.22
Piping Analysis Calculation Cover Sheet

Exhibit 3.23
Structural Analysis Calculation Cover Sheet

8305200683 830511
PDR ADOCK 05000373
P PDR

APPROVAL SIGNATURES

	REVISION C
BY	J. Hobbs 11-23-82
APPROVED	RP QD 11-22-82
MANAGER Q.A.	W.A. Whitaker 11/23/82

1.0 PURPOSE

This procedure establishes the method of controlling the safety related design of piping supports on the Byron Project.

2.0 SCOPE

This procedure outlines the responsibilities of personnel and the process by which pipe supports are engineered and designed under Sargent & Lundy Specification 109.

3.0 RESPONSIBILITIES

3.1 The Project Manager, or his designee, is responsible for the implementation of this procedure outlined herein, through the Project Engineer.

3.1.1 The Project Manager shall maintain a signature/initial list (Exhibit 2.6) of all NPS employees assigned to the Byron project. This list shall be used as a cross-reference for our procedures sign-off.

3.2 The Project Engineer, or his designee, is responsible for the day-to-day administration of the procedures which control pipe support design.

3.2.1 The Project Engineer is responsible for appointing Design Group Leader(s).

3.3 The Design Group Leader, or his designee, is responsible for the day-to-day implementation of this procedure and the accuracy and adequacy of support design.

3.4 The Design Package Preparation Group is responsible for assembling as-built isometrics and the required design information into subsystem packages.

3.5 The Design Team Leader, or his designee, is responsible for pipe analysis and preparation of conceptual support design.

3.6 The Structural Team Leader, or his designee, is responsible for structural verification of each support detail.

3.7 The Final Reviewer is responsible for verifying all NPS prepared design documents in the Subsystem Support Package for its technical adequacy and compliance to Sargent & Lundy design criteria and specification.

3.8 The Professional Engineer is responsible for applying his seal to design drawings in accordance with Sargent & Lundy design criteria.

4.0 PROCEDURE

4.1 Incoming isometrics are received by the Document Control Supervisor through the Project Manager and received per procedure 6.0.1.

4.2 Upon receipt of requested isometric(s) from Document Control, the Design Package Preparation Group determines the subsystem number.

4.2.1 The Design Package Preparation Group affixes a Support Design Review Checklist (Exhibit 3.7) to the subsystem package and enters all required design data on the Support Design Review Checklist. (These are a series of sign-off steps used in the design activities of this procedure. Sign-offs are done upon completion of individual or group tasks, under the designated responsibility referenced on the form.)

4.2.2 The Design Package Preparation Group affixes a Subsystem Log (Exhibit 3.5) and enters all required data from isometric(s) on Part One.

4.2.3 The Design Package Preparation Group will forward the completed package to the Project Engineer for his review, who will initial/date the Support Design Review Checklist (Exhibit 3.7) and make distribution to the Design Group Leader.

4.3 The Design Group Leader checks each subsystem package for completeness for the following information:

4.3.1 (a) Support Design Review Checklist
(b) Pipe Isometric(s)
(c) Subsystem Log
(d) Any additional data required for design of pipe supports.

4.3.2 The Design Group Leader will assign the Subsystem Package to the Design Team Leader.

4.4 The Design Team Leader performs an evaluation on each subsystem package as follows:

4.4.1 Each piping subsystem is field verified for conformance to the isometric routing, line number, valve identification(s) and locations of previous supports installed, and for selection of preliminary support locations in accordance with the S&L simplified dynamic analysis criteria.

4.4.2 The Design Team Leader assigns the supports a unique support number following the format in the NPS Pipe Support Design Manual, Byron Station Units 1 & 2, Section A7, and enters the support number(s) on Part Two of the Subsystem Log (Exhibit 3.5).

4.4.2a When NPS supersedes an existing S&L drawing with the same number, the NPS drawing will be issued carrying the next higher revision level of the S&L drawing with the following note added:

"Supersedes S&L Drawing No. _____ Revision No. ___"

4.4.2b For S&L drawings that are no longer required for a subsystem in the NPS scope of work, a sepia of that drawing will be issued by NPS with the next higher revision level. The drawings will be stamped "VOID".

