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UniStar
NUCLEAR ENERGY

10 CFR 50.4
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June 21, 2009

UN#09-324

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: UniStar Nuclear Energy, NRC Docket No. 52-016
Response to Request for Additional Information for the
Calvert Cliffs Nuclear Power Plant, Unit 3,
RAI No. 54, Management and Technical Support Organization
RAI No. 55, Management and Technical Support Organization
RAI No. 59, Operating Organization
RAI No. 75, Fire Protection
RAI No. 98, Initial Plant Test Program

References:
1) John Rycyna (NRC) to Robert Poche (UniStar Nuclear Energy), "RAI No 54 COLP 1776.doc," email dated January 29, 2009

2) John Rycyna (NRC) to Robert Poche (UniStar Nuclear Energy), "RAI No 55 COLP 1780.doc," email dated January 29, 2009

3) John Rycyna (NRC) to Robert Poche (UniStar Nuclear Energy), "RAI No 59 COLP 1781.doc, (PUBLIC)" email dated February 17, 2009

4) John Rycyna (NRC) to Robert Poche (UniStar Nuclear Energy), "RAI No 75 SFPT 1052.doc, (PUBLIC)" email dated March 11, 2009

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5) John Rycyna (NRC) to Robert Poche (UniStar Nuclear Energy), "RAI No 98 CQVP 1975.doc, (PUBLIC)" email dated April 16, 2009

6) UniStar Nuclear Energy Letter UN#09-303, from Greg Gibson to Document Control Desk, U.S. NRC, Submittal of Response to RAI No. 54, Management and Technical Support Organization, RAI No. 55, Management and Technical Support Organization, RAI No. 59, Operating Organization, RAI No. 75, Fire Protection, and RAI No. 98, Initial Plant Test Program, dated June 26, 2009

The purpose of this letter is to respond to the requests for additional information (RAIs) identified in the NRC e-mail correspondence to UniStar Nuclear Energy, dated January 29, 2009 (Refs. 1 and 2), February 18, 2009 (Ref. 3), March 11, 2009, (Ref. 4), and April 16, 2009 (Ref. 5).

Reference 1 and 2 address Management and Technical Support Organization as discussed in Section 13.1.1 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the CCNPP Unit 3 Combined License Application (COLA), Revision 5. Reference 3 addresses the Operating Organization, as submitted in FSAR Section 13.1.2. Reference 4 addresses Fire Protection, as discussed in FSAR Section 9.5. Reference 5 addresses the Initial Plant Test Program, as discussed in FSAR Section 14.2.

Reference 6 stated that responses to questions associated with RAI Nos. 54, 55, 59, and 98 and RAI No. 75 Question 09.0.01-5 would be provided by July 21, 2009. Enclosure 1 provides our response to each question in RAI Nos. 54, 55, 59, 98 and RAI No. 75 Question 09.05.01-5. Enclosure 2 provides an updated version of the CCNPP Unit 3 Section 13.1, and Enclosure 3 provides an updated version of the CCNPP Unit 3 Section 14.2.2, reflecting the incorporation of this information into the COLA markup.

A Licensing Basis Document Change Request has been initiated to incorporate these changes into a future revision of the COLA.

Our responses do not include any new regulatory commitments.

If there are any questions regarding this transmittal, please contact me at (410) 470-4205, or Mr. Michael J. Yox at (410) 495-2436.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 21, 2009

Greg Gibson

Enclosures: 1) Response to NRC Request for Additional Information,
RAI No. 54, Management and Technical Support Organization,
RAI No. 55, Management and Technical Support Organization,
RAI No. 59, Operating Organization,
RAI No. 75, Initial Plant Test Program, Question 09.05.01-5, and
RAI No. 98, Initial Plant Test Program,
Calvert Cliffs Nuclear Power Plant Unit 3

2) COLA Markup FSAR Section 13.1, Organizational Structure of Applicant,
Calvert Cliffs Nuclear Power Plant Unit 3

3) COLA Markup FSAR Section 14.2.2, Organization and Staffing,
Calvert Cliffs Nuclear Power Plant Unit 3

cc: John Rycyna, NRC Project Manager, U.S. EPR COL Application
Laura Quinn, NRC Environmental Project Manager, U.S. EPR COL Application
Getachew Tesfaye, NRC Project Manager, U.S. EPR DC Application (w/o enclosures)
Loren Plisco, Deputy Regional Administrator, NRC Region II (w/o enclosures)
Silas Kennedy, U.S. NRC Resident Inspector, CCNPP, Units 1 and 2
U.S. NRC Region I Office

Enclosure 1

**Response to NRC Request for Additional Information,
RAI No. 54, Management and Technical Support Organization,
RAI No. 55, Management and Technical Support Organization,
RAI No. 59, Operating Organization,
RAI No. 75, Fire Protection, Question 09.05.01-5, and
RAI No. 98, Initial Plant Test Program,
Calvert Cliffs Nuclear Power Plant Unit 3**

RAI No. 54

Question 13.01.01-1

Standard Review Plan Section 13.1.1, "Management and Technical Support Organization," section I.1.A.iii requests the applicant describe, for the design and construction period, the review and approval of plant design features, including human factors engineering (HFE) considerations.

Please provide this information, describe where in the application the review and approval of plant design features, including human factors engineering (HFE) considerations can be found, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

For the design and construction period, review and approval of plant design features including human factors engineering considerations is covered in FSAR Section 13.1.1.1.1. FSAR Section 13.1.1.1.1 will be modified to include the following description:

"UNE has engaged a Consortium to design and construct CCNPP Unit 3. The Consortium principals and their subcontractors are responsible for the site related engineering studies (such as meteorology, hydrology, seismology, demography, etc.), the design of the CCNPP Unit 3 ancillary systems (including fire protection), site layout and related environmental and security provisions, and the development of safety analysis reports. Oversight of Consortium activities, including review and approval of site design features, Human Factor Engineering (HFE), and material and component specifications are performed by UNE personnel with relevant expertise in accordance with UNE-Consortium agreements and contracts."

The Consortium is discussed in FSAR Section 13.1.1.1.1.6, Project Delivery Consortium.

COLA Impact

FSAR Sections 13.1.1.1.1 and 13.1.1.1.1.6, and other FSAR Section 13.1 subsections, will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 54

Question 13.01.01-2

Standard Review Plan Section 13.1.1, "Management and Technical Support Organization," section I.1.B.ii requests the applicant describe the development and implementation of the applicant's staff recruiting and training programs.

Please describe the development of the staff recruiting and training programs, identify their location in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

FSAR Section 13.1.1.1.1.4, Training, will be updated as indicated in Enclosure 2 and discusses the UNE training services and staffing plans.

An estimate of the number of persons to be assigned to various groups for the key organization positions is provided in Table 13.1-1 and the organizational arrangement is provided in Figure 13.1-4. The preliminary staffing schedule is provided in Figure 13.1-5.

COLA Impact

The FSAR sections indicated above and other FSAR Section 13.1 subsections, will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 54

Question 13.01.01-3

Standard Review Plan Section 13.1.1, "Management and Technical Support Organization," section I.1.B.iii requests the applicant describe the development of the plant maintenance programs.

Please describe the development of the plant maintenance programs, identify where this information can be found in the application, or justify an alternative.

Response

The development of the plant maintenance program (including preventive and predictive) is discussed in FSAR Section 13.5.2.2.6, Maintenance Procedures.

COLA Impact

None

RAI No. 54

Question 13.01.01-4

Standard Review Plan Section 13.1.1, "Management and Technical Support Organization," section I.1.B.v requests the applicant describe the responsible working level organizational unit that will be in place during design, construction, and preoperation.

Please describe this unit(s), and describe where this information can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

The working level organizational units that will be in place during the design, construction, including the preoperation period are discussed in the following FSAR Sections:

- Section 13.1.1.1.1, Design and Construction Responsibilities,
- Section 13.1.1.1.1.1, Project Management,
- Section 13.1.1.1.1.2, Engineering,
- Section 13.1.1.1.1.3, Procurement,
- Section 13.1.1.1.1.4, Training,
- Section 13.1.1.1.1.5, UniStar Nuclear Operating Services, LLC, and
- Section 13.1.1.1.1.6, Project Delivery Consortium

The project management, engineering, procurement, and training functions discussed above are led by three Senior Vice President positions discussed in FSAR Sections:

- Section 13.1.1.2.1.2, Senior Vice President - Services
- Section 13.1.1.2.1.3, Senior Vice President – Procurement and Engineering, and
- Section 13.1.1.2.1.4, Senior Vice President – Training, Strategy, and Infrastructure.

UniStar Nuclear Operating Services, LLC is led by the Senior Vice President and Chief Nuclear Officer position discussed in FSAR Section 13.1.1.2.1.5.

The Project Delivery Consortium consists of AREVA, Bechtel Power Corporation, and Alstom.

COLA Impact

The FSAR sections indicated above and other FSAR Section 13.1 subsections, will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 54

Question 13.01.01-5

Standard Review Plan Section 13.1.1, "Management and Technical Support Organization," section I.1.B.vii requests the applicant describe the general educational and experience requirements for identified positions or classes of positions. Section I.1.B.ix requests the applicant describe the education and experience requirements for management and supervisory positions for design and construction and preoperation.

Please describe these requirements for headquarters staff and staff utilized during design, construction, and pre-operation, describe where this information is found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

The general education and experience requirements of the staff identified in Table 13.1-1 will be consistent with the guidance of ANSI/ANS-31.-1993 (American Nuclear Society, Selection, Qualification, and Training of Personnel for Nuclear Power Plants) as indicated in the table. Some exceptions are discussed in FSAR Section 13.1.3, Qualifications for Nuclear Power Personnel, for the quality assurance personnel and operating staff. Qualifications for personnel involved in the fire protection are discussed in FSAR Section 9.5.1.6.3 and the associated Section 9.5.1.6.3 of the US EPR DCD.

The education and experience of the Unistar Nuclear Energy headquarter staff and staff utilized during design, construction, and pre-operation are established in corporate policies and procedures as indicated in FSAR Section 13.1.1.3.

The Nuclear Steam Supply System and architect engineering organizations have extensive experience and a detailed description of this experience has been provided for these organizations in FSAR Section 13.1.1.1.1.6, Project Delivery Consortium.

COLA Impact

The FSAR sections indicated above and other FSAR Section 13.1 subsections, will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 54

Question 13.01.01-6

Standard Review Plan Section 13.1.1, "Management and Technical Support Organization," section I.1.B.viii requests the applicant describe how its management interfaces with the NSSS and AE organizations for design, construction and preoperation.

Please describe this interface, where this information can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The revised markup of Section 13.1 is included in Enclosure 2.

The Calvert Cliffs 3 Nuclear Project, LLC has entered into contracts with AREVA and Bechtel for design and construction, which are collaborating in a Consortium combining the NSSS supplier and architect engineering roles for the CCNPP Unit 3 project. The Project Delivery Consortium is discussed in FSAR Section 13.1.1.1.1.6. FSAR Figure 13.1-2 includes a diagram of the interfaces within the Consortium.

COLA Impact

FSAR Sections 13.1.1.1.1.6 and Figure 13.1-2 and other FSAR Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 55

Question 13.01.01-7

Standard Review Plan Section 13.1.1, "Management and Technical Support Organization," section I.2.A. states that the applicant's FSAR should provide the following information: Organizational charts of the applicant's corporate level management and technical support organizations.

Please provide this information, describe where this can be found information found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

Figure 13.1-3 includes a diagram of the UNE Corporate Organization and Figure 13.1-4 includes a diagram of the UNO Site Organization.

COLA Impact

Figure 13.1-3 and Figure 13.1-4 and other FSAR Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 55

Question 13.01.01-8

Standard Review Plan Section 13.1.1, "Management and Technical Support Organization," section I.2.B and RG 1.206, section C.I.13.1.1.2, "Organizational Arrangement", request the applicant to provide the relationship of the nuclear-oriented part of the organization to the rest of the corporate organization.

Please describe this relationship, describe where this relationship can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

FSAR Section 13.1.1.2 discusses the organization arrangement. Figure 13.1-3 includes a diagram of the UNE Corporate Organization and Figure 13.1-4 includes a diagram of the UNO Site Organization. Figure 13.1-3 delineates the relationships between the affiliated companies, including the relationship between the nuclear oriented parts to the non-nuclear parts of UniStar Nuclear Energy. FSAR Section 13.1.1.2.2 includes a discussion of the relationship of the nuclear organization to the non-nuclear organization.

COLA Impact

Figure 13.1-3, Figure 13.1-4, FSAR Sections 13.1.1.2 and 13.1.1.2.2, and other FSAR Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 55

Question 13.01.01-9

Standard Review Plan Section 13.1.1, "Management and Technical Support Organization," section I.2.C requests the applicant describe the provisions for technical support for operations including an organizational description, with lines of authority and responsibility for the project, the number of persons assigned to the project, and qualification requirements for principal management positions for the project.

Please describe these provisions, describe where they can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

FSAR Section, 13.1.1.2.3, Provisions of Technical Support for Operation, has been updated as indicated in Enclosure 2. Two figures have been added to clearly identify the UNE corporate and site organizations. Figure 13.1-3 includes a diagram of the UNE Corporate Organization and Figure 13.1-4 includes a diagram of the UNO Site Organization.

The general education and experience requirements of the staff identified in Table 13.1-1 will be consistent with the guidance of ANSI/ANS-3.1-1993 (American Nuclear Society, Selection, Qualification, and Training of Personnel for Nuclear Power Plants) as indicated in the table. Some exceptions are discussed in FSAR Section 13.1.3, Qualifications for Nuclear Power Personnel, for the quality assurance personnel and operating staff. Qualifications for personnel involved in the fire protection are discussed in FSAR Section 9.5.1.6.3 and the associated Section 9.5.1.6.3 of the US EPR DCD.

The education and experience of the Unistar Nuclear Energy headquarter staff and staff utilized during design, construction, and pre-operation are established in corporate policies and procedures as indicated in FSAR 13.1.1.3.

COLA Impact

FSAR figures, tables, and FSAR sections indicated above and other FSAR Section 13.1 subsections, will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 55

Question 13.01.01-10

Standard Review Plan Section 13.1.1, "Management and Technical Support Organization," section I.2.D requests the applicant describe the organizational unit and any augmenting organizations, or other personnel, who will manage or execute any phase of the test program, and the responsibilities and authorities of the principal participants.

Please provide this information, describe where in the application this information can be found, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of FSAR Section 13.1 is included in Enclosure 2.

FSAR Section 13.1.1.1 includes the description of the Project Delivery Consortium which will be responsible for managing and executing each phase of the test program.

UNE will have an oversight role in the test program. UNE will have a corporate and site Startup, Testing, and Commissioning group. Startup, Testing and Commissioning is discussed in FSAR Section 13.1.1.1.2.5 and the responsibilities of the Vice President – Startup, Testing, and Commissioning are discussed in FSAR 13.1.1.2.1.2.3. FSAR Figure 13.1-3 shows the corporate Startup, Testing, and Commissioning group while Figure 13.1-4 shows the site Startup, Testing, and Commissioning group.

COLA Impact

The FSAR figures and FSAR sections indicated above and other FSAR Section 13.1 subsections, will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 55

Question 13.01.01-11

Standard Review Plan Section 13.1.1, "Management and Technical Support Organization," section I.2.E- I.2.P requests the applicant describe each identified position or class of positions providing technical support for plant operations, and include specific educational and experience requirements for individuals holding the management and supervisory positions in organizational units providing support in the areas identified in items I.2.E – I.2.P.

Please provide this information, describe where information in the application concerning SRP Section 1.2.P related to numbers of personnel can be found, or justify an alternative.

Also, provide the information requested in SRP Sections I.2.C – 1.2.P related to specific educational and experience requirements (beyond those identified in ANSI 3.1-1992) for managers and supervisors, describe where that information can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

FSAR Section 13.1.1.2.10 includes a description of UniStar Nuclear Operating Services. UniStar Nuclear Operating Services, LLC will provide technical support as indicated in the following FSAR Sections:

- Section 13.1.1.1.2.10.1, Engineering
- Section 13.1.1.1.2.10.2, Plant Chemistry
- Section 13.1.1.1.2.10.3, Radiation Protection
- Section 13.1.1.1.2.10.4, Fuel and Refueling Operation Support
- Section 13.1.1.1.2.10.5, Maintenance Support
- Section 13.1.1.1.2.10.6, Operations Support
- Section 13.1.1.1.2.10.7, Fire Protection
- Section 13.1.1.1.2.10.8, Emergency Coordination
- Section 13.1.1.1.2.10.9, Outside Contractual Assistance

The qualifications of the UNE staff and major contractors are discussed in the response to RAI 54, Question 13.01.01-5 (this enclosure).

COLA Impact

The FSAR Sections listed above and other FSAR Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 59

Question 13.01.02-13.01.03-1

Standard Review Plan Section 13.1.2 - 13.1.3, "Operating Organization," section I.1.B, asks the applicant to provide their commitment to meet the guidelines of Regulatory Guide 1.33 for onsite review and rules of practice.

Please provide this information, describe where this information can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

FSAR Table 1.9-1, Compliance with Regulatory Guide, states that CCNPP Unit 3 takes an exception to Regulatory Guide 1.33 Revision 2. Quality Assurance Program Requirements are in accordance with the approved Quality Assurance Program Description (QAPD) as stated in FSAR Section 17.5. RAI No. 120, Question 17.5-4 states that Regulatory Guide 1.33 is one of the methods acceptable to the staff for describing in the QAPD how the requirements of Appendix B of 10 CFR Part 50 will be met. The question requires a modification to the QAPD to commit to this regulatory guide or provide justification of any proposed alternatives. The justification for an alternative approach will be in included in the response to RAI No. 120 Question 17.5-4.

COLA Impact:

None.

RAI No. 59

Question 13.01.02-13.01.03-2

Standard Review Plan Section 13.1.2 - 13.1.3, "Operating Organization," section I.1.C, asks the applicant to provide their commitment to meet Branch Technical Position SPLB 9.5-1.

Please provide this information, describe where this information can be found in the application, or justify an alternative.

Response

FSAR Section 9.5.1 addresses the Fire Protection System. FSAR Table 9.5-1 details CCNPP Unit 3 Fire Protection Program Compliance with Regulatory Guide 1.189 (Ref. 1).

RG 1.189 Revision 1 (Ref. 1) provides guidance for new reactor designs. In addition, this revision incorporates the guidance previously included in Branch Technical Position (BTP) SPLB 9.5-1, Guidelines for Fire Protection for Nuclear Power Plants (formerly BTP CMEB 9.5-1).

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of FSAR Section 13.1 is included in Enclosure 2.

FSAR 13.1.1.1.2.10.7 covers Fire Protection. It states that the fire protection program is described in FSAR Section 9.5.

FSAR Section 9.5.1 addresses the Fire Protection System. FSAR Table 9.5-1 details CCNPP Unit 3 Fire Protection Program Compliance with Regulatory Guide 1.189 (Ref. 1).

The cross reference in FSAR Section 13.1.1.1.2.10.7, Fire Protection, to the fire protection requirements in FSAR Section 9.5 and the details in FSAR Section 9.5 to identify the commitment to meet RG 1.189 Revision 1 (RG 1.189 incorporates the guidance BTP CMEB 9.5-1) address the subject standard review plan criteria.

Refer to RAI 75 Question 09.05.01-5 for applicable changes to FSAR Section 9.5 (this enclosure).

COLA Impact

FSAR Sections 13.1.1.1.2.10.7 and other Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 59

Question 13.01.02-13.01.03-3

Standard Review Plan Section 13.1.2 - 13.1.3, "Operating Organization," section I.1.G, asks the applicant to provide a schedule, relative to fuel loading for each unit, for filling all positions.

Please provide this information, describe where this information can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

FSAR Section 13.1.2.1 states that an estimate of the number of persons to be assigned to various groups for the key organization positions is provided in Table 13.1-1. The preliminary staffing schedule is provided in Figure 13.1-5. Figure 13.1-5 indicates the schedule for hiring the training staffing, the operator candidates, and the technical support staff.

COLA Impact

FSAR Sections 13.1.2.1, Table 13.1-1, Figure 13.1-5 and other Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 59

Question 13.01.02-13.01.03-4

Standard Review Plan Section 13.1.2 - 13.1.3, "Operating Organization," section I.2.A, asks the applicant to provide an organization chart with the title of each position, the minimum number of persons to be assigned to duplicated positions, the number of operating shift crews, and the positions for which reactor operator and senior reactor operator licenses are required.

Please provide this information, describe where this information can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

Figure 13.1-3 includes a diagram of the UniStar Nuclear Corporate organization while Figure 13.1-4 is a diagram representing the UniStar Nuclear Operating Services (UNO) Site Organization.

