POLICIES AND PROCEDURES

NUMBER 0101-A1

SECTION

ORGANIZATION, RESPONSIBILITIES, AND RELATIONSHIPS: CORPORATE ORGANIZATION AND RESPONSIBILITIES

SUBJECT

COMPANY ORGANIZATION, RESPONSIBILITIES AND RELATIONSHIPS

APPLICABILITY

CORPORATE: All Divisions

PURPOSE

Outline Company organization and responsibilities.

GENERAL

In accordance with the Company's By-Laws, the Board of Directors shall establish the duties of the elected Corporate officers.

The Chief Executive Officer shall prescribe the duties of the appointed officers and officers of divisions.

All officers and employees are bound by the policies and management guides issued by the Company.

The business activities in which the Company may engage are practically unlimited under the terms of its Certificate of Incorporation.

PROCEDURE

Responsibility

Corporate

- The Company is responsible for managing its 1. resources so as to provide a maximum return
- for the shareholders consistent with requirements of law, of equitable personnel policies and the maintenance of community well-being.

It is a firm policy that this will be accomplished through fair and honest dealing. The long run health of this enterprise is dependent upon a reputation for integrity - integrity of our products and integrity in the management of our affairs. We have long enjoyed such a reputation and nothing is to be done to jeopardize it. If necessary to choose between losing an opportunity and compromising principles, the managers of

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Responsibility

Action

Corporate (cont'd.)

+ this Company are to forego the opportunity.

This Corporate responsibility is exercised through the creation of various divisions. (The term division includes all subsidiaries.) The Company is responsible for supervising the performance of these divisions and rendering such services and assistance as it deems necessary to attain planned goals. Divisions may be created, combined, or dissolved as warranted by overall Corporate needs.

- 2. The Company has the responsibility of insuring profitable growth and diversification through encouragement of division activity and through actions of its own beyond those of the division.
- 3. It is Company policy to provide at the Corporate level sufficient staff support to assist operating components in the effective conduct of their business.

Each staff function represented will provide counsel, service, and coordination within its area of responsibility, to all Corporate entities to assure required conformity to policies, principles, or legislation.

- 4. For each Corporate staff activity that is represented in the operating divisions, concurrence of the Corporate function head is required for the selection of incumbents in the top division assignments.
- 5. Divisions are responsible for maximizing return on investment through marketing of assigned products in assigned markets and within the policy limits established by the Company.
- 6. Divisions have the responsibility of planning for and achieving logical growth and diversification through internal and external development in accordance with established policies.

Divisions

Page 2

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Responsibility

Action

Divisions (cont'd.)

7. Divisions are responsible for organizing operations and personnel so as to achieve optimum performance. Major changes in divisional structure or reassignment of managerial personnel must be reviewed with the Chief Executive Officer, and in the case of the top staff personnel, with the head of the corresponding Corporate function.

Inter-Divisional Relationships

- 8. The closest possible cooperation must be maintained between all divisions. This applies to products, personnel, technology, marketing, and all other areas where there is a benefit to be gained.
- Divisions must make every effort to buy from each other and so conduct their inter-divisional activities as to maximize Company profits and growth.

When after a thorough examination, one division feels that its commercial interests preclude purchasing from another division, the matter must be discussed with the Company Director of Purchasing and the Chief Executive Officer before any final action is taken.

- 10. Products which are manufactured by other companies and which compete with products manufactured by another division normally should not be incorporated in B&W end-products or used in our facilities. The buying division should procure such items only from internal sources unless there has been specific decisions to the contrary by the Chief Executive Officer and the Corporate Director of Purchasing.
- 11. It is Company policy to avoid duplication of facilities. Approval of the Chief Executive Officer is required before any division installs facilities or enters into the manufacture of items which are a part of the product line of any other division.
 - 12. No division can include equipment of another division in its bids without prior checking and approval from the affected division for prices, performance, and delivery.

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Responsibility

Action

Inter-Divisional Relationships (cont'd.)

- The Company policy is to encourage interchange 13. of personnel. Divisions seeking skills not available internally should make a companywide search for suitable candidates through the skills bank and other means.
- 14. The Company policy is to encourage close technological interchange among all divisions. The Research & Development Division has a major responsibility to insure that such interchange is taking place and to provide communication channels to encourage it.

