U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Public Meeting to Discuss the Draft Environmental Impact Statement for an Early Site Permit for the Clinch River Nuclear Site
Tuesday, June 5, 2018

Agenda:

Afternoon Session 2:00 PM to 4:00 PM

2:00 pm – 2:10 pm	Opening Remarks and Introductions	Meeting Facilitator
2:10 pm – 2:35 pm	NRC's ESP/Environmental Review Process and DEIS Findings	NRC Staff
2:35 pm – 2:45 pm	Question and Answers – NRC's Process	Public/NRC Staff
2:45 pm – 3:55 pm	Receive Public Comments	Public
3:55pm – 4:00pm	Closing Remarks	Meeting Facilitator

Evening Session 7:00 PM to 9:00 PM

7:00 pm – 7:10 pm	Opening Remarks and Introductions	Meeting Facilitator
7:10 pm – 7:35 pm	NRC's ESP/Environmental Review Process and DEIS Findings	NRC Staff
7:35 pm – 7:45 pm	Question and Answers – NRC's Process	Public/NRC Staff
7:45 pm – 8:55 pm	Receive Public Comments	Public
8:55pm – 9:00pm	Closing Remarks	Meeting Facilitator

Included in this Packet:

- ✓ Information Sheet: Clinch River Nuclear Site Early Site Permit Environmental Review
- ✓ Public Meeting Comment Submission Sheet
- ✓ NRC Public Meeting Feedback (NRC FORM 659)
- ✓ Meeting Slides Handout

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INFORMATION SHEET ON THE CLINCH RIVER NUCLEAR SITE EARLY SITE PERMIT ENVIRONMENTAL REVIEW

OVERVIEW

The Tennessee Valley Authority (TVA) submitted an application to the U.S. Nuclear Regulatory Commission (NRC) on May 12, 2016, for an early site permit (ESP) for the Clinch River Nuclear Site in Oak Ridge, Roane County, Tennessee, for new nuclear power units demonstrating small modular reactor technology. The NRC is reviewing that application.

As part of the NRC's review of TVA's application, the staff performed an environmental review. The preliminary results of that review are documented in the draft Environmental Impact Statement (EIS). The U.S. Army Corps of Engineers (USACE), Nashville District, is a cooperating agency with the NRC and participated in preparing this draft EIS.

WHERE TO FIND MORE INFORMATION

Copies of TVA's Environmental Report and the NRC's draft EIS can be:

- Viewed online at http://www.nrc.gov/reactors/new-reactors/esp/clinch-river.html; or
- Review a printed copy or disc at
  - Kingston Public Library at 1004 Bradford Way, Kingston, Tennessee 37763
  - Oak Ridge Public Library at 1401 Oak Ridge Turnpike, Oak Ridge, Tennessee 37830

ENVIRONMENTAL REVIEW MILESTONES

Application submitted to NRC	May 2016
Public Scoping Meetings	May 2017
Publication of Draft EIS	April 2018
Public Meetings on Draft EIS	June 2018
Publication of Final EIS	June 2019*

* Target date

Comments on the Clinch River Nuclear Site ESP Draft EIS will be accepted through **July 13, 2018**.

Your input on the draft EIS is a very important aspect of our environmental review. Here are a few ways you can share your comments with us.

Email: ClinchRiverESPEIS@nrc.gov

Today's Public Meeting:
Submit verbally (meeting transcribed)
Submit in writing

Environmental Project Manager

Tamsen Dozier (NRC)
Tamsen.Dozier@nrc.gov
301.415.2272

WHAT IS THE U.S. NUCLEAR REGULATORY COMMISSION'S PROCESS FOR ISSUING AN EARLY SITE PERMIT?

An early site permit (ESP) is an NRC approval of a site for one or more nuclear power reactors. Once an application for an ESP has been accepted, there are two separate aspects of NRC's review — safety and environmental.

Figure 1 shows the complete review process for an ESP. The final product from the safety review is a safety evaluation report that details reactor design and safety issues. The final product from the environmental review is an environmental impact statement that describes the environmental effects of building and operating a new nuclear plant.

