

## NEW NUCLEAR BUILD SERVICES



EXCEL has vast U.S. and international licensing experience working with regulatory bodies including the U.S. Nuclear Regulatory Commission (NRC), International Atomic Energy Agency (IAEA), and Canadian Nuclear Safety Commission. EXCEL has worked with numerous nuclear plant designers and operators to develop and implement licensing and regulatory strategies for all phases of the nuclear plant life cycle, from design certification, to initial licensing, to license renewal, to decommissioning.

Since August 2005, EXCEL has been extensively involved in the preparation, review, and/or defense of most new build applications for Early Site Permits (ESP), Design Certification Applications (DCA), Combined License Applications (COLA). Our Part 52 work has supported large light water reactors, small modular reactors (SMR), and advanced reactors. EXCEL personnel have extensive, current experience with Part 52 issues and other activities related to managing and resolving first-of-a-kind, complex issues. EXCEL leadership led to the first ever Part 52 ESP for Clinton Power Station and first ever COL for Vogtle Electric Generating Station (VEGP) Units 3 & 4.

EXCEL personnel entered into the Part 52 arena with extensive backgrounds in Part 50 licensing, both application preparation/defense and operating license maintenance and renewal. EXCEL personnel utilized this extensive experience to identify innovative and practical solutions to the numerous issues encountered when using the unique regulatory process defined by Part 52.

An EXCEL representative has participated on every NEI task force related to Part 52. These include the Early Site Permit Task Force, Combined License Task Force, Small Modular Reactor Task Force, Construction Inspection Program Task Force, and the Seismic Issues Task Force, as well as various subgroups under those task forces. Few within the industry can provide this extensive Part 52 background, and understanding of the regulatory issues and resolutions associated with Part 52.

### EARLY SITE PERMIT (ESP)

EXCEL provided overall licensing leadership for development and submittal of the first ever Part 52 Early Site Permit application including development of responses to NRC requests for additional information (RAIs). This role also included preparation and presentation to the Advisory Committee for Reactor Safeguards (ACRS) and expert testimony to the Atomic Safety and Licensing Board (ASLB), leading to the eventual issuance of the Clinton ESP, the first such ESP issued under Part 52. This ESP provides for eventual utilization of a wide range of reactor designs through a plant parameter envelope evaluation format.

#### KEY PROJECTS:

- Exelon Clinton Power Station
- TVA Clinch River SMR Project

### DESIGN CERTIFICATION DOCUMENT (DCD)

EXCEL has been involved in the preparation and/or review of most applications for the various reactor designers applying for U.S. design certification (DC) or amending a previous DC under Part 52. We have experience working on the various DCD information types (Tier 1, Tier 2, Tier 2\*, and Technical Specifications). EXCEL personnel were responsible leads for most DCD chapters and supplemental support for all other chapters, including significant roles in drafting and negotiating Tier 1 content including ITAAC. Our expertise includes coordinating and developing revisions to DCD chapters, responses to NRC RAIs, developing position papers to address first-of-kind or evolving licensing issues, and preparing ACRS presentations.

EXCEL also provided licensing leadership and participated in the various Design Centered Working Groups (DCWG), which maintain standardization of the applications across the member utilities.

#### KEY PROJECTS:

- AP1000 Design Certification Application Amendment
- GEH ESBWR Design Certification Application
- AREVA EPR Design Certification Application
- MHI US-APWR Design Certification Application
- KHNP APR1400 Design Certification Application
- Toshiba ABWR Design Certification Rule Renewal Application

### COMBINED LICENSE APPLICATION (COLA)

EXCEL has been extensively involved in the preparation, review, and/or defense of most new build applications for COL applications. EXCEL support included project leadership, development of COL application text, responses to NRC RAIs and licensing position papers. EXCEL developed regulatory strategies to resolve complex licensing issues and interfaced with the NRC staff. EXCEL interfaced with the reactor vendors to resolve plant-specific issues and modify their DCDs. As part of this interface, EXCEL developed, reviewed and commented on draft DCD-related documents, topical reports, and ITAAC closure packages.

EXCEL provided leadership or participated in the various DCWG for coordinating standardization of applications across the member utilities, including support of the DCD Amendment activities (topical report

development and review, RAI response development and review, licensing strategy input, DCD revision drafting and review) and consideration of those activities on the COL applications.

#### KEY PROJECTS:

- SNC Stewart County Project COLA
- NuStart AP1000 Reference COLA (R-COLA) and Subsequent COLAs (S-COLAs)
- NuStart ESBWR R-COLA
- UniStar COLA
- Entergy, DTE Energy, and Dominion Power COLAs (GEH ESBWR)
- NRG South Texas Project (STP) COLA

## INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA (ITAAC)

ITAAC is a critical subset of the information required for Tier 1. Since ITAAC represents the most significant licensing uncertainty (i.e., ITAAC closure is open to a public hearing prior to fuel load), ITAAC development is critical to the overall plant construction and final plant startup (or plant turnover) process. EXCEL has the best experience for the ITAAC lifecycle from development through closure. EXCEL has been a licensing lead or reviewer for Tier 1/ ITAAC for most Design Certifications (DC) reactor vendors. EXCEL has been involved in first-of-kind ITAAC negotiations for various issues representing reactor vendors and utilities in developing RAI responses for the NRC and in meetings with ACRS. EXCEL played a critical role on the NEI COL and CIP Task Force. As part of this work, EXCEL worked with NEI and the industry to develop NEI 08-01, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52." EXCEL worked with Southern Nuclear Company (SNC) and the NRC for first ever ITAAC closures for VEGP Units 3 & 4.

EXCEL's extensive ITAAC experience with all aspects of the lifecycle place it in a unique position to work with new reactor vendors to develop, review, and advise throughout the DC process. Developing clear ITAAC with straightforward closure mechanisms is critical. EXCEL brings recent, relevant lessons learned from the VEGP Units 3 & 4 closure work with the NRC Construction Inspection branch to provide the best consulting advice to potential DC applicants.

## DCD CHAPTER 16 TECHNICAL SPECIFICATIONS

EXCEL is the premier consultant to provide support in the planning, coordination, and development of the Design Control Document (DCD) Chapter 16, Technical Specifications (TS). EXCEL's professionals have experience in providing all facets of Technical Specification services. EXCEL professionals have had extensive involvement with numerous nuclear utilities and design authorities specifically in initial development of Technical Specifications. Additionally, EXCEL maintains extensive experience in improving or amending the Technical Specifications to support and enhance continued operation.

EXCEL has supported development of multiple DCD Chapter 16 TS including ESBWR, EPR, and the SMR Generation mPower reactor. In addition, EXCEL performed the first, large scale upgrade to the AP1000 TS for VEGP Units 3 & 4.

## ADVANCED REACTORS

For advanced reactor designers and potential license applicants EXCEL can develop and implement a licensing strategy for success that applies key elements including:

- Utilizing the progress achieved from previous licensing efforts and NRC interactions associated with a particular technology or design center
- Working collaboratively with vendors, applicants, NRC and industry on resolution of generic licensing issues
- Engaging NRC early to identify and resolve technical, regulatory and policy issues
- Determining the optimum license approach (e.g., Part 50, Part 52, etc.) by evaluating the available alternative approaches to plant licensing (e.g., Part 50, Part 52 COLA or COLA/DCD combination, prototype nuclear power plant (using 10 CFR 50.43(e)) and provide a recommended approach
- Identifying pre-application activities associated with key licensing issues such as defining the project-specific activities that need to be performed in order to identify those areas where NRC light-water reactor (LWR) licensing requirements may need to be adapted or revised to address the licensing of a gas reactor technology.
- Estimating the scope of expected interactions with NRC staff
- Identifying possible pre-application Topical and Technical Reports applicable to the technology
- Developing a level 1 proposed schedule for licensing-related activities leading to a license

## 10 CFR 52 TRAINING

EXCEL's extensive experience with all sections of Part 52 place us in the perfect position to conduct effective and relevant training to utilities and reactor vendors. Since EXCEL has been involved in numerous application submittals and strategic negotiations with the NRC, clients benefit from lessons learned. The training of Regulatory Affairs (RA) and Engineering staff on Part 52 requirements / related guidance is critical to successful Part 52 application development, saving resources and money in re-work and NRC review fees. This training provides each student with a fundamental understanding of Part 52 regulations and licensing basis management concepts to improve the overall ability of RA staff to address issues and changes that arise with the licensing basis.

The training is designed to provide the RA and Engineering staff with the tools necessary to understand the licensing basis of the Design Control Document (DCD) and Combined License (COL), the structure of the regulatory requirements associated with the licensing basis, and the accepted guidance for implementing the change control process under Part 52. EXCEL's instructors are selected for their in-depth knowledge of the subject matter. EXCEL has presented this course for both domestic and international clients.

#### KEY PROJECTS:

- Westinghouse Corporation
- KHNP/KEPCO E&C