4.4.3 A preliminary conceptual support detail is prepared for each support by the Pipe Support Designer using the Conceptual Pipe Support Detail Sheet (Exhibit 3.9), who shall initial/date in the "designed by" box.

4.4.4 The preliminary conceptual Pipe Support Detail Sheet identifies all the reference drawings used in the design, identifies Pipe Code, seismic class, support class, safety related and preliminary field support location.

4.4.5 After completion of the preliminary conceptual support design, each support design is reviewed for interferences with the reference drawings as shown on the Conceptual Pipe Support Detail Sheet (3.9) by a Pipe Support Checker, who initials and dates the Preliminary Conceptual Support Design (3.9) as an indication of this review, in the interference check box.

4.4.6 Each piping subsystem is analyzed by the Stress Engineer manually (Calculation Sheet 3.8) for loads, movement and moment, utilizing the "Small Piping and Tubing Procedure" - Simplified Dynamic Analysis Criteria for Category I process 2-in. and under piping (ASME Section III Piping) supplied by Sargent & Lundy.

4.4.7 Upon completion of the pipe load calculation, the Stress Engineer initials/dates the Piping Analysis Calculation Cover Sheet (3.22) as "Preparer" and forwards it to the internal reviewer with the group.

4.4.8 The internal Reviewer reviews the analysis based on the technical adequacy of the calculation, and upon completion initials/dates the Piping Analysis Calculation Cover Sheet as "reviewed by" and forwards it to the Design Team Leader, who signs the Subsystem Review Checklist and forwards the package to the Design Group Leader.

4.5 The Design Group Leader checks the forms in the package for completeness and forwards the Subsystem Package to the Structural Team Leader, who is responsible for the performance of structural analysis as follows:

4.5.1 A Structural Analysis is performed by the Structural Engineer to verify adequate support design in accordance with the flowsheet shown in Exhibit 3.4 for all applicable design conditions.

(a) The computer program, STRUDL, is used for complex structures or as required by the Structural Team Leader.

(b) Base Plates are designed using graphs prepared to size a base plate, and for complex problems, "Base Plate" computer program will be used.

(c) Structural member covered by the NPS standards is referred in calculations

4.5.2 Changes caused by the Structural Analysis which modify the Preliminary Conceptual Support Design must be returned to the Design Team Leader for verification.

4.5.3 Upon completion of the Structural Analysis, the Structural Engineer initials/dates the Structural Analysis Calculation Sheet (3.23) as "Preparer" and forwards it to the internal reviewer within the group.

4.5.4 The internal reviewer reviews the Structural Analysis based on the technical adequacy of the calculation and compliance with the codes; upon completion, initials and dates the Structural Analysis Calculation Cover Sheet as "reviewed by" and forwards to the Structural Team Leader, who signs the Support Design Review Checklist and forwards the design package to the Design Group Leader.

4.6 The Design Group Leader checks the forms and contents of the package and forwards the package to the Lead Draftsperson for drafting of the Pipe Support Detail and Hanger Location Isometric Drawing.

4.6.1 The Lead Draftsperson is responsible for the performance of the following:

4.6.1a Drafting of the pipe support detail and the Bill of Material on the Pipe Support Detail Sheet (Exhibit 3.10), based on the conceptual design. Upon completion, the draftsperson will initial the Pipe Support Detail sheet as "drawn by".

4.6.2 The completed pipe support detail is returned to the Design Group Leader.

4.7 The Design Group Leader forwards the completed drafting package to the originating Pipe Support Designer.

4.7.1 The Pipe Support Designer reviews the Pipe Support Detail Drawing (3.10) with the Preliminary Conceptual Pipe Support Design for restraint direction and general pipe support lay-out (Exhibit 3.9) and upon acceptance, signs the Pipe Support Detail Drawing as "Preparer". (If the original Pipe Support Designer is not available, the Group Leader will assign the design package to another Pipe Support Designer/ Checker, who will perform the same task).

4.7.2 The drawings are returned to the Design Group Leader, who forwards the completed subsystem package to the Final Reviewer.

4.8 The Final Reviewer performs a review of all NPS prepared design calculations and drawings included in the Subsystem Package, for technical adequacy and compatability. Problems identified by the Final Reviewer should be noted on a copy of the design document, and, along with the original, returned to the respective Preparer for resolution.

