

**Environmental Impact Statement
Scoping Process**

Summary Report

**For the TRISO-X, LLC
Fuel Fabrication Facility
Public Scoping Period
January – February 2023**



**U.S. Nuclear Regulatory Commission
Rockville, Maryland**

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A TRISO-X Fuel Fabrication Facility Environmental Impact Statement Public Scoping Period

A.1 Introduction

Between December 16, 2022, and February 14, 2023, the U.S. Nuclear Regulatory Commission (NRC) conducted an environmental scoping process for an environmental impact statement (EIS) regarding TRISO-X, LLC's (TRISO-X or applicant) application for a license to possess and use special nuclear material at the TRISO-X Fuel Fabrication Facility (FFF) to be constructed in Oak Ridge, Roane County, Tennessee. The scoping process was performed in accordance with Section 51.29 of Title 10 of the *Code of Federal Regulations* (CFR) Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," which implements the National Environmental Policy Act of 1969 (NEPA), as amended. During the scoping process, the NRC invited potentially affected Federal, State, local, and Tribal government agencies, members of the public, interested and concerned people and organizations, and the license applicant to identify issues and provide recommendations to the agency on the scope of the EIS. The NRC's goal for conducting the scoping process was to define the scope of issues to be addressed in the EIS including, but not limited to, identifying significant issues to be analyzed in depth, eliminating from detailed study issues that are peripheral or are not significant or that have been covered by prior environmental review, identifying alternatives, and identifying other environmental review and consultation requirements related to the proposed action. During the 60-day scoping period, members of the public, government organizations, and concerned citizen groups submitted hundreds of written comments. Many more statements were submitted orally at the public meeting.

This scoping summary report summarizes comments and information the NRC gathered during the scoping process. It provides a concise summary of the NRC's environmental scoping process for the EIS (section A.3), an overview of the issues that were raised (section A.5), and a summary of the NRC's determinations regarding the scope and content of the EIS (section A.6). Section B contains summaries of comments received during the public scoping period and the NRC's responses. These responses contain conclusions on the scope of the EIS, including identification of any significant issues. Section A. 4 contains an alphabetized table that identifies the individuals who provided unique communications and comments, their affiliation if provided, and the Agencywide Documents Access and Management System (ADAMS) accession number that can be used to locate the correspondence. Section C provides references cited throughout the report. ADAMS is accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html>.

A.2 Background

By letters dated April 5, 2022 (ML22101A205), and September 23, 2022 (ML22266A270), the NRC received an application from TRISO-X requesting a license to possess and use special nuclear material for the manufacture of high-assay low-enriched uranium (HALEU) fuel at a FFF to be constructed in Oak Ridge, Roane County, Tennessee (TRISO-X, 2022). The license application includes an environmental report (ER) (TRISO-X, 2022). TRISO-X prepared the license application in accordance with requirements in 10 CFR Sections 70.5(a), "Communications," 70.21(f), "Filing," and 51.60(a), "Environmental Report – Materials Licenses."

The NRC staff will develop an EIS assessing the request for a new special nuclear material license. For additional information, the staff has made available a website with specific information about the TRISO-X application at: <https://www.nrc.gov/info-finder/fc/triso-x.html>, where application information including the ER and staff's requests for additional information (RAIs) from TRISO-X can be easily accessed.

A.3 Scoping Process

On December 16, 2022, in accordance with 10 CFR 51.26, "Requirement to publish notice of intent and conduct scoping process," the NRC published a notice of intent (NOI) to prepare an EIS and conduct scoping in the *Federal Register* (FR), "TRISO-X Special Nuclear Material License" (87 FR 77146). The NOI described the NRC's plan to prepare an EIS and conduct public scoping and requested comments on the scope of the EIS. Through the NOI, the NRC invited potentially affected Federal, Tribal, State, and local governments; organizations; and members of the public to provide comments on the scope of the EIS. The scoping period ended on February 14, 2023. Comments were accepted via the Federal rulemaking website (www.regulations.gov) using Docket ID NRC-2022-0201 and through email to TRISOX-EIS@nrc.gov, or regular U.S. mail. The scoping process provided an opportunity for members of the public to identify issues and highlight concerns related to the proposed project. The purposes of the scoping process (87 FR 77146) are as follows:

- Ensure that important issues and concerns are identified early and are properly studied;
- Identify alternatives to be examined;
- Identify significant issues to be analyzed in depth;
- Eliminate unimportant issues from detailed consideration; and
- Identify public concerns.

During the week of January 23, 2023, staff supported government-to-government outreach meetings with local officials and hosted a public scoping meeting in Oak Ridge, Tennessee. The purpose of these meetings was to provide local governments and the public an opportunity to exchange information on the TRISO-X FFF application. Comments received during the public meeting were transcribed. All transcribed comments from the scoping meeting, as well as any written comments submitted in person during the scoping meeting, were considered by the NRC staff and are included in the comment summaries in this report.

On Monday January 23, 2023, the NRC staff led an in-person discussion with and responded to questions from representatives from the Roane County Commission. On Tuesday January 24, 2023, the NRC staff conducted a virtual discussion and question-and-answer meeting with representatives from the Tennessee Department of Environment and Conservation (TDEC), a separate in-person discussion and question-and-answer meeting with representatives from the Tennessee Emergency Management Agency, and a second in-person discussion and question-and-answer session with representatives from the City of Oak Ridge and government affairs as well as the fire chief, deputy fire chief, city manager, and mayor pro tem.

On Wednesday January 25, 2023, the NRC staff hosted a 1-hour open house for members of the public, local government, and the media to provide an opportunity to interact with the NRC staff members, receive handouts and pamphlets, and view informational posters that contained details of the proposed project and the NRC's licensing process. Representatives from TRISO-X

were also present to provide project-related handouts and pamphlets and answer questions about the project.

Immediately following the open house, the NRC staff led a combined in-person and virtual public scoping meeting. Approximately 45 members of the public attended in-person, and 11 members of the public attended online or by telephone. A transcript of the scoping meeting is available in ML23037A021.

In advance of the public meeting, announcements were posted on the NRC's public meeting notification system website and the scoping meeting was mentioned in the NOI. In addition, the NRC staff issued scoping meeting announcements and advertisements in the *Knoxville News Sentinel* on January 16, 22, 23, 24, and 25, 2023, and in the *Oak Ridge News* on January 16, 18, 22, 23, 24, and 25, 2023. In addition, the NRC's Office of Public Affairs issued press releases on December 16, 2022, to notify the public of the opening of the comment period and to announce the public meeting on January 25, 2023.

A.4 Comments Received During the Scoping Period

Following the conclusion of the scoping period on February 14, 2023, the NRC staff reviewed correspondence and comments received from the transcribed scoping meeting, comments submitted online at www.regulations.gov, comments sent by email to TRISOX-EIS@nrc.gov, and comments received by regular mail. When possible, the NRC staff identified comments made by each commenter, giving each commenter and their individual comments a unique designation to be used for tracking and sorting.

Initially, the NRC staff sorted comments according to subject matter or according to the general topic. Subsequently, comments with similar specific topics or concerns were further grouped to capture the common issues. The NRC staff then developed a response to the grouped comments to explain how the comments relate to the scope of the EIS. The NRC staff's summaries of comments and responses to the comments are presented in section B of this report.

In all, through each of the avenues for submitting comments (e.g., transcripts from the public webinar and public meetings, mail, the TRISOX-EIS email address, and www.regulations.gov [NRC-2022-0201],) the NRC received 54 individual correspondences and 364 unique comments. The NRC also received 1700 copies of a form letter (ML23047A151) which were similarly binned by comment.