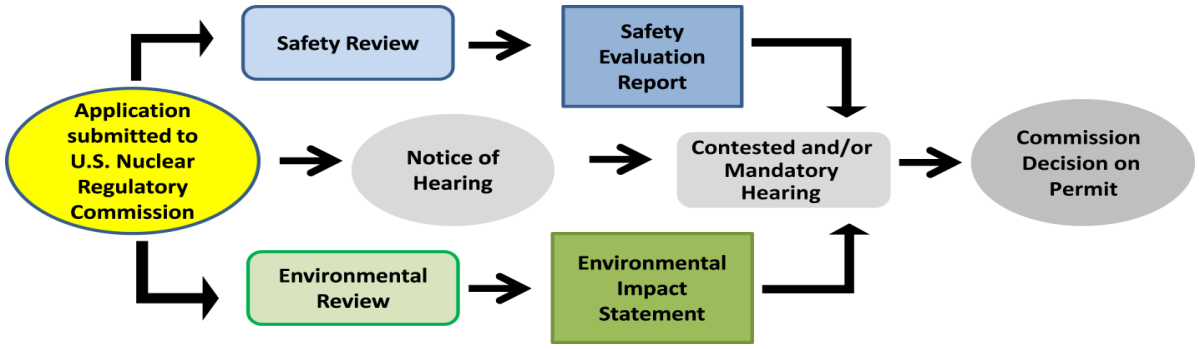

Figure 1. Review and Approval Process for Early Site Permits

The purpose of the **safety review** is to ensure the new reactors are safely built and operated according to NRC regulations and requirements. The review includes an evaluation of the design of the facility, site requirements, quality assurance programs, physical security, and emergency preparedness. The NRC's safety analysis will be documented in the **safety evaluation report (SER)**.

The **environmental review** serves to document the environmental impacts of building and operating a new nuclear reactor. The environmental review includes input from the public, consultation and coordination with local, state, and Federal agencies, tribal nations, as well as independent analysis of NRC and contractor environmental experts. These experts review the applicant's environmental report (ER) that was included in the ESP application and conduct site visits and audits, review and in many cases independently confirm analyses. Subject areas reviewed include for example: water use and quality; ecology; land use; air quality; socioeconomics; and environmental justice. The NRC's analysis of the environmental impacts are documented in the **Environmental Impact Statement (EIS)**.

In addition, the environmental review includes input from the public by inviting comments before the draft environmental impact statement is prepared, and again after the draft environmental impact statement is issued. Impacts are categorized as SMALL, MODERATE, LARGE, or a range of these categories, which are the accepted descriptions from the Council on Environmental Quality.

Both aspects of the ESP review are addressed in a mandatory hearing. The **Atomic Safety and Licensing Board** (ASLB) is conducting a contested hearing as outside parties successfully filed a petition that raised safety or environmental concerns about the ESP. The **Advisory Committee on Reactor Safeguards** (ACRS) – an independent group of technical experts – reviews each application and the NRC's corresponding safety evaluation report, and reports its results to the NRC's five-member Commission. A mandatory public hearing will be conducted by the ASLB. The ASLB makes the final permitting decision that is subject to Commission review.

DRAFT EIS FOR THE CLINCH RIVER NUCLEAR SITE

The next two pages provide a review of the draft environmental impact statement.

CHAPTER 1—INTRODUCTION

This introductory chapter defines the proposed action and the purpose of and need for the proposed action; it also provides a brief outline of the NRC and U.S. Army Corps of Engineers environmental review processes.

CHAPTER 2—AFFECTED ENVIRONMENT

This chapter describes the location of the Clinch River Nuclear Site and the existing conditions at the site and surrounding area that provide the "baseline" for the analysis.

CHAPTER 3—SITE LAYOUT AND PLANT DESIGN

This chapter includes the proposed site layout and the project description used for the impact analysis of the proposed action.

CHAPTER 4—ENVIRONMENTAL IMPACTS OF CONSTRUCTION

This chapter describes the potential impacts from building a new nuclear power plant at the Clinch River Nuclear Site and the measures and controls that would limit the adverse impacts of building a new nuclear power plant.

CHAPTER 5—ENVIRONMENTAL IMPACTS OF OPERATION

This chapter examines the potential impacts from operating a new nuclear power plant at the Clinch River Nuclear Site and the measures and controls that would limit the adverse impacts during operation over a hypothetical 40-year license period.

CHAPTER 6—FUEL CYCLE, TRANSPORTATION, AND DECOMMISSIONING

This chapter addresses the environmental impacts from (1) the uranium fuel cycle and solid waste management, (2) the transportation of radioactive material, and (3) the decommissioning of a new nuclear power plant at the Clinch River Nuclear Site.