Table 13.1-1 provides the site specific titles for each nuclear position as well as the number of persons to be assigned to duplicated positions.

The operating shift crews are discussed in FSAR Section 13.1.2.3. Table 13.1-2 indicates the plant specific titles for which a reactor operator and senior operator license is required.

COLA Impact

FSAR Figures 13.1-3 and 13.1-4, Tables 13.1-1 and 13.1-2, FSAR Section 13.1.2.3 and other FSAR Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 59

Question 13.01.02-13.01.03-5

Standard Review Plan Section 13.1.2 - 13.1.3, "Operating Organization," section I.2.B, asks the applicant to provide the personnel resumes for those selected for management and supervisory positions down through the shift supervisor.

Please provide this information, describe where this information can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

FSAR Section 13.1.3.2, Qualification of Plant Personnel, states, "Resumes and other documentation and experience of initial appointees to management and supervisory positions are available for review upon request, after position vacancies are filled."

COLA Impact

FSAR Section 13.1.3.2 and other Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 59

Question 13.01.02-13.01.03-6

Standard Review Plan Section 13.1.2 – 13.1.3, "Operating Organization," section I.2.C requests the applicant provide a description, for each position, of the functions, responsibilities, and authorities and, where applicable, required interfaces with offsite personnel or positions identified in Section 13.1.1 of the FSAR. Such interfaces include defined lines of reporting responsibilities (e.g., from the plant manager to the immediate superior), lines of authority, and communication channels.

Please provide this information for fire protection supervisors and quality assurance supervisor, describe where this information can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

FSAR Section 13.1.1.2 discusses the organization arrangement. Figure 13.1-3 includes a diagram of the UNE Corporate Organization and Figure 13.1-4 includes a diagram of the UNO Site Organization.

Fire Protection is discussed in FSAR Section 13.1.1.1.2.10.7. This Section indicates that the Site Vice President, Operations Fire Marshall, an engineer, and the fire brigade have roles with respect to fire protection. FSAR Section 13.1.2.2.1.1 states that the Plant General Manager has a role with respect to implementation of the fire protection program through the Fire Marshall. The engineering function related to support of the Fire Protection Program is provided by personnel reporting to the General Supervisor – Engineering Support as indicated in FSAR Section 13.1.2.2.1.2.2. The positions identified in these Sections are included in Figure 13.1-4.

FSAR Section 13.1.1.2.1.5.4 specifies the responsibilities of the Director - Quality and Performance Improvement. FSAR Section 13.1.2.2.1.4 discusses the responsibilities of the Site Director – Quality and Performance Improvement. Figure 13.1-3 and Figure 13.1-4 include the Director- Quality and Performance Improvement and the Site Director Quality and Performance Improvement.

COLA Impact

FSAR Figures 13.1-3 and 13.1-4, FSAR Sections 13.1.1.2, 13.1.1.1.2.10.7, 13.1.2.2.1.1, 13.1.2.2.1.2.2, 13.1.1.2.1.5.4, and 13.1.2.2.1.4, and other Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 59

Question 13.01.02-13.01.03-7

Standard Review Plan Section 13.1.2 - 13.1.3, "Operating Organization," section I.2.D, asks the applicant to describe the delegation of authority that may be granted to operations supervisors and to shift supervisors, including the authority to issue standing or special orders.

Please provide this information, describe where this information can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

The succession of responsibility for overall plant operation is discussed in FSAR 13.1.2.2.1. FSAR Section 13.1.2.2.1, states, "The succession of responsibility for overall plant management in the event of absences, incapacitation of personnel, or other circumstances requiring delegation of authority is as follows, unless otherwise delegated in writing:

- CCNPP Unit 3 Site Vice President
- Plant General Manager
- Operations Manager
- Shift Manager

The succession of authority includes issuance of standing or special orders, as required."

COLA Impact

FSAR Sections 13.1.2.2.1 and other Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 59

Question 13.01.02-13.01.03-8

Standard Review Plan Section 13.1.2 - 13.1.3, "Operating Organization," section I.2.E, asks the applicant to describe the extent and nature of the participation of the plant operating and technical staff in the initial test program.

Please provide this information, describe where this information can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of FSAR Section 13.1 is included in Enclosure 2.

FSAR Section 13.1.1.1 includes the description of the Project Delivery Consortium which will be responsible for managing and executing each phase of the test program.

UNE will have an oversight role in the test program led by a Vice President. UNE will have a corporate and site Startup, Testing, and Commissioning group. Startup, Testing and Commissioning is discussed in FSAR Section 13.1.1.1.2.5 and the responsibilities of the Vice President – Startup, Testing, and Commissioning are discussed in FSAR 13.1.1.2.1.2.3. FSAR Figures 13.1-3 shows the corporate Startup, Testing, and Commissioning group while Figure 13.1-4 show the site Startup, Testing, and Commissioning group.

FSAR Section 13.1.1.1.1.5 states that UniStar Nuclear Operating Services will provide trained manpower for the startup, test, commissioning, and operations of the plants. In addition, it states that during CCNPP Unit 3 startup and testing, UniStar Nuclear Operating Services, LLC will provide additional operations, maintenance, and support staff for oversight and execution of the startup, testing, and commissioning program and in review and evaluation of test results in support of the UNE Startup, Testing, and Commissioning organization.

FSAR Section 13.1.2.1.2.3 states, "Working closely with Consortium personnel responsible for testing and system turnover, commissioning program development personnel develop procedures describing organizational responsibilities and interfaces between the Consortium, UNE testing personnel, and the UniStar Nuclear Operating Services, LLC operational staff who will be accepting system turnover, maintaining configuration control, manipulating controls during testing, and reviewing test results."

COLA Impact

The FSAR sections mentioned above and other Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 59

Question 13.01.02-13.01.03-9

Standard Review Plan Section 13.1.2 - 13.1.3, "Operating Organization," section I.2.F and RG 1.206, section C.I.13.1.2.2 (3), "Plant Personnel Responsibilities and Authorities," indicates that, if the station contains, or there are plans that it will contain power generating facilities other than those specified in the application, including fossil-fueled units, that this section should describe interfaces with the organizations operating the other facilities.

Please provide this information, describe where this information can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

FSAR Section 13.1.2 covers the operating organization. It states that CCNPP Unit 3 does not share operating staff with CCNPP Units 1 and 2. FSAR Section 13.1.1.2 discusses the organizational arrangement. It states that "Though located on a common site with CCNPP Units 1 and 2, CCNPP Unit 3 is owned and operated by separate entities from the existing units. Organizations are not shared. To the extent that certain minimal resources are shared, the interaction is governed by service level agreements or other similar contractual mechanisms."

There are no plans for any new fossil fueled units or other power generating facilities at the site.

FSAR Section 1.1.1 describes the plant layout and Figures 1.1-1 through 1.1-3 illustrate the location of the site, and the arrangement of the three units. FSAR Section 2.1.1 also provides a description of the site location, while FSAR Section 2.1.2 provides a description of the Exclusion Area Authority and Control.

COLA Impact

FSAR Sections 13.1.2 and 13.1.1.2 and other Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 59

Question 13.01.02-13.01.03-10

Standard Review Plan Section 13.1.2 - 13.1.3, "Operating Organization," section I.2.G, asks the applicant to describe the position titles, operator licensing requirements for each position, and the total number of personnel that will man each shift for all combinations of units planned for the station in both operating and cold shutdown modes. Shift crew staffing plans specific to refueling operations should be described. The proposed means of assigning shift responsibility for implementing the radiation protection and fire protection programs on a round-the-clock basis should also be described.

Please provide this information, describe where this information can be found in the application, or justify an alternative.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2.

A discussion of the operating shift crew is discussed in FSAR Section 13.1.2.3, Operating Shift Crews. Table 13.1-2, Minimum Shift Crew Composition, defines the position titles, license requirements and minimum shift manning for various modes of operation including shutdown and refueling modes. The requirements for a Radiation Protection Technician and fire brigade team members are also specified.

COLA Impact

FSAR Sections 13.1.2.3 and Table 13.1-2 and other Section 13.1 subsections will be updated in a future COLA revision as indicated in Enclosure 2.

RAI No. 98

Question 14.02-37

In RAI 14.02-05, the staff requested that UniStar clarify the roles and responsibilities of the Startup Manager, Startup Engineer, Preoperational Test Engineer, and System Engineer. In response to this RAI, UniStar clarified that the Startup and Preoperational Test Engineers are responsible for performing startup and preoperational tests. The title differences somewhat reflect the test program "phase," although their duties and responsibilities are similar within the overall test program. Although there may be some overlap, Preoperational Test Engineers generally conduct tests in Phase 1 whereas Startup Engineers generally conduct tests during Phase II, Phase III and Phase IV. In addition, UniStar provided a mark-up of Section 14.2 of the Calvert Cliffs Unit 3 FSAR in which "Startup Engineer" was replaced with "Startup/Preoperational Test Engineer." However, the FSAR mark-up did not contain a description of the difference between these two positions. The NRC staff requests that UniStar revise Ch 14.2 of the Calvert Cliffs Unit 3 FSAR to include brief descriptions of the differences between the Startup and Preoperational Test Engineers consistent with the answer given to RAI 14.02-5.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of FSAR Section 13.1 is included in Enclosure 2. FSAR 14.2.2 has also been updated and is included in Enclosure 3.

FSAR Section 13.1.1.1 includes the description of the Project Delivery Consortium which will be responsible for managing and executing each phase of the test program.

UNE will have an oversight role in the test program led by a Vice President. UNE will have a corporate and site Startup, Testing, and Commissioning group. Startup, Testing and Commissioning is discussed in FSAR Section 13.1.1.1.2.5 and the responsibilities of the Vice President – Startup, Testing, and Commissioning are discussed in FSAR 13.1.1.2.1.2.3. FSAR Figure 13.1-3 shows the corporate Startup, Testing, and Commissioning group while Figure 13.1-4 shows the site Startup, Testing, and Commissioning group. The Preoperational Test Engineers and the Startup Engineers position titles have been replaced with the Site Commissioning Integration Supervisor, Test Analysis & Documentation Supervisor, Electrical Commissioning Supervisor, and DCS Commissioning Supervisor. Each will be qualified to fulfill both the Preoperational Test Engineer and the Startup Testing Engineer qualifications in ANSI/ANS-3.1-1993.

COLA Impact

FSAR Sections 13.1 and 14.2.2 will be updated in a future COLA revision as indicated in Enclosure 2 and 3 respectively.

RAI No. 98

Question 14.02-38

Standard Review Plan (SRP, NUREG-0800) Section 14.2.II.3.A.ii, concerning acceptance criteria for combined license (COL) and operating license applicants, "Management Organizations," states that "[t]he applicant should provide (1) the organizational descriptions for any augmenting organizations or other personnel who will manage or execute any phase of the test program, and (2) the responsibilities, interfaces, and authorities of the principal participants."

In RAI 14.02-08, the NRC staff requested that UniStar supplement section 14.2.2 of its FSAR to include further details on the responsibilities, interfaces, and authorities of the principal participants of the plant staff as they relate to the initial test program as described in the SRP. In response to this RAI, UniStar indicated that the plant staff is not responsible for managing or executing the initial test program, that the use of plant staff employees during Phases I through IV is intended to be within their-normal site-specific activities and qualifications during plant operation, and that if they were used in a startup engineer role, they would be required to meet those stated qualifications.

While the NRC staff understands UniStar's position that the use of plant staff employees during Phases I through IV is intended to be within their-normal site-specific activities and qualifications during plant operation, UniStar should address the following topics in the CCNPP3 application or justify their exclusion:

1) Each manager that provides personnel to complete the ITP should have a statement in their position description that they will provide personnel to complete the ITP.
2) It should be stated that during the performance of preoperational or startup test, whether the preoperational/start-up engineers will be responsible for running the test with plant personnel acting in a support role, or if a different chain of command will be established.
3) During the execution of the ITP, it should be stated whether the start-up group or operations has the ultimate authority over the ITP.
4) The description of the engineering manager's responsibilities should include that the engineering manager is part of TRT.
5) Which organization has responsibility for fuel loading during the ITP?
6) Identify who will manage the workload of plant staff performing ITP with other duties.
7) Identify and describe the controls that will be in place to manage the workload of plant staff performing ITP with other duties.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of FSAR Section 13.1 is included in Enclosure 2. FSAR 14.2.2 has also been updated and is included in Enclosure 3.

1) Each manager that provides personnel to complete the ITP should have a statement in their position description that they will provide personnel to complete the ITP.

FSAR Figure 13.1-4, UniStar Nuclear Site Organization, has been added to the FSAR which shows the UniStar Nuclear Operating Services, LLC Site Organization as well as the UNE Startup, Test, and Commissioning Group (under Site Commissioning Manager) organization of the startup organization. The chain of command is indicated and an additional statement in position description is not necessary.

2) **It should be stated that during the performance of preoperational or startup test, whether the preoperational/start-up engineers will be responsible for running the test with plant personnel acting in a support role, or if a different chain of command will be established.**

A different chain of command has been established. The Project Delivery Consortium consisting of mainly AREVA, Bechtel, and Alstom will be responsible for running the test. A revised version of FSAR Section 14.2.2 is included in Enclosure 3.

3) **During the execution of the ITP, it should be stated whether the start-up group or operations has the ultimate authority over the ITP.**

The Project Delivery Consortium consisting of mainly AREVA, Bechtel, and Alstom will be responsible for running ITP. Ultimate responsibility for complying with the plant Technical Specifications, personnel safety, and nuclear safety will reside within UNE.

4) **The description of the engineering manager's responsibilities should include that the engineering manager is part of TRT.**

A specialist from the Engineering Department under the Manager of Engineering is a member of the TRT.

5) **Which organization has responsibility for fuel loading during the ITP?**

UniStar Nuclear Operating Services, LLC will be responsible for loading of nuclear fuel and will retain ultimate authority for nuclear safety throughout the ITP.

6) **Identify who will manage the workload of plant staff performing ITP with other duties.**

Plant management will manage the workload of plant staff performing the ITP with other duties.

7) **Identify and describe the controls that will be in place to manage the workload of plant staff performing ITP with other duties.**

Procedures will be in place to manage the workload of plant staff performing the ITP with other duties.

COLA Impact

FSAR Sections 13.1 and 14.2.2 will be updated in a future COLA revision as indicated in Enclosure 2 and 3 respectively.

RAI No. 75

Question 09.05.01-5

Ensure that FSAR Section 9.5.1.6.2, Figure 9.5-1, and Section 13.1.2 which reference Section 17.5 which incorporates Topical Report NO. UN-TR-06-001 are consistent with one another. Section 9.5.1.6.2 states that the overall responsibility for the FPP rests with the Chief Nuclear Officer which is not described in UN –TR-06-001 or shown in Figure 9.5-1 which shows the overall responsibility for the FFP belonging to the Executive Management Position Responsible for Facility Operations. Include all of the key positions described in RG 1.189 in Section 9.5.1.6.2 and Figure 9.5-1 and ensure UN-TR-06-001 is consistent with Section 9.5.1.6.2 and Figure 9.5-1.

Response

UniStar Nuclear Energy has performed an update of FSAR Section 13.1. The proposed markup of Section 13.1 is included in Enclosure 2. The UniStar Nuclear Operating Services, LLC site organizational structure is represented in Figure 13.1-4.

U.S. EPR FSAR Section 9.5.1.6.2 defines the key positions of the Fire Protection Program (FPP) required by RG 1.189. The Calvert Cliffs Nuclear Power Plant (CCNPP) Unit 3 management positions for the FPP identified in FSAR DCD EPR Section 9.5.1.6.2 are provided in the revised CCNPP FSAR Section 9.5.1.6.2.

FSAR Figure 9.5-1 has been deleted since the FPP organization is represented in FSAR Figure 13.1-4 (Enclosure 2) and the key site specific management positions are represented in this figure. FSAR Table 9.5-1, Fire Protection Program Compliance with Regulatory Guide 1.189, position C.1.1 and position C.1.6, column titled "CCNPP Unit 3 Supplement" has been modified to reflect the appropriate discussion based on the changes described above. The UniStar Nuclear Quality Assurance Program Description will be modified to reflect these changes in the next scheduled update.

COLA Impact

FSAR Section 9.5.1.6.2 and Table 9.5-1 will be updated as follows in a future COLA revision:

9.5.1.6.2 Fire Protection Program

~~The FPP organization is shown in Figure 9.5-1. The ultimate responsibility for the FPP rests with the {Chief Nuclear Officer, UniStar Nuclear Operating Services.}. The responsibilities, lines of authority, training and qualifications by title/position are detailed in administrative procedures and the {UniStar Nuclear} Quality Assurance Program Description. Key positions are described below. The qualifications required for key positions are provided in Section 9.5.1.6.3.~~

~~The {Onsite Engineering Manager} has the overall responsibility for development and ongoing assessment of the FPP. A qualified fire protection engineer (FPE) is delegated the responsibility to administer and implement the FPP through procedures governing fire prevention, combustible material control, ignition source control, automatic and manual fire suppression systems, manual fire response equipment, evaluation of work for impact on the FPP, pre-fire planning, and identification of fire protection training requirements for plant personnel including~~

~~general employees, fire brigade, and contract employees/contractors. The FPE is assisted through the assignment of responsibility for individual portions of the FPP to various departments as defined in administrative procedures.~~

~~The {Operations Shift Supervisor} has the responsibility for ensuring that fire safety and administration of applicable fire protection controls are maintained for all modes of plant operation. In the event of a fire in the plant, the {Operations Shift Supervisor} is the incident command authority for coordinating fire response and plant operational/shutdown activities unless and until relieved under the Emergency Plan.~~

~~Quality assurance oversight of the FPP rests with the Quality and Performance Improvement organization in accordance with the {UniStar Nuclear} Quality Assurance Program Description.~~

{U.S. EPR FSAR Section 9.5.1.6.2 states that the COL applicant is responsible for determining the individual position responsibilities for the organizational functions described therein. CCNPP Unit 3 will utilize the following site-specific titles for the positions identified in U.S. EPR FSAR Section 9.5.1.6.2:

U.S. EPR FSAR organizational positions	***CCNPP Unit 3 Site specific titles***
Upper level manager	Site Vice President (Section 13.1.2.2.1)
Additional managers	General Supervisor – Operations Support (Section 13.1.2.2.1.1.2) General Supervisor – Engineering Support (Section 13.1.2.2.1.2.2)
Onsite manager	Plant General Manager (Section 13.1.2.2.1.1)
Fire protection engineer	Fire Protection Engineer
Nuclear training manager	Manager of Training and Performance Improvement (Section 13.1.2.2.1.3)
Onsite individual responsible for fire protection QA	Site Director – Quality and Performance Improvement (Section 13.1.2.2.1.4)

The Fire Marshall has responsibility to implement the day-to-day requirements of the Fire Protection Program. This position reports to the Plant General Manager and assists the Fire Protection Engineer, General Supervisor – Engineering Support, and the General Supervisor – Operations Support in administrating and implementing the Fire Protection Program through procedures, training, inspections, testing and evaluations.

The UniStar Nuclear Operating Services, LLC site organizational structure is represented in Figure 13.1-4. The site specific management positions for the FPP identified above are included in Figure 13.1-4.}

FSAR Table 9.5-1 will be updated as follows in a future COLA revision:

Table 9.5-1-{Fire Protection Program Compliance with Regulatory Guide 1.189}

R.G. Section	Regulatory Guide 1.189 "C. Regulatory Position" [1]	Compliance[2]	U.S. EPR Comment	CCNPP Unit 3 Supplement
C.1	Fire Protection Program	Compliance		The Fire Protection Program (FPP) is consistent with the requirements of Regulatory Guide 1.189 and SRP 9.5-1. Details of the FPP are provided in this COL application.
C.1.1	Organization, Staffing, and Responsibilities	Compliance		~~The FPP organization is shown in Figure 9.5-1. The responsibilities, lines of authority, training and qualifications by title/position are detailed in administrative procedures and the UniStar Nuclear Quality Assurance Program Description.~~ The UniStar Nuclear Operating Services, LLC site organizational structure is represented in Figure 13.1-4. The key site specific positions for the FPP are identified in Section 9.5.1.6.2.
C.1.2	Fire Hazards Analysis	Compliance	See Fire Protection Analysis Appendix 9A	Appendix 9A of the U.S. EPR FSAR provides the technical analysis for the nuclear island and demonstrates that the EPR has the ability to achieve and maintain safe-shutdown and to minimize the release of radioactive materials to the environment. Appendix 9B is an analysis detailing fire hazards and fire protection attributes for the remainder of the plant. Other structures not listed will be confirmed as not posing fire/explosion risk to the plant using NFPA 80A criteria.
C1.3	Safe Shutdown Analysis	Compliance		The plant will develop and maintain an integrated, detailed site-specific FHA and will have detailed procedures and training to ensure fire-safe shutdown and other fire safe conditions required to minimize radioactive material release are achieved and maintained.
C.1.4	Fire Test Reports and Fire Data	Compliance		If untested barrier configurations are determined necessary during detailed design, they will be evaluated consistent with RG 1.189 requirements.
C.1.5	Compensatory Measures	Compliance		The FPP will apply compensatory measures consistent with RG 1.189 recommendations and

R.G. Section	Regulatory Guide 1.189 "C. Regulatory Position" [1]	Compliance[2]	U.S. EPR Comment	CCNPP Unit 3 Supplement
				standard industry practice whenever fire protection features are degraded and/or inoperable. Compensatory measures will be applied when necessary to accomplish repair or modification or as a result of findings during inspection or surveillance. Fire watches, temporary fire barriers, or backup suppression capability will be implemented, as applicable. Where an uncommon type of compensatory measure is warranted, an evaluation of the alternative will be conducted prior to implementation. Such evaluation will incorporate fire risk insights as applicable.
C.1.6	Fire Protection Training and Qualifications	Compliance		~~The FPP Organization is shown in Figure 9.5-1.~~ The FPP organization is discussed in Section 9.5.1.6.2 and Table 13.1-4. The training and qualifications are detailed in Section 9.5.1.6.3.