4.9 The Final Reviwer will sign the Pipe Support Detail Sheet (Exhibit 3.10) under the checker block after any/all comment(s) are resolved, and apply his Professional Engineer seal.

4.9.1 The Final Reviewer forwards the Subsystem Support Package to the Design Group Leader after completing his verification.

4.10 The complete subsystem package is reviewed by the Design Group Leader for completeness, and he initial/dates the Piping and Structural Analysis Calculation Cover Sheets as "approved".

4.11 The Design Group Leader forwards the completed Subsystem Support Package to the Project Engineer.

4.12 The Project Engineer assures completeness of the subsystem package and support drawings. Problems identified by the Project Engineer shall be noted on a copy of the design document and returned to the Design Group Leader for resolution. Upon acceptance, the Project Engineer signs all pipe support drawings as "approved".

4.13 Upon completion, the Project Engineer forwards the subsystem package for transmittal and distribution per procedure 6.0.1 to Document Control.

ATTACHMENT
WESTINGHOUSE WRD DESIGN ASSURANCE CONTROLS
FOR BYRON/BRAIDWOOD

The Westinghouse Water Reactor Divisions (WRD) provide the design of the Nuclear Steam Supply System and related systems and equipment. As part of this supply, WRD provides design interface and design output documents that provide a description of the Westinghouse designed systems and equipment. These documents include: Fluid Systems Descriptions; Flow Diagrams; Control and Protection System Schematics and Functional Requirements; Equipment Specifications; ASME Code Design Reports; Precautions, Limitations and Setpoints Documents; Electrical Wiring Diagrams and other design information.

The Water Reactor Divisions involved in these design activities provide measures to assure effective design control in a planned, controlled, and orderly manner.

Measures are established to correctly translate the applicable regulatory requirements and design bases into specifications, drawings, written procedures, and instructions. Quality standards are specified in the design documents, and deviations and changes from these quality standards are controlled. Suitable design controls are applied to such activities as reactor physics; seismic, stress, thermal, hydraulic, radiation, and accident analyses; compatibility of materials; and accessibility for inservice inspection, maintenance, and repair.

The WRD design process for an NSSS starts with the Project Manager. The project manager identifes to engineering, purchasing, licensing and product assurance groups the standards and special customer requirements applicable to each nuclear power plant using the Project Master Document (PMD). This identification process is the start of the design activity on a nuclear power plant. Changes to the PMD are also issued by the project manager. This process is controlled and provides for receipt control of this PMD to assure that all departments have current information.

Based upon the technical parameters identified in this PMD, systems engineering groups design the NSSS systems so that functional, safety and regulatory requirements are met. Mechanical and electrical design engineers participate in the functional design process by identifying equipment limitations and resolving functional requirements with equipment capabilities.

Equipment engineers are responsible for designing or specifying NSSS equipment. Nuclear safety engineers specify safety parameters and provide them to engineering groups for incorporation into components and systems specifications. Equipment specifications are prepared by the electrical and mechanical design engineers. Measures are established for the selection of suitable materials, parts, equipment, and processes for safety-related structures, systems, and components which include the use of valid industry standards and specifications. Materials, parts, and equipment which are standard, commercial (off the shelf) or which have been previously approved for a different application are reviewed for suitability prior to selection. Detailed design assurance requirements are specified in the equipment specification, its references, or in the procurement document.

Equipment specifications and changes to equipment specifications are reviewed to verify that they correctly incorporate design bases and meet system requirements, conform to established engineering standards, meet code requirements, satisfy safety requirements including those specified in safety analysis reports and contain necessary quality requirements. The design interfaces are a function of the type of component being designed. The equipment specification author, based on detailed knowledge of the specification content and the content source, is responsible for the selection of reviewers. Written procedures exist for aiding in this selection. Further, the responsible manager, by independent determination, verifies the adequacy of the list of reviewers. Reviews are conducted by design and input interface groups as required, in their area of cognizance, to assure the proper application of design requirements and parameters.

All equipment specifications and subsequent changes are reviewed by product assurance for quality requirements, including inspection and test requirements and acceptance criteria, and this review is documented. Written engineering instructions prescribe preparation, review, approval and methods for changes to equipment specifications. These instructions assure that the reviews properly accomplish the design verification function.