CHAPTER 7—CUMULATIVE IMPACTS

This chapter describes the cumulative impacts that may result when the effects of building and operating a new nuclear power plant at the Clinch River Nuclear Site are added to, or interact with, other past, present, and reasonably foreseeable future actions on the same resources.

CHAPTER 8—NEED FOR POWER

A need for power assessment is not required for an ESP application. TVA's ESP application does not address the need for power; therefore, the draft EIS did not include an assessment of need for power.

CHAPTER 9—ALTERNATIVES

This chapter contains the evaluation of site location alternatives, and alternatives to nuclear plant systems.

CHAPTER 10—CONCLUSIONS AND RECOMMENDATIONS

The final chapter provides the staff's preliminary recommendation on whether the early site permit should be issued to TVA.

After considering the environmental impacts of building, operating and decommissioning nuclear facilities at the proposed site, the review team's preliminary recommendation to the Commission is that the ESP be issued as proposed. This preliminary recommendation was determined using the criteria in Figure 2.

The ASLB will make a decision, subject to Commission review, on whether to issue the ESP following the issuance of the staff's final environmental impact statement and final safety evaluation report and the conclusion of the hearing process.

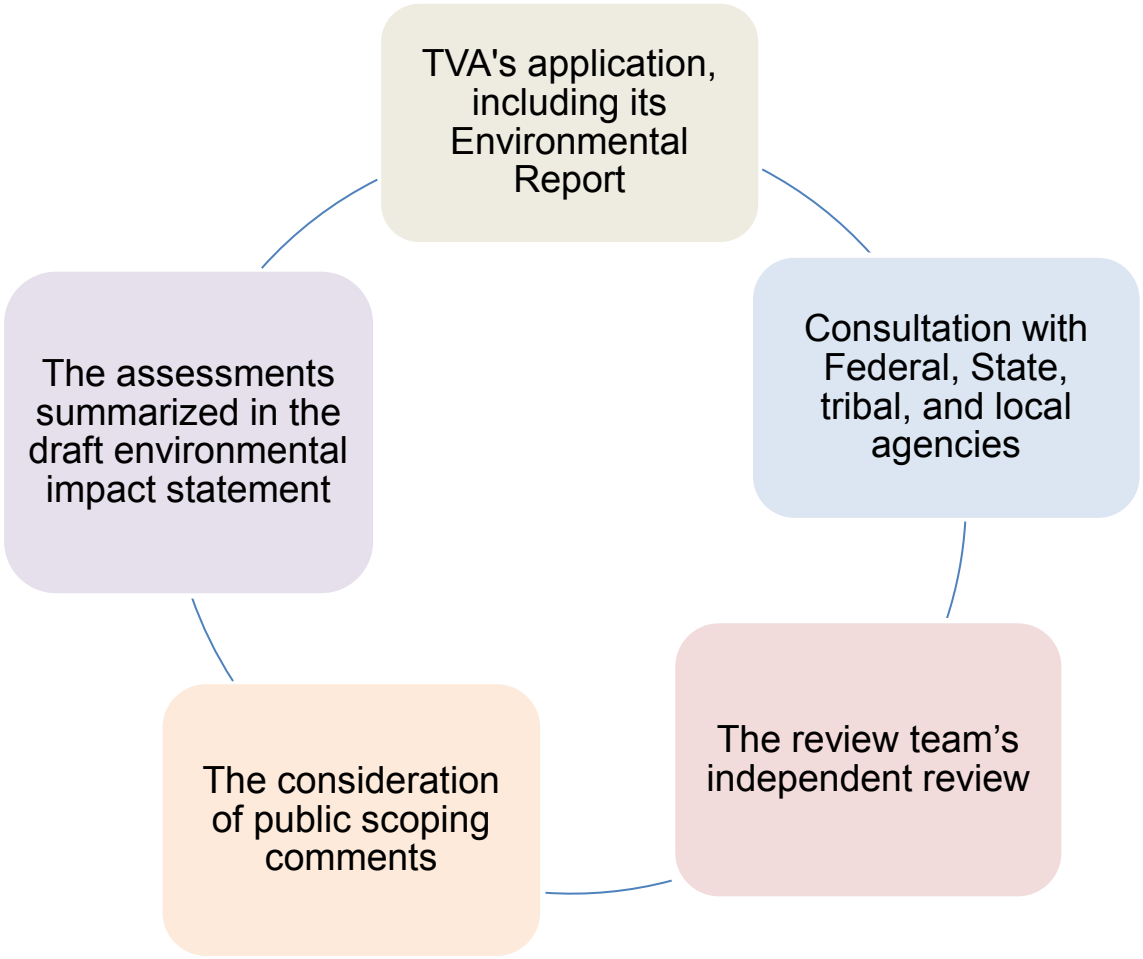

Figure 2. Basis of the Review Team's Preliminary Recommendation

Clinch River Nuclear Site - Early Site Permit Application
Public Meeting for Comment on the DEIS - Tuesday, June 5, 2018

Commenter Name: _____

Organization Name (if any): _____

If you would like to be added to the NRC's mailing list to receive information on the project, please provide either your mailing address or email.
Address: _____

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Session you attended: ❑ Afternoon ❑ Evening

Comment:

Clinch River Nuclear Site - Early Site Permit Application
Public Meeting for Comment on the DEIS - Tuesday, June 5, 2018

NRC FORM 659 (04-2017) | U.S. NUCLEAR REGULATORY COMMISSION

NRC PUBLIC MEETING FEEDBACK

APPROVED BY OMB: NO. 3150-0217 | EXPIRES: 12/31/2019

Meeting Date: 06/05/2018

Meeting Title: MEETING TO DISCUSS DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR CLINCH RIVER NUCLEAR SITE EARLY SITE PERMIT APPLICATION

Thank you for attending this public meeting hosted by the NRC. In order to help us understand your views about this meeting and improve future meetings, please take a couple minutes to answer the questions below.

There are several ways you can provide your feedback:

1) Scanning the Quick Response (QR) Code on the back of this form with your smartphone to link directly to our feedback page. If you do not have a QR reader on your mobile device, you can use your App store to access available QR scanning applications suitable for your device.