Table A-1 provides a list of commenters who provided comment submissions (i.e., non-form letter submissions) identified by name, their affiliation (if stated), the correspondence identification (ID) number, the comment source, and the ADAMS Accession Number of the source. Each comment was marked with a correspondence ID, a unique identifier consisting of the comment source and a comment number (specified in table A-1). For example, Comment 3-1 would refer to the first comment from the third comment correspondence. This unique identifier allows each comment to be traced back to the source from where the comment was identified.

Table A-1. Individuals providing comments during the scoping comment period

Commenter	Affiliation	Correspondence ID	Comment source	ADAMS accession number
Watson, Mark	City of Oak Ridge, TN	1-1	Public Scoping Meeting Transcript	ML23037A021
Mead, Steve		1-2	Public Scoping Meeting Transcript	ML23037A021
Russell, Michael		1-3	Public Scoping Meeting Transcript	ML23037A021
Wilson, David	Oak Ridge Industrial Development Board	1-4	Public Scoping Meeting Transcript	ML23037A021
Michaels, Christine	Oak Ridge Chamber of Commerce	1-5	Public Scoping Meeting Transcript	ML23037A021
Boatner, Tracy	East Tennessee Economic Council	1-6	Public Scoping Meeting Transcript	ML23037A021
Martin, Fay		1-7	Public Scoping Meeting Transcript	ML23037A021
Metzger, Alan		1-8	Public Scoping Meeting Transcript	ML23037A021
Dean, William Ray		1-9	Public Scoping Meeting Transcript	ML23037A021
Colclasure, Doug		2	Email	ML23047A099
Thomason, Courtney	Tennessee Department of Environment and Conservation	3	Email	ML23047A420
Oberholtzer, Chris		4	Email	ML23047A421
Hughes, Hal		5	Email	ML23047A429
Fuhrman, Jerry		6	Email	ML23047A431
Taylor, Leah		7	Email	ML23047A432
Treasure, Don		8	Email	ML23047A435
Kirk, John		9	Email	ML23047A437
Mikesell, Tim		10	Email	ML23047A439
Greason, Jeff		11	Email	ML23047A442
Colclasure, Doug		12	Email	ML23047A405
Wesolowski, Dave		13	Email	ML23047A443
Hayes, Alyssa		14	Email	ML23047A444
Hayes, Rose		15	Email	ML23047A446
O'Neill, Martin	Nuclear Energy Institute	16	Email	ML23047A540
Colclasure, Doug		17	Email	ML23047A409
Long, Larry	U.S. EPA	18	Email	ML23047A410

Commenter	Affiliation	Correspondence ID	Comment source	ADAMS accession number
Dean, William Ray	William	19-1	Email	ML23047A411
Dean, William Ray	William	19-2	Email	ML23047A411
Dean, William Ray	William	19-3	Email	ML23047A411
Dean, William Ray	William	19-4	Email	ML23047A411
Mayes, Melanie	Harvey Broome Group of Sierra Club	20-1	Email	ML23047A413
Mayes, Melanie	Harvey Broome Group of Sierra Club	20-2	Email	ML23047A413
Houghtalen, Natalie	ClearPath	21	Email	ML23047A415
Ahn, Alan	Third Way	22	Email	ML23047A416
Marida, Patricia A.		23	Email	ML23047A417
Colclasure, Doug		24	Email	ML23047A427
Smith, Paul		25	reg.gov	ML23047A044
Erickson, Charles		26	reg.gov	ML23047A061
Callahan, Kevin		27	reg.gov	ML23047A062
Anonymous, Anonymous		28	reg.gov	ML23047A064
Paris, Sam		29	reg.gov	ML23047A075
Becker, Adam		30	reg.gov	ML23047A078
List, Jonathan		31	reg.gov	ML23047A085
Porter, Michael		32	reg.gov	ML23047A087
Taylor, Sam		33	reg.gov	ML23047A093
Schor, Matthew		34	reg.gov	ML23047A101
Patrick, Laurel		35	reg.gov	ML23047A105
Hultgren, Raso		36	reg.gov	ML23047A151
Langley, Charles	Public Watchdogs	37	reg.gov	ML23048A299
Moss, Tom	Tennessee Dept. of Environment and Conservation	38	reg.gov	ML23010A268
Walker, Donald		39	reg.gov	ML23063A049
Eco, Jackie		40	reg.gov	ML23068A195
Wells, Jim		41	reg.gov	ML23076A141
Marshalek, Thomas		42	reg.gov	ML23076A240
Tyler, Chuck		43	reg.gov	ML23104A413
Kirby, Laurence		44	reg.gov	ML23118A259
Pay, Donald		45	reg.gov	ML23131A216
Heystraeten, Eric		46	reg.gov	ML23132A009
Thornton, Gerald		47	reg.gov	ML23136A747

Commenter	Affiliation	Correspondence ID	Comment source	ADAMS accession number
Williams, Scott		48	reg.gov	ML23136A747
Fitzpatrick, T	Nuclear Matters	49	reg.gov	ML23136A768
Marida, Patricia A.		50	reg.gov	ML23136B174
Ibarra, Jr., Victor	Nuclear Innovation Alliance	51	reg.gov	ML23136B182
Dean, William		52-1	reg.gov	ML23136B183
Dean, William		52-2	reg.gov	ML23136B183
Dean, William		52-3	reg.gov	ML23136B183
LLoveras, Leigh Anne	The Breakthrough Institute	53	reg.gov	ML23136B196
Gross, Cheryl		54	reg.gov	ML23136B201

Comments were consolidated and categorized according to resource area or topic. Table A-2 identifies the distribution of comments received by resource area or topic.

Table A-2. Distribution of comments by resource area or topic

Resource	Comments
Benefit-Cost Balance	3
Cumulative Impacts	7
Ecology	16
Environmental Justice	4
General Opposition	11
General Support	37
Geology and Soils	23
Historic and Cultural Resources	1
Land Use	18
Meteorology and Air Quality	3
Miscellaneous	10
Mitigation	1
NEPA Process	35
Noise	4
Out of Scope	19
Proposed Action	12
Public and Occupational Health	2
Purpose and Need	2
Safety	48
Socioeconomics	6
Transportation	9
Visual and Scenic	5
Waste Management	11
Water Resources	77

A.5 Significant Issues Identified

From the comment correspondence, the major topics and issues of concern within each comment group are listed below. The following bulleted topics and issues under each category are not meant to be exhaustive but include common issues identified in the scoping comments.

NEPA and Public Process

- General comments expressing support or opposition to the proposed project;
- General comments regarding the NRC’s NEPA process;
- Public access to information; and
- The NRC’s collaboration with other agencies and experts.

Proposed Action and Purpose and Need

- Expanded and more detailed project description;
- General suitability of the facility site;
- Long-term management of stored nuclear materials and the project site; and
- Suggestions and guidance regarding what the purpose and need statement in the EIS should contain.

Alternatives

- No Action Alternative (no construction or operation of the proposed project);
- Negative impacts of the No Action Alternative; and
- Specific alternative location requests.

Land Use

- Impacts on the Black Oak Ridge Conservation Easement and Oak Ridge Greenways.

Transportation

- Concerns about accidents during transportation and public health/safety mitigation measures; and
- Concerns regarding cumulative effects of multiple parties transporting radiological material in proximity to the proposed project.

Surface Water and Groundwater

- Adverse effects on surface water resources due to addition of impervious surfaces at the project site and the resulting increase in stormwater flow; and
- Radiological contamination of surface water and groundwater from the proposed project.