In addition to design verifications for equipment specification, Water Reactor Divisions perform other design verification activities. In performing these activities the design verification method is selected for proper accomplishment, and may involve such methods as design review, alternate calculations, or qualification testing. Procedures identify responsibilities of the verifier, areas and pertinent considerations to be verified, and the required documentation. Where a test program is used in lieu of other verifying or checking processes, a qualification test of a prototype unit under conditions designed to simulate the most adverse design conditions is used. Generally, test programs are used in conjunction with other means of design analysis. In these cases, analysis is used to verify selected portions of the operating performance regions, and the test program is used to verify design at the remaining intervals of operating conditions. The design verification is performed by individuals or groups other than those who performed the original design. In exceptional cases, when the designer's supervisor is the only available technically competent person, the supervisor will perform the design verification function. When the immediate supervisor performs the verification, the justification is individually documented and approved in advance by the supervisor's management. In cases where design verification (other than qualification testing) is not completed prior to release of the documents involving design interface, the design verification may be deferred providing the action is justified and affected design output/input documents are appropriately identified (as to status) and controlled. Design alterations initiated as a result of design review, discovery of design deficiency or design error, are formally documented as design changes. Errors and deficiencies in the design, including the design process, that could adversely affect

safety-related structures, systems, and components are documented and corrected; and corrective action is taken to preclude repetition. Where computer programs are used in design analysis, these programs are verified and their usage is controlled. Control procedures include such quality activities as development, verification to produce accurate results, qualification (of application), configuration control, and records retention.

Written procedures control design changes, including field changes. These procedures require review by those design input groups whose area of cognizance is affected by the change. Design control, such as reviews and approvals, commensurate with the measures applied to the original design, is accomplished in accordance with written engineering instructions. Upon approval, engineering initiates the required actions to amend the drawings and specifications to accurately reflect the design change. When approved for release, copies of the revised documents are provided to CECo as well as other organizations needing the documents for subsequent work.

Design interface controls are established in procedures, instructions, and formal agreements. These controls include the review, approval, release, distribution, and revision of documents involving design interfaces with participating design organizations. Aspects of the equipment design that have an effect on that part of the plant design performed by the applicant or his agent/architect engineer are forwarded to them for their review. Applicant or architect engineer drawings which have an effect on the Water Reactor Division scope of supply are likewise sent to Water Reactor Divisions engineers for their review. Interfaces between participating design organizations are documented to define the responsibilities between participating Water Reactor Divisions.

The Water Reactor Divisions establish the functional design criteria and parameters for systems. This information is transmitted in the form of equipment specifications or drawings to the manufacturer. In some cases the manufacturer is responsible for providing a detail design or process

procedure based upon the criteria and parameters. These are submitted by the supplier to Water Reactor Divisions, where they are reviewed and approved prior to their use in equipment manufacture. Document submittal requirements are clearly stated in purchase orders or in the case of the other Water Reactor Divisions in written interface agreements.

In addition to the interface between Water Reactor Divisions and manufacturers, there is an interface with CECo and his design agents. Water Reactor Divisions' design documentation, as listed above, is transmitted to CECo for information and use. The project manager has a written procedure defining the process for transmittal of these documents and for controlling the status of action items and inquiries received from the applicant.

Westinghouse
Electric Corporation

Water Reactor
Divisions

CAW-5509
CBW-4121
PI&DA-83-632
Nuclear Technology Division

Box 355
Pittsburgh Pennsylvania 15230

REF: CECO-0783
S.O.: CAEM-1000

March 22, 1983

Mr. J. D. Deress
Project Engineering Manager
Byron & Braidwood Projects
Commonwealth Edison Company
P.O. Box 767
Chicago, IL 60690

COMMONWEALTH EDISON COMPANY
BYRON AND BRAIDWOOD STATIONS - UNITS 1 AND 2
WRD QUALITY ASSURANCE

Dear Mr. Deress:

Per your request, enclosed please find information concerning design control assurances applied on the Byron and Braidwood Units. You should recognize these are essentially the same assurances employed with our other plants, since our program is applied to all plants within our scope.