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POLICIES AND PROCEDURES

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SECTION

ORGANIZATION, RESPONSIBILITIES AND RELATIONSHIPS

SUBJECT

OBJECTIVES & RESPONSIBILITIES -LICENSING SECTION

OBJECTIVES

Assure an orderly, timely and quality licensing process and an efficient and effective relationship with nuclear regulatory agencies on all NPGD contracts and generic subjects of a regulatory or legislative nature impacting on NPGD.

II. RESPONSIBILITIES

A. STANDARDS

- 1. Prepare standard licensing documents to support B&W's reference designs and standard product lines.
- 2. Maintain representation on those industry and standards committees related to the licensing function.

PROPOSALS

- Review and approve proposal documents related to licensing to include new and updated information and to check deviations from standards.
- 2. Provide marketing support by preparing licensing information and making presentations.

CONTRACTS

- 1. Organize and coordinate preparation of all B&W related portions of safety analysis reports, reload reports and other licensing documents required by NRC for the NSS and fuel product lines. Coordinate final typing and printing of SAR's when required by contract terms.
- 2. Recommend licensing strategy and formulate licensing tactics.
 - a). Resolve with Project Management and other B&W management the position to be taken on controversial issues with licensing agencies.
 - b). Prepare and obtain appropriate approval of strategy plans for handling major contract concerns.
 - c). Resolve position to be taken on outstanding concerns in ACRS correspondence.

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- C. CONTRACTS (cont'd)
 - 3. Represent B&W before licensing agencies.
 - a). Coordinate and represent B&W in NRR customer SAR review meetings.
 - b). Organize and represent B&W in ACRS meetings.
 - c). Coordinate the preparation of testimony for and determine B&W representation at AS&LB public hearings.
 - 4. Escablish safety criteria for water reactors.
 - a). Advise concerned engineering units with respect to advanced PWR designs and anticipated new NRR design requirements. Identify and assess licensing impact of proposed design changes on future product lines.
 - 5. Coordinate resolution of license related parts of incidents which occur during construction, testing and operation at plant sites until full responsibility for the plant is accepted by the customer.
 - Recommend, action to be taken by B&W or its customers to resolve concerns classified as possible "significant deficiencies" or substantial safety hazards.

D. GENERIC

- Recommend, organize and release topical licensing reports for use by NRC in reviewing special generic subjects.
- Interpret, comment on and recommend management position on proposed and promulgated modifications to federal agency regulations governing PWR Licensing.
- Coordinate retained and internal legal assistance required for the resolution of generic and contract licensing matters.
- Recommend R&D programs required to support current and future designs to meet changing licensing requirements.
- Recommend risk programs associated with the interpretation of new licensing requirements.
- Obtain, review and distribute internally, publicly available licensing information for competitor product lines.
- Coordinate B&W Licensing meetings associated with R&D and provide access to NRC and ERDA.
- 8. Maintain a Bethesda, Maryland based operation for licensing liaison and intelligence purposes.

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SECTION

ORGANIZATION, RESPONSIBILITIES AND RELATIONSHIPS

SUBJECT

OBJECTIVES AND RESPONSIBILITIES -FLUID & MECHANICAL SYSTEMS SECTION

I. OBJECTIVES

Manage the engineering of the fluid and mechanical systems of the NSS as necessary to assure technical excellence, reliability and cost effectiveness of the product.

II. RESPONSIBILITIES

Perform the design, development and procurement of fluid and mechanical system equipment, and the preparation of standards and proposal information.

A. Standards

- 1. Prepare and maintain standard designs, system descriptions, system and equipment specifications, equipment lists, standard cost estimates and other documentation in accordance with requirements set by Plant Design and bases established by Product Development.
- 2. Participate with Product Development in establishing future product trends and market requirements.
- 3. Recommend R&D programs leading to changes in the standard product. Administer approved and funded programs.
- 4. Prepare standard Safety Analysis Report (SAR) material and support standard licensing effort.
- 5. Participate in committee and task force work for industrial codes and standards.
- 6. Participate in development of Quality Assurance (QA) and Management Information Systems.