2) Through any computer by going to the Public Meeting Schedule and pressing the "Meeting Feedback" link for the specific meeting, or pressing the "[...more]" link for a specific meeting and then pressing the "Meeting Feedback" link on the "Meeting Details" page.
3) By filling out this hard copy of our "Public Meeting Feedback Form" and providing it to an NRC staff member or mailing it in.

Please fold on the dotted lines with Business Reply side out, tape the bottom, and mail back to the NRC.

Note: You have up to 30 days after the meeting has ended to submit feedback on the public meeting that you've attended. Thank you again for your participation.

Please address the following statements in terms of your experience at the meeting. 1 is "strongly disagree" and 5 is "strongly agree."

	"STRONGLY DISAGREE"	"DISAGREE"	"NEITHER AGREE OR DISAGREE"	"AGREE"	"STRONGLY AGREE"
1. The meeting achieved its stated purpose.	1	2	3	4	5
2. This meeting helped me to understand the topics discussed.	1	2	3	4	5
3. The meeting location, format, starting time, and duration were reasonably convenient.	1	2	3	4	5
4. The meeting facility, room set up, microphones, and visuals used contributed to the success of the meeting.	1	2	3	4	5
5. Attendees, including those participating remotely, were given sufficient opportunity to ask questions or express their views.	1	2	3	4	5
6. Attendees were listened to and understood by NRC staff.	1	2	3	4	5
7. The presentations and explanations given by the NRC staff were understandable, fair and balanced.	1	2	3	4	5
8. I am satisfied overall with the NRC staff who participated in the meeting.	1	2	3	4	5

OPTIONAL

Name _____ Organization _____

Telephone No. _____ E-Mail _____ ☐ *Check here if you would like a member of NRC staff to contact you.*

Please provide any suggestions you have on ways the NRC could improve its public meetings:

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DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR AN EARLY SITE PERMIT AT THE CLINCH RIVER NUCLEAR SITE

Tuesday, June 5, 2018

Tamsen Dozier, Environmental Project Manager
Dr. Jessica Kratchman, Environmental Scientist
Office of New Reactors

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U.S.NRC

Purposes of this Meeting

- Describe the NRC ESP review process
- Share with you the NRC staff's preliminary findings and recommendation
- Describe how you can provide comments during the comment period
- **Listen to and gather your comments**

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U.S. Nuclear Regulatory Commission

- NRC's mission:
  - Protect public health and safety
  - Promote common defense and security
  - Protect the environment.
- The NRC is an Independent Federal Agency.
- The NRC has almost 40 years of experience regulating operating reactors and other civilian uses of nuclear materials.