It has always been Westinghouse Water Reactor Division's policy to provide high quality, safe and reliable equipment and services to all our customers. This policy was implemented through Westinghouse internal controls before active government participation in the QA field and, since issuance of 10CFR50, Appendix B, and related industry and regulatory guides, through the forceful implementation of QA program (including Design Assurance) controls consistent with, and often times more rigorous than, these government and industry requirements (see Attachment I). This has been amply demonstrated over the years through the active review of and participation in Westinghouse's Design Assurance Program by both the NRC and our customers.

The NRC has reviewed and approved Westinghouse's detailed description of its QA program (WCAP-8370: W Water Reactor Division's QA Program Plan), both at its inception in 1974 and through its various changes and improvements (see Attachment II: Letters of NRC Acceptance of WCAP-8370 Revisions). In turn, the NRC Office of Inspection and Enforcement (I&E) and Region IV has conducted routine inspections to confirm the effective implementation of this program. (See Attachment III: List of NRC Inspections of NTD/PWRSD.)

The American Society of Mechanical Engineers has also regularly reviewed our program, evaluating the same areas of design control, interface control and related disciplines. The attached "N" Certificate demonstrates their approval. (Attachment IV)

Similarly, our customers have performed their own independent review of our program, including not only auditing of Westinghouse facilities, but our suppliers' facilities as well. On the average, each of our customers audits our facilities at least once every year.

This same framework of in-depth review and approval of our Design Assurance Program by independent outside organizations is clearly in place with Commonwealth Edison Company (CECo) with respect to the Byron and Braidwood Plants. CECo has conducted a vigorous auditing program of Westinghouse during the design phase of the NSSS contract (see Attachment V: Index of CECo Audits of Westinghouse). Attention was devoted in these audits to the areas of design control and design interfaces to assure the accurate control and exchange of design information not only within the Westinghouse design organizations, but also between Westinghouse and its suppliers and Westinghouse and CECo as well. Such attention to the Design Assurance, and Quality Assurance Program has resulted in specific, concrete improvements in the entire QA chain. These improvements reflect the evolving, ever-maturing nature of Westinghouse's and CECo's QA Program as well as the overall industry's QA Program.

This process will continue with implementation of a working relationship between CECo and Westinghouse. Continuing Westinghouse engineering support, including emergency response support, will further assure the safe and reliable operation of the NSSS, assurance that is originally founded in the rigorous and effective QA Program that has been in place from the beginning of our contract.

If we can be of further assistance or if you have any questions, please contact us.

Very truly yours,

WESTINGHOUSE ELECTRIC CORPORATION

W. E. Kortier, Manager
Commonwealth Edison Projects

MHShannon/krm
Attachments

cc: W. J. Shewski, 1L, 1A
C. W. Fruehe, 2L
G. F. Marcus, 1L, 1A
M. A. Stanish, 1L, 1A
D. L. Leone, 2L, 2A
W. C. Cleff, 2L, 2A
T. R. Sommerfield, 1L, 1A
G. Klopp, 1L

CAW-5509
CBW-4121
PI&DA-83-632
March 22, 1983

bcc: W. E. Kortier, 5L, 2A
NSD Central File, (R&D) 2L, 2A
C. M. McKenzie, Chicago Sales, 1L
M. Benyon/MNC 572, 1L
M. H. Shannon/PC 3/400, 1L, 1A
P. T. McManus/PC 3/400, 1L, 1A
J. F. Broz/PC 3/400, 1L, 1A
P. B. Haga/PC 3/400, 1L, 1A
D. N. Alsing/PC 3/400, 1L, 1A
K. R. Miller/PC 3/400, 1L, 1A

ATTACHMENT I

SUBJECT: QUALITY ASSURANCE OF W SUPPLIED NSSS FOR
COMMONWEALTH EDISON COMPANY
BYRON & BRAIDWOOD UNITS 1 AND 2

I. Past Design and Construction Phases

A. Quality Assurance design and procurement controls were applied by Westinghouse consistent with industry and regulatory requirements.

1. 10 CFR 50 Appendix B - 1969: Quality Assurance of Nuclear Plants.