Enclosure 2

COLA Markup FSAR Section 13.1, ORGANIZATIONAL STRUCTURE OF APPLICANT
Calvert Cliffs Nuclear Power Plant Unit 3

13.1 ORGANIZATIONAL STRUCTURE OF APPLICANT

This section of the U.S. EPR FSAR is incorporated by reference with the following supplements.

The U.S. EPR FSAR includes the following COL Item in Section 13.1:

> A COL applicant that references the U.S. EPR design certification will provide site-specific information for management, technical support and operating organizations. The operating organization describes the structure, functions and responsibilities established to operate and maintain the plant.

This COL Item is addressed as follows:

The organizational structure, functional responsibilities, and levels of authority and interfaces are described in the following sections including the offsite and onsite functions.

Implementing documents assign more specific responsibilities and duties, and define the organizational interfaces involved in conducting activities and duties.

The organizational structure is consistent with the Human System Interface (HSI) design assumptions used in the design of the U.S. EPR as described in the U.S. EPR FSAR Chapter 18.

Sections 13.1.1 through 13.1.4 are added as a supplement to the U.S. EPR FSAR.

13.1.1 MANAGEMENT AND TECHNICAL SUPPORT ORGANIZATION

NOTE:

Due to the number of revisions, this section has been completely re-written. For clarity, the deleted text is not shown.

{Calvert Cliff 3 Nuclear Project, LLC, is a Delaware limited liability company developing the Calvert Cliffs Nuclear Power Plant Unit 3 (CCNPP Unit 3). UniStar Nuclear Operating Services, LLC will serve as the operator of CCNPP Unit 3 and is the Operator Licensee.

Calvert Cliffs 3 Nuclear Project, LLC and UniStar Nuclear Operating Services, LLC are owned by UniStar Nuclear Energy, LLC (UNE), a strategic joint venture between Constellation Energy Group, Inc. (CEG) (50 percent) and Électricité de France International, S. A. (EDF) (50 percent). Calvert Cliffs 3 Nuclear Project, LLC, as the owner and licensee, will develop and operate CCNPP Unit 3 through contractual relationships with UNE and its affiliates (see Figure 13.1-1).

CEG and EDF, as the parent organizations of UNE are established organizations with significant experience in the design, construction, and operation of commercial nuclear power facilities in the United States (U.S.) and France. Constellation Energy (or its predecessor) has successfully operated Calvert Cliffs Nuclear Power Plant Units 1 and 2 (CCNPP Unit 1 and 2) for

approximately thirty years. With the acquisition of three additional nuclear units in New York State (R. E. Ginna and Nine Mile Point Units 1 & 2), CEG is now a well established fleet operator. EDF operates fifty-eight nuclear plants in France and is currently constructing a fifty-ninth (59) unit (the second Evolutionary Power Reactor (EPR) world-wide) at Flamanville, France.

The roles of Nuclear Steam Supply System (NSSS) designer/supplier and architect engineer (AE) are combined in a Project Delivery Consortium (Consortium) formed by the collaboration of AREVA NP (AREVA) and Bechtel Power Corporation (Bechtel). The Consortium is complemented by the turbine-generator supplier, Alstom, a major world supplier in energy and transportation equipment. Together, the Consortium has significant experience designing and constructing commercial nuclear power projects in the U.S. and throughout the world.

Each of the organizations involved in the CCNPP Unit 3 project have excellent reputations in the power industry and have significant commercial nuclear power experience.

CEG is a supplier of energy products and services to wholesale and retail electric and natural gas customers. It owns a diversified fleet of generating units located throughout the U.S., totaling approximately 9,000 megawatts of generating capacity, including five nuclear units. The five nuclear units (CCNPP Units 1 & 2, Nine Mile Point Units 1 & 2, and R. E. Ginna) have a generating capacity of 3,869 megawatts and together represented approximately 60% of the company's actual generation in 2007.

CEG has successfully implemented several significant capital improvements at its nuclear units including steam generator replacements, turbine rotor replacements, installation of a new reactor vessel head and reactor vessel internals (at Calvert Cliffs), and an extended power uprate at R. E. Ginna.

EDF, one of the leaders in the energy market in Europe, is an integrated energy company active in generation; transmission; distribution; energy supply; and trading. EDF has a worldwide installed capacity of 128,190 megawatts, from a wide variety of energy sources including nuclear, thermal, and renewable energies (hydroelectric, wind, solar). In France, EDF has an installed capacity of 98,200 megawatts, including fifty-eight nuclear reactors with a total installed capacity of 63,130 megawatts. The nuclear units are located on 19 sites and have been built within three standardized fleets: 34 reactors of 900 megawatts, 20 reactors of 1,300 megawatts, and four reactors of 1,450 megawatts. In December 2007, the pouring of the first concrete for an EPR in Flamanville, France launched the construction of the fourth EDF fleet series.

EDF's position as a world leader in the nuclear sector is based on its unique expertise as architect, turnkey supplier and owner-operator. EDF has developed skills throughout the energy production cycle covering a power plant's entire service life from design and construction, including associated engineering, through operation of the plant and decommissioning. As a nuclear owner-operator, EDF is recognized for its excellent safety record and is ranked as a world leader in the nuclear industry.

While UNE is a recently created entity and has not been in existence for as long as its parent organizations, its experience is comparable since it shares common personnel and management practices. CCNPP Unit 3 directly benefits from the leadership, knowledge, and experience of its parent companies, which have recruited multiple senior leadership staff and

dozens of engineers and other technical experts experienced in nuclear power plant design, construction, and operation to oversee the CCNPP Unit 3 project.

13.1.1.1 Design, Construction and Operating Responsibilities

The President and Chief Executive Officer of UNE has overall responsibility for functions involving design, construction, testing, and operation of CCNPP Unit 3. The highest priority and primary responsibility of the UNE staff is nuclear safety. Decision making is conducted in a conservative manner with the emphasis on safety regularly communicated to appropriate personnel by direct management interface, training, and company directives. Lines of authority within and among the organizations having design, construction, and operating responsibilities are clearly established.

13.1.1.1.1 Design and Construction Responsibilities

UNE has engaged a Consortium to design and construct CCNPP Unit 3. The Consortium principals and their subcontractors are responsible for the site related engineering studies (such as meteorology, hydrology, seismology, demography, etc.), the design of the CCNPP Unit 3 ancillary systems (including fire protection), site layout and related environmental and security provisions, and the development of safety analysis reports. Oversight of Consortium activities, including review and approval of site design features, Human Factor Engineering (HFE), and material and component specifications are performed by UNE personnel with relevant expertise in accordance with UNE-Consortium agreements and contracts.

13.1.1.1.1.1 Project Management

UNE provides development services; regulatory affairs services, project management; and oversight of startup, testing, and commissioning for UNE projects. The Calvert Cliffs 3 Nuclear Project, LLC has contracted with UNE to act as the owner's agent to manage and provide site selection, site characterization, licensing, and project management services such as planning and scheduling for the CCNPP Unit 3 project. UNE will also provide oversight and review of the development of permits and other documentation required by state and local authorities and development and implementation of the testing and commissioning program.

Project management:

- Provides engineering, procurement, and contruction contract administration for all U.S. EPR Project Companies, enforcing contract terms and conditions;
- Ensures procedure and process standardization across projects for project delivery;
- Provides consistent project management and management oversight, including facilitation of technical oversight by UniStar Nuclear Operating Services, LLC;
- Establishes and maintains consistent project controls and performance reporting within and between projects;
- Ensures consistent project schedule development, management, tracking, and reporting;
- Facilitates the collection and sharing of lessons learned and process improvements.

13.1.1.1.1.2 Engineering

UNE engineering functions include acting as the Calvert Cliffs 3 Nuclear Project, LLC's representative for:

- technical issues;
- conducting detailed design contract negotiations, preparation, management, and review;
- promoting design excellence by securing and applying expertise from the Flamanville, France EPR project;
- ensuring that continuity of design is preserved from design certification through commissioning;
- conducting technical reviews of suppliers' work;
- working with design and operating teams to ensure that, from a design and construction perspective, the joint objectives of high construction and operations performance are achieved; and
- ensuring performance commitments of construction cost, timing, and use of standard tools and documentation processes are met.

UNE engineering is responsible for owner's reviews of: site-related engineering studies (meteorology, geology, hydrology, demography, environmental evaluations, etc.), design of plant systems (including fire protection), plant design features (including HFE), site layout and security provisions, safety analysis reports, and material and component specifications.

13.1.1.1.1.3 Procurement

UNE provides supply chain and engineering services to the Calvert Cliffs 3 Nuclear Project, LLC. In its procurement role, it is responsible for:

- contracting of services and materials and strategic procurement and management of long lead time items;
- providing necessary oversight of the EPC contract and other contract purchased construction materials and services;
- providing supplier contract terms and compliance documentation; and
- providing time and material claims processing and management.

13.1.1.1.1.4 Training

Standardized training services, including simulator training, are developed for a fleet of U.S. EPRs, including CCNPP Unit 3 by UNE Training. Staffing plans include hiring personnel to develop normal and emergency operating procedures and training lesson plans and associated material. Development of training material, procedures, and simulators is coordinated with the design and construction of CCNPP Unit 3 to assist in design validation, to provide experience

for operating and other personnel, and to ensure trained and qualified staff is available when needed to support the safe and efficient design, construction, and testing of CCNPP Unit 3.

Training services include:

- development of initial and continuing training programs (including methods and materials) for licensed and non-licensed CCNPP Unit 3 plant personnel;
- obtaining initial Institute of Nuclear Power Operations (INPO) training accreditation during the project development phase and ensuring INPO accreditation renewal prior to initial fuel loading;
- coordination with the EDF central training authority, for development of standardized non-licensed operator training material and sharing of EPR operating experience related to training, and
- development of standardized operating procedures and guidelines for use by UniStar Nuclear Operating Services, LLC.

13.1.1.1.1.5 UniStar Nuclear Operating Services, LLC

UniStar Nuclear Operating Services, LLC will serve as the operator of CCNPP Unit 3 and is the operator licensee. UniStar Nuclear Operating Services, LLC is a special purpose entity created to provide operations and maintenance services through a standardized operating structure. UniStar Nuclear Operating Services, LLC will commission, operate, and maintain CCNPP Unit 3 by using and sharing a standardized set of services, procedures, and management practices with other EPR owners.

Services to be provided to the Calvert Cliffs 3 Nuclear Project, LLC include:

- be the project owners' agent for plant acceptance;
- be the single operations contracting entity;
- consolidate UNE services to maximize standardization, effectiveness, and economies of scale across projects;
- provide trained manpower for the startup, test, commissioning, and operation of the plants;
- operate the plants according to standardized UNE procedures safely, effectively, and efficiently;
- use "lessons learned" from all operating EPRs to drive continuous improvement and maintain standard processes; and
- manage the peer review/audit process on intra-plant basis to drive learning, best practice development, and standardization across plants.

In the development phase of the project, UniStar Nuclear Operating Services, LLC will provide operational and maintenance input to design (including HFE design), and planning for construction, system turnover, and system testing and commissioning.

In the construction phase, UniStar Nuclear Operating Services, LLC will provide trained and qualified station staff for operational support of system maintenance and configuration control and component and system turnover and testing. UniStar Nuclear Operating Services, LLC will increase the operating staff to ensure a seamless transition from the construction phase, through startup testing, to commercial operation. During CCNPP Unit 3 startup and testing, UniStar Nuclear Operating Services, LLC will provide additional operations, maintenance, and support staff for oversight and execution of the startup testing and commissioning program and in review and evaluation of test results in support of the UNE Startup, Testing, and Commissioning organization.

UniStar Nuclear Operating Services, LLC also provides performance improvement and quality control oversight of UNE, the AE, and NSSS supplier design, procurement, and construction activities in accordance with the UniStar Quality Assurance Program (see Chapter 17). Construction QA programs will require audits annually or at least once during the life of a specific activity.

13.1.1.1.1.6 Project Delivery Consortium

The Calvert Cliffs 3 Nuclear Project, LLC has entered into contracts with AREVA and Bechtel for design and construction, which are collaborating in a Consortium that combines the NSSS supplier and AE roles for the CCNPP Unit 3 project. AREVA and Bechtel have established an interface agreement to govern their mutual responsibilities and interactions (see Table 13.1-3). The Consortium is structured to provide management and leadership in each of the broad areas specified by the division of responsibilities (see Figure 13.1-2). In areas where specific expertise is required (such as seismology and hydrology), the Consortium will engage specialist firms as subcontractors.

Within the Consortium, the CCNPP Unit 3 project is controlled by a Project Director (PD). The PD serves as the single point of contact for the Calvert Cliffs 3 Nuclear Project, LLC, and UNE to ensure efficient integration of engineering, procurement, and construction throughout the project delivery lifecycle. Because of its experience in delivery of large construction projects, Bechtel provides project delivery management and leadership, including the PD for single point of accountability.

The PD is responsible for coordination of the individual project areas as determined by the interface agreement between AREVA and Bechtel. Reporting to the PD are discipline managers from both AREVA and Bechtel. The discipline managers are responsible for delivery of each project function delineated in the Consortium General Division of Responsibility (Table 13.1-3). The lead company providing the discipline managers may change over time based on the company with the preponderance of the work at that point in the project lifecycle, as determined by the PD.

The Consortium (as an entity or through its individual member companies) is responsible for the development of the detailed design of CCNPP Unit 3 including, site related engineering studies (meteorology, hydrology, geology, seismology, demography, environmental effects, etc.), design of primary and ancillary systems (including fire protection and security systems), site layout, HFE, and material and component specifications.

The Consortium will develop the startup testing and commissioning program with support and oversight of UNE engineering and startup and testing groups for implementation plans and procedures. Consortium personnel will provide technical support during startup of the facility and transition into the operational phase. As the construction of systems is completed, the systems will undergo acceptance testing as required by procedure, followed by turnover to UniStar Nuclear Operating Services, LLC by means of a project acceptance plan. The turnover will include the physical systems and corresponding design information and records. Following turnover, UniStar Nuclear Operating Services, LLC will be responsible for system maintenance and configuration management.

The integrated AREVA-Bechtel team will evolve over time as the project needs or phases evolve. For example, detailed engineering is led by AREVA. This will transfer over to Bechtel as the activities shift to construction.

AREVA

AREVA was created in 2001 by the merger of Framatome ANP (itself a merger of the nuclear operations of Framatome and Siemens), CEA Industrie, and Cogema. AREVA is the sole supplier of next generation EPR reactors and is number one worldwide in fuel fabrication and supply, with a strong presence in Europe and the U.S. It is the only group in the world with expertise and active involvement in every sector of the nuclear power industry, including the nuclear fuel cycle, reactors, instrumentation, nuclear measurement systems, and engineering.

AREVA is a leading nuclear supplier in the United States and is a participant in the electricity transmission and distribution sector with 5500 American employees in 45 locations. AREVA has project and operational experience through the construction of 102 pressurized water reactors (PWR) and boiling water reactor (BWR) plants ranging from early French units through the digitally controlled N4 series. The company currently has four units under construction world wide, including the first two EPRs (Generation III+ units) in Finland and France.

AREVA is a major world supplier of nuclear components with more than 50% of the global market for replacement NSSS components. Its facility in Chalon Saint Marcel has 30 years of operations fabricating reactor pressure vessels, steam generators, pressurizers, and accumulators. This facility has a 39,000 m^2 workshop. Sfarsteel (Creusot Forge) has 85,000 m^2 of workshops at four sites for heavy forging and machining. AREVA has announced development of a manufacturing facility in Newport News, Virginia for fabrication of reactor vessels and closure heads, steam generators, and pressurizers. Operations at this facility is expected to begin in 2012.

Thirty percent of U.S. nuclear plants are operating with AREVA fuel and, as part of the global nuclear energy partnership, AREVA has signed a contract with the U.S. Department of Energy (DOE) to study the development of a used nuclear fuel treatment plant and advanced generation reactor for fuel recycling.

Because of its experience and commitment to the U.S. nuclear industry, AREVA has performed:

- License renewal engineering for more than 50% of plants extending life in the U.S;
- Reactor coolant pump and motor refurbishment for 40% of U.S. plants, including 30% of the Westinghouse designed plants;

- Seven out of ten steam generator replacements in the U.S. since 2003; and
- All of the lower reactor head penetration repairs and 99 of 114 reactor vessel upper head nozzle repairs in the U.S. since 2000.

Bechtel Power Corporation

Bechtel Power Corporation (Bechtel) has 110 years of engineering and construction experience with 40,000 employees in 40 offices world wide and is the nuclear industry's most experienced contractor. Bechtel is currently active on 390 projects in 46 countries. Bechtel is a leading EPC contractor with involvement in nuclear activities at 88 of the 104 U.S. plants and 150 world wide. Bechtel has assisted in the development of seven combine license applications and two early site permit applications.

Bechtel is currently active on engineering and/or construction projects at Qinshan, has completed the restart of Browns Ferry Unit 1, and is the full engineering, procurement, and construction supplier at Watts Bar Unit 2. It is also the lead contractor for the design, construction, and commissioning of the largest radioactive waste treatment plant in the world (the DOE's Waste Treatment Immobilization Plant).

Bechtel's staff includes 20,000 employees with nuclear experience, including 5,000 engineers with nuclear power experience. It has nationally and internationally recognized industry experts and technical specialists sitting on more than 200 code and industrial committees.

Bechtel has used its Labor-Management relations expertise to enter into a Memorandum of Understanding for a CCNPP Unit 3 labor agreement and is collaborating with Labor in workforce training to support the project.

Alstom

Though not a direct member of the Consortium, Alstom is providing significant engineering and manufacturing support to CCNPP Unit 3 as the turbine-generator supplier. Alstom is a leading supplier of nuclear steam turbine-generators for both 50 Hz and 60 Hz markets with more than 80,000 employees in 70 countries. It has supplied more than 178 units worldwide equivalent to more than 30% of the world nuclear installed base. Alstom is one of the few vendors with an active program for supplying large, new nuclear steam turbines in Europe and the Far East. Alstom commissioned four 1550 megawatts turbines in France during the 1990s; they are currently the largest operating turbines in the world. In December 2007, Alstom announced it will invest more than $200 million in a new manufacturing facility in Chattanooga, Tennessee to manufacture turbines and other major components for U.S. power generation facilities.

The organizations reflected in this section were established to design, construct, and operate CCNPP Unit 3. Their responsibilities are either related directly to CCNPP Unit 3 or to the generic aspects of U. S. EPR development, which directly benefit CCNPP Unit 3. Therefore, there are no additional planned modifications or additions to organizations to reflect added functional responsibilities.

13.1.1.1.2 Technical Support for Operations

CCNPP Unit 3 will be the first of a planned fleet of U.S. EPRs to be constructed in the United States. However, two EPRs are currently under construction in Europe and two additional units are scheduled for construction in China. EPRs around the globe will have several years of

operating experience by the time CCNPP Unit 3 is operational. CCNPP Unit 3 will benefit directly from this experience through technical support from the NSSS supplier (AREVA) and from the knowledge and experience of UNE personnel gained from Flamanville 3.

Additionally, as the CCNPP Unit 3 project progresses through design, licensing, preconstruction, construction, and testing and commissioning, support personnel are added to the project in accordance with recruiting and staffing plans and expertise is gained through project experience. UniStar Nuclear Operating Services, LLC staffing plans take advantage of this process by providing support in the early project phases and by transitioning experienced staff from various UNE groups to UniStar Nuclear Operating Services, LLC in the later phases culminating in testing, commissioning, and full plant operations.