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Early Site Permit

- An NRC approval of a site for one or more nuclear power reactors
- An additional application and NRC review is needed to approve reactor construction and operation
- There are two aspects of the NRC's review of the Clinch River Nuclear Site ESP application – safety and environmental

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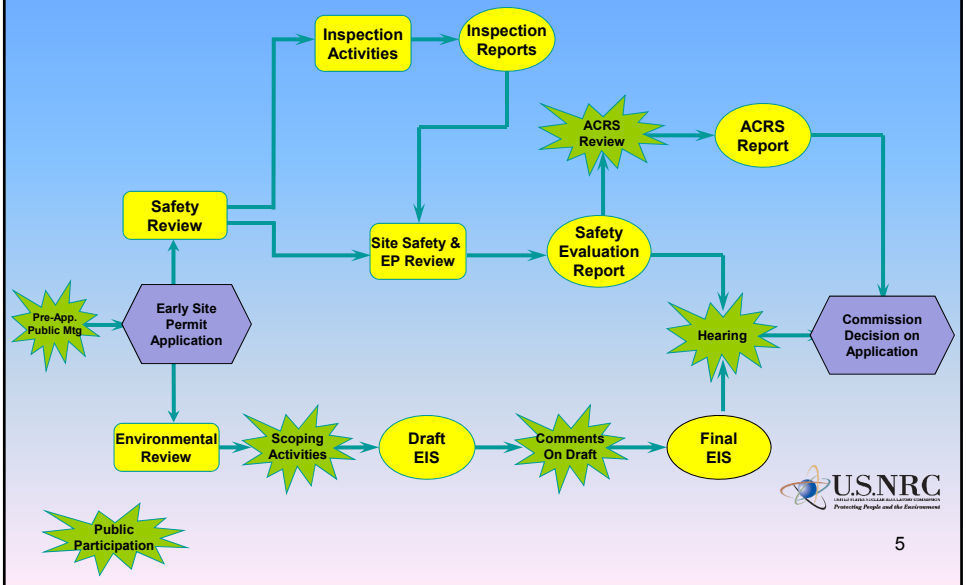
Early Site Permit Review Process



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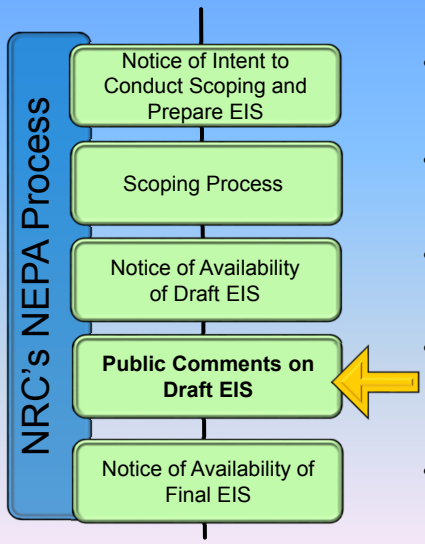
Environmental Review Schedule



- Published *Federal Register* notice on April 13, 2017
- Scoping period from April 13 to June 12, 2017
- EPA issued Notice of Availability of draft EIS on April 27, 2018
- **Comment period on the Draft EIS from April 27 to July 13, 2018 (75 days)**
- Final EIS expected to be published in June 2019

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Environmental Review

- NRC systematic approach under National Environmental Policy Act (NEPA):
  - Regulations (10 CFR Part 51)
  - Guidance - Environmental Standard Review Plan (NUREG-1555)
- NRC is the “Lead Agency” in the preparation of the draft EIS for the Clinch River Nuclear Site
- The U.S. Army Corps of Engineers is a “Cooperating Agency” for the draft EIS

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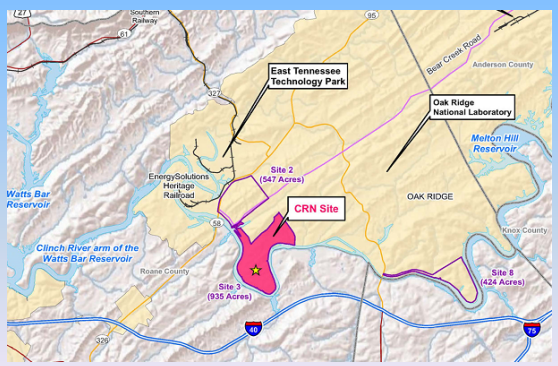
TVA’s Proposed Project