В. Contracts

- 1. Manage the applicable Work Breakdown Structure (WBS) tasks to perform in accordance with NSS Contract requirements including technical cost and schedule considerations.
- 2. Develop and maintain Work Package Description/Work Authorizations (WPD/ WA's) for tasks assigned.
- 3. Design systems and equipment.
- 4. Prepare contract documents for systems and equipment based on requirements set by Plant Design.

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II. RESPONSIBILITIES (cont'd)

B. Contracts (cont'd)

- Prepare procurement, release-for-manufacturing, and release for shipment authorization. Provide technical evaluation of supplier bids.
- Review and approve supplier drawings, procedures, test results, design reports, and othe documents required by Procurement Authorizations. Review and dispose of supplier variation requests.
- Provide engineering and procurement activities to support bulk procurement.
- Support the resolution of site problems including achievement of equipment outage factor goals for equipment under cognizance of Fluid and Mechanical Systems.
- Prepare applicable portions of SAR d provide license application support.

C. Proposals

- Review customer bid specifications and identify deviations from the Standard Equipment List (SEL).
- Provide design changes and work with Purchasing and suppliers to obtain cost estimates for proposals. Provide current contingencies for Fluid and Mechanical Systems.
- 3. Review and approve proposal writeups for deviations from standards.
- 4. Provide marketing support with technical presentations.

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APPENDIX A

FLUID SYSTEMS UNIT (FSU)

I. GENERAL

FSU is responsible for the design, development, and procurement of all NSS equipment (excluding pumps), for the preparation of standards, and the preparation of proposal information.

A. Standards

- Prepare and maint in standard designs, system descriptions, equipment specifications, equipment lists, standard cost estimates and other documentation in accordance with requirements set by Plant Design and bases established by Product Development.
- 2. Ensure standard proposal descriptions are compatible with proposal.
- Participate with Product Development in establishing future product trends and market requirements.
- 4. Maintain Standard Contingency Lists.
- Recommend R&D programs for products leading to changes in our standard product.
- 6. Establish priorities and schedules for standards.
- 7. Prepare standard SAR material and support standard licensing effort.
- 8. Prepare WBS Standard WA's.
- Participate in committee and task force work on industrial codes and standards.
- 0. Participate in development of QA and Management Information Systems.

B. Contracts

- Manage the applicable WBS tasks to perform in accordance with NSS contract requirements.
- Develop and maintain WPD/WA's for tasks assigned. Support other WBS tasks as defined in the work package descriptions.
- 3. Identify risk areas and provide the necessary technical support.
- 4. Lesign systems and equipment.
- 5. Frepare contract documents for systems and equipment based on requirements set by Plant Design.
- 6. Prepare procurement and Release-for-Manufacturing Requisitions/and provide technical evaluation of supplier bids.

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APPENDIX A (Cont'd)

I. GENERAL (cont'd)

B. Contracts (cont'd)

- 6. Review and approve supplier drawings, procedures, test results, design reports, and other documents required by purchase order. Review and dispose of supplier variation requests.
- Initiate and participate in design review meetings.
- 8. Provide technical interface and liaison with customers as required.
- 9. Support the resolution of site problems including achievement of equipment outage factor goals for equipment under cognizance of Fluid and Mechanical Systems.
- 10. Prepare applicable portions of SAR's.
- 11. Provide engineering and procurement activities to support bulk procurement.
- Identify and participate in the resolution of risk items. 12.
- 13. Provide support for International projects as required.
- 14. Identify and participate in the resolution of risk items.
- 15. Review and approve service department test procedures.

C. Proposals

- 1. Review customer bid specifications and identify deviations from the SEL.
- 2. Provide design changes and work with Purchasing and suppliers to obtain cost estimates for proposal in accordance with Marketing requirements. Provide current contingencies for Auxiliary System Equipment.
- 3. Review and approve proposal write-ups for deviations from standards.
- 4. Provide marketing support with technical presentations.

POLICIES AND PROCEDURES

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APPENDIX B

PUMPS & DRIVES UNIT (PDU)

I. GENERAL

PDU is responsible for the engineering procurement of NSS equipment, (pumps and drives only) the preparation of standards, and the preparation of proposal information.