Geology and Soils

- Unsuitability of the project site due to the presence of karst features in proximity to the proposed project location;
- Adverse effects on karst features resulting from construction and operation of the proposed project;
- Concern that the extent of karst features in the vicinity of the proposed project site are not being recognized by the NRC; and
- Proper site excavation permitting.

Ecology

- Concern about effects on threatened and endangered species, such as the gray bat, Indiana bat, and northern long-eared bat;

- Concern that prior clearing of the proposed project site has obscured presence of threatened plant species and wetland habitat; and
- Concern for adverse impacts on wildlife and plant communities present in the undeveloped areas surrounding the proposed project site, including the Black Oak Ridge Conservation Easement and the Oak Ridge Greenways.

Meteorology and Air Quality

- Potential effects on the proposed FFF from climate change, including severe weather events that may be a result of climate change; and
- Potential effect of the proposed project on the accumulation of atmospheric greenhouse gases that contribute to climate change.

Historic and Cultural Resources

- Potential presence of historical graves of enslaved African Americans in the project vicinity.

Noise

- Effects of noise, potentially exceeding U.S. Environmental Protection Agency (EPA) noise level recommendations, on undeveloped areas surrounding the project site, including the Black Oak Ridge Conservation Easement and the Oak Ridge Greenways.

Socioeconomics

- Socioeconomic implications (including economic benefits and job creation) resulting from construction, operation, and decommissioning of the proposed project; and
- Request for a diverse and inclusive workforce during construction, operation, and decommissioning of the proposed project.

Environmental Justice

- Request from the EPA for the NRC staff to use EPA's EJScreen tool to assess presence of environmental justice populations in the project vicinity;
- Request from the EPA for the NRC staff to conduct meaningful public outreach to and ensure community involvement by these populations (if they exist) by leveraging adaptive and innovative approaches; and
- Request from the EPA for the EIS to address the effects of climate change on environmental justice communities and clearly define the efforts the applicant is taking to address and adapt to potential climate change.

Visual and Scenic Impacts

- Impacts of artificial lighting associated with operation of the proposed project and the potential adverse effects from artificial lighting on migratory birds and other wildlife present in the Black Oak Ridge Conservation Easement and other surrounding greenspaces.

Cost Considerations

- Financial assurance and ability of the applicant to address and respond to catastrophic accidents.

Public and Occupational Health

- General concerns about public and worker health and safety from general construction and operation conditions as well as potential chemical or radiation exposure.

Waste Management

- Handling and disposal of chemical and radiological wastes;
- Fate of spent nuclear material, nuclear fuel, and spent fuel debris produced at the proposed FFF; and

Safety

- Concerns regarding various accident scenarios and their potential consequences;
- Concerns regarding potential degradation of the fabricated fuel over time;
- Concerns regarding the ability of the proposed FFF to withstand severe weather and fire;
- Concerns regarding contaminant or hazardous material releases and the ability of public safety personnel to respond;
- Concerns regarding accidents and subsequent hazardous material releases during transport of the HALEU fuel and/or the fabricated fuels; and
- Concerns regarding contaminant or hazardous material releases resulting from terrorist attacks, vandals, or sabotage, including cyber-terrorism.

Cumulative Impacts

- Cumulative impacts related to the proximity of the proposed project to other historical, existing, or proposed facilities at the East Tennessee Technology Park site and the general project vicinity, including nuclear-related facilities and the planned Oak Ridge airport;
- Cumulative impacts related to ongoing Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) activities in proximity to the proposed project site; and
- Historical or legacy radiological impacts in the area including to wetland soils, East Fork Poplar Creek and other surface waters, and groundwater.

Other Issues

- Requests for the EIS to discuss the source of the tri-structural isotropic (TRISO) fuel and detail the process by which the fuel would be fabricated; and
- Comments questioning the veracity of referring to the TRISO fuel as HALEU fuel.

- Request from the EPA that the EIS include a water balance analysis for the proposed project and verification that all discharge structures are intact and able to retain nutrient-rich wastewater.

A.6 Determinations and Conclusions

The significant issues identified in section A.5 will be considered in the development of a draft EIS. In addition, the NRC staff received multiple comments that were either general in nature or otherwise beyond the scope of the environmental review.

The NRC staff plans to issue a draft EIS for public comment in 2024. The draft EIS comment period will offer an opportunity for participants, such as the applicant; interested Federal, State, and local government agencies; Tribal governments; local organizations; and members of the public to provide further input to the agency's environmental impact statement. The draft EIS comments will be considered in the preparation of the final EIS. Together, the final EIS and the safety evaluation report (SER) will identify the information considered and the evaluations that the staff performed, and they will provide the basis for the NRC's decision on TRISO-X's application for a special nuclear material license.

B Summary of Comments Received During the Public Scoping Period

B.1 Comments Concerning the NEPA Process

B.1.1 NEPA Process—General

The NRC staff received comments noting the relevance of the current EIS for subsequent fuel fabrication facility and advanced nuclear reactor license applications and requesting that the NRC complete a thorough and detailed review of the proposed project that fully recognizes the potential positive economic, environmental, and national security impacts and the safety record of the commercial nuclear power sector. Commenters requested that the NRC facilitate public access by placing the EIS in accessible spaces such as public libraries. Commenters further requested that the NRC be transparent regarding the timing of the review process and that the NRC keep the review focused on the specific project so that the review process can be completed efficiently and as quickly as possible. To this end, other commenters suggested specific tools and documents used by the NRC for prior reviews to facilitate and expedite the project review process and encouraged the NRC to ensure optimal interagency coordination to avoid potential delays associated with environmental reviews and authorization decisions made by other Federal and State agencies.

Response: The NRC strives to conduct its regulatory responsibilities in an open and transparent manner, consistent with “The NRC Approach to Open Government” (<https://www.nrc.gov/public-involve/open.html>). The NRC will conduct a thorough and objective assessment of the proposed project and its potential adverse and beneficial impacts on the environment. In preparing the EIS for the proposed project, the NRC staff will rely on its expansive experience with prior projects in reviewing and evaluating information and analyses provided in the applicant’s license application, ER, and supplemental documentation. In addition, the NRC staff will independently collect and review additional information related to the proposed project and its environs, which may include environmental reviews of other similar projects reviewed by the NRC or other Federal agencies. Furthermore, the EIS will identify and describe Federal, State, and local permits, licenses, approvals, and other entitlements that must be obtained in connection with the proposed project, and the NRC staff will work efficiently with other agencies to facilitate sound environmental reviews and authorization decisions, as applicable, for the proposed project.

Comments: (1-1-3) (1-1-4) (1-3-1) (1-3-4) (1-7-1) (6-1-1) (16-1-2) (16-1-7) (16-1-8) (22-1-3) (31-1-2)

B.1.2 NEPA Process—Environmental Assessment versus Environmental Impact Statement

The NRC staff received a comment questioning why the environmental review would consist of an EIS rather than an environmental assessment (EA).

Response: The EIS will be prepared in accordance with the NRC’s applicable NEPA-implementing regulations in 10 CFR Part 51 and associated with the NRC guidance in NUREG-1748, “Environmental Review Guidance for Licensing Actions Associated with NMSS Programs.” The NRC implementing regulations in 10 CFR 51.20(b) require an EIS for certain

proposed actions. Specifically, 10 CFR 51.20(b)(7) requires preparation of an EIS for issuance of a license to possess and use special nuclear material for processing and fuel fabrication, pursuant to 10 CFR Part 70, “Domestic Licensing of Special Nuclear Material.” Because this is the action TRISO-X is proposing, an EIS is being prepared.