- Tennessee Valley Authority has applied for an ESP for the Clinch River Nuclear Site in Roane County for new nuclear power units demonstrating small modular reactor (SMR) technology



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TVA's Proposed Project

- Light water SMRs are defined as light water reactor units with a nominal output of 300 MW(e) or less and are able to be factory fabricated and transported to the site for assembly of components and operation
- For the site evaluation, a set of bounding reactor design parameters were used (plant parameter envelope or PPE) representing two or more SMRs with a maximum total electrical output of 800 MW(e)
- The draft EIS presents the review team's evaluation of environmental impacts from building and operating at the Clinch River Nuclear Site two or more SMRs and associated facilities as described by TVA's ESP application

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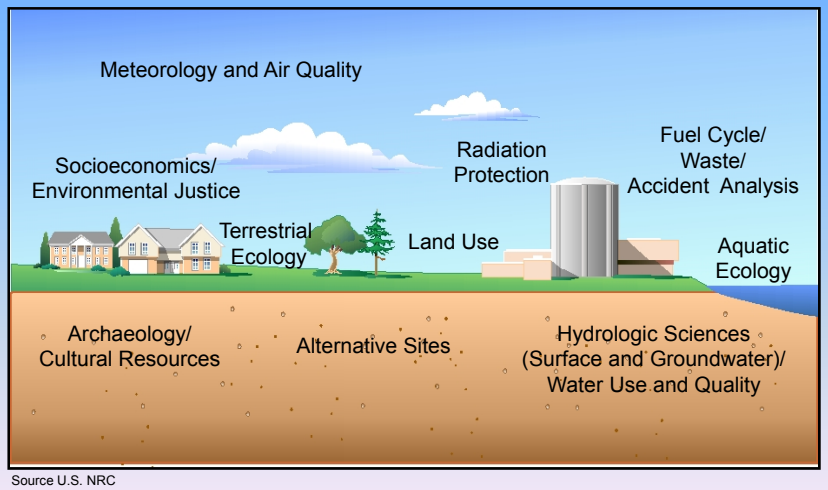
Resource Areas



Source U.S. NRC

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How Impacts Are Quantified

- Environmental impacts assessed in various resource areas during construction and operation
- NRC has established three levels of impact:
  - ***SMALL***: Effect is not detectable, or so minor it will neither destabilize nor noticeably alter any important attribute of the resource.
  - ***MODERATE***: Effect is sufficient to alter noticeably, but not destabilize, important attributes of the resource.
  - ***LARGE***: Effect is clearly noticeable and sufficient to destabilize important attributes of the resource.

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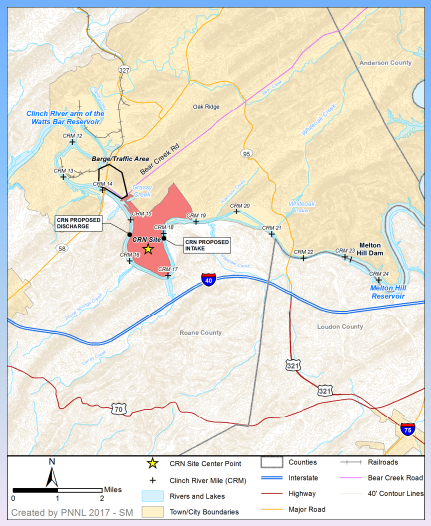
Water Resources

- Surface water and a closed-cycle cooling system with mechanical draft cooling towers would be used at Clinch River Nuclear site.
- Cooling water source is the Clinch River arm of the Watts Bar Reservoir. Normal withdrawal would be much less than the typical discharge from Melton Hill Reservoir.
- Cooling tower water would be piped and discharged into the Clinch River arm of the Watts Bar Reservoir. A bypass at Melton Hill dam would limit the effects of the discharge on the river.
- No groundwater would be used.



DEIS Figure 2-12. Streams and Rivers near the CRN Site

Ecological Impacts

- The review team evaluated impacts on birds, fish, reptiles and amphibians, other wildlife, plants, and wetlands.
- Contacted the Tennessee Natural Heritage Program, U.S. Fish and Wildlife Service (FWS)
- Conclusion: Impacts for terrestrial ecology - MODERATE during building, SMALL during operation. Impacts on aquatic ecology - SMALL during building and operation.

Northern Long-eared Bat

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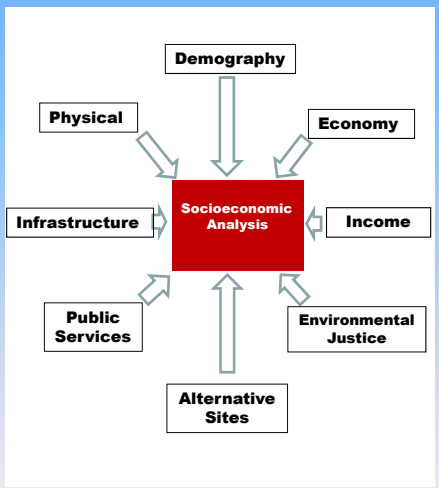
Socioeconomics

- Socioeconomics includes impacts on taxes, housing, education, traffic, aesthetics, public services, and so on.
- Adverse impacts range from SMALL to LARGE for building and operation.
- Beneficial economic impacts from tax revenues would be SMALL for building and operation.



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Historic and Cultural Resources

- The review team evaluated impacts on historic and cultural resources that are eligible or potentially eligible for inclusion in the National Register of Historic Places
- Building and operation of an SMR has the potential to adversely affect some of the 16 potentially eligible historic and cultural resources and one eligible archaeological site
- The review team concluded that impacts would be MODERATE to LARGE
- TVA has developed a Programmatic Agreement with the Tennessee Historical Commission and consulting Tribes to resolve potential adverse effects of building-related activities on historic properties.

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Radiological Impacts

- Includes impacts on members of the public, plant workers, and wildlife.
- Doses to members of the public from operation would be SMALL and below regulatory limits.
- Doses to workers would be SMALL and below regulatory limits.
- Doses to wildlife would also be SMALL and below relevant guidelines.

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Cumulative Impacts

- Includes the impacts from the proposed action (ESP issuance) compared with other past, present, and possible future actions.
- Cumulative adverse impacts ranged from SMALL to LARGE. Examples:
  - SMALL impacts to groundwater use and radiological impacts of normal operations.
  - MODERATE to LARGE impacts
    - Traffic impact - during building
    - Historical and cultural resources - during building
    - Aquatic Ecosystems - primarily from past activities.

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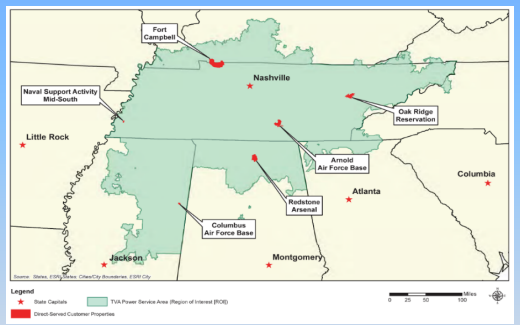
Alternatives Analysis

- No-action alternative
- Alternative sites analysis: no alternate site environmentally preferable to the proposed site.
- Three alternate sites
  - Redstone Arsenal Site 12
  - Oak Ridge Reservation Site 8
  - Oak Ridge Reservation Site 2
- Alternative system designs: none environmentally preferable. Systems considered include:
  - Heat dissipation system
  - Cooling water intake and discharge
  - Cooling water supply



Map of Initial sites considered

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Preliminary Recommendation

- The NRC staff's preliminary recommendation to the Commission is that the ESP be issued.
  - This recommendation is based on information provided in TVA's ESP application; consultation with Federal, State, Tribal, and local agencies; the team's independent review; public comments; and assessments summarized in the EIS
  - The review team determined that none of the alternative sites would be environmentally preferable to the Clinch River Nuclear Site.

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Access to the Draft EIS or Additional Information

Tamsen Dozier, Environmental Project Manager
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E-mail: Tamsen.Dozier@nrc.gov

https://www.nrc.gov/reactors/new-reactors/esp/clinch-river.html

Kingston Public Library
1004 Bradford Way
Kingston, Tennessee 37763

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1401 Oak Ridge Turnpike
Oak Ridge, TN 37830

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Submitting Comments

Speaking today at this meeting

ClinchRiverESPEIS@nrc.gov

Ms. May Ma
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U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

COMMENTS ARE DUE BY **July 13, 2018**

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