A. Standards

- 1. Prepare and maintain equipment specifications, equipment lists, standard cost estimates and other documentation in accordance with requirements set by Plant Design and bases established by Product Development.
- 2. Participate with Product Development in establishing future product trends and market requirements.
- 3. Prepare standard SAR material and support standard licensing effort.
- 4. Participate in committee and task force work for idustrial codes and standards.
- 5. Participate in the development of QA and Management Information Systems.

B. Contracts

- 1. Manage the applicable WBS tasks to perform in accordance with NSS contract requirements.
- 2. Develop and maintain WPD/WA's for tasks assigned.
- 3. Support other WBS tasks as defined in the work package descriptions.
- 4. P. pare contract documents for systems and equipment based on requirements set by Plant Design.
- 5. Prepare procurement and release for manufacturing requisitions/and provide technical evaluation of supplier bids. Review and approve supplier drawings, procedures, test results, design reports, and other documents required by purchase orders. Review and dispose of supplier variation requests.
- 6. Initiate and participate in design review meetings.
- 7. Provide technical interface and liaison with customers as required.
- 8. Support the resolution of site problems including achievement of equipment outage factor goals for equipment under cognizance of Fluid and Mechancial Systems.
- 9. Prepare applicable portions of SAR's.
- 10. Provide support for International projects as required.

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ADMINISTRATIVE MANUAL POLICIES AND PROCEDURES

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APPENDIX B (cont'd)

I. GENERAL (cont'd)

- B. Contracts (cont'd)
 - 11. Identify and participate in the resolution of risk items.
 - 12. Provide engineering and procurement activities to support bulk procurement.

C. Proposals

- Review customer bid specifications and identify deviations from the SEL.
- Provide design changes and work with Purchasing and suppliers to obtain cost estimates for proposal in accordance with marketing requirements.
 Provide current contingencies for Reactor Coolant Auxiliary System pumps and drives.
- 3. Review and approve proposal writeups for deviations from standards.
- 4. Provide marketing support with technical presentations.

POLICIES AND PROCEDURES

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APPENDIX C

MECHANICAL EQUIPMENT UNIT (MEU)

I. GENERAL

MEU is responsible for the design, development, and procurement of NSS equipment, the preparation of standards, and the preparation of proposal information.

A. Standards

- 1. Prepare and maintain standard designs, system descriptions, equipment specifications, equipment lists, standard cost estimates and other documentation in accordance with requirements set by Plant Design and bases established by Product Development.
- 2. Participate with Product Development in establishing future product trends and market requirements.
- 3. Recommend R&D programs leading to changes in the standard product. Administer approved and funded programs.
- 4. Prepare standard SAR material and support standard licensing effort.
- 5. Participate in development of QA and Management Information Systems.

Contracts

- 1. Manage the applicable WBS tasks to perform in accordance with NSS contract requirements.
- Develop and maintain WBD/WA's for tasks assigned. Support other WBS tasks as defined in the work package descriptions.
- 3. Design reactor accessories and equipment procured within B&W.
- 4. Prepare contract documents for equipment based on requirements set by Plant Design.
- 5. Prepare procurement and release-for-manufacturing requisitions. Provide technical evaluation of supplier bids. Review and approve supplier drawings, procedures test results, design reporting and other documents required purchase order. Review and dispose of supplier variation requests.
- 6. Initiate and participate in design review meetings.
- 7. Provide technical interface and liaison with customers as required.
- 8. Support the resolution of site problems including achievement of equipment outage factor goals for equipment under cognizance of Fluid and Mechanical Systems.
- 9. Prepare applicable portions of SAR's.
- identify and participate in the resolution of risk items.

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APPENDIX C (cont'd)

I. GENERAL (cont'd)

- B. Contracts (cont'd)
 - 11. Provide engineering and procurer eat activities to support bulk procurement.
 - 12. Provide support for International projects as required.

C. Proposals

- 1. Review customer bid specifications and identify deviations from the SEL.
- Provide design changes and work with Purchasing and suppliers to obtain cost estimates for proposal in accordance with Marketing requirements.
 Provide current contingencies for Mechanical Equipment.
- 3. Review and approval proposal writeups for deviations from standards.
- 4. Provide marketing support with technical presentations.