Comment: (1-8-2)

B.1.3 NEPA Process—Applicant Information

The NRC staff received a comment from the public requesting background information on the applicant.

Response: Background information regarding the applicant is outside the scope of the EIS.

Comment: (9-1-2)

B.1.4 NEPA Process—Description, Safety, and Transportation of the Fuel Source

The NRC staff received comments expressing concern that information provided in newspaper articles about the proposed project is inaccurate and requesting that the EIS provide information regarding the source of the fuel components that would be fabricated, how the applicant would transport the fuel to the proposed facility, and the safety of the fuel. Other similar comments were made expressing concern regarding the novelty of the fuel proposed for fabrication; the safety of producing such fuel, from a nuclear terrorism risk standpoint; and the potential adverse impacts radioactive waste associated with the project could have on the environment.

Response: The accuracy of information published in newspaper articles about the proposed project is outside the scope of the EIS. However, the Proposed Action and Alternatives section of the EIS will provide an accurate description of the proposed project and the components necessary to construct and operate the proposed facility. The Waste Management, Public and Occupational Health, and Transportation sections of the EIS will discuss the manufactured components and fuel produced, including its sourcing, radiological waste management associated with the facility, and the safe transportation of radioactive materials associated with the project. The EIS will also discuss potential direct, indirect, and cumulative impacts of postulated accidents associated with the project.

Comments: (13-1-1) (21-1-3) (23-1-2) (50-1-2) (40-1-2) (43-1-1) (44-1-1) (46-1-1) (54-1-1)

B.1.5 NEPA Process—Alternatives

The NRC staff received comments related to the assessment of the No Action Alternative in the EIS. One commenter requested that the No Action Alternative not be considered as a zero-impact option because no action would mean not acting to promote global decarbonization to address the growing global climate crisis. A second commenter encouraged the NRC to assess the full breadth of impacts and consider the mandate in the Atomic Energy Act of enabling nuclear energy “to make the maximum contribution to the general welfare.”

Response: The NRC will evaluate the potential environmental impacts of the construction, operation, and decommissioning of the proposed project as well as the potential environmental impacts of not constructing or operating the proposed project under the No Action Alternative. The No Action Alternative will serve as a baseline for comparing the potential environmental

impacts of constructing and operating the facility. The EIS will also include a discussion of the proposed facility's contribution of greenhouse gases to the atmosphere for all phases of the facility including construction, operation, and decommissioning.

Comments: (14-1-1) (53-1-5)

B.1.6 NEPA Process—Inaccuracy of the Applicant's Environmental Reports

The NRC staff received a comment expressing concern that information provided in the applicant's ER is inaccurate and misleading.

Response: The EIS analysis will consist of an independent evaluation using all available information regarding the proposed project site and the potential impacts of project construction, operation, and decommissioning on the project site and surrounding areas. The NRC staff will use its expansive experience with prior projects in reviewing and evaluating information and analyses provided in the applicant's license application, ER, and supplemental documentation. The NRC staff will independently collect and review additional information related to the proposed project and its environs, which may include environmental reviews of other similar projects reviewed by the NRC or other Federal agencies.

Comments: (19-3-1)

B.1.7 NEPA Process—Environmental Oversight

The NRC staff received comments expressing concern that the City of Oak Ridge does not have appropriate expertise to provide effective environmental oversight and that the applicant will not be held accountable for permitting parameters. One commenter mentioned the older silt fences being left onsite and in disrepair.

Response: The EIS will identify and describe the Federal, State, and local permits, licenses, approvals, and other entitlements that must be obtained in connection with the proposed project. The EIS will (1) discuss the status of authorizations (e.g., permits and approvals); (2) identify environmental concerns; and (3) evaluate potential administrative problems that could delay or prevent agency authorization. The applicant would be required to abide by all Federal and State permits and associated permit conditions for construction and operation of the proposed project in order to minimize environmental impacts.

Comments: (19-3-19) (52-3-5) (20-2-1) (52-1-3) (52-3-3) (1-9-10)

B.2 Comments Concerning the Proposed Action

B.2.1 Proposed Action—Project Site Location

The NRC staff received comments asserting that the project site is not suitable for the proposed FFF because it is a greenfield site and because of its perceived lack of site security, unsuitable hydrogeology, incorrect zoning classification, and distance from where the fabricated fuel would be used. Commenters also asserted that the applicant is proposing the current site not because of its overall suitability but simply because ownership of the site parcel was provided free of charge.

Response: The EIS process evaluates the proposed action based on the application submitted to the NRC. The NRC does not determine the proposed project location or have any involvement in the financial decisions of the applicant. The applicant's ER states the applicant followed the Electric Power Research Institute Siting Guide process in choosing the project location. The siting guide process involves defining a region of interest and candidate areas within that region, identifying specific candidate sites for evaluation and scoring, and finally selecting sites for detailed evaluation. In the Proposed Action and Alternatives section of the EIS, the NRC staff will evaluate the applicant's process for identifying reasonable alternative project locations. Potential impacts related to transportation of the fabricated fuel and associated waste will be discussed in the Transportation and Waste Management sections of the EIS. Greenhouse gas impacts of the proposed project will be discussed in the Meteorology and Air Quality section of the EIS.

Comments: (1-9-7) (19-1-1) (19-1-7) (19-1-11) (52-1-4)

B.2.2 Proposed Action—Details of Project Description

The NRC staff received comments requesting clarification of the proposed action as it relates to the specific fuels that would be manufactured at the site and the components that would be transported to the proposed FFF under the proposed action. Specifically, comments asked whether HALEU would be manufactured at the proposed FFF or manufactured elsewhere and transported to the FFF to fabricate the TRISO fuel.

Response: The Proposed Action section of the EIS will detail the specific components that would be fabricated at the proposed FFF and those that would be transported to the FFF to allow the fabrication process to occur. The applicant's ER states that HALEU triuranium octoxide enriched up to 19.75 weight percent uranium-235 would be transported to the proposed FFF from the American Centrifuge Plant in Piketon, Ohio. The received HALEU would be converted into a uranyl nitrate solution, then into gel spheres, and finally into fuel kernels, which would be processed through coating, overcoating, fuel form pressing, and high temperature carbonization. The resulting fuel is projected to then be transported to the Columbia Generating Station located in Richland, Washington.

Comments: (23-1-1) (36-1-13) (45-1-6) (50-1-1)

B.2.3 Proposed Action—Plan for Used/Spent TRISO Fuel

The NRC staff received comments requesting that the EIS include detailed consideration of the environmental impacts of the disposition and ongoing need for isolation of used/spent TRISO fuel. The commenters asserted the reactors that would use this fuel are not as safe as proponents of their use claim.

Response: The EIS for the proposed project will discuss the potential environmental impacts of construction, operation, and decommissioning of the proposed FFF and the management of any radiological waste that would result from the operation and decommissioning processes. The management of the radiological waste that would result from the operation of the nuclear reactors using the fuel fabricated at the proposed FFF and the safety of those reactors are outside the scope of this EIS.

Comments: (23-1-5) (50-1-5)

B.2.4 Proposed Action—Long-Term Management of Waste

The NRC staff received a comment expressing concern regarding the long-term effects of managing and storing nuclear materials and potential environmental contamination associated with those wastes in the long term.