Technical expertise developed and provided in support of operations by UNE is described in the following paragraphs.

13.1.1.1.2.1 Engineering

During the detailed design, UNE serves as the engineering design authority for CCNPP Unit 3 and the standardized aspects of subsequent U.S. EPRs. Engineering consists of personnel experienced in nuclear plant design, systems, and engineering programs including engineers from EDF who have participated in the design (and other engineering aspects) of Flamanville 3.

The main responsibilities of engineering are to:

- Represent UNE and CCNPP Unit 3 on technical and commercial issues with the Consortium (AREVA, Bechtel, and Alstom);
- Prepare the owner's requirements for the U.S. EPR standard design;
- Lead and coordinate discussions with vendors that involve the generic portion of the plant;
- Coordinate technical reviews by UNE and its affiliates (including UniStar Nuclear Operating Services, LLC) with the Consortium and other suppliers;
- Challenge Consortium engineering methods and skills in design and procurement to afford the best schedule with the highest levels of safety;
- Ensure standardization; and
- Provide oversight of and support for development of operational engineering programs such as Inservice Inspection(ISI), Inservice Testing (IST), Reliability, etc.

During detailed design, UniStar Nuclear Operating Services, LLC supports UNE engineering with plant operations input into design specifications (including maintenance requirements, Emergency Procedure Guidelines development, and HFE development) and operational review of design deliverables. During construction and testing, UniStar Nuclear Operating Services, LLC will staff design and system engineering positions both in corporate and at the site. Portions of the detailed design engineering staff within UNE will transition to permanent UniStar Nuclear Operating Services, LLC engineering support positions in accordance with the UniStar Nuclear Operating Services, LLC recruiting and staffing plan to provide technical

expertise and experience during plant operation. The remaining engineering staff within UNE Procurement and Engineering will continue with development and detailed design of subsequent U.S. EPR projects but is available whenever (and to whatever extent is required) to supplement and support UniStar Nuclear Operating Services, LLC engineering during the operations phase of CCNPP Unit 3.

During operations, UniStar Nuclear Operating Services, LLC engineering, supplemented by engineers from within UNE and contractual assistance from AREVA and others, will:

- Support operations with mechanical, electrical, structural, thermo-hydraulic, materials, metallurgy, I&C and digital controls, fire protection, and HFE:
- Perform plant design changes;
- Maintain the plant design and engineering basis; and
- Perform transient and accident analyses

With the contractual assistance of AREVA, reactor engineering will provide technical assistance for reactor operation, core thermal limits, and reactor thermal-hydraulic operation.

13.1.1.1.2.2 Procurement

The procurement function of UNE serves as the supply chain organization responsible for procurement contract administration and oversight. Procurement is responsible for preparation and management of contracts for detailed design engineering, long-lead materials, and oversight and review of component specifications. UNE also provides oversight of component and material procurement suppliers. During plant operation, UNE also provides the supply chain infrastructure to support UniStar Nuclear Operating Services, LLC procurement and purchasing personnel in day-to-day and outage procurement (including procurement of nuclear fuel).

13.1.1.1.2.3 Regulatory Affairs

The Regulatory Affairs group in UNE is responsible for the interface with regulators regarding licensing issues including changes, amendments, compliance reviews, or related industry interactions. Personnel experienced in NRC requirements, state and local permitting requirements, and environmental requirements within Regulatory Affairs support the initial siting and environmental analysis of the project, regulatory and environmental aspects of the site layout, and reviews of safety analysis and other reports and documentation. These reviews include traffic studies, area demography, and other aspects of the project pertaining to the construction and operation phases of the project as well as the licensing phase. UniStar Nuclear Operating Services, LLC provides support to Regulatory Affairs by providing plant operational input and guidance during the licensing phase.

Expertise and experience gained during this period is available to UniStar Nuclear Operating Services, LLC during the testing, startup, and commercial operations phases of the project by providing supplemental personnel support prior to completion of full staffing and by providing matrixed support to the UniStar Nuclear Operating Services, LLC licensing staff once commercial operations begin.

13.1.1.1.2.4 Project Management

The integration of the multiple aspects of the CCNPP Unit 3 project development from initial siting to testing and commissioning is the responsibility of project management of UNE. Under the direction of the CCNPP Unit 3 Project Manager, project management personnel maintain the project controls (schedules, cost estimates, etc.) and project performance indicators. Project management provides integration of the local, state, and national permitting activities, coordinates various contract services for environmental studies, geotechnical services, hydrology and meteorology studies, etc. Project management serves as the principal owner's agent for oversight of construction planning and execution.

Project management:

- Provides EPC Contract administration for U.S. EPR Project Companies, enforcing contract terms and conditions;
- Ensures procedure and process standardization across projects for project delivery;
- Provides consistent project management and management oversight, including facilitation of technical oversight by UniStar Nuclear Operating Services, LLC;
- Establishes and maintains consistent project controls and performance reporting within and between projects;
- Ensures consistent project schedule development, management, tracking, and reporting;
- Facilitates the collection and sharing of lessons learned and process improvements.

Support to UniStar Nuclear Operating Services, LLC is provided for scheduling of activities necessary to support preparations for plant operations (including procedure development and training schedules) and integration of these activities with those required to design, construct, and test the plant. Project management also provides the project controls needed to ensure staffing and training is conducted when required to ensure proper staffing levels to support material development such as procedures, system acceptance testing and turnover, and plant startup testing and commissioning.

13.1.1.1.2.5 Startup, Testing, and Commissioning

System completion, turnover of systems, and turnover of facility areas will be conducted according to fleetwide processes under development by UNE. This will occur on a schedule that coordinates with EPC Agreement requirements and is in line with NRC requirements and those of other regulatory agencies governing the CCNPP Unit 3 project. Commissioning and startup will include some portions of the overall inspections, tests, analyses, and acceptance criteria (ITAAC). The commissioning and startup program will include construction inspections and tests to verify that structures, systems and components have been installed in conformance with design specifications, drawings and other design documents.

UNE includes a startup, testing, and commissioning group to provide oversight and confirmation of system, structure, and component testing (including ITAAC). This group ensures system turnover and testing procedures and boundaries are complete, accurate, and

sufficiently clear to allow for the safe and efficient turnover of systems to UniStar Nuclear Operating Services, LLC. This group also provides direct support to UniStar Nuclear Operating Services, LLC for system turnover and plant testing to ensure requirements are met.

As CCNPP Unit 3 progresses to integrated system testing, custody and control will pass to UniStar Nuclear Operating Services, LLC with support from the startup, testing, and commissioning group. At the completion of plant commissioning, a percentage of the startup, testing, and commissioning staff will transition to full time technical positions within UniStar Nuclear Operating Services, LLC to integrate the experience and expertise within the permanent operating organization. The remaining startup, testing, and commissioning personnel will transition to other UNE projects to provide expertise and lessons learned to these subsequent projects.

13.1.1.1.2.6 Training

UNE training is responsible for development and implementation of training programs that meet regulatory requirements and industry standards for standardized initial and continuing training of operations, maintenance, technical support, emergency response and other personnel for a fleet of U.S. EPRs, including CCNPP Unit 3. These standardized services include:

- Development of training standards, methodologies, examinations, materials, and training aids;
- Initial and continuing training for operators (licensed and non-licensed);
- Initial and continuing training for engineering, maintenance, work management, chemistry, and radiological protection personnel;
- General personnel, safety, security, and plant administrative training;
- Operating, managing, and maintaining training facilities, the ANS 3.5 simulator, and part-task simulators;
- Training and deployment of site training staff to the site training facilities;
- Developing, deploying and updating standardized "common" training materials, advanced learning methodologies, comprehensive learning management system, and programs that are used at the central and site training facilities; and
- Common U.S. EPR operator licenses (with approval of the U.S. NRC);

In addition to training material development, to gain experience and knowledge of the U.S. EPR design, training personnel will work with the Consortium to develop standardized operating procedures.

Training will work closely with UniStar Nuclear Operating Services, LLC to provide comprehensive, integrated, standardized training. Though site training will be standardized through the use of a common fleetwide training program, training methodologies, and materials, the deployed UNE training staff will be accountable and responsible to site line management for the integration of both standardized and local specific training that meets site needs.

Staffing plans include increasing staffing levels by hiring experienced and non-experienced personnel who will be writing procedures and training curriculum and then transition to become instructors, operators, and maintenance workers in UniStar Nuclear Operating Services, LLC. Experienced workers will be writing emergency operating procedures and supervise the development of training curriculum, and then become operators and instructors. Non-experienced workers will be hired with priority to their ability in their future assignment as operators and maintenance workers. All of these training company workers will gain valuable knowledge about the U.S. EPR while completing assigned procedure and training curriculum development. In addition, this work will satisfy U.S. NRC requirements of gaining experience that is required for licensed operators. Expected transfers to UniStar Nuclear Operating Services, LLC will have an average of 2 years experience with the U.S. EPR design.

13.1.1.1.2.7 Information Technology

UNE is developing a comprehensive, integrated Information Technology (IT) platform to provide the business process infrastructure required to support the full lifecycle of the U.S. EPR fleet as well as the day-to-day operations of UNE. The IT technical services provided to support operations include:

- Providing accessibility to all data gathered or generated during all phases of the fleet lifecycle, from licensing through decommissioning;
- Efficient, integrated processes for planners, maintenance workers, support staff, plant operators, managers, and others;
- Providing the ability to quickly, accurately, and securely store and retrieve design and licensing basis information needed; and
- Protecting sensitive data with appropriate security safeguards to meet critical infrastructure protection requirements

Additionally, UNE provides information technology systems and support, including the enterprise software infrastructure necessary to ensure efficient transmittal of documents and information between the AE and NSSS vendors and UNE to support design, construction, and operation of CCNPP Unit 3.

13.1.1.1.2.8 Quality Assurance

The quality assurance aspects of CCNPP Unit 3 design, construction, testing, and operation are governed by the Quality Asssurance Program Description (QAPD) described in Chapter 17. Quality assurance (QA) activities include:

- Audit, surveillance, and evaluation of safety related activities, including vendors supplying safety related components, products, and services;
- Coordinating development of audit and surveillance schedules;
- Performance of supplier audits and commercial grade surveys;
- Approval of third party audits;

- Approval of contractor QA programs;
- Review and approval of QA requirements and specifications in procurement contracts;
- Oversight of quality control (QC) inspection and testing activities; and
- Maintenance of the QAPD.

The Director of Quality and Performance Improvement reports directly to the Senior Vice President and Chief Nuclear Officer of UniStar Nuclear Operating Services, LLC.

13.1.1.1.2.9 Safety Review

Oversight of CCNPP Unit 3 programs, procedures, and activities is performed by an Independent Review Committee. Details of the composition and activities of this committee are described in Chapter 17 and the QAPD.

13.1.1.1.2.10 UniStar Nuclear Operating Services, LLC

UniStar Nuclear Operating Services, LLC is the operator licensee and is comprised of corporate and site managers, functional managers, supervisors, and technical personnel with sufficient knowledge, training, and experience to perform functions necessary for safe plant operation. In certain cases, as previously described, functions may be supplied or supported by other UNE groups through contractual or other arrangements. Staffing plans, including recruiting strategies, are developed to ensure adequate staff is present to support construction, testing, and operation functions.

13.1.1.1.2.10.1 Engineering

UniStar Nuclear Operating Services, LLC corporate engineering is responsible for design engineering activities in support of plant operations as well as support of reactor engineering, programs engineering such as ISI, IST, and maintenance rule, safety and engineering analysis, PRA, and fuel engineering. Design changes are performed at the corporate level to ensure standardization is maintained to the extent practicable among the various EPRs. The corporate engineering function also includes system engineering functions related to plant support and integration of systems information from multiple EPRs.

Site engineering includes system engineering for CCNPP Unit 3, site design basis engineering support, probabilistic risk assessment (PRA), and engineering programs. The site engineering staff also includes the reactor engineering function.

UniStar Nuclear Operating Services, LLC engineering supports plant operations in the areas of nuclear, mechanical, structural, electrical, thermal-hydraulic, metallurgy and materials, and instrumentation and control, and fire protection engineering. Expertise in the engineering area may be supplemented by UNE as described above. Additional engineering support is available through contract relationships with outside vendors including AREVA.

13.1.1.1.2.10.2 Plant Chemistry

A chemistry program is established to monitor and control the chemistry of plant systems to minimize degradation, including corrosion, of piping and components, to minimize the spread

of contamination, and to keep radiation dose during operations and maintenance activities from byproducts of corrosion as-low-as-reasonably-achievable (ALARA).

The Radiation Protection/Chemistry Manager is responsible for chemistry program implementation and is supported by a staff of technicians, supervisors, and other support personnel trained and qualified in chemistry monitoring and control.

13.1.1.1.2.10.3 Radiation Protection

A radiation protection (RP) program , including a program to maintain radiation dose to personnel ALARA, is established to protect the health and safety of plant staff and the public. The RP program is described in Chapter 12. The RP program includes:

- Respiratory protection;
- Dosimetry;
- Bioassay;
- Radioactive source control;
- Effluent and environmental monitoring and assessment;
- Radiation and contamination monitoring and surveys; and
- Radiation work permits

The RP staff consists of trained and qualified radiation protection technicians and other qualified support personnel reporting to the RP/Chemistry Manager.

13.1.1.1.2.10.4 Fuel and Refueling Operation Support

Initial fueling of the reactor and subsequent refueling are performed by a combination of site personnel including operations, maintenance, RP, reactor engineering, etc. Support may be obtained, as needed, from AREVA,the NSSS supplier, or other contract service suppliers. Fueling and refueling operations are performed under the direction and control of the plant Operations department and are supervised by individuals holding Senior Reactor Operator licenses.

13.1.1.1.2.10.5 Maintenance Support

Maintenance activities are supported by planners, schedulers, maintenance personnel, engineers, and operators who participate in the development of work packages, obtain necessary parts, safely clear equipment for maintenance, and monitor outcomes. Maintenance is integrated into an overall plant work schedule and evaluated for operational and shutdown risk to ensure nuclear and personnel safety and efficiency.

13.1.1.1.2.10.6 Operations Support

Within the Operations department, a support staff provides work control and equipment clearance support, outage planning support, surveillance testing support, procedure support, and activities for Operations performance improvement. Fire protection support is also provided by a Fire Marshall responsible for fire brigade training support, drill evaluation, and fire brigade equipment. The Operations Support organization is made up of both licensed and non-licensed personnel and can supplement shift operations, if needed.

13.1.1.1.2.10.7 Fire Protection

The Site Vice President, through the engineer responsible for fire protection and the Fire Marshall, is responsible for implementing the fire protection program described in Section 9.5. The program includes fire protection procedures and pre-fire plans, fire brigade and station personnel training, and inspections, testing, and maintenance of fire protection systems. The engineer responsible for fire protection has overall program responsibility, including fire protection system performance and monitoring. The Fire Marshall is responsible for fire brigade training and readiness, fire brigade equipment readiness, and coordination with Emergency Planning personnel for drills involving offsite response.

13.1.1.1.2.10.8 Emergency Coordination

The site emergency response organization is described in the Emergency Plan. The organization is matrixed from various site departments. Emergency Response personnel have the experience, training (including drills), and ability to implement the actions required to protect the health and safety of the public in the event of an emergency. The emergency planning staff is responsible for ensuring required numbers of qualified personnel are available to respond to plant emergencies, that emergency facilities are maintained and available, and that adequate equipment and supplies are available. Additionally, the emergency planning staff is responsible for coordination with offsite agencies participating in emergency responses (including the necessary agreements) and for coordinating onsite with the Fire Marshall for fire brigade activities.

13.1.1.1.2.10.9 Outside Contractual Assistance

In the event that specific, high levels of expertise are needed or certain skills and knowledge are better obtained under vendor contracts (such as major turbine maintenance), the services of outside consultants or contractors will be used, with proper UniStar Nuclear Operating Services, LLC oversight and control, to provide or supplement the technical staff.

13.1.1.2 Organizational Arrangement

Figure 13.1-3 shows the UNE corporate management structure. This figure delineates the relationships between the affiliated companies, including the relationship between the nuclear oriented parts to the non-nuclear parts of UNE. Figure 13.1-4 shows the UniStar Nuclear Operating Services, LLC site organization structure.

Recruiting and staffing plans are subject to change over time due to variations in construction and testing schedules and the availability of personnel for hire with the requisite qualifications. Table 13.1-1 shows the initial estimated number of positions required for each function.

Though located on a common site with CCNPP Units 1 and 2, CCNPP Unit 3 is owned and operated by separate entities. Organizations are not shared. To the extent that certain minimal resources are shared, the interaction is governed by service level agreements or other similar contractual mechanisms.

13.1.1.2.1 Corporate Organization

UNE is a joint venture between Constellation Energy Group and EDF International that was formed to develop, construct, and operate U.S. EPRs, of which Calvert Cliffs 3 is the first. The framework necessary to develop, design, license, finance, contract for construction, prepare for ownership, and operate CCNPP Unit 3 is made up of a group of affiliated companies, each with clearly delineated responsibilities and lines of accountability for specific phases of the CCNPP

Unit 3 project. UNE and its affiliated companies are managed as a single, cohesive entity with clear management expectations that the high levels of safety and quality are maintained throughout all phases of the project. Figure 13.1-1 shows the general relationships between UNE, its affiliated companies, and the Calvert Cliffs 3 Nuclear Project, LLC (owner licensee of CCNPP Unit 3).

Responsible management and supervisory personnel have the authority to delegate tasks to another qualified individual within their organization provided the designated individual possesses the required qualifications and these qualifications are documented. Delegations are in writing. The responsible manager or supervisor retains the ultimate responsibility and accountability for implementing the applicable requirements.

The key positions are:

13.1.1.2.1.1 UniStar Nuclear Energy, LLC President and Chief Executive Officer

This position is responsible for all aspects of operations and governance of UNE nuclear operations. The President and Chief Executive Officer (CEO) is also responsible for the technical and administrative support provided by UNE, its affiliated companies, and non-affiliated contractors. This includes overall corporate policy, overall implementation of the quality assurance program, executive direction and guidance for the corporation, and corporate policy.

The position has overall responsibility for the UNE activities related to siting, design, fabrication, construction, and safe reliable operation of CCNPP Unit 3, including management oversight and support of the day-to-day station operations. This is the senior executive responsible for setting and implementing policies, objectives, expectations, and priorities to ensure activities are performed in accordance with the highest levels of safety, the quality assurance program, and other requirements.

The President and CEO provides direction through the structure described in the following paragraphs.

13.1.1.2.1.2 Senior Vice President - Services

This position reports to the UNE President and CEO, and is responsible for managing the siting, construction, and preoperational testing, during these phases of project delivery. Actual design, fabrication, and construction activities, including preparation of design and construction documents and construction itself are the responsibility of the Constortium under the management and oversight of this position.

Various functions report to the Senior Vice President - Services, including staffs responsible for planning and development future projects. Nuclear management functions reporting to this position include the Vice President of Regulatory Affairs, the Vice President - Project Management, and the Vice President - Testing, Startup, and Commissioning.

13.1.1.2.1.2.1 Vice President - Regulatory Affairs

The Vice President, Regulatory Affairs reports to the Senior Vice President - Services and is responsible for licensing and regulatory affairs and provides organizational support and management oversight of the facilities to ensure prompt and proper disposition of regulatory issues, develops regulatory positions, and advises senior management on priorities and activities affecting regulatory issues at the nuclear facilities. Other responsibilities include

developing policies and standardized processes and procedures for the maintenance of the licensing basis, the preparation of submittals to the NRC and other regulatory organizations.

13.1.1.2.1.2.2 Vice President - Project Management

The Vice President - Project Management reports to Senior Vice President - Services and is the executive level manager responsible for management of the CCNPP Unit 3 (and other UNE plants) project including contractor management; safety, cost, and schedule performance; support organization coordination; project finances; cost estimates, and construction planning.

During the development phase, the Vice President - Project Management is responsible for coordination of activities needed to ready the site for construction. This includes interfacing with state and local permitting agencies for site reviews, coordination of site access for Consortium personnel to perform site characterization studies and site preparation activities, and monitor safety, cost, and schedule performance of personnel with access to the site. The Vice President - Project Management is also responsible for coordinating with the management and staff of the existing units (CCNPP Units 1 & 2) where necessary and keeping them informed of activities adjacent to their units.