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POLICIES AND PROCEDURES

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SUBJECT OBJECTIVES AND RESPONSIBILITIES - .

FUEL ENGINEERING SECTION

COMPLETE REVISION OBJECTIVE

To manage the nuclear engineering and the nuclear research and development activities of the company related to fuel and core design.

II. RESPONSIBILITIES

Perform the design, development and analysis required to provide the first and reload core designs including core components for NSS/NSC proposals and contracts.

A. Standards

- 1. Prepare and maintain standard designs, system descriptions, equipment specifications, cost estimates, and other documentation in accordance with requirements set by Plant Design and bases established by Product Development.
- 2. Prepare standard SAR material and support standard licensing effort.
- 3. Develop and maintain an efficient and economical set of standard calculational models and procedures that are acceptable for the mechanical, material, nuclear, thermal, and hydraulic design of the first and reload cores.
- 4. Establish criteria and specify requirements for the fuel assembly, nonfuel core components and certain systems external to the core for the nuclear, thermal, hydraulic and mechanical design such that the component design is compatible with the System Requirements Specification for the core.
- 5. Participate in Design Reviews.

Contracts

- 1. Manage the applicable WBS tasks to perform in accordance with NSS Contract requirements including technical, cost and schedule considerations.
- 2. Develop and maintain OI's, WPD's, WA's, RRL's, and DRL's for task assigned.
- Support WBS tasks as defined in the WPD's.
- 4. Establish core designs and component functional requirements.
- 5. Prepare applicable portions of SAR's and Topical Reports as required.
- Provide technical interface and liaison with customers as required.
- 7. Participate in design reviews.

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II. RESPONSIBILITIES (cont'd)

B. Contracts (cont'd)

- 8. Support the resolution of site problems.
- 9. Provide support for international projects.
- 10. Identify and participate in the resolution of risk items.
- 11. Review and participate in the disposition of contract variation approval requests and concurrence requests.

C. Proposals

- Review customer bid specifications for deviation from standard proposals and/or desired options and appropriate resource requirements.
- 2. Participate in the preparation of proposal information as required.
- 3. Support the Marketing and Business Planning Department through technical presentations.
- 4. Participate with Product Development in establishing future product line and market requirements.

D. Research and Development

- Plan, review and direct R&D programs for first and reload core design, support of NSS and reload licensing. product improvement, and cost reduction.
- Participate in results engineering activities and provide basis for incorporating measured reactor data into calculational models.
- 3. Develop fuel assemblies for B&W and competitor cores.
- Recommend development of calculational procedures, analysis methods or techniques, design and experimental programs for B&W and competitor cores.

POLICIES AND PROCEDURES

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APPENDIX A

FUEL DESIGN CONTROL UNIT (FDC)

I. GENERAL

FDC is responsible for the nuclear/mec.anical/thermal-hydraulic/material design criteria to assure the orderly and economical operation of the Fuel Engineering (FE) Section and the interfaces therewith, and assure release to Commercial Nuclear Fuel Plant (CNFP), of high quality core component designs.

A. Standards

- 1. Review and set standards for consistency across the product line for the design disclosure documents.
- 2. Develop, maintain, and release standard bills of materials and their associated supporting documents.
- 3. Provide change control for standard fuel design documentation.
- 4. Develop and maintain technical specifications and interface criteria as required to assure compliance with core system requirements.
- 5. Develop and maintain design baselines as required.
- Participate in design review activities.

B. Contracts

- 1. Review, approve, and expedite all engineering manufacturing releases, contract variati n approval requests, concurrence requests, drawings, and specifications within FE.
- 2. Prepare, approve and provide for technical review via Document Approval Requests of all FE design releases.
- 3. Assure timely resolutions of CNFP interface problems including identification and correction of their causes.
- 4. Promote information exchange between Purchasing (NMD) and FE.
- 5. Develop and maintain schedules that allow adequate and timely review of the design disclosure documents.
- 6. Review CNFP's manufacturing processes for consistency with the design disclosure.
- 7. Maintain FE's product working files.