2. ANSI N45.2 - 1971: Quality Assurance of Nuclear Plants .

3. ANSI N45.2.11 - 1974: QA for Design.

4. ANSI N45.2.13 - 1976: QA for Procurement of Items and Services.

5. U.S. NRC Regulatory Guides: Endorsement of QA standards.

B. QA at Westinghouse was regularly assessed as acceptable by independent customers in accordance with standards.

1. ANSI N45.2.12 - 1977: Requirements for Auditing QA Programs.

2. ANSI N45.2.12 - 1976: QA Requirements for Control of Procurement of Items and Services.

a. Source verification activities - surveillance by customer to assure conformance of procured items and services to requirements.

b. Preaward and verification audits.

C. QA at Westinghouse was regularly assessed as acceptable by the U.S. Atomic Energy Commission and U.S. Nuclear Regulatory Commission.

1. Quality Assurance (and Design Control) Plan evaluated and accepted by U.S. NRC/AEC and others.

a. WRD QA Plan, WCAP 8370 Revision 9A, Amendment 1 accepted by letter NRC (W.P. Haass) to W (T.M. Anderson) dated 2/13/81.

b. WRD QA Plan, WCAP 8370 Revision 9A accepted by letter NRC (W.P. Haass) to W (T.M. Anderson) dated 10/16/79.

c. WRD QA Plan, WCAP 8370, Revision 8A accepted by letter NRC (C.J. Heltemes) to W (C. Eicheldinger) dated 9/16/77.

d. WRD QA Plan, WCAP 8370, Revision 7A, change Proposals 1 through 24 accepted by NRC letter (C.J. Heltemes) to W (C. Eicheldinger) dated 9/17/75.

e. WRD QA Plan, WCAP 8370, Revision 7A accepted by NRC letter (R.H. Vollmer) to W (R. Salvatori) dated 12/31/74.

2. Quality Assurance (and Design Control) Plan implementation regularly assessed and accepted by U.S. NRC and others.

a. Westinghouse NTD services accepted by letter NRC (K.V. Seyfrit) to W (R.J. Slember) dated 4/30/81.

b. Other design control inspections noted in Attachment II.

II. Present

A. WRD applies Quality Assurance (and Design Control) controls exceeding the latest applicable NRC endorsed codes and standards.

1. WRD Quality Assurance Plan provides that changes which affect the program definition are submitted to the U.S. NRC for approval.

a. WRD QA Plan Revision 9A, Admendment 1 accepted by letter NRC (W.P. Haass) to W (T.M. Anderson) dated 2/01/81.

2. Within the Nuclear Technology Division, the Product Integrity and Design Assurance department is charged with assuring compliance with corporate, regulatory, statutory and other pertinent requirements that provide for the operational integrity, reliability and safety of WRD products, systems and services.

a. A Design Integration group, consisting of senior engineering personnel assure that the technical integration process is being properly implemented throughout line organizations.

1. Identify design integration problems and assure their resolution.

2. Develop and maintain the systems necessary to provide the status and tracking of design documentation and design configuration management in the most productive manner.

B. WRD Qaulity Assurance is accepted by the U.S. NRC and others.

1. WRD Quality Assurance Plan WCAP 8370 Revision 9A, Amendment 1 continued acceptance by NRC 2/01/81.

2. As the lead division for WRD Nuclear Steam Supply System supply, NTD Quality Assurance Design Assurance is accepted by NRC office of Inspection and Enforcement.

3. NTD holds ASME Certificate of Authorization Number N-1149 for construction of Section III Division 1 items for which overall responsibility is retained with engineering, procurement and Quality Assurance.

4. Customers continue to regularly accept the performance of WRD for supply of items and services through audits, reviews and source verifications required by regulations and industry standards (e.g. ANSI N45.2.12 - 1976, ANSI N45.2 - 1977, ANSI N45.2.11 - 1974, ANSI 45.2.12 - 1978, ANSI N45.2.23 - 1978, etc.).

III. Future

A. WRD plans to continue its high level of performance to the nuclear industry including design assurance.

1. Design Configuration Management improvements are underway and planned to better assure technical integration of systems' designs in timely manner appropriated to anticipated future user needs.

2. Customer(s) have and plan to contract for design assurance services from Westinghouse as a leader in industry.

3. Customer(s) have and plan to contract for Westinghouse to retain overall responsibility for engineering, procurement and quality assurance of items for which fabrication and installation is subcontracted to appropriately authorized, accredited, or qualified suppliers.