During the construction phase, the Vice President - Project Management is responsible for monitoring the activities of the constructor primarily to verify compliance with safety and quality requirements but also with contractual obligations for schedule and cost performance. The Project Management staff works closely with the Startup, Testing, and Commissioning staff to ensure schedules are met and turnover packages are complete for system acceptance by the operational staff of UniStar Nuclear Operating Services, LLC.

The Vice President - Project Management has a staff of project managers, estimators, schedulers, and other support personnel to assist in and support these activities.

13.1.1.2.1.2.3 Vice President - Startup, Testing, and Commissioning

The Vice President - Startup, Testing, and Commissioning reports to Senior Vice President - Services and is the executive level manager responsible for the development (in conjunction with the Consortium) and management of the CCNPP Unit 3 startup, testing, and commissioning program. Three groups of functional level managers and staff report to the Vice President - Startup, Testing, and Commissioning.

Working closely with Consortium personnel responsible for testing and system turnover, commissioning program development personnel develop procedures describing organizational responsibilities and interfaces between the Consortium, UNE testing personnel, and the UniStar Nuclear Operating Services, LLC operational staff who will be accepting system turnover, maintaining configuration control, manipulating controls during testing, and reviewing test results.

Planning and scheduling personnel will ensure testing schedules are aligned with construction and turnover schedules and that the proper organizational resources are available when needed. Detailed monitoring of testing performance is conducted to ensure problems are quickly identified and corrected and to ensure that proper and timely notification of ITAAC performance is made to parties, including the NRC.

Oversight and coordination of actual startup, testing, and commissioning activities is performed by Startup, Testing, and Commissioning personnel located at the site under the direction of the Site Commissioning Manager, described in FSAR Chapter 14.

13.1.1.2.1.3 Senior Vice President - Procurement and Engineering

The Senior Vice President - Procurement & Engineering reports to the UNE President and CEO and is responsible for engineering and procurement for UNE projects (including CCNPP Unit 3) throughout the design and construction phases. As the UNE chief engineer, the Senior Vice President - Procurement and Engineering is responsible for review and approval of design and construction documentation, component specifications, construction techniques and methods, HFE, and associated plans and schedules. These responsibilities are performed through a staff of engineers and procurement specialists experienced in nuclear plant design, construction, and procurement. Design and construction knowledge is augmented by information and experience obtained from Flamanville 3 for incorporation into UNE engineering and procurement activities.

As CCNPP Unit 3 proceeds through startup testing and commissioning to operation, the Senior Vice President - Procurement & Engineering provides engineering support and expertise, as well as supply chain services to UniStar Nuclear Operating Services, LLC.

13.1.1.2.1.3.1 Vice President - Procurement

The Vice President - Procurement reports to the Senior Vice President - Procurement & Engineering and is responsible for initiating, monitoring, and managing services and procurement contracts for UNE (including CCNPP Unit 3) throughout the design and construction phases. During the operations phase, the Vice President - Procurement will provide supply chain services and management in support of UniStar Nuclear Operating Services, LLC.

13.1.1.2.1.4 Senior Vice President - Training, Strategy, and Infrastructure

The Senior Vice President - Training, Strategy, and Infrastructure reports to the UNE President and CEO and is responsible for designing and executing strategic initiatives necessary to develop UniStar Nuclear Energy U.S. EPR projects. This involves facilitating meetings of UNE's Strategic Council (which sets overall strategy), engaging policy makers and thought leaders in government and in academic circles, providing analyses to support the execution of business initiatives, and supporting the creation of UniStar Project Companies.

The Senior Vice President - Training, Strategy, and Infrastructure is also responsible for the development and implementation of UNE's information technology platform. This is a collaborative platform, capable of supporting the electronic flow of data among those engaged in the development, design, licensing, construction, commercialization, maintenance, and operation of the UNE fleet enabling the collaboration necessary to manage risk and maximize operating efficiencies by sharing of equipment performance and operating experience among the sites and corporate support functions.

The Senior Vice President - Training, Strategy, and Infrastructure is also responsible for the design and development of training systems, tools, and programs to ensure the highest qualifications of the operating staff. This includes material and program development, provision of full-scope and part-task simulators, and management of training accreditation activities.

13.1.1.2.1.4.1 Manager - Training

The Manager - Training reports to the Senior Vice President - Training, Strategy, and Infrastructure is responsible for developing and maintaining accredited training methodologies, materials, and training aids for initial and continuing training of the UNE corporate and plant staffs. Disciplines of the staffs include plant operators (licensed and non-licensed), maintenance, engineering, radiation protection, and chemistry personnel; managers, supervisors, and others. Training aids include training simulators, mock ups of plant equipment and areas, training devices, and training facilities.

The Manager - Training is also responsible for developing operating, maintenance, and other plant procedures and programs that will be used by the plant staff. During the operating cycle, the Manager - Training is also responsible for the corrective action and operating experience programs.

13.1.1.2.1.4.2 Director - Information Technology (IT)

The Director of IT reports to the Senior Vice President - Training, Strategy, and Infrastructure and is responsible for providing the strategic vision, implementation, and support of the UniStar Fleet Enterprise IT platform. The Director of IT maintains the long term, integrated technology roadmap, governance model, and architectural standards that ensures data and process systems are available to support the safety and operational needs of CCNPP Unit 3 and to efficiently deliver to CCNPP Unit 3 the technical support provided by the UniStar corporate organization. The technology platforms provided by the Director of UniStar IT support work management, configuration management, engineering, operations, maintenance, RP, and chemistry functions with integrated tools to ensure communication, data management, and work process flow.

13.1.1.2.1.5 Senior Vice President and Chief Nuclear Officer

The Senior Vice President and Chief Nuclear Officer (CNO) of UniStar Nuclear Operating Services, LLC reports to the UNE President and CEO. The CNO takes responsibility for overall nuclear safety upon loading of nuclear fuel as part of the commissioning program.

The CNO is responsible for overall plant nuclear safety and ensures the UniStar Nuclear Operating Services, LLC staff (corporate and site) provide acceptable operations, maintenance, and technical support for CCNPP Unit 3. The CNO acts through his direct reports, Vice President - Technical Support, Vice President - Operations Support, and Vice President - Administrative Services at the corporate level and the Site Vice President - CCNPP Unit 3 at the site level. Independence of the performance and quality assurance functions is ensured by the Director of Quality and Performance Improvement reporting directly to the CNO.

The CNO has ultimate responsibility for ensuring that nuclear and personnel safety activities, including engineering, operations, operations support, maintenance, planning, emergency preparedness, and radiation safety are conducted to high standards in accordance with station and fleet procedures.

13.1.1.2.1.5.1 Vice President - Technical Support

The Vice President - Technical Support reports to the CNO and is responsible for engineering and technical fleet support and oversight of site engineering activities. Responsibilities include both site specific and generic design engineering to operating plants (including CCNPP Unit 3);

engineering programs support; fleet level regulatory affairs, security, and emergency preparedness support; PRA; and fleet-wide monitoring of system performance.

The Vice President - Technical Support is also responsible for nuclear fuel and related business and technical support activities. This includes (in conjunction with the UNE Vice President - Procurement) fuel procurement, conversion, enrichment, and fabrication.

13.1.1.2.1.5.2 Vice President - Operations Support

The Vice President - Operations Support reports to the CNO and is responsible for fleet maintenance and operations services. Responsibilities include identifying and resolving fleet issues; using trends, operating experience, and industry best practices to improve fleet performance; coordinating the planning and execution of standard outage schedules; and maintaining standardized fleet operating procedures and programs. The Vice President - Operations Support supports plant operation and maintenance through fleet chemistry, RP, work management, maintenance, and operations personnel, including provision of fleet-wide maintenance services for standard equipment where appropriate.

13.1.1.2.1.5.3 Vice President - Administrative Services

The Vice President - Administrative Services reports to the CNO and provides fleet level non-nuclear support. Among these are financial and accounting support, human resources, corporate communications, document control, and industrial safety.

13.1.1.2.1.5.4 Director - Quality and Performance Improvement

The Director - Quality and Performance Improvement reports directly to the CNO and is responsible for developing and maintaining the quality assurance program, evaluating compliance to the program, and managing the resources providing fleet and vendor oversight. The functions associated with the corrective action program and performance improvement assessments report to this position.

During the design and construction phases, the Director - Quality and Performance Improvement provides oversight of project management and engineering and procurement activities and conducts audits and surveillances of the Consortium and other vendors and suppliers. By reporting to the CNO, the Director - Quality and Performance Improvement is completely independent of the Senior Vice President - UNE Procurement and Engineering and the Senior Vice President - Services. This reporting arrangement also ensures independence from the UniStar Nuclear Operating Services, LLC corporate organization structure and the site structure under the Site Vice President.

13.1.1.2.1.5.5 Site Vice President - CCNPP Unit 3

This onsite position reports to the CNO and is described in Section 13.1.2.2.1.

13.1.1.2.2 Relationship of Nuclear Organization to the Non-Nuclear Organization

UniStar Nuclear Energy, LLC is a 50%/50% strategic joint venture between Constellation Energy Group, Inc. and EDF International, S. A. Each company provides members of the UNE governing board. UNE is otherwise an independent company with its own independent corporate management structure (see Figure 13.1-3). CCNPP Unit 3 is operated as a merchant plant with no direct ties to a non-regulated utility.

UNE is comprised of five general organizational areas: training and infrastructure; procurement and engineering; services including project management, regulatory affairs, and testing, startup, and commissioning; an independent operating organization; and non-nuclear corporate services such as finance, legal, and human resources. Throughout the project life-cycle, the design, construction, testing, training, and operation activities report through vice presidents to the President and CEO of UNE. Non-nuclear support functions report separately to the President and CEO.

Upon loading of nuclear fuel, the CNO assumes primary responsibility for nuclear safety. Within UniStar Nuclear Operating Services, LLC non-nuclear support is provided through the Vice President of Administrative Services.

13.1.1.2.3 Provisions of Technical Support for Operation

UNE is organized into five principal areas, each with specific functions supporting the design, construction, testing, and operation of CCNPP Unit 3. Primary operational responsibility lies with UniStar Nuclear Operating Services, LLC the Operator Licensee of CCNPP Unit 3. UniStar Nuclear Operating Services, LLC is organized at both the fleet and the site level with specific departments having clear responsibilities for operational support (see Figures 13.1-3 and 13.1.4). UniStar Nuclear Operating Services, LLC corporate support includes engineering, work, management, operations, maintenance, RP, chemistry, emergency planning, QA, and administrative services. UniStar Nuclear Operating Services, LLC site support includes site specific resources, processes, and procedures in work management, maintenance, operations, RP, chemistry, engineering, emergency planning, and QA oversight.

The remaining UNE organizational units support or supplement UniStar Nuclear Operating Services, LLC with engineering support, supply chain, training, information technology, and project management. Additional contracted resources for specific technical areas such as reactor and steam generator servicing and large component maintenance such as main turbine overhaul may be obtained as necessary.

UNE may also call upon the extensive analytical and engineering expertise of its parent organizations should the need arise.

13.1.1.3 Qualifications of Technical Support Personnel

The qualifications of managers and supervisors of the technical support organization meet the qualification requirements in education and experience for those described in ANSI/ANS-3.1-1993 (ANSI, 1993), as endorsed and amended by Regulatory Guide 1.8, Revision 3 (NRC, 2000). The qualification and experience requirements of corporate personnel are established in corporate policies and procedures. Table 13.1-1 provides a cross reference between the ANSI positions and the organization specific positions.

13.1.2 OPERATING ORGANIZATION

Figure 13.1-3 shows the authority and lines of communication for the CCNPP Unit 3 site organization. This organization includes operations, maintenance, radiological protection, chemistry, work management, engineering, training, and quality and performance improvement. This organization is responsible for operating and maintaining the plant, planning and scheduling work, radiation protection of plant personnel, controlling radiological releases, ensuring industrial safety, refueling, quality control and inspection of plant activities, and technical support of CCNPP Unit 3.

The site organization is responsible for ensuring quality assurance and implementation of administrative controls necessary to ensure nuclear safety, industrial safety, and radiation protection as specified in the Quality Assurance Program Description (QAPD) described in Section 17.5, and other regulatory requirements. The site organization is responsible for reporting problems with plant equipment, facilities, and human performance in accordance with the QAPD described in Section 17.5. Rules of practice are met through the use of procedures and other administrative controls (such as policies and guidelines) and include:

- Establishment of a quality assurance program for the operational phase;
- Preparation of procedures necessary to safely operate and maintain the plant and carry out an effective quality assurance program;
- A program for review and audit of activities affecting plant safety; and
- Programs and procedures necessary to ensure nuclear, radiological, and personnel safety.

The site staff includes the trained personnel necessary to meet the applicable fire protection program regulatory requirements, including an on-shift fire brigade (see Section 9.5). Additionally, the Physical Security Plan provided in Part 8 of the COL Application meets the applicable requirements for a physical protection plan.

CCNPP Unit 3 does not share operating staff with CCNPP Units 1 and 2.

13.1.2.1 Plant Organization

The CCNPP Unit 3 Site Vice President has overall responsibility for station operation. The succession of responsibility for overall plant operations is provided in Section 13.1.2.2. The onsite staff reports to the CCNPP Unit 3 Site Vice President. Certain positions located onsite are functionally responsible to the appropriate offsite executive management, but administratively support the CCNPP Unit 3 Site Vice President.

Responsible management and supervisory personnel have the authority to delegate tasks to another qualified individual within their organization provided the designated individual possesses the required qualifications and these qualifications are documented. The delegations shall be in writing. The responsible manager or supervisor retains the ultimate responsibility and accountability for implementing the applicable requirements.

An estimate of the number of persons to be assigned to various groups for the key organization positions is provided in Table 13.1-1 and the organizational arrangement is provided in Figure 13.1-4. The staffing schedule is provided in Figure 13.1-5.

13.1.2.2 Plant Personnel Responsibilities and Authorities

13.1.2.2.1 CCNPP Unit 3 Site Vice President

The CCNPP Unit 3 Site Vice President reports to the Senior Vice President and Chief Nuclear Officer, UniStar Nuclear Operating Services, LLC and is directly responsible for overall plant nuclear safety, implementation of the UniStar Nuclear QAPD, and management and direction of the safe, efficient, and reliable operation of CCNPP Unit 3. The CCNPP Unit 3 Site Vice President

is responsible for the station's compliance with its NRC Combined Operating License, governmental regulations, and ASME Code requirements. Additionally, the CCNPP Unit 3 Site Vice President has overall responsibility for occupational and public radiation safety consistent with FSAR Chapter 12.

Reporting to the CCNPP Unit 3 Site Vice President are the Plant General Manager, the Manager of Engineering, and the Manager of Training & Performance Improvement. The Independent Review Committee (IRC) also reports to the CCNPP Unit 3 Site Vice President. During the startup period, the Site Commissioning Manager, who is a direct report of the Manager of Commissioning Integration, is also a matrixed report of the CCNPP Unit 3 Site Vice President.

The succession of responsibility for overall plant management in the event of absences, incapacitation of personnel, or other circumstances requiring delegation of authority is as follows, unless otherwise delegated in writing:

a. CCNPP Unit 3 Site Vice President;

b. Plant General Manager;

c. Operations Manager; and

d. Shift Manager

The succession of authority includes issuance of standing or special orders, as required.

13.1.2.2.1.1 Plant General Manager

The Plant General Manager reports to the CCNPP Unit 3 Site Vice President and is responsible for plant operations, maintenance, work control, radiation protection, and chemistry. The Plant General Manager is responsible for the safe, reliable, and efficient operation of the plant within the constraints of applicable regulatory requirements, Operating License, and the quality assurance program by providing day-to-day direction, management, and oversight of onsite activities. The Plant General Manager, in carrying out the responsibility for overall safety of plant operations, is responsible for timely referral of appropriate plant matters to management and independent reviewers. Areas of responsibility also include chemistry activities, health physics/radiological protection, operations and support, work management, records management, maintenance and production planning, and related procedures and programs. Through the Fire Marshall, the Plant General Manager is responsible for implementation of the fire protection program as described in Section 9.5.

13.1.2.2.1.1.1 Operations Manager

The Operations Manager reports to the Plant General Manager and is responsible for the day-to-day operation of the plant. The Operations Manager is responsible for ensuring in-plant activities meet appropriate standards of nuclear and personnel safety and that the plant is operated reliably and efficiently within the constraints of applicable regulatory requirements. This position has the authority to remove equipment from service and to shutdown the station if it is in the interest of nuclear safety or to ensure the health and safety of the public. The Operations Manager or the General Supervisor - Shift Operations shall hold a Senior Reactor Operator's license and will be the senior plant license holder.

Reporting to and supporting the Operations Manager are the General Supervisor - Shift Operations and the General Supervisor - Operations Support. During startup and commissioning, the Site Commissioning Integration, Test Analysis & Documentation, Mechanical Commissioning, Electrical Commissioning, and I&C Commissioning Supervisors (who report to the UNE Site Commissioning Manager) also report to and coordinate with the Operations Manager to ensure startup and commissioning activities are conducted safely and in accordance with station expectations and procedures.

13.1.2.2.1.1.1.1 General Supervisor - Shift Operations

The General Supervisor - Shift Operations reports to the Operations Manager, serves as assistant manager, may be the senior license holder, and is responsible for:

- Shift operations in accordance with the applicable regulations and requirements, the operating license, plant technical specifications, and written policies and procedures;
- Through the Shift Managers, providing supervision of operating shift personnel for operational activities including the emergency teams and fire brigade;
- Coordinating shift activities with other functional site units;
- Ensuring proper training and qualification of shift personnel; and
- Management of programs and policies for operating activities.

The Shift Managers, discussed in Section 13.1.2.3.1, report to the General Supervisor - Shift Operations. The General Supervisor - Shift Operations may assume the duties of the Operations Manager in his absence.

13.1.2.2.1.1.1.2 General Supervisor - Operations Support

The General Supervisor - Operations Support reports to the Operations Manager, may serve as assistant manager, and is responsible for the management of programs and policies for operating activities. Through direct reports, the Supervisor of Operations Support and the Supervisor of Operational Programs, the General Supervisor - Operations Support is responsible for:

- Operations support activities in accordance with the applicable regulations and requirements, the operating license, plant technical specifications, and written policies and procedures;
- Supervision of operations support personnel and operations support activities;
- Supervision of operations procedures maintenance; and
- Maintaining and ensuring effective implementation of operational programs.

Additionally, through the Fire Marshall, the General Supervisor - Operations Support is responsible for supervision and effective implementation of the plant fire brigade including maintenance of fire brigade members' qualifications, provision of proper fire safety equipment

for the brigade, on-shift staffing, and drills in accordance with the Fire Protection program as described in Section 9.5.

13.1.2.2.1.1.2 Work Control Manager

The Work Control Manager reports to the Plant General Manager and is responsible for the safe and efficient implementation of the plant work control process including planning, scheduling, and monitoring of maintenance, engineering, and related support functions performed at the plant. The Work Control Manager is also responsible for identifying and implementing improvements to the work control process.

Reporting to the Work Control Manager are the Work Week Managers, the Scheduling Supervisor, and the Outage Planning and Scheduling Supervisor.

13.1.2.2.1.1.2.1 Work Week Manager

The Work Week Managers are responsible for the integration and coordination of schedules, personnel, and logistics for activities scheduled for their assigned work weeks including coordination of departmental activities; preventative, corrective, and elective maintenance; parts and materials availability, etc. The Work Week Manager also coordinates the daily work screening and prioritization process.

13.1.2.2.1.1.2.2 Scheduling Supervisor

The Scheduling Supervisor is responsible for implementation of the life-cycle maintenance scheduling process. The Scheduling Supervisor is also responsible for ensuring corrective maintenance is properly scheduled in accordance with plant procedures and processes.

13.1.2.2.1.1.2.3 Outage & Planning Supervisor

The Outage & Planning Supervisor is responsible for maintaining standard maintenance, project, and resource planning templates for on-line and off-line work scope. The Outage & Planning Supervisor coordinates with corporate outage planning to establish and implement standard outage plans and packages. The Outage & Planning Supervisor is also responsible for integration of plant specific outage work into the standard outage schedule templates.

13.1.2.2.1.1.3 Radiation Protection/Chemistry Manager

The Radiation Protection/Chemistry Manager reports to the Plant General Manager and is responsible for providing for the radiological health and safety of plant personnel (including maintaining plant staff dose as low as reasonably achievable in accordance with Chapter 12) and members of the public. The Radiation Protection/Chemistry Manager is also responsible for managing the radioactive waste programs and for the implementation of the plant chemistry and non-radiological environmental monitoring programs. The Radiation Protection/ Chemistry Manager functions as the Radiation Protection Manager (RPM), when designated.