Response: The applicant's current license application is for 40 years. Therefore, the period of analysis for this proposed action is 40 years. At the end of the 40-year license period, the licensee would have the option to renew the license, at which time a new environmental and safety review would be conducted. Fuel cycle facilities often store waste for long periods of time prior to shipment to offsite disposal sites due to the cost and availability of disposal sites. Similarly, TRISO-X would be licensed to store waste onsite until its license expires, as long as it does not exceed its possession limits or other safety commitments. However, the applicant proposes to limit the time and volume of the radiological waste stored onsite by establishing regularly scheduled shipments of waste to an offsite licensed disposal facility. This minimizes the need for long-term storage of radioactive waste.

Comment: (42-1-1)

B.3 Comments Concerning Purpose and Need

B.3.1 Purpose and Need—General

The NRC staff received comments from the Nuclear Energy Institute regarding information that should be presented in the purpose and need statement in the EIS.

Response: The NRC regulations in 10 CFR Part 51, appendix A, require an EIS to include a comprehensive and specific description of the purpose of, and need for, a proposed action. Examples of need include a benefit provided if the proposed action is granted or descriptions of the detriment that will be experienced without approval of the proposed action. In short, the need statement describes what will be accomplished as a result of the proposed action. The NRC staff will review the applicant's license application materials and develop an appropriate purpose and need statement accordingly.

Comments: (16-1-3) (16-1-4)

B.4 Comments Concerning Land Use

B.4.1 Land Use—Impacts on Surrounding Lands

The NRC staff received comments expressing concern regarding potential impacts of construction and operation of the project on the Black Oak Ridge Conservation Easement and Oak Ridge Greenways, which are adjacent to or in the vicinity of the project site. Commenters asserted the project would adversely affect the wildlife and wildlife habitat in these adjacent areas and would be detrimental to recreational enjoyment of the greenways.

Response: The EIS will assess the potential effects of construction and operation of the project on the conservation easements and greenways surrounding the project site. The Ecological Resources section of the EIS will discuss potential impacts of the proposed project including but not limited to the effects of noise, artificial light pollution, and surface water runoff on threatened and endangered bat species, common wildlife, wetlands, and other water features. The Land

Use section of the EIS will discuss the proposed project's potential effects on the community's recreational use of the surrounding lands.

Comments: (1-3-2) (1-9-9) (2-1-1) (12-1-1) (20-1-8) (20-1-10) (20-2-7) (24-1-1) (52-3-2)

B.5 Comments Concerning Transportation

B.5.1 Transportation: Infrastructure—Mode of Transportation/Infrastructure/Safety

The NRC staff received questions regarding transportation routes, modes of transportation, and public health/safety mitigation measures. Commenters inquired as to how the HALEU product will be shipped to and from the facility and what procedures will be in place to protect the public during transportation.

Response: The EIS will include an analysis of transportation impacts, including shipments to and from the proposed facility. It will describe the expected physical parameters of HALEU shipments (including weights, capacities, and packaging) and describe applicable regulations and the roles and responsibilities for identifying and reviewing transportation routes for the safe transportation of shipments. The EIS will also describe applicable preparations, planning, and procedures of Federal, State, and local governments.

Comments: (1-1-5) (36-1-3) (36-1-4) (45-1-3) (47-1-5) (48-1-5)

B.5.2 Transportation: Cumulative Impacts

The NRC staff received comments regarding the cumulative effects of multiple parties transporting radiological material within close geographical proximity to the proposed project.

Response: The EIS will include a cumulative impact analysis for other actions within an area of influence of the proposed project. The Cumulative Impacts section of the EIS, as required under NEPA, will analyze cumulative impacts of other past, present, and reasonably foreseeable future actions, including, where appropriate, the presence of other industrial facilities in the region. The cumulative impacts analysis will include descriptive information and impact determinations for all resource areas, including transportation.

Comments: (19-4-11) (52-3-17)

B.6 Comments Concerning Water Resources

B.6.1 Water Resources—Surface Water Impacts and Impervious Surfaces

The NRC staff received comments regarding the project's potential effects on surface water resources from construction of additional impervious surfaces and changes to and increased stormwater flow.

Response: The EIS will describe surface water and groundwater conditions at the proposed project site and assess the potential effects on surface water and groundwater, including quality and quantity, from construction, operation, and decommissioning. The EIS will include a discussion of all mapped wetlands and waterbodies within and in proximity to the proposed project site and any associated impacts on those resources. The Land Use section of the EIS will address recreational activities in the areas surrounding the project site. The EIS will also

include a discussion of precipitation, stormwater management, required permits, permit conditions, and other regulatory requirements.

Comments: (1-9-4) (19-1-19) (19-4-9) (52-3-15) (20-1-9) (20-1-14) (23-1-6) (36-1-27) (50-1-7) (38-1-1) (20-2-5)

B.6.2 Water Resources—Potential Impacts on Groundwater and Karst

The NRC staff received comments regarding potential effects from the proposed project on groundwater and karst features within and in proximity to the proposed project site. Concerns included directing stormwater flow to an offsite sinkhole, potential for changes to the karst system and groundwater flow, development of karst features within the proposed project site, the potential for contamination to enter groundwater systems, groundwater quality, and the complexity of groundwater systems in the area.

Response: The EIS will describe existing groundwater characteristics, such as quality, quantity, and flow, and potential effects on groundwater from the construction, operation, and decommissioning of the proposed project. The EIS will describe known karst features and topography within and in proximity to the proposed project and discuss the geological investigations conducted to characterize the site and potential effects on karst features and systems that may be affected by construction, operation, and decommissioning of the proposed project.

Comments: (17-1-2) (19-1-4) (19-1-13) (52-1-5) (19-1-18) (52-1-9) (19-1-19) (52-1-10) (19-1-20) (52-1-11) (19-2-1) (52-1-12) (19-2-4) (52-1-14) (52-1-15) (19-2-5) (52-1-16) (19-2-6) (52-1-17) (52-1-18) (19-2-7) (52-1-19) (19-2-8) (52-2-1) (19-2-9) (19-2-10) (52-2-2) (19-2-11) (52-2-3) (19-2-13) (52-2-4) (19-2-14) (52-2-5) (19-2-15) (52-2-6) (19-3-2) (52-2-12) (19-3-3) (52-2-13) (19-3-5) (52-2-15) (19-3-6) (52-2-16) (19-4-3) (19-4-4) (52-3-10) (19-4-5) (52-3-11) (19-4-6) (52-3-12) (19-4-7) (52-3-13) (20-1-3) (20-1-5) (20-1-6) (20-1-7) (20-1-11) (20-1-12) (20-1-17) (20-1-18) (20-1-19)

B.6.3 Water Resources—Existing Contamination and Groundwater Quality

The NRC staff received comments concerning potential effects on groundwater quality from contamination that could be released during operation and existing contamination in groundwater. Comments also included concerns about adequacy of monitoring under these conditions.

Response: The EIS will characterize the existing groundwater quality in the vicinity of the proposed project, discuss previous contamination that is known to have occurred within and in proximity to the project site, and discuss dewatering plans and procedures that would be used during construction of the proposed project.

Comments: (3-1-4) (19-1-3) (20-1-13) (45-1-10)

B.6.4 Ecology—Wetlands

The NRC staff received comments from the EPA and the public expressing concern regarding whether wetlands are present at the proposed project site and requesting that the EIS include information about section 404(b)(1) of the Clean Water Act (CWA).

Response: The EIS will include a definition of wetland habitat based on the 1987 U.S. Army Corps of Engineers' *Wetlands Delineation Manual* and Regional Supplements, the methods used to determine whether wetlands are present at the proposed project site, and the results of this assessment. The EIS will also discuss whether CWA section 404(b)(1) permitting is required for the proposed project.