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APPENDIX A (cont'd)

I. GENERAL (cont'd)

B. Contracts (cont'd)

- 8. Act as point contact for FE on CNFP interfaces.
- 9. Review all proposed design changes for cost and schedule impact.
- 10. Coordinate FE's work scope revisions.
- 11. Review core design criteria as set forth in the DRL, RRL, SRS, and CCRL to assure compliance of Fuel Equipment Specifications, Operating Instructions, and QA requirements.
- 12. Prepare and issue Quality Requirements Matrices (QRM's).
- 13. Prepare and issue contract Fuel Equipment Specifications.
- 14. Review and approve operating instructions and change thereto.
- Control fuel design criteria and requirements. Review and approve any changes to fuel design criteria and requirements.

C. Research and Development

- Participate in formal design reviews as required.
- 2. Coordinate the overall FE Section R&D planning.
- Develop and maintain system for handling the design disclosure of all non-contract NSC parts.
- 4. Assure the proper utilization of CNFP skills in the design.
- Administrate FE progress for cost reduction and other areas directly related to standard design changes.
- Issue and maintain Equipment Specifications for major fuel components being developed under R&D Programs.

D. Administrative

- 1. Maintain FE master plan of manpower and scheduling requirements.
- 2. Coordinate the preparation and approval of FE WA's.
- Review customer bid specification for deviation from standard proposals and/or desired options and appropriate resource requirements.

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APPENDIX A (cont'd)

- I. GENERAL (cont'd)
 - D. Administrative (cont'd)
 - 4. Perform special product oriented technical program management for the Section Manager.
 - 5. Coordinate FE WBS task preparation and update.
 - 6. Coordinate FE preparation of NSS-NSC proposal information.
 - Review contract research proposals for cost, scheduling, and manpower impact on FE master plan.

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APPENDIX B

FUEL STRUCTURAL ANALYSIS & PERFORMANCE UNIT (FSAP)

I. GENERAL

FSAP is responsible for the structural analysis and related licensing of fuel assemblies, control components, and neutron source assemblies. FSAP is also responsible for determining, evaluating, and updating material properties and performance to be used for both design and analysis of the core components.

Standards

- 1. Prepare standard cost estimates.
- Participate in design review activities.
- 3. Develop standard analytical methods as required to perform fuel mechanical analysis.
- Prepare standard analytical calculational packages, as required, for baseline core components to satisfy the structural requirements of a standard Equipment Specification.
- 5. Establish the need for test data and follow tests at the R&D Division Nuclear Materials Division or other suitable organizations.
- 6. Compile the standard calculation packages and test data into a standard structural report.
- 7. Perform independent review on fuel rod standard analyses.
- 8. Follow fuel performance on a generic basis.
- Establish, maintain, and update standard data files on the properties and behavior of materials (unirradiated and irradiated) that are used in B&W's fuel products.
- Provide technical bases for materials used in standard engineering specifications for fuel components.

Contracts

- 1. Develop and maintain WPD's, WA's, RRL's, and DRL's.
- Support other WBS tasks as required. 2.
- 3. Provide support to international projects as required.
- 4. Identify and participate in the resolution of risk items.

POLICIES AND PROCEDURES

NUMBER NPG-0151-76G

APPENDIX B (cont'd)

GENERAL (cont'd) I.

Contracts (cont'd)

- 5. Prepare applicable portion of SAR's.
- 6. Support resolution of site problems, as required.
- 7. Support disposition of contract variation approval requests and concurrence requests as required.
- 8. Review specific contract documents and perform any required unique analyses.
- 9. Confirm structural adequacy of the standard fuel component design per specifications.
- 10. Respond to licensing requests and provide technical liaison with the NRC and customers as required.
- 11. Review and ensure that materials used in the fuel product line meet the requirements of the contract specifications.

Research and Development

- 1. Prepare Topical Reports and identify scope and schedule of R&D tasks as required to support Licensing.
- 2. Perform analytical development, as required, to support Licensing and contractual requirements.
- 3. Identify and plan for minor proof testing, as required, to verify mechanical integrity.
- 4. Anticipate materials technology needed for fuel designs. Submit R&D plans to obtain data from the R&D division and administer those activities that are approved.
- 5. Develop reactor site operations and equipment to non-destructively inspect and measure performance parameter of irradiated core components, as required.
- 6. Disseminate fuel performance results from operating experience and Post Irradiation Examination (PIE) data to various groups at NPGD and NMD.

D. Proposals

- Review customer bid specification for deviations from standard proposals and/or desired options and appropriate resource requirements.
- 2. Provide assistance in answering customers' fuel performance or structural analysis questions and aid in making marketing presentations, as required.

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APPENDIX C

THERMAL-HYDRAULIC ENGINEERING UNIT (T-HE)

I. GENERAL

T-HE is responsible for the thermal and hydraulic design, development, and analysis required to provide the first and reload core designs including core components for NSS/NSC contracts and proposals.

A. Standards

- Develop and maintain standard calculational procedures and operating instructions for the thermal-hydraulic analysis of B&W and competitor cores.
- Prepare and maintain standard thermal-hydraulic design criteria for B&W and competitor cores.
- Prepare and maintain standard cost estimates and other documentation as required.
- 4. Prepare standard SAR material and support standard licensing effort.
- Specify standard thermal-hydraulic design criteria for design and arrangement of non-fuel core components and certain systems external to the core.
- 6. Participate in design reviews.

B. Contracts

- Manage the applicable WBS tasks in accordance with NSS/NSC contract requirements such that costs and schedule commitments are met.
- 2. Develop and maintain RRL's, WPD's and WA's for tasks assigned,
- 3. Support other WBS tasks as defined in the work package descriptions.
- Provide licensing and safety analysis support as required. This
 includes responsibility for Section 4.4 of the Safety Analysis Reports,
 Topical Reports, and reload licensing documents.
- 5. Identify and participate in resolution of risk items.
- 6. Verify the thermal-hydraulic design of the core and the fuel assembly for steady-state and transient core operation conditions as they relate to core performance, reactor protection system, and the plant technical specification.
- 7. Provide support for international projects.
- Verify the thermal design of fuel and non-fuel components by performing thermal analyses required by other WBS tasks and for input to Safety Analysis Reports.

POLICIES AND PROCEDURES

NUMBER NPG-0151-76G

APPENDIX G (cont'd)

GENERAL (cont'd) I.

C. Research and Development

- 1. Plan, implement, and review thermal and hydraulic analytical techniques for fuel rod, non-fuel components and assembly design that lead to an improved functional and/or economical fuel assembly or core design for B&W and competitor reactors.
- 2. Plan, implement, and review thermal hydraulic research activities and method development needs for design and analytical improvements as related to B&W fuel assemblies, core operation and replacement competitor fuel assemblies.
- 3. Monitor and evaluate competitor technology for thermal -hydraulic areas.
- 4. Develop Fuel & Control component thermal performance models and benchmark fuel rod and control component thermal analysis codes.
- 5. Develop thermal-hydraulic analysis methods and benchmark thermal-hydraulic analysis codes.
- 6. Plan, develop and participate in thermal hydraulic result engineering effort.
- 7. Recommend development of calculational procedures, thermal-hydraulic analysis methods or techniques, designs, and experimental programs.

Manufacturing and Operation Liaison

- 1. Verify that all core test procedures, core operating procedures, manufacturing procedures, specifications and materials affecting core performance meet thermal-hydraulic design criteria.
- Review and support disposition of engineering drawings, component specifications, procurement authorizations, concurrence requests and contract variation approval requests as they relate to fuel assembly and control components.
 - . Review and support disposition of customer operating test information and Site Problem Reports.

E. Proposals and Marketing

- 1. Review customer Bid Specifications for deviation from standard proposals and/or desired options and appropriate resource requirements.
- Support proposal activities as they relate to the thermal-hydraulic design and the appropriate contract estimates.

POLICIES AND PROCEDURES

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APPENDIX D

NUCLEAR OPERATIONS ANALYSIS UNIT (NOA)

I. GENERAL

NOA is responsible for licensing and operation related aspects of the B&W nuclear design .

A. Standards

- 1. Prepare standard SAR material and support standard licensing effort.
- 2. Develop and maintain an efficient and economical set of standard calculational techniques that are acceptable for Physics Test Manual, Physics Operations Manual and Technical Specification Calculation.
- 3. Prepare and maintain standard cost estimates and other documentation as required.
- 4. Develop standard design document (Physics Test Manual, Physics Operations Manual, Technical Specification Calculation) to be issued for each fuel cycle.

B. Contracts

- 1. Manage the applicable WBS Tasks in accordance with licensing and NSS/NSC contract requirements including cost and schedule.
- 2. Develop and maintain WPD's, WA's, and RRL/DRL's for assigned tasks.
- Support other WBS tasks as defined in the WPD's.
- 4. Establish nuclear design and functional requirements.
- 5. Participate in design reviews.
- Support the resolution of site problems.
- 7. Prepare applicable portions of SAR's.
- 8. Provide support for international projects.
- Identify and participate in the resolution of risk items.
- Review and participate in the disposition of contract variation approval requests and concurrence requests.

C. Proposals

- 1. Review customer bid specifications and identify deviations from the standard proposals/desired options and appropriate resources requirement
- 2. Participate in the preparation of proposal information as required.

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APPENDIX D (cont'd)

GENERAL (cont'd) I.

D. Research and Development

- 1. Improve and standardize nuclear analysis techniques for Physics Test Manual, Physics Operation Manual, and Operating Technical Specification.
- 2. Participate in results engineering activities and incorporate results into design techniques.
- 3. Develop and recommend improved core operating (maneuvering) techniques and hardware changes.
- 4. Recommend experimental programs for verifying core design techniques.
- 5. Participate in core control and core monitoring projects to incorporate FE concerns in the final output.

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APPENDIX E

FUEL MANAGEMENT AND DEVELOPMENT UNIT (FM&D)

I. GENERAL

FM&D is responsible for contract and R&D work associated with the nuclear design and fuel management of B&W fuel.

A. Standards

- Develop and maintain an efficient and economical set of standard calculational models that are acceptable for both preliminary and final fuel cycle designs for B&W and competitor cores.
- Develop standard calculational procedures for core physics analysis tasks.
- 3. Develop standard design document to be issued for each fuel cycle.
- Prepare and maintain standard cost estimates and other documentation as required.

B. Contracts

- Manage the applicable WBS tasks in accordance with licensing and NSC contract requirements including cost and schedule.
- 2. Develop and maintain WPDs, WAs, and RRLs/DRLs for assigned tasks.
- 3. Support other WBS tasks as defined in the WPDs.
- 4. Establish nuclear designs that satisfy the core functional requirements.
- 5. Provide on-line computer data base updates.
- 6. Follow the core operation to ensure satisfactory core nuclear performance.
- 7. Maintain availability program for core related matter.
- 8. Coordinate all reload licensing analysis activities within FE and with other cognizant groups in the Engineering Department.
- 9. Participate in design reviews.
- 10. Support the resolution of site problems.
- 11. Provide support for international projects.
- 12. Identify and participate in the resolution of risk items.
- 13. Review and participate in the disposition of contract variation approval requests and concurrence requests.
- 14. Provide fuel management training.

POLICIES AND PROCEDURES

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APPENDIX E (cont'd)

GENERAL (cont'd) I.

C. Proposals

- 1. Review customer's bid specifications and identify deviations from the standard proposals/desired options and appropriate resource requirements.
- 2. Support proposal activity for B&W and competitor cores by preparing data and making technical presentations.
- 3. Coordinate and maintain proposal activity for contract research of interest to FE.
- 4. Pursue the development of an active alternative fuel cycle contract research suggestion program.

D. Research and Development

- 1. Develop improved nuclear software for the B&W on-line computer system.
- 2. Participate in core results engineering activities and incorporate measured reactor data into calculational models.
- Develop and improve reload fuel cycle designs for B&W and competitor reload cores, including alternate recycle designs.
- Develop improved technology for the acquisition and analysis of fuel management data from operating reactors.
- 5. Specify and pursue fuel cycle related R&D for ERDA, EPRI, and other outside organizations.
- 6. Recommend development of calculational procedures, nuclear analysis methods or techniques, and design and experimental programs for B&W and competitor core designs.