Radiation Protection/Chemistry Manager duties include:

- Implementation of the radiation protection and plant ALARA programs;
- Provision of radiological and chemistry input into work and design planning;
- Tracking, analysis, and correction of trends in radiation work performance;

- Scheduling and conduct of radiological surveys, contamination sample collection, and determining contamination levels;
- Assignment of work restrictions through radiation work permits;
- Maintenance of required records in accordance with federal and state codes; and
- Maintenance of primary and secondary plant chemistry in accordance with established program requirements.

In this capacity as the RPM and in accordance with approved procedures, the Radiation Protection/Chemistry Manager has authority to direct or delegate direction of radiation protection staff to stop work or order an area evacuated when, the radiation conditions warrant such an action and the action is consistent with plant safety.

13.1.2.2.1.1.3.1 Supervisor - Chemistry Support

The Supervisor - Chemistry Support reports to the Radiation Protection/Chemistry Manager and is responsible for implementation and coordination of the plant Chemistry Program, including overall operation of any laboratories and non-radiological environmental monitoring. The Supervisor - Chemistry Support is also responsible for the administration and implementation of procedures and programs to ensure effective compliance with environmental regulations.

13.1.2.2.1.1.3.2 Radiation Protection/Chemistry Shift Superviosrs

The individuals in these positions report to the Radiation Protection/Chemistry Manager and are responsible for in plant radiation protection and chemistry operations that include but are not limited to contamination control, radiation work permits, radiological surveys and surveillance activities, respiratory protection for radiological and industrial safety, the ALARA program, radiation protection job coverage, personnel external dosimetry program, personnel internal dosimetry program, radioactive effluent release monitoring, and radiological environmental monitoring activities. The Radiation Protection/Chemistry Shift Supervisors and the Radiation Protection and chemistry technicians reporting to them work in a shift rotation with operations to provide radiation protection and chemistry coverage 24 hours per day.

13.1.2.2.1.1.3.3 Supervisor - Radiation Protection Support

The Supervisor - Radiation Protection Support reports to the Radiation Protection/Chemistry Manager and is responsible for ALARA planning, work package reviews in support of work control, RP input to proposed design changes, and maintenance of RP programs and procedures.

13.1.2.2.1.1.3.4 Supervisor - Materials Processing

The Supervisor - Materials Processing reports to the Radiation Protection/Chemistry Manager and is responsible for the processing and shipping of radioactive materials in accordance with applicable federal, state, and local regulations.

13.1.2.2.1.1.4 Maintenance Manager

The Maintenance Manager reports to the Plant General Manager and is responsible for implementation of the maintenance programs and processes including performance of preventative and corrective maintenance, equipment tests and surveillances for which

maintenance is responsible, and implementation of approved modifications in accordance with applicable standards, codes, specifications, and procedures. The Maintenance Manager is supported by discipline supervisors and their staffs in the performance of mechanical, electrical, I&C, and digital control maintenance and testing. Each discipline supervisor is responsible for coordination with other plant staff organizations to facilitate safe and effective maintenance.

13.1.2.2.1.1.4.1 General Supervisor - Maintenance Support

The General Supervisor - Maintenance Support reports to the Maintenance Manager and is responsible for maintenance programs such as non-destructive examination (NDE), equipment reliability, predictive maintenance, etc. The General Supervisor - Maintenance Support is also responsible for component analysis and maintenance through a staff of materials and test equipment personnel and component engineers including the day-to-day implementation of a testing, calibration, and maintenance program for instruments and controls, measuring and test equipment as described in the UniStar Nuclear Quality Assurance Program Description.

The General Supervisor - Maintenance Support assists work management in the planning of future maintenance efforts and in the planning and scheduling of preventive and corrective maintenance and surveillance testing.

13.1.2.2.1.1.4.2 General Supervisor - Shift Maintenance

The General Supervisor - Shift Maintenance reports to the Maintenance Manager and supervises teams of multidiscipline maintenance technicians trained and skilled in mechanical, electrical, and basic I&C maintenance. These technicians are formed into shifts, which rotate with operations to provide 24 hour maintenance. Preventative, elective, and corrective maintenance planned and scheduled by Work Management with the support of the General Supervisor - Maintenance Support and the General Supervisor - Shift Maintenance is performed by shift maintenance technicians on the rotating shifts. Additionally, emergent maintenance meeting the criteria for the plant "fix it now" process can be planned and executed by the maintenance shift technicians under the direction of the Maintenance Shift Supervisors with the review and concurrence of the Shift Manager or his designee.

13.1.2.2.1.1.4.3 Supervisor - Digital Controls/Information Technology

The Supervisor - *Digital Controls/Information Technology* reports to the Maintenance Manager and is responsible for the testing; troubleshooting; and elective, preventative, and corrective maintenance of the digital controls. Technicians performing digital control maintenance are grouped in a separate discipline with a discipline specific supervisor due to the unique skills and training required for troubleshooting and repair of digital and computerized hardware and software systems. The Supervisor - *Digital Controls/Information Technology* and staff will also support troubleshooting and repair of the basic plant IT systems.

13.1.2.2.1.2 Manager of Engineering

The Manager of Engineering reports to the Site Vice President and functionally to the Vice President - Technical Support (corporate) and is responsible for site engineering activities related to operations, maintenance, and design change implementation activities. The Manager of Engineering directs the General Supervisors of System Engineering and Engineering support in day-to-day engineering activities including engineering programs, equipment reliability, system engineering, PRA, design engineering, and configuration management.

13.1.2.2.1.2.1 General Supervisor- System Engineering

The General Supervisor - System Engineering reports to the Manager of Engineering and is responsible for supervising a technical staff of engineers and other engineering specialists. These individuals coordinate their work with that of other groups. They are responsible for balance of plant, electrical, mechanical, I&C, and reactor systems focusing on day to day equipment and operational issues. These individuals monitor system performance to ensure and improve equipment reliability and assist in conducting the operational tests and analyzing the results. The General Supervisor - System Engineering coordinates with corporate engineering to evaluate system performance data at a fleet level for the early detection and, if necessary, correction of performance trends. Reporting to the General Supervisor - System Engineering are a Balance of Plant Systems Supervisor and Nuclear Systems Supervisor each with responsibility for system performance in their specific area.

13.1.2.2.1.2.2 General Supervisor - Engineering Support

The General Supervisor - Engineering support reports to the Manager of Engineering and is responsible for, through a staff of technical staff of engineers and supervisors, implementing and maintaining the engineering programs, reliability engineering, PRA, on-site design engineering functions, and configuration management.

The engineering function related to support of the Fire Protection Program is also provided by the General Supervisor - Engineering Support in close coordination with the Operations Fire Marshall to ensure adequate implementation of the Fire Protection Program.

13.1.2.2.1.3 Manager of Training & Performance Improvement

The Manager of Training and Performance Improvement reports to the Site Vice President and functionally to the Senior Vice President - Training, Strategy, and Infrastructure (corporate). The Manager of Training & Performance Improvement is responsible for implementation and evaluation of the plant's training programs in accordance with UNE standard training, regulatory requirements, and accreditation standards. Training responsibilities include determining the need for training based on information provided by the various groups, developing performance based training programs, implementing training programs to support employee and facility needs, evaluating training programs, and maintaining training and qualification records. The Manager of Training and Performance Improvement ensures proper training program maintenance implementation through training supervisors, instructors, and support personnel with responsibility for specific training disciplines. Training disciplines include accredited training areas such as licensed operator initial and continuing training, maintenance training, engineering training and non-accredited training areas such as general employee access training (GET), emergency plan and emergency response organization training, security training.

The Manager of Training and Performance Improvement is also responsible for administration of the corrective action, nonconformance, self-assessment, and industry operating experience programs.

The Manager of Training and Performance Improvement reports directly to the Site Vice President to provide for independence from operating pressures and to enable the ability to hold line managers accountable for the specific training needs of their personnel. The Manager of Training and Performance Improvement reports functionally to the Senior Vice President - Training, Strategy, & Infrastructure to ensure standardization of training material and program implementation is maintained across the fleet of U.S. EPRs.

13.1.2.2.1.4 Site Director - Quality and Performance Improvement

The Site Director - Quality and Performance Improvement reports to the Director - Quality and Performance Improvement (corporate) and functionally reports to the Site Vice President. This reporting relationship will ensure independence from operational pressures and line responsibilities.

A staff of Quality Assurance personnel report to the Site Director - Quality and Performance Improvement and are responsible for conducting inspections, tests, and audits for ensuring that quality-related activities have been correctly performed, identifying any quality problems and verifying implementation of appropriate solutions to quality problems. The Site Director - Quality and Performance Improvement has the authority, in accordance with the QAPD and applicable procedures, to issue stop work orders when plant activities may compromise safety or quality standards.

The following responsibilities are included for startup testing and operations:

- QA Technical Support;
- Quality Engineering support of startup organization;
- Oversight of startup activities;
- QA selected reviews and oversight of programs developed for operations including, but not limited to, the identification of QA Level 1 SSCs and any changes thereto, their performance, and verifying and maintaining the facility design basis;
- QA selected reviews and oversight of operations, including maintenance, testing and modification procedures;
- Review and concurrence of changes to the identified QA Level 1 items that could affect their function;
- QA Oversight of operations procedure implementation;
- Quality Control (QC) Inspection certification process; and
- Applicable discipline QC inspections of modifications to QA Level 1 components.

13.1.2.2.1.5 Independent Review Commitee

During the Operations phase, an Independent Review Committee (IRC), reporting to the Site Vice President serves in an advisory capacity on matters related to nuclear safety. The IRC is composed of a minimum of five members. No more than a minority of members may be from the onsite operating organization. A minimum of the chairman or alternative chairman and two members must be present for all meetings. The Site Vice President appoints, in writing, the members of the IRC, including the IRC Chairperson and the Vice Chairperson drawn from the IRC members. Alternate members are appointed in writing by the IRC Chairperson to serve on a temporary basis. Each alternate will have the same area of expertise as the member being replaced.

Consultants and contractors shall be used for the review of complex problems beyond the expertise of the IRC.

Alternate members shall be appointed in writing by the IRC Chairperson to serve on a temporary basis. Each alternate shall meet the minimum qualifications for the IRC, and shall have the same area of expertise as the member being replaced.

IRC duties include reviewing:

- Proposed changes to the facility as described in the FSAR to verify that such changes do not adversely affect safety and whether a technical specification change or NRC review is required;
- Proposed tests and experiments not described in the FSAR prior to implementation to verify that tests or experiments do not require a technical specification change or NRC review;
- Proposed technical specification changes and license amendments relating to nuclear safety prior to implementation, except in those cases where the change is identical to a previously approved change;
- Violations, deviations, and reportable events that are required to be reported to the NRC in writing within 24 hours. This review includes the results of investigations and recommendations resulting from such investigations to prevent or reduce the probability of recurrence of the event;
- Any matter related to nuclear safety that is requested by the President and Chief Executive Officer, Site Vice President, Plant General Manager, or any IRC member;
- Corrective actions for significant conditions adverse to quality.

Additionally, the IRC determines the adequacy of the audit program every two years.

13.1.2.2.2 Site Commisioning Manager

The Site Commissioning Manager reports to the Manager - Commissioning Integration (corporate) and functionally reports to the Site Vice President. The Site Commissioning Manager is responsible for oversight and proper implementation of the preoperational and startup test program, including providing technical advice to people conducting the tests, briefing personnel responsible for operation of the plant during the tests, ensuring that the tests are performed in accordance with the applicable procedures, and reviewing test results and analyses.

The Site Commissioning Manager executes these responsibilities through supervisors and technical personnel for mechanical, electrical, and I&C commissioning as well as overall integration of commissioning testing and test analysis and documentation. The supervisors in these areas functionally report to the Operations Manager to ensure efficient integration of commissioning staff with the plant operational staff for the testing and commissioning phase.

13.1.2.3 Operating Shift Crews

Table 13.1-2 defines the position titles, license requirements and minimum shift staffing for various modes of operation. The operating shift staffing meets or exceeds the requirements of NUREG-0737, Action Plan Items I.A.1.1 and I.A.1.3 (NRC, 1980), 10 CFR 50.54(m) (CFR, 2008), and the NRC's "Policy Statement on Engineering Expertise on Shift" (NRC, 1986).

In addition, radiation protection coverage is provided by a qualified Radiation Protection Technician assigned to the shift and fire protection coverage is provided by the Fire Brigade Team members.

Plant administrative procedures implement the required shift staffing and establish crews with sufficient qualified plant personnel to staff the operational shifts for normal, abnormal, and emergency operational conditions. Work schedules are established that minimize overtime for plant staff performing safety related activities in accordance with applicable regulatory requirements and plant procedures. Shift crew alignments and staffing may be modified during outages in accordance with regulatory work hour limitation requirements and plant administrative procedures.

13.1.2.3.1 Shift Manager

The Shift Manager is a licensed Senior Reactor Operator reporting to the General Supervisor - Shift Operations responsible for overall control room management and has direct responsibility for the conduct of operations. The Shift Manager has the authority to direct the activities of personnel on-site as required to protect the health and safety of the public; protect the health and safety of site personnel; prevent damage to site systems, structures, and components; and comply with applicable regulatory requirements and the plant operating license.

The Shift Manager acts as the Emergency Director and in the event of a potential or actual emergency, until properly relieved in accordance with the Emergency Plan and has the authority to activate the Emergency Response Organization, to make the necessary notifications to federal, state, and local officials and to direct plant personnel to report to plant to provided necessary technical support.

This Shift Manager is responsible for the training and qualification of his shift personnel and participates in operator training, retraining, and requalification by providing guidance, direction, and instruction to shift and training personnel.

In the absence of the Site Vice President, the Plant General Manager, and the Operations Manager, the on-shift Shift Manager assumes responsibility for plant functions as described in Section 13.1.2.2.1.

13.1.2.3.2 Control Room Superviosr

The Control Room Supervisor (CRS) is a licensed SRO reporting to the Shift Manager. The CRS is responsible for the administrative functions of the shift such that the Shift Manager's command and control function is not overburdened. In this capacity, he directly supervises the licensed and non-licensed shift personnel and provides direct oversight of control room operations. The CRS provides:

- Direct supervision of changes to reactor power level by Reactor Operators, including plant startup and shutdown;

- Initiation of immediate actions required by normal, abnormal, or emergency operating procedures in any plant upset situation;
- Adherence to plant technical specification requirements;
- Assignment of qualified shift personnel to scheduled work;
- Oversight of maintenance and testing;
- Review of routine operating data for trends and anomalies; and
- Assignment of administrative tasks such as work package reviews, procedure reviews, and clearance preparation.

13.1.2.3.3 Senior Reactor Operator

The Senior Reactor Operators report to the Shift Manager and shall have a Senior Operator's license (SRO). The Senior Reactor Operator assists the Shift Manager, and is normally in charge of the Reactor Operators on shift. Normally, the Senior Operator stands watch in the control room as the CRS; however, the Senior Reactor Operator may leave the control room provided the requirements for control room manning are met.

13.1.2.3.4 Shift Technical Advisor

In accordance with NUREG 0737 TMI Action Plan item I.A.1.1, each shift will have a Shift Technical Advisor (STA) reporting to the Shift Manager to provide technical assistance to the operating shift during normal and abnormal conditions.

Because of the comprehensive ability to monitor the plant provided by the digital controls and the level of training provided to the licensed operators, the STA position may be eliminated by combining it with a Senior Reactor Operator position in accordance with Option 1 of the Commission Policy Statement on Engineering Expertise on Shift.

13.1.2.3.5 Reactor Operator

Reactor Operators are licensed personnel who perform their duties under the direction of the CRS or Shift Manager. They are responsible for routine plant operations and performance of major evolutions, including direct manipulation of the controls affecting reactor power level. Reactor Operator duties include responding to normal, abnormal, and emergency conditions in accordance with approved plant procedures; directing the activities of Auxiliary Operators; monitoring plant parameters and indications; reviewing routine plant operating data to ensure proper equipment operation; identifying potential adverse equipment conditions or plant trends; effecting changes to plant power level, including plant startup and shutdown, and adhering to the plant's technical specifications.

13.1.2.3.6 Auxiliary Operator

Auxiliary Operators serve at the direction of the Reactor Operator, Senior Reactor Operator, and Shift Manager performing duties outside of the control room to ensure safe plant operation. They assist in plant startups and shutdowns, perform surveillance activities outside of the control room, make routine in-plant checks of equipment operation, perform abnormal and emergency operations outside of the control room in accordance with applicable plant

procedures, and operate in-plant equipment including placing it in service or removing it from service as directed from the main control room.}

13.1.3 QUALIFICATIONS OF NUCLEAR PLANT PERSONNEL

13.1.3.1 Qualification Requirements

Table 13.1-1 identifies the specific positions identified in ANSI/ANS-3.1-1993 (ANSI, 1993), the corresponding plant specific title, and the corresponding titles from the plant-specific organization. Plant personnel meet the minimum qualification requirements for education and experience as described in ANSI/ANS-3.1-1993 as endorsed by Regulatory Guide 1.8, Revision 3 (NRC, 2000), except for the following clarifications or differences.

Licensed operators shall comply with the requirements of 10 CFR 55.

- {For a non-licensed applicant (an instant candidate) for a SRO license, Regulatory Guide 1.8, Revision 3, requires at least six months of the responsible nuclear power plant experience to be at the plant for which the instant candidate seeks a license. The CCNPP Unit 3 candidates for an SRO license will not meet this requirement. The basis for this exception is provided in NEI 06-13A, Rev. 1, App. A, (NEI, 2008) as discussed in Section 13.2.

- For an applicant for a Reactor Operator license, Regulatory Guide 1.8, Revision 3, requires at least one year of the power plant experience be at the plant for which an applicant seeks a license. The CCNPP Unit 3 candidates for a Reactor Operator license will not meet this requirement. The basis for this exception is provided in NEI 06-13A, Rev. 1, App. A, (NEI, 2008) as discussed in Section 13.2.

- For an applicant for a Reactor Operator license, ANSI/ANS-3.1-1993 requires that the individual have 3 months experience as an extra person on shift in training before being assigned Reactor Operator duties. The individuals that will serve for the first cycle of plant operation will not possess this experience prior to being assigned Reactor Operator duties. The basis for this exception is provided in NEI 06-13A, Rev. 1, App. A, (NEI, 2008) as discussed in Section 13.2.

- ANSI/ANS-3.1-1993 endorsed ANSI/ASME NQA-1-1989 (ANSI, 1989) for the qualifications criteria for Quality Control personnel, while Regulatory Guide 1.8, Revision 3, endorsed Supplement 2S-1, "Supplementary Requirements for the Qualification of Inspection and Test Personnel," of ANSI/ASME NQA-1-1983 (ANSI, 1983). The Quality Control personnel for CCNPP Unit 3 will meet the education and experience requirements of Supplement 2S-1 of ANSI/ASME NQA-1-1994 (ANSI, 1994).

- ANSI/ANS-3.1-1993 endorsed ANSI/ASME NQA-1-1989 for the qualifications criteria for Quality Assurance personnel, while Regulatory Guide 1.8, Revision 3 endorsed Supplement 2S-3, "Supplementary Requirements for the Qualification of Inspection and Test Personnel," of ANSI/ASME NQA-1-1983. The Quality Assurance personnel for CCNPP Unit 3 will meet the education and experience requirements of Supplement 2S-3 of ANSI/ASME NQA-1-1994, with the exception of the lead auditors. They will be qualified as described in Section S of the UniStar Nuclear QAPD.

- Regulatory Guide 1.8, Revision 3, provides an alternative for the formal educational and experience requirements for Quality Assurance positions. It permits other factors to be utilized to provide sufficient demonstration of their abilities. These factors are to be evaluated on a case-by-case basis and approved and documented by the plant manager. UniStar Nuclear will utilize this alternative; however, the incumbent's manager, versus the plant manager, will approve the use of the alternative.}

13.1.3.2 Qualification of Plant Personnel

Resumes and other documentation and experience of initial appointees to management and supervisory positions are available for review.

{Resumes will be provided upon request after positions are filled.}

13.1.4 REFERENCES

{**ANSI, 1993**. American National Standard for Selection, Qualification, and Training of Personnel for Nuclear Power Plants, ANSI/ANS-3.1-1993, approved April 23, 1993.

ANSI, 1994. ANSI/ASME NQA-1-1994, Supplement 2S-1, "Supplementary Requirements for the Qualification of Inspection and Test Personnel," and Supplement 2S-3, "Supplementary Requirements for the Qualification of Quality Assurance Program Audit Personnel."

CFR, 2008. Conditions of Licenses, Title 10, Code of Federal Regulations, Section 50.54, U.S. Nuclear Regulatory Commission, 2008.

NEI, 2008. NEI 06-13A, Template for an Industry Training Program Description, Rev. 1, Nuclear Energy Institute, March 2008.