Comments: (19-4-8) (52-3-14) (19-3-7) (52-2-17) (19-2-4) (18-1-3) (52-3-14)

B.7 Comments Concerning Geology and Soils

B.7.1 Geology and Soils—Karst Geology

The NRC staff received several comments that expressed concerns related to karst geology at the proposed project site. Some commentators suggested that the applicant's ER understates the significance and/or the presence of karst features at the proposed site. Other commenters stated that karst conditions make the site unsuitable for the proposed facility. Reasons for concern cited by these commentators included (1) groundwater quality impacts; (2) sinkholes/ground subsidence; (3) hydrologic changes to the karst groundwater system; and (4) potential effects from the construction, operation, and decommissioning of the proposed project.

Response: The EIS will describe the geology of the area, including any karst features. The potential for sinkholes and subsidence will be addressed in the NRC's SER. Information from the NRC's SER regarding these phenomena will be included in the EIS only as appropriate to evaluate the environmental impacts resulting from the construction, operation, and decommissioning of the proposed project. The EIS will include an analysis of mitigation measures to address potential adverse impacts. The NRC will review the references recommended in these comments and, if appropriate, will include them in the EIS analysis.

Comments: (1-9-1) (1-9-2) (1-9-3) (17-1-1) (19-1-2) (19-1-6) (19-1-12) (19-1-15) (19-1-16) (19-2-3) (19-4-2) (20-1-2) (20-1-4) (20-1-15)

B.7.2 Geology and Soils—Treatment of Karst Conditions

The NRC staff received several comments about the treatment of karst conditions noted in the applicant's ER. The comments indicate that the ER understates (1) the presence, extent, and complexity of karst features on both the site and the adjoining areas; (2) the significance of karst in the site selection process; and (3) the potential for adverse impacts associated with karst conditions. Some comments focused on a perceived failure to recognize common karst features such as subsurface voids, karst swales, disappearing streams, and the overall complexity of the karst environment. Other commentators stated that the conclusion of small potential for karst is insufficiently supported because one of the 13 major site selection criteria for the proposed project is "proximity of karst formations."

Response: The EIS will describe known karst features within and in proximity to the proposed project site, discuss the geological investigations conducted to characterize the site, and analyze the potential impacts on karst features and systems that may be affected by the construction, operation, and decommissioning of the proposed project.

Comments: (1-9-1) (1-9-2) (1-9-3) (17-1-1) (19-1-6) (19-1-16) (19-2-3) (19-4-2) (20-1-2) (20-1-4) (20-1-16)

B.7.3 Geology and Soils—Potential Impacts on Groundwater Quality and Karst

The NRC staff received comments regarding potential impacts from the proposed project on groundwater quality and karst features within and in proximity to the proposed project. Concerns included increased stormwater flow to the karst system, increased potential for groundwater contamination, and other water quality changes to the groundwater system.

Response: The EIS will describe existing groundwater characteristics, such as quality, quantity, and flow, and potential impacts on groundwater from the construction, operation, and decommissioning of the proposed project. The EIS will describe known karst features and topography within and in proximity to the proposed project and discuss the geological investigations conducted to characterize the site and potential impacts on karst features and systems that may be affected by the construction, operation, and decommissioning of the proposed project.

Comments: (1-9-1) (19-1-12) (19-2-3) (20-1-2) (20-1-4)

B.7.4 Geology and Soils—Subsidence/Collapse/Operational Safety

The NRC staff received several comments about the potential for karst-related ground subsidence or collapse and the consequential effects on facility operations and safety. Some commentators are concerned that existing subsurface karst features (such as voids) could progress, leading to ground instability or collapse. Other commentators expressed concern that changes to the site's hydrology would alter site hydrogeologic conditions, leading to ground collapse or instability issues.

Response: The EIS will describe existing groundwater characteristics, such as quality, quantity, and flow, and the potential effects the proposed project could have on groundwater. Additionally, the EIS will describe known karst features within and in proximity to the proposed project site and discuss the potential effects that altered groundwater flow could have on karst features and systems and subsequently how the proposed FFF could be affected.

Comments: (17-1-1) (19-1-2) (19-1-15) (19-1-16) (19-2-3) (20-1-15)

B.7.5 Geology and Soils—Excavation Permitting

The NRC staff received a comment about potential excavation permits for the proposed facility. The commenter noted that coordination with the U.S. Department of Energy (DOE) excavation/penetration permit (EPP) program may be required if the proposed excavation activities fall under the program's purview.

Response: The EIS will address obtaining required permits for all activities related to the proposed facility. The NRC staff will review the reference recommended in this comment and, if appropriate, include it in the EIS analysis.

Comment: (3-1-2)

B.8 Comments Concerning Ecology

B.8.1 Ecology—Endangered Species

The NRC staff received comments regarding the presence of endangered species at the proposed project site. Commenters cited a letter from the U.S. Fish and Wildlife Service (FWS) that states several bat species are known to be present in the area and that karst habitat may provide roosting habitat for endangered bats. Commenters did not agree with the applicant's statements that endangered wildlife species do not occur in the proposed project area. Commenters noted that clear-cutting took place onsite and referred to a FWS letter that stated the site was cleared without appropriate environmental review or permitting by the State of Tennessee. Commenters noted that, in addition to affecting bat habitat, clearing the site has adversely affected wetland and plant communities and hydrological features. Commenters were concerned that the applicant did not consider the adverse effects on endangered species and their habitats from the proposed project.

Response: The EIS will analyze the potential effects on threatened and endangered species from the proposed action. The NRC staff will review the application, conduct an independent literature review, and consult with the USFWS and the TDEC to determine the species that have the potential to occur in the proposed project area or that could be affected by the proposed action. The EIS will discuss all species listed as candidate, threatened, and endangered that have the potential to occur in the project area. Additionally, species and habitat that could potentially be affected by the proposed action will be discussed in the EIS. The EIS will discuss applicable laws, including the Endangered Species Act (ESA). The NRC staff, in accordance with the ESA, will consult with the FWS and analyze the potential effects on federally listed species in a biological assessment, if required. The EIS will reference and incorporate, as appropriate, recommendations made by other agencies and will document additional potential mitigation measures that could reduce potential adverse effects on ecological resources under the proposed action and No Action Alternative.

Comments: (19-2-16) (19-2-17) (52-2-7) (19-2-18) (20-2-10)

B.8.2 Ecology—Surrounding Wildlife and Plant Communities

The NRC staff received comments that expressed concern about the potential adverse effects from the construction, operation, and decommissioning of the proposed project on wildlife and plant communities present in the undeveloped areas surrounding the project site, including the Black Oak Ridge Conservation Easement and the Oak Ridge Greenways, and the wildlife and plant communities that were present on the proposed project site parcel prior to its clearing in 2013.

Response: The EIS will include an analysis of the potential impacts of construction, operation, and decommissioning of the proposed project on the conservation easements and greenways present on the lands surrounding the proposed project site. The analysis will include, but not be limited to, potential adverse effects from noise, artificial light pollution, and surface water runoff on threatened and endangered bat species, common wildlife, wetlands and other water features, and potential karst habitat. The Cumulative Impacts section of the EIS will discuss the potential impacts from the clearing of the proposed project site, which was completed prior to the involvement of the applicant at this location.

Comments: (19-1-9) (19-2-19) (52-2-8) (52-2-9) (19-3-10) (19-3-14) (20-2-11)

B.9 Comments Concerning Meteorology/Air Quality

B.9.1 Meteorology/Air Quality—General

The EPA commented that the EIS should evaluate the potential risks to the proposed project from climate change, extreme weather, and major storm events, including tornadoes, wildfires, droughts, and hurricanes.

Response: The EIS will include a summary detailing the overall location and general/average climate of the proposed project area and its capacity for enduring extreme weather. Effects from external hazards on the project will be evaluated in the staff's SER.

Comments: (18-1-5) (18-1-7) (18-1-9)

B.10 Comments Concerning Historic and Cultural Resources

B.10.1 Historic and Cultural Resources—General

The NRC staff received a comment expressing concern that the historical graves of enslaved African Americans can be difficult to identify because of the lack of proper headstone markers. The commenter wanted to convey to anyone conducting cultural assessments of the proposed project site that the graves can sometimes be identified as groupings of large, flatter rocks.

Response: The EIS will include an assessment of potential historic and cultural resources at the proposed project location. In accordance with 36 CFR 800.8(c) (TN513), the NRC staff will conduct the National Historic Preservation Act Section 106 consultation process and consult with appropriate parties, including the Advisory Council on Historic Preservation and the Tennessee Historical Commission (i.e., the State Historic Preservation Officer) to determine the potential for historic and cultural resources to be affected by the construction, operation, and decommissioning of the proposed project. Additionally, prior archaeological and historic resource assessments have been conducted at the proposed project site as part of previous environmental assessments related to the transfer of the Horizon Center Site land from the DOE to the City of Oak Ridge.

Comment: (14-1-2)

B.11 Comments Concerning Noise

B.11.1 Noise—General

The NRC staff received comments expressing concern about the effects of noise on the undeveloped lands surrounding the proposed project site, including the Black Oak Ridge Conservation Easement. Multiple comments noted that noise from the facility operations would exceed EPA noise level recommendations.

Response: The NRC staff will review and evaluate the information regarding noise provided in the applicant's license application, ER, and supplemental documentation. The Noise section of the EIS will analyze potential noise impacts on noise-sensitive locations surrounding the proposed project site and recreational users of the Oak Ridge Greenways. The Ecological Resources section of the EIS will discuss potential impacts of noise and artificial lighting on wildlife in the vicinity of the facility site.

Comments: (19-3-8) (52-2-18) (19-3-12) (20-2-8)

B.12 Comments Concerning Socioeconomics

B.12.1 Socioeconomics—Employment and Hiring

Several commenters referenced potential positive impacts related to job creation that would stem from implementation of the proposed action and the availability of a local, talented workforce to fill these positions. One commenter expressed a desire for enhanced inclusion of Black individuals in the hiring and training activities associated with employment under the proposed action.

Response: Socioeconomic impacts, such as labor impacts associated with the various phases of the proposed action and availability of workforce in the region, will be described and analyzed in the Socioeconomics section of the EIS. This section will describe the potential impacts associated with the potential direct, indirect, and induced jobs created. However, the exact nature of hiring decisions and training program offerings is outside the jurisdiction of the NRC and beyond the scope of the EIS.

Comments: (1-5-2) (1-6-2) (1-6-4) (14-1-3)

B.12.2 Socioeconomics—Weighing of Economic Impacts

A number of commenters requested that the NRC staff consider the inclusion of positive economic impacts associated with innovation and safety in the overall analysis of the proposed action.

Response: Reasonably foreseeable economic impacts associated with the proposed project will be analyzed and discussed in the Socioeconomics section. However, the potential economic impacts on other industries and local economies specifically resulting from aspects of innovation embedded in the proposed project are associated with too much uncertainty and are not quantified in the economic impact analysis. A qualitative discussion of any indirect impacts of innovative technology deployed by the proposed project will be included if deemed material to the analysis.

Comments: (16-1-5) (53-1-4)

B.13 Comments Concerning Environmental Justice Communities

B.13.1 Environmental Justice—Impacts from Severe Weather and Climate Change

Several comments from the EPA requested that the EIS assess indirect and cumulative impacts on environmental justice communities stemming from severe and otherwise potentially harmful weather events, both generally as well as those that may be made possible by climate change. In addition, the EPA requested that the Environmental Justice section of the EIS clearly define the efforts the applicant is taking to address and adapt to potential climate change.

Response: The EIS will investigate and assess material and reasonably foreseeable adverse effects on human health and the environment related to environmental justice communities under the proposed action. A thorough analysis of potential effects on human health and safety for all local populations will be included in the EIS. If deemed necessary, the Environmental

Justice section will define efforts the applicant is taking to address and adapt to potential climate change.

Comments: (18-1-6) (18-1-8) (18-1-11)

B.13.2 Environmental Justice—EPA Comments on Environmental Justice

The EPA provided scoping comments and recommendations for the proposed project related to environmental justice. The EPA noted that Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” (February 11, 1994) applies to Federal reviews, such as the NRC’s EIS. The EPA recommended that the EIS environmental justice populations assessment use EPA’s EJScreen tool and recommended that the NRC staff conduct meaningful public outreach and community involvement by these populations (if they exist) by leveraging adaptive and innovative approaches.

Response: The NRC is an independent regulatory agency under the definition provided in 44 United States Code §3502(5) and is excluded from the mandates of Executive Order 12898. However, the NRC, in exercising its regulatory authority, acts in a manner consistent with the fundamental precepts expressed in Executive Order 12898 by adopting practices to ensure potential environmental justice impacts are evaluated in the NRC’s environmental reviews. The NRC’s environmental justice analysis practices are described in the NRC’s final policy statement in the “Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions” (69 FR 52040).

The EIS will include a description of the NRC’s methodology for evaluating environmental justice issues and a description of communities within the precisely defined radius of influence. The EIS will also present the NRC’s determination on whether the proposed action would result in disproportionately high and adverse human health and environmental effects on low-income or minority populations. Cumulative environmental justice effects will also be addressed in the EIS. The NRC is familiar with EPA’s 2016 “Promising Practices for Environmental Justice Methodologies in NEPA Reviews” report and will consider the recommendations provided in the EPA report, as appropriate.

More generally, the environmental justice analysis in the EIS will aim to include all elements necessary for a complete and satisfactory assessment.

Comments: (18-1-10)

B.14 Comments Concerning Visual and Scenic Resources

B.14.1 Visual and Scenic—General

The NRC staff received comments expressing concern regarding artificial lighting associated with operation of the proposed project and the potential adverse effects the artificial lighting may have on migratory birds and other wildlife present in the Black Oak Ridge Conservation Easement and other surrounding greenspaces.

Response: The EIS will discuss the general effects that artificial lighting can have on migratory birds and other wildlife. The EIS will also discuss the extent and types of lighting the applicant proposes to use during construction and operation of the proposed project and the potential

effects the lighting could have on wildlife and the general visual and scenic disposition of the lands surrounding the proposed project site.

Comments: (19-3-9) (19-4-10) (20-2-9) (52-2-19) (52-3-16) (19-3-12)

B.15 Comments Concerning Benefits–Cost Balance

B.15.1 Benefits–Cost Balance—General

The NRC received comments about the financial assurance and ability of the applicant to address and respond to catastrophic accidents.

Response: Financial qualifications and decommissioning financial assurance for the proposed project will be addressed in the safety review, which is conducted in parallel with the environmental review. The results of the safety review are documented in the SER. The safety review includes an evaluation of the applicant’s financial qualifications and decommissioning financial assurance per 10 CFR Part 70, “Domestic Licensing of Special Nuclear Material,” specifically 10 CFR 70.22(a)(1), “Financial qualifications.” Concerns regarding financial liability for accidents are outside the scope of the EIS.

Comments: (36-1-23) (43-1-4) (54-1-5)

B.16 Comments Concerning Public and Occupational Health

B.16.1 Public and Occupational Health—General

The NRC staff received comments regarding the procedures that would be in place to protect workers, their families, and nearby facilities and communities.

Response: The NRC safety regulations and guidance specify that the applicant must design and operate the proposed project in a manner that protects workers. The NRC’s SER will evaluate and determine (1) the adequacy of the design under normal operating conditions and credible accidents, (2) the policies and scope of procedures proposed by the applicant, including those in place to protect workers and the public, (3) the potential for a release of radioactive material in liquid or gaseous form as a result of normal operating conditions or any accident, and (4) the significance of any chemical or radiation exposure to workers. In conjunction with the safety analysis documented in the NRC’s SER, the EIS will analyze the potential health and safety impacts on workers, including consideration of both radiological and nonradiological hazards.

Comments: (36-1-6) (54-1-3)

B.17 Comments Concerning Waste Management

B.17.1 Waste Management—General

The NRC staff received several comments requesting information or expressing concern about the chemical and radiological wastes that would be generated by the proposed FFF, how such wastes would be managed, and how wastes would be disposed of. Commenters requested disclosure of procedures for waste disposal and safeguards, including waste related to the mining, milling, and enrichment processes. The EPA commented that the EIS should address

potential changes in the generation of low-level radioactive waste, mixed low-level radioactive waste, transuranic waste, and hazardous and Toxic Substances Control Act (TSCA) wastes over the life of the proposed facility. The EPA commented that the EIS should indicate where the applicant will send spent nuclear material, nuclear fuel, and spent fuel debris for storage pending long-term disposal options. The EPA also commented that the EIS should evaluate the potential for historical impacts of the proposed project.

Response: The NRC’s SER will evaluate and determine the potential for releases from accidents involving chemical or radiological wastes and the significance of such accidents to workers or the general public. In conjunction with the safety analysis documented in the NRC’s SER, the EIS will analyze routine operations. It will discuss in detail all wastes that will be generated, managed onsite, and transported offsite for disposal, including radioactive, hazardous, mixed, and solid waste. Storage or disposal of wastes produced during processes conducted prior to the arrival of fuel fabrication components to the proposed FFF are outside the scope of the EIS. The potential health and environmental impacts on workers and the public from radiological and nonradiological wastes will be assessed. Quality assurance and management programs that address development and maintenance of adequate operating procedures will be evaluated in the SER and the EIS.

Evaluations of non-proliferation, security, and terrorism are safety issues that are not within the scope of the environmental review. Changes in Federal regulations are also outside the scope of the SER and EIS. The SER and EIS will describe potential impacts under the current regulations.

The NRC staff does not anticipate any major changes in the generation of waste over the life of the proposed project. The applicant has not requested a license to possess transuranic waste, nuclear reactor fuel, spent nuclear fuel, spent nuclear fuel debris, or “spent nuclear materials” and therefore evaluations or discussions of such materials is outside the scope of the SER and EIS. The EIS will not address the potential impacts of spent fuel storage at reactor sites due to the possible use of TRISO-X material in nuclear reactor fuel. Considerations of these issues would be addressed under NEPA at the time that such activities are proposed. Likewise, the regulation of hazardous or TSCA materials is outside the jurisdiction of the NRC. The EPA regulates such materials under title 40 of the CFR.

Additional comments regarding safety will be discussed in the Accident Impacts section of the EIS. Comments regarding public or occupational health will be addressed in the Public and Occupational Health section of the EIS.

Comments: (15-1-1) (18-1-4) (23-1-4) (50-1-4) (37-1-2) (36-1-9) (36-1-11) (48-1-4) (47-1-4) (54-1-8)

B.18 Comments Concerning Safety

B.18.1 Safety—General

The NRC staff received numerous comments expressing concern about various accident scenarios and their potential consequences, including criticality and aircraft accidents. Commenters expressed concerns about quality assurance and the potential for degradation of the fuel over time. Other commenters had concerns about the design of the proposed FFF and the processing systems and the ability to withstand fires. Some commenters were concerned about the building design standards and adherence to fire protection codes. Commenters

described concerns about complicating factors such as drought, extreme winds, and high temperatures that might affect the design of the proposed FFF and the ability to withstand fires. Some commenters expressed concerns about safeguards that would prevent fires during the fabrication process. Commenters were also concerned about occupational or environmental health and safety following a total loss of onsite power. Some commenters described concerns that accidents could release liquid contaminants and concerns about response capability following an accident with widespread offsite contamination. Some commenters expressed concerns about widespread release of hazardous materials that are stored outside and the potential adverse effects on protected natural areas. Some commenters described concerns about accidents from transporting HALEU fuel, processing the fuel kernels, and storing HALEU and fuel products. Several commenters expressed concerns about the consequences that could result from terrorist attacks, vandals, or sabotage, including cyber-terrorism. Numerous commenters expressed concerns that the karst geology poses a safety risk from spills, accidents, or terrorist attacks. Comments regarding karst geology included concerns about the voids recorded in test borings and the potential effects on building integrity, operations, and environmental risk. Some comments also described concerns about the effect of karst geology on hydrology.

Response: The NRC safety regulations and guidance specify that the applicant must design the proposed FFF to withstand a range of credible accidents, including natural external events. The NRC's SER will evaluate and determine the (1) adequacy of the design to withstand facility fires, fabrication process fires, and other credible accidents, (2) potential for a release of radioactive material in liquid or gaseous form as a result of any such accident, and (3) significance of any such release to workers and the public. Comments related to security and terrorism (including those related to karst formations) are safety issues that are not within the scope of the environmental review. In conjunction with the safety analysis documented in the NRC's SER, the EIS will analyze the potential health and safety impacts on workers and the public, including consideration of both radiological and nonradiological hazards. NEPA does not require analysis of worst-case scenarios. Comments related to security and terrorism are safety issues that are not within the scope of the environmental review.

Comments: (1-1-2) (1-9-8) (19-1-5) (19-1-14) (52-1-6) (19-1-17) (19-2-2) (19-2-12) (19-3-4) (52-2-14) (20-2-6) (23-1-3) (50-1-3) (23-1-7) (50-1-8) (23-1-8) (50-1-9) (23-1-9) (50-1-10) (23-1-10) (50-1-11) (36-1-5) (36-1-8) (36-1-10) (45-1-4) (36-1-12) (45-1-5) (36-1-15) (36-1-16) (36-1-17) (45-1-8) (36-1-18) (45-1-9) (36-1-19) (36-1-20) (36-1-21) (36-1-22) (36-1-24) (54-1-6) (36-1-26) (54-1-7) (37-1-3) (43-1-2) (43-1-3) (43-1-5) (54-1-4)

B.19 Comments Concerning Cumulative Impacts

B.19.1 Cumulative Impacts—General Comments

The NRC staff received a comment expressing concern regarding the proximity of the proposed project to other existing and proposed facilities at the East Tennessee Technology Park site, including nuclear-related facilities and the planned Oak Ridge airport.

Response: The EIS will provide a cumulative impacts evaluation that will assess the impacts of construction, operation, and decommissioning of the proposed project combined with the impacts of other past, present, and reasonably foreseeable future actions in the vicinity of the proposed project site. The NRC safety review will consider the nature of other nearby facilities to determine whether there are any credible accident scenarios, as appropriate.

Comