Improving the Environmental Review Process

NRC Public Meeting
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Industry Presentations

- Lessons learned from recent environmental reviews
- Alternative site reviews
- Maintaining consistency of environmental reviews
- Improving the environmental review process

Environmental Review Process Recent Lessons Learned

- Pre-Application Environmental Site Visits – A Positive Experience
  - Opportunity for open discussion, including professional disagreements
  - Improves ER quality and facilitates acceptance review
  - NRC flexibility and willingness to combine visits (e.g., C2/C3) is appreciated
  - Continued improvement opportunities: trip report timing and message consistent with visit takeaways; industry strive to incorporate comments
- Application of Evolving Guidance
  - Early and consistent message from Staff on how and when rule revisions, ISGs, new interpretations, etc. apply to current and near term applicants
  - LWA ISG is a recent example
- NRC Staff Consistency
  - Changes to PM or key staff mid-review can create challenges
- Public Meetings and Comment Opportunities are Welcome
  - Recent examples: LWA ISG, EPP template, USACE MOU interaction, Env. Review Process
  - The NRC has been thoughtful and receptive of industry concerns

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Industry Lessons Learned Alternative Site Reviews

- Differences in Interpretation of the ESRP
  - What the ESRP recommends
  - What industry interprets the ESRP as recommendations
  - What the Staff and reviewers are requesting

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ESRP Recommends Reconnaissance Level Data

- Literature reviews
- Government reports and databases
- Regional planning studies
- Aerial photographs
- Local experts

ESRP 9.3 “The reviewer will use information regarding the environmental impacts of the proposed action at the proposed site that were developed in Chapters 4.0 and 5.0, and the *reconnaissance level* information available for the alternative sites, to perform an independent comparison of the proposed and alternative sites.”

Applicants' Approach

- Siting is, by necessity, conducted in a highly confidential nature 2-3 years prior to ER preparation
- Reconnaissance level, publicly available
- Information from previous siting for nuclear and non-nuclear facilities
- Use industry standard methodology (e.g., EPRI siting guide) as appropriate

Staff's Approach: ESRP

- Hydrology, water quality, water availability
- Aquatic resources (wetlands and buffers, fish habitat, endangered species)
- Terrestrial resources (land use, endangered species)
- Transmission corridors
- Socioeconomic factors (aesthetics, archaeological and historic preservation, environmental justice)
- Population distribution and density
- Air quality
- Radiological and non-radiological health impacts
- Postulated accidents

Staff's Approach: Beyond Reconnaissance

- Mineral rights
- Detailed land cover surveys
- Field endangered species surveys
- Detailed community socio-economic characteristics
- Cost evaluations of alternatives that are not "obviously superior"
- Maximum drought conditions
- Climate change considerations
- Level of detail depends on specific reviewer involved
- Detail requested by reviewers not necessarily commensurate with environmental risk involved
- Mini-EIS for each alternative site

NEPA Requirements

- Reasonable range of alternatives
  - Applicant's business practice, using industry standards, should be sufficient
- Detail to determine if environmentally preferable site within that range
  - Detail beyond reconnaissance rarely needed
  - Staff desires unpredictable and beyond NEPA

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Areas for Improvement

- Industry:
  - Review EPRI siting guidance in light of lessons learned
  - Provide industry additional guidance on how to use EPRI siting guidance
- NRC:
  - Develop guidance for consistency in reviewer's requests
  - Focus information on reconnaissance level when consistent with environmental risk

Maintaining Consistency in the ESP/COL Environmental Review Process

A lack of consistency between the requirements delineated in the ESP/COL environmental guidance and the information (particularly the level of detail) requested during the environmental review process has been observed by ESP and COL applicants

Throughout the entire process, but especially through the RAI phase, there has been a tendency for the scope of information and data requested to extend well beyond what the ESRP and other guidance requires

Concern over questions from the ASLB during the hearing has been a factor driving the expansion of scope and range of material requested through the RAI process

While many reasons have been given for why this is occurring, it is fundamentally one of the major obstacles to streamlining this process

The absence of current, clear definitive guidance for Environmental Report scope and preparation that fully supports the ESRP is a major factor

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Maintaining Consistency in the ESP/COL Environmental Review Process

The currently available guidance on ER preparation (Reg Guide 4.2) is 1976 vintage does not reflect the new Part 52 process

Current applications were prepared using NUREG 1555 (ESRP) and essentially working backward to determine what was needed in the ER

Clear, consistent guidance soundly based on NEPA requirements is needed for every step of the process from Scoping through the hearing

It is clear that greater common understanding of NEPA is needed among staff, applicant, and ASLB

Maintaining Consistency in the ESP/COL Environmental Review Process

Summary and Recommendations

- Defining what is actually required is key to success; applicants are willing to provide the information necessary to complete the review, but what is required is not currently clear
- Input from the staff, applicants, NRC management, ASLB and the public to clearly define the scope will be required
- The current revisions to the ESRP should provide a starting point
- Consider a program, such as that offered by Duke University, as a possible source to develop integrated NEPA training based on input from NRC, including the ASLB

Improving the Environmental Review Process for New Reactors

Templates and Scoping

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Template

- NRC- and industry-agreed upon:
  - Documentation of why an issue is nonsignificant and needs no detailed analysis
  - Standardized methodology for analyzing certain significant issues
- Subject to public comment during scoping and DEIS review

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Scoping

- Range of actions, alternatives, and impacts to be considered in an EIS
- Process used to determine the scope of the EIS, including eliminating from detailed study issues which are not significant
- Key to template compliance with NEPA

Concept

- Prepare generic list of significant and nonsignificant issues and templates
- Notice of Intent includes preliminary draft list and reference to supporting documentation (templates)
- Public, agency meetings discussion of list, templates, new and significant information
- Scoping Summary Report includes draft list
- DEIS summarizes scoping, presents list, references templates
- FEIS includes final list and analytical changes

List of Issues (Examples)

Significant

- Impacts
  - Dose
  - Water use conflicts
  - Impingement
  - Housing (construction)
- Alternatives
  - No action
  - Coal-fired generation

Nonsignificant

- Impacts
  - Altered salinity
  - Eutrophication
  - Air quality
  - Housing (operation)
  - Waste management
- Alternatives
  - DSM
  - Wind

Template for Non-Significant Issue Altered Salinity Gradients

Operation of nuclear power plant condenser cooling systems can effect hydrologic changes in surface waters by withdrawing water, heating it, adding chemicals, and discharging it to the receiving water body. Plants operating near estuaries can alter salinity gradients. An environmental impact is small if it is not noticeable or is so minor that it will neither destabilize nor noticeably alter any important attribute of the resources. Changes to salinity gradients are of small significance if they are localized near the intake and discharge of the power plant and are within the normal tidal or seasonal movements of salinity gradients that characterize estuaries.

Review of published literature and operational monitoring reports has shown that **impacts to salinity gradients from existing plants operating near estuaries have been small**. Utilities and regulatory agencies have identified no concerns about individual or cumulative impacts or need for additional mitigation. License renewal reviews for plants operating near estuaries have shown no new and significant information that would alter the conclusion that impacts to salinity gradients are small for existing plants. **New reactor condenser cooling systems are effectively the same as those for existing plants** and impacts to salinity gradients from new plants are also expected to be small. Because of the presumed local nature of effects, cumulative impacts are deemed unlikely. **Scoping having identified no new information to the contrary, NEPA requires no further analysis.**

Template for Significant Issue

- Candidate issues:
  - Dose
  - Need for power
  - Alternative energy sources (if significant)
  - New and significant evaluation when referencing an ESP
  - Others?

Path Forward

- Create generic list and sample templates, ensuring consistency with NUREG-1555 and NUREG-1437 changes
- May need Commission buy-in on approach
- Complete templates, identify reference plant
- Revise instructions to staff on using acceptance review checklist and NUREG-1555
- Test revised scoping process and templates on new application

Wrap-up

- Need for improved guidance
- Consistent implementation of NRC processes will benefit applicants and reviewers alike
- Use of templates and scoping to promote efficient application and review processes
- Need for further opportunity to comment on draft Environmental Protection Plan
- Need for continued dialogue