NRC, 1980. Clarification of TMI Action Plan Requirements, NUREG-0737, U.S. Nuclear Regulatory Commission, November 1980.

NRC, 1985. Policy Statement on Engineering Expertise on Shift, 50 FR 43621, U.S. Nuclear Regulatory Commission, October, 28, 1985.

NRC, 1986. Policy Statement on Engineering Expertise on Shift, Generic Letter 86-04, U.S. Nuclear Regulatory Commission, February 1986.

NRC, 2000. Qualification and Training of Personnel for Nuclear Power Plants, Regulatory Guide 1.8, Revision 3, U.S. Nuclear Regulatory Commission, May 2000.}

Table 13.1-1—{Generic Position/Site Specific Position Cross Reference}

(Page 1 of 5)

Nuclear Function	Function Position (ANS-3.1-1993 section)	Nuclear Plant Position (Site-Specific)	Estimated Numbers of Full Time Equivalents			
			Design Review Phase	Construction phase	Pre-op Phase	Operational Phase
Executive Management (corporate)	Chief Nuclear Officer (n/a)	Senior Vice President & CNO-UniStar Nuclear Operating Services, LLC	0	1	1	1
	Site Executive (n/a)	CCNPP Unit 3 Site Vice President	1	1	1	1
	Functional Manager (QAPD) [10]	Director, Quality and Performance Improvement	1	1	1	1
Nuclear Support	Executive, Operations Support (n/a)	Vice President, Operations Support		1	1	1
	Executive, Construction (n/a)	Senior Vice President, Services	1	1	1	1
	Executive, Engineering and Technical Services (n/a)	Vice President, Technical Support UniStar Nuclear Operating Services, LLC		1	1	1
	Executive, Engineering and Technical Services (n/a)	Senior Vice President, Procurement and Engineering	1	1	1	1
Plant Management (Site-Specific)	Plant Manager (4.2.1)	Plant General Manager	-	-	1	1
Operations	Operations Manager (4.2.2)	Operations Manager	-	-	1	1
Operations, Plant	Operations Middle Manager (4.3.8)	General Supervisor, Shift Operations			1	1
Operations, Administration	Operations Middle Manager (4.3.8)	General Supervisor, Operations Support	-	-	1	1
Operation, Administration	Senior Operator First Line Supervisor (4.4.2)	Supervisor, Operations Support			1	1
Operation, Administration	Senior Operator First Line Supervisor (4.4.2)	Supervisor, Operations Programs			1	1
Operations, (on-shift)	Operation Shift Supervisor (4.4.1)	Shift Manager[1]			5	5
	Senior Operator First Line Supervisor (4.4.2)	Control Room[1] Supervisor			6	6
	Senior Operator First Line Supervisor (4.4.2)	Senior Reactor Operator[1]			6	6

Table 13.1-1—{Generic Position/Site Specific Position Cross Reference}

(Page 2 of 5)

Nuclear Function	Function Position (ANS-3.1-1993 section)	Nuclear Plant Position (Site-Specific)	Estimated Numbers of Full Time Equivalents			
			Design Review Phase	Construction phase	Pre-op Phase	Operational Phase
	Shift Technical Advisor (4.6.2)	Shift Technical Advisor[2]			6	6
	Reactor Operator (4.5.1)	Reactor Operator			17	17
	Operator (4.5.2)	Auxiliary Operator		10	17	17
Engineering	Techical Manager (4.2.4)	Manager of Engineering	-	1	1	1
Engineering Systems	Engineering Suppot Middle Manager (4.3.9)	General Supervisor,System Engineering		1	1	1
	Engineering Suppot First Line Supervisor (4.4.10)	Supervisor, Nuclear Systems			1	1
	Engineering Suppot First Line Supervisor (4.4.10)	Supervisor, BOP Systems			1	1
	System Engineer (4.6.1)	System Engineer		5	14	14
Engineering, Support	Engineering Suppot Middle Manager (4.3.9)	General Supervisor, Engineering Support		1	1	1
	Engineering Suppot First Line Supervisor (4.4.10)	Supervisor, Programs/Reliability Engineering			1	1
	Engineering Suppot First Line Supervisor (4.4.10)	Supervisor, Design Engineering			1	1
	System Engineer (4.6.1)	Programs, PRA, Design Engineers		5	12	12
Chemistry	Chemistry Middle Manager (4.3.2)	Radiation Protection and Chemistry Manager[3]		1	1	1
	Chemistry First Line Supervisor (4.4.5)	RP/Chemistry Shift Supervisor[4]		1	5	5
	Chemistry First Line Supervisor (4.4.5)	Supervisor, Chemistry Support			1	1
	Chemistry Technician (4.5.3.1)	Chemistry Technician		2	12	12
Radiation Protection (RP)	RP Middle Manager (4.3.3)	Radiation Protection and Chemistry Manager[3]		1	1	1
	RP First Line Supervisor (4.4.6)	RP/Chemistry Shift Supervisor[4]			5	5

Table 13.1-1—{Generic Position/Site Specific Position Cross Reference}

(Page 3 of 5)

Nuclear Function	Function Position (ANS-3.1-1993 section)	Nuclear Plant Position (Site-Specific)	Estimated Numbers of Full Time Equivalents			
			Design Review Phase	Construction phase	Pre-op Phase	Operational Phase
	RP First Line Supervisor (4.4.6)	Supervisor, Radiation Protection			1	1
	RP First Line Supervisor (4.4.6)	Supervisor, Materials Processing			1	1
	RP Technician (4.5.3.2)	Radiation Protection Technician[5]		4	19	19
Maintenance	Maintenance Manager (4.2.3)	Maintenance Manager			1	1
Instrumentation and Control	Instrumentation & Control First Line Supervisor (4.4.7)	Supervisor, Digital Controls/IT		1	1	1
	Instrumentation & Control Technician (4.5.3.3)	Digital Control/IT Technician		-	15	15
Mechanical	Mechanical Maintenance Middle Manager (4.3.6)	General Supervisor, Shift Maintenance [6]			1	1
	Mechanical Maintenance First Line Supervisor (4.4.9)	Maintenance Shift Supervisor[7]		-	5	5
	Mechanical Maintenance Technician (4.5.7.2)	Maintenance Technician[8]		8	45	45
Electrical	Electrical Maintenance Middle Manager (4.3.5)	General Supervisor, Shift Maintenance[6]			1	1
	Electrical Maintenance First Line Supervisor (4.4.8)	Maintenance Shift Supervisor[7]		-	5	5
	Electrical Maintenance Technician (4.5.7.1)	Maintenance Technician[8]		8	45	45
Quality Assurance	Manager (QAPD)[10]	Site Director, Quality and Performance Improvement	-	1	1	1
	Manager (QAPD)[10]	Quality and Performance Improvement Manager			1	1

Table 13.1-1—{Generic Position/Site Specific Position Cross Reference}

(Page 4 of 5)

Nuclear Function	Function Position (ANS-3.1-1993 section)	Nuclear Plant Position (Site-Specific)	Estimated Numbers of Full Time Equivalents			
			Design Review Phase	Construction phase	Pre-op Phase	Operational Phase
	Quality Verification and Inspection & Performance Assessment (QAPD)[10]	Quality Assurance and Control Personnel		12	16	16
Training	Training Middle Manager (4.3.1)	Manager of Training and Performance Improvement			1	1
	Training First Line Supervisor (4.4.4)	Training Supervisor			1	1
	Operator Instructor (4.5.4)	Instructor			7	7
	Technical and Maintenance Instructor (4.5.4)	Instructor		-	7	7
Security	Manager (4.3)	Security Manager		1	1	1
	First Line Supervisor (4.4)	Security Supervisor		10	10	10
	Security Officer (n/a)	Security Officer		Withheld from Public Disclosure		
Preoperational and Startup Testing	Manager (4.2.4)	Site Commissioning Manager		1	1	1
	Preoperational Test Engineer (4.4.11)	Site Commissioning Integration Supervisor[9]		1	1	
	Preoperational Test Engineer (4.4.11)	Test Analysis and Documentation Supervisor[9]		1	1	
	Preoperational Test Engineer (4.4.11)	Mechanical Commissioning Supervisor[9]		1	1	
	Preoperational Test Engineer (4.4.11)	Electrical Commissioning Supervisor[9]		1	1	
	Preoperational Test Engineer (4.4.11)	I&C Commissioning Supervisor[9]		1	1	
	Startup Testing Engineer (4.4.12)	Site Commissioning Integration Supervisor[9]		1	1	-
	Startup Testing Engineer (4.4.12)	Test Analysis and Documenation Supervisor[9]		1	1	
	Startup Testing Engineer (4.4.12)	Mechanical Commissioning Supervisor[9]		1	1	

Table 13.1-1—{Generic Position/Site Specific Position Cross Reference}

(Page 5 of 5)

Nuclear Function	Function Position (ANS-3.1-1993 section)	Nuclear Plant Position (Site-Specific)	Estimated Numbers of Full Time Equivalents			
			Design Review Phase	Construction phase	Pre-op Phase	Operational Phase
	Startup Testing Engineer (4.4.12)	Electrical Commissioning Supervisor[9]		1	1	
	Startup Testing Engineer (4.4.12)	I&C Commissioning Supervisor[9]		1	1	

Notes:

1. These positions may fulfill the Fuel Handling position (ANSI/ANS-3.1-1993, section 4.4.3).
2. A licensed senior reactor operator on shift who meets the qualifications for the combined SRO/STA position specified in Option 1 of the Commission's Policy Statement on Engineering Expertise on Shift (Generic Letter 86-04) may fulfill the STA position. If Option 1 is used for a shift, the STA position may be eliminated for that shift.
3. The Radiation Protection and Chemistry Manager is a dual function.
4. The Radiation Protection/Chemistry Shift Supervisors is a dual function with one Radiation Protection/Chemistry Shift Supervisor per shift.
5. Includes the ALARA function.
6. The General Supervisor, Shift Maintenance is a dual function.
7. The Maintenance Shift Supervisors is a dual function with one Maintenance Shift Supervisor per shift.
8. The Maintenance Technicians are trained and qualified for both electrical and mechanical maintenance.
9. The Site Commissioning Integration Supervisor, the Test Analysis and Documenation Supervisor, the Mechanical Commissioning Supervisor, the Electrical Commissioning Supervisor, and the I&C Commissioning Supervisor are trained and qualified as both Preoperational Test Engineers and Startup Test Engineers.
10. The qualification requirements for these position are specified with the exceptions in Section 13.1.3.

Table 13.1-2—{Minimum Shift Crew Composition} [5][6]

	Position	Number [1]
Unit Shutdown	Shift Manager (SRO License)	1
	Senior Reactor Operator (SRO License)[2]	0
	Shift Technical Advisor	0
	Reactor Operator (RO License)	1
	AuxiliaryOperator	1
Unit Operating [3]	Shift Manager (SRO License)	1
	Senior Reactor Operator (SRO License)	1
	Shift Technical Advisor [4]	1
	Reactor Operator (RO License)	2
	Auxiliary Operator	2

Notes:

(1) Temporary deviations from the numbers required by this table shall be in accordance with criteria established in the Technical Specifications.

(2) During alteration of the core of a nuclear power unit (including fuel loading or transfer), a person holding an SRO license or an SRO license limited to fuel handling for the unit shall be present to directly supervise the activity. During this time, this person shall not be assigned any other duties.

(3) For the purpose of this table, a nuclear power unit is considered to be operating when it is in a mode other than cold shutdown or refueling as defined by the Technical Specifications.

(4) A Senior Reactor Operator (SRO) on shift who meets the qualifications for the combined SRO/STA position specified in Option 1 of the Commission's Policy Statement on Engineering Expertise on Shift (Generic Letter 86-04) may fulfill the STA position., the STA position may be eliminated for that shift If Option 1 is used for a shift, then the separate Shift Technical Advisor (STA) position may be eliminated for that shift.

(5) A site fire brigade of at least five members (may be less than the minimum requirements for a period of time not to exceed 2 hours in order to accommodate unexpected absence provided immediate action is taken to fill the required positions) shall be maintained on site at all times. The site fire brigade shall not include the Shift Manager and other members of the minimum shift crew necessary for safe shutdown of the unit and any personnel required for other essential functions during a fire emergency.

(6) Additional staffing requirements are discussed in the CCNPP Unit 3 Emergency Response Plan and Technical Specification 5.2.2.

Table 13.1-3—{Consortium General Division of Responsibilities}

CONSORTIUM ENGINEERING LEAD: BECHTEL

Major Design Areas	U.S. EPR Standard Design						CCNPP Unit 3 Specific Design
	Nuclear Island		I&C	Turbine Island		BOP standard	BOP specific
	NSSS	BNI		TG	BTI		
Detailed Design Engineering Services	AREVA	AREVA	AREVA	Alstom	Bechtel	Bechtel	Bechtel
Schedule & Project Controls	Bechtel		Bechtel	Bechtel	Bechtel	Bechtel	Bechtel
Procurement	AREVA	AREVA with Bechtel	AREVA	Alstom	Bechtel	Bechtel	Bechtel
Construction	Bechtel		Bechtel	Bechtel	Bechtel	Bechtel	Bechtel

Notes:

NSSS is Nuclear Steam Supply System
BNI is Balance of Nuclear Island
TG is turbine-generator
BTI is Balance of Turbine Island
BOP is Balance of Plant
I&C is Instrumentation and Controls

Figure 13.1-1—{UniStar Ownership and Technical Support}

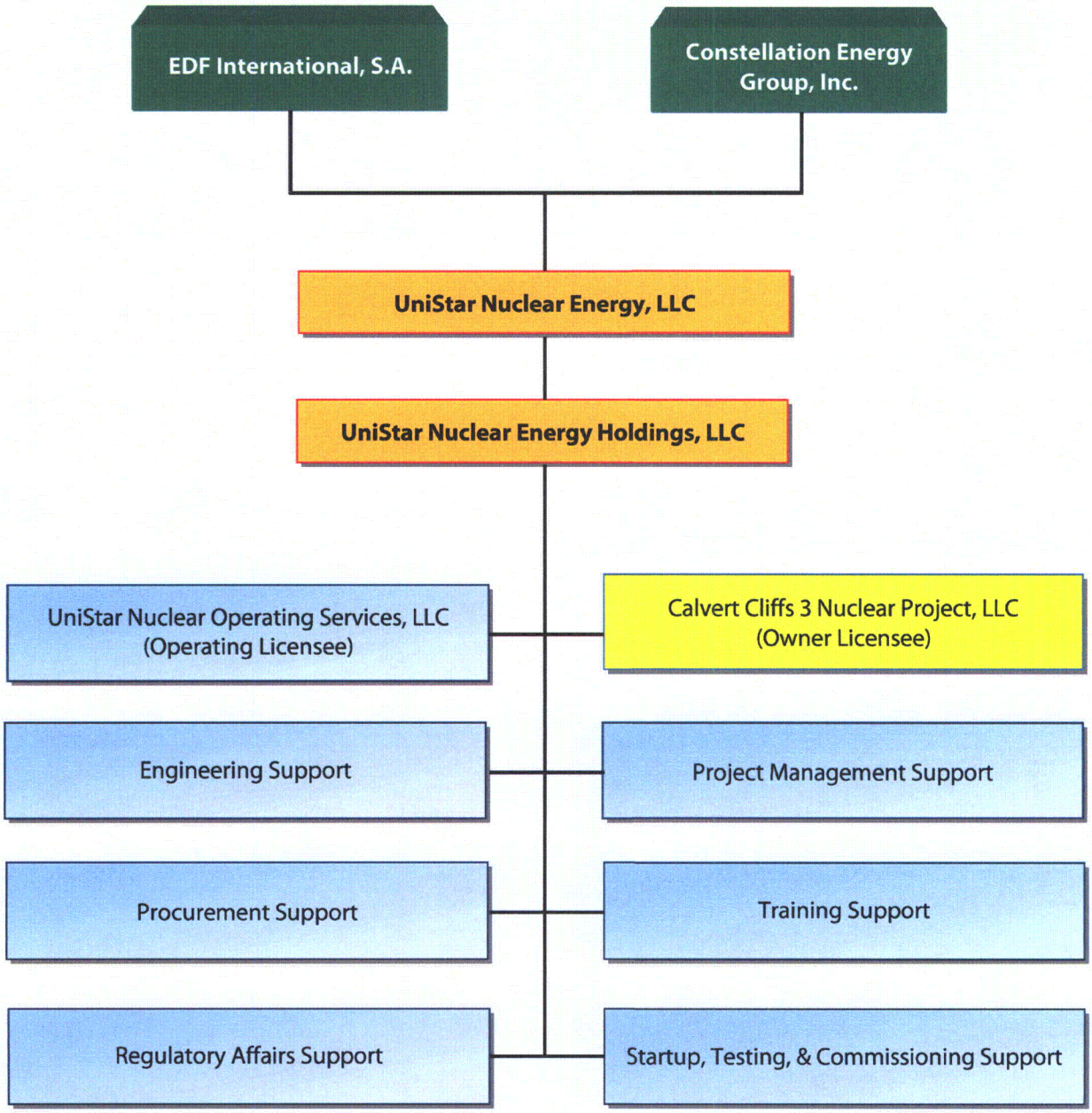


Figure 13.1-2—{Project Delivery Organization}

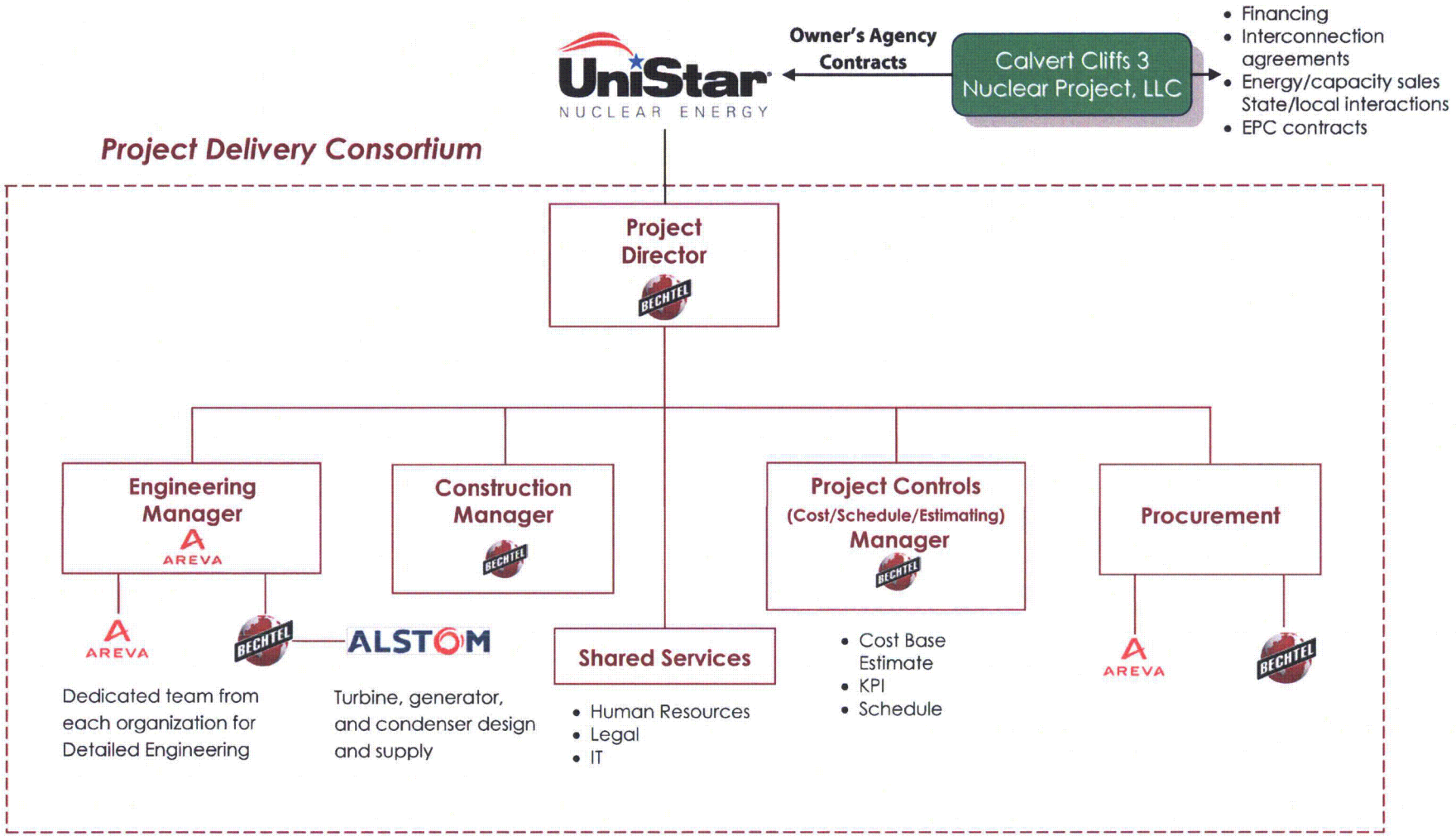


Figure 13.1-3—{UNE Corporate Organization}

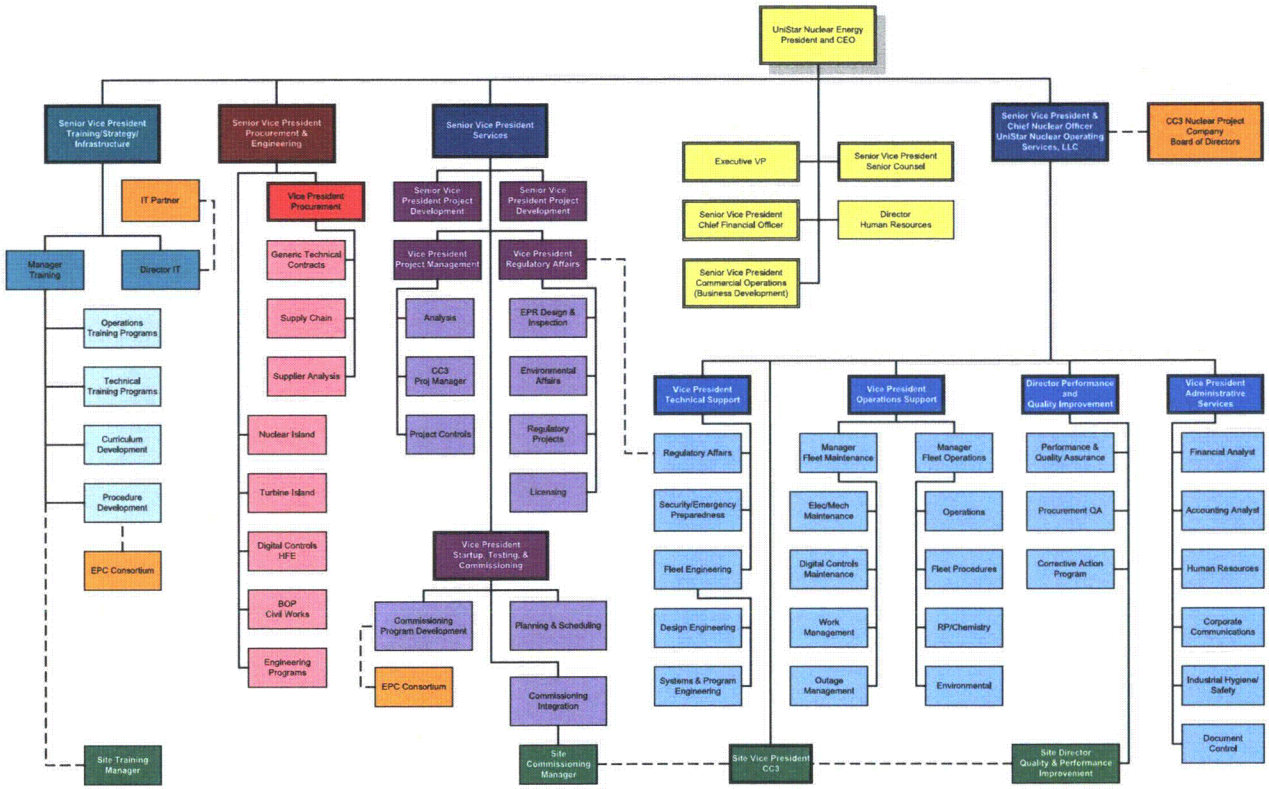


Figure 13.1-4—{UniStar Nuclear Operating Services, LLC Site Organization}

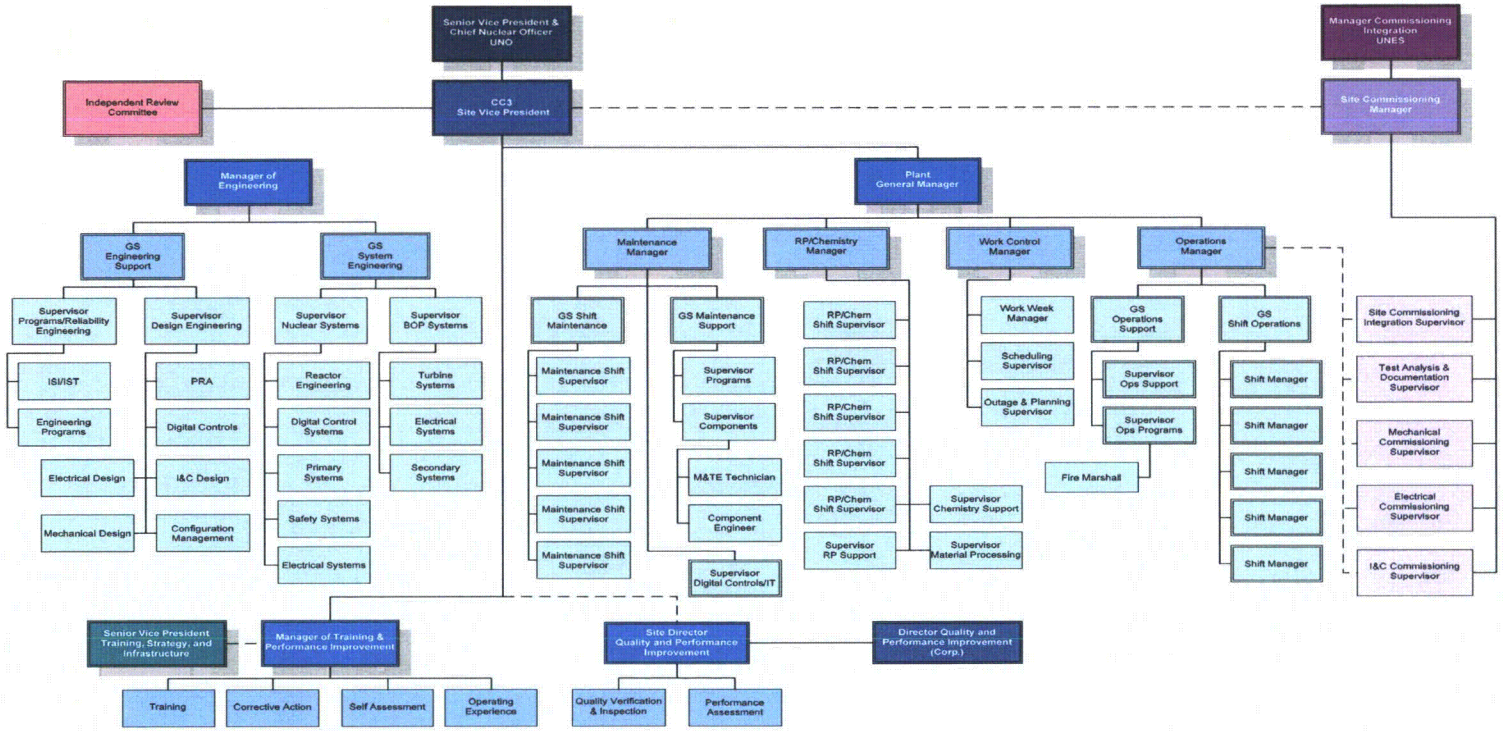
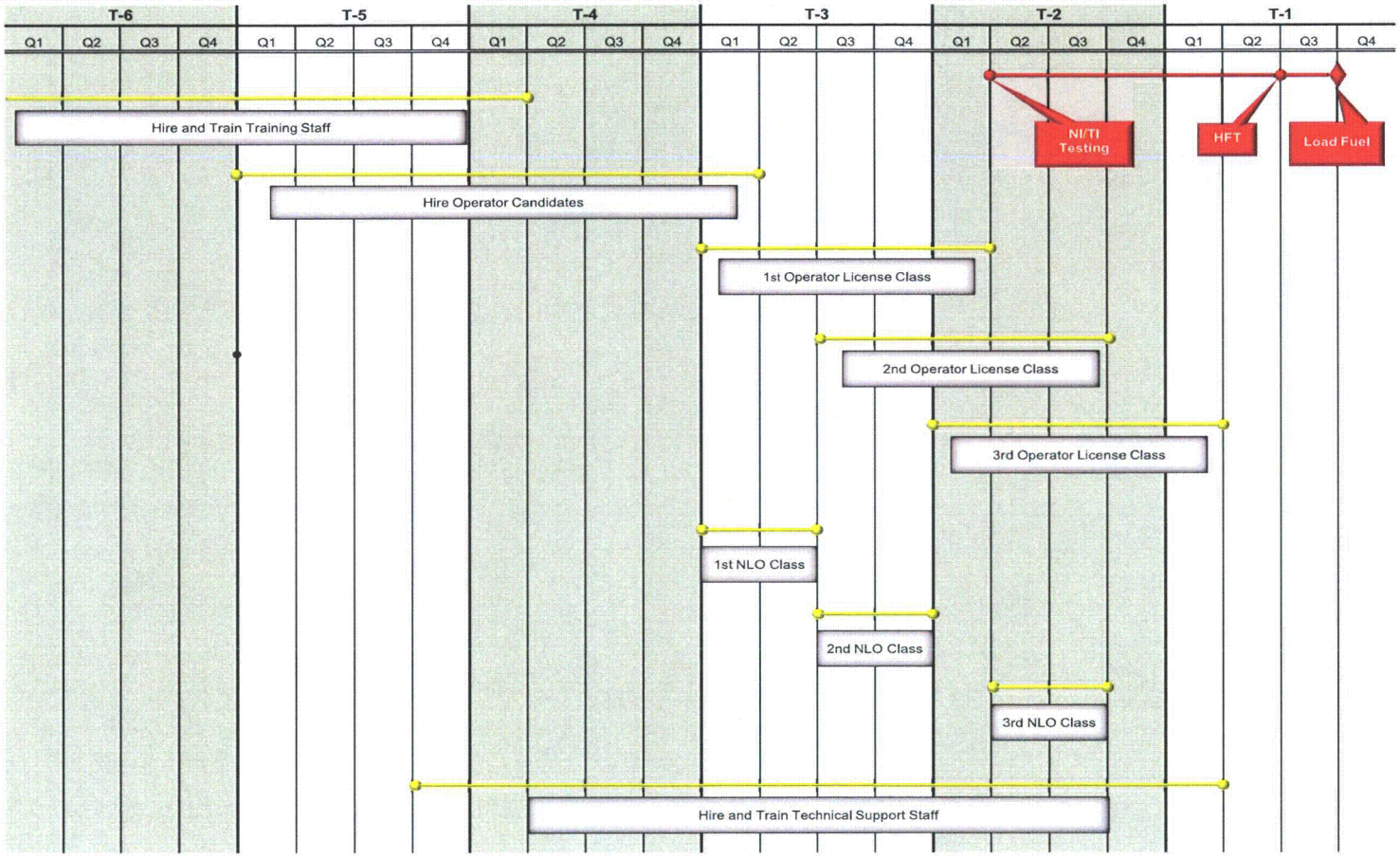


Figure 13.1-5—{Hiring and Training Schedule for Plant Staff}



UN#09-324

Enclosure 3
COLA Markup FSAR Section 14.2.2, ORGANIZATION AND STAFFING
Calvert Cliffs Nuclear Power Plant Unit

14.0 VERIFICATION PROGRAMS

This chapter of the U.S. EPR Final Safety Analysis Report (FSAR) is incorporated by reference with supplements as identified in the following sections.

14.1 SPECIFIC INFORMATION TO BE ADDRESSED FOR THE INITIAL PLANT TEST PROGRAM

This section of the U.S. EPR FSAR is incorporated by reference.

14.2 INITIAL PLANT TEST PROGRAM

This section of the U.S. EPR FSAR is incorporated by reference with the following supplements.

14.2.1 SUMMARY OF TEST PROGRAM AND OBJECTIVES

No departures or supplements.

14.2.2 ORGANIZATION AND STAFFING

The U.S. EPR FSAR includes the following COL Item in Section 14.2.2:

> A COL applicant that references the U.S. EPR certified design will provide site-specific information that describes the organizational units that manage, supervise, or execute any phase of the test program. This description should address the organizational authorities and responsibilities, the degree of participation of each identified organizational unit, and the principal participants. The COL applicant should also describe how, and to what extent, the plant's operating and technical staff participates in each major test phase. This description should include information pertaining to the experience and qualification of supervisory personnel and other principal participants who are responsible for managing, developing, or conducting each test phase. In addition, the COL applicant is responsible for developing a training program for each fundamental group in the organization.

This COL Item is addressed as follows:

Startup Organization

NOTE:

Due to the number of revisions, this section has been completely re-written. For clarity, the deleted text is not shown.

{UniStar Nuclear Energy (UNE) will have both a corporate startup organization and a site-specific organization at CNPP Unit 3. The corporate startup organization is led by the Vice President Startup, Testing, and Commissioning. Figure 13.1-3 includes the corporate structure. The CNPP Unit 3 site organization is led by the Site Commissioning Manager who reports to the

Vice President Startup, Testing, and Commissioning. The CNPP Unit 3 site organization is represented in Figure 13.1-4.

The UNE Startup, Testing, and Commissioning group provides oversight and confirmation of system, structure, and component testing. This group ensures system turnover and testing procedures and boundaries are complete, accurate, and sufficiently clear to allow for the safe and efficient turnover of systems to UniStar Nuclear Operating Services, LLC. This group also provides direct support to UniStar Nuclear Operating Services, LLC for system turnover and plant testing to ensure requirements are met.

System completion, turnover of systems, and turnover of facility areas will be conducted according to fleetwide processes under development by UNE. This will occur on a schedule that coordinates with EPC Agreement requirements and is in line with NRC requirements and those of other regulatory agencies governing the CCNPP Unit 3 project. Commissioning and startup include some portions of the overall inspections, tests, analyses, and acceptance criteria (ITAAC). The commissioning and startup program include construction inspections and tests to verify that structures, systems and components have been installed in conformance with design specifications, drawings and other design documents. This group ensures system turnover and testing procedures and boundaries are complete, accurate, and sufficiently clear to allow for the safe and efficient turnover of systems to UniStar Nuclear Operating Services, LLC. This group also provides direct support to UniStar Nuclear Operating Services, LLC for system turnover and plant testing to ensure requirements are met.

Vice President - Startup, Testing, and Commissioning

The Vice President - Startup, Testing, and Commissioning reports to the Senior Vice President - Services and is the executive level manager responsible for the development (in conjunction with the Consortium) and management of the CCNPP Unit 3 startup, testing, and commissioning program. Three groups of functional level managers and staff report to the Vice President - Startup, Testing, and Commissioning.

Working closely with the Project Delivery Consortium (See Section 13.1.1.1.6) personnel responsible for testing and system turnover, commissioning program development personnel develop procedures describing organizational responsibilities and interfaces between the Consortium, UNE testing personnel, and the UniStar Nuclear Operating Services, LLC operational staff who will be accepting system turnover, maintaining configuration control, manipulating controls during testing, and reviewing test results.

Planning and scheduling personnel ensure testing schedules are aligned with construction and turnover schedules and that the proper organizational resources are available when needed. Detailed monitoring of testing performance is conducted to ensure problems are quickly identified and corrected and to ensure that proper and timely notification of ITAAC performance is made to required parties, including the NRC.

Oversight of coordination of actual startup, testing, and commissioning activities is performed by Startup, Testing, and Commissioning personnel located at the site.

Site Commissioning Manager - Startup, Testing, and Commissioning

The Site Commissioning Manager reports to the Manager - Commissioning Integration (corporate) and functionally reports to the Site Vice President. Site Commissioning Manager is responsible for oversight and proper implementation of the preoperational and startup test

program, including providing technical advice to people conducting the tests, briefing personnel responsible for operation of the plant during the tests, ensuring that the tests are performed in accordance with the applicable procedures, and reviewing test results and analyses.

The Site Commissioning Manager executes these responsibilities through supervisors and technical personnel for mechanical, electrical, and I&C commissioning as well as overall integration of commissioning testing and test analysis and documentation. The supervisors in these areas functionally report to the Operations Manager to ensure efficient integration of commissioning staff with the plant operational staff for the testing and commissioning phase.

There are five supervisors that report the Site Commissioning Manager which include:

- Site Commissioning Integration Supervisor;
- Test Analysis & Documentation Supervisor;
- Mechanical Commissioning Supervisor;
- Electrical Commissioning Supervisor; and
- I&C Commissioning Supervisor.

During startup and commissioning, the Site Commissioning Integration, Test Analysis & Documentation, Mechanical Commissioning, Electrical Commissioning, and I&C Commissioning Supervisors (who report to the UNE Site Commissioning Manager) also report to and coordinate with the Operations Manager to ensure startup and commissioning activities are conducted safely and in accordance with station expectations and procedures.

UniStar Nuclear Operating Services, LLC

The UniStar Nuclear Operating Services, LLC plant operating, maintenance, and engineering personnel are utilized to the extent practicable during the Startup Test Program. The plant staff operates permanently installed and powered equipment for Phases I through IV and subsequent system tests. Plant personnel such as instrument, chemistry, computer, radiation protection, and maintenance personnel are used to assist in the performance of tests and inspections in the areas in which they will primarily work during plant operation. Using plant staff, during startup in their respective operational areas, will maximize the transfer and retention of experience and knowledge gained during the startup program to the subsequent commercial operation. The Site Commissioning Manager will coordinate the use of the staff with the Site Vice President and the Project Delivery Organization.

Project Delivery Consortium

The Project Delivery Consortium is discussed in Section 13.1.1.1.16. The Project Delivery Consortium consists of AREVA, Bechtel, and Alstom. The Project Delivery Consortium is responsible for developing the initial plant test program, procedures, and directing the tests at the CNPP Unit 3.

The Project Delivery Consortium will coordinate the construction schedules with startup test program requirements and provide manpower support as needed to meet the schedule, to correct deficiencies, or to make repairs. The organization provides technical advice and

consultation on matters relating to the design, construction, operation, and testing of systems and equipment.

The Project Delivery Consortium directs and controls startup program technical and functional test activities, including prerequisite work and testing Phases I through IV. The Project Delivery Consortium is responsible for:

- Developing the startup program;
- Developing administrative and technical startup procedures;
- Ensure the procedures are reviewed and approved as required;
- Planning, organizing, scheduling, directing, and controlling Startup activities (subject to UNE oversight);
- Managing Startup Program contracts to ensure accurate and timely compliance;
- Developing the Startup Test Schedule;
- Maintaining liaison with UNE to keep them informed of status, emerging problems in their respective areas, and support requirements,
- Directing the startup tests (subject to UNE oversight);
- Providing representatives to site administrative groups or committees as requested by the Site Commissioning Manager;
- Reviewing test procedures;
- Evaluating test results; and
- Providing technical support and liaison with the Site Commissioning Manager to coordinate problem resolution.

Qualification and Training

The education and qualification requirements for the Site Commissioning Integration Supervisor, Test Analysis & Documentation Supervisor, Mechanical Commissioning Supervisor, Electrical Commissioning Supervisor, and I&C Commissioning Supervisor are consistent with both the Preoperational Test Engineer and Startup Testing Engineer positions of ANSI/ANS-3.1-1993, specified in Table 13.1-1.

Education and qualification requirements for the Site Commissioning Manager position are analogous to the Technical Manager position of ANSI/ANS-3.1-1993, described in Table 13.1-1.

Training and qualification of other plant staff (i.e. instrument, chemistry, computer, radiation protection, and maintenance personnel) assigned to support the Startup Organization continue to be managed by their line organization. They perform duties in line with their normal training and qualification programs at the direction of the Site Commissioning Managers organization and in support of the startup test program.

The Project Delivery Consortium and other contract or vendor staff will meet the education and experience requirements consistent with ANSI/ANS-3.1-1993, Section 3.2, for Contractor and Temporary Positions.

Training of personnel responsible for the conduct of preoperational and startup tests, and for organizations that will develop the preoperational and startup tests is based on site specific training and qualification of engineering personnel. Specific topics that will be addressed include the following:

- Administrative controls for modifying procedures;
- Verbatim procedure compliance and independent verification requirements;
- Administrative controls for documenting condition reports;
- Test sequence and program administration;
- Documentation requirements, including acceptance criteria reviews;
- Policies regarding operations control of equipment manipulations (valves, breakers switches, etc.);
- Interface with Test Review Team;
- Requirements regarding identifying (tagging) components within the released for test boundary;
- Requirements for components within tag-out boundaries; and
- Component specific training by major vendors (turbine, reactor coolant pumps, etc.), as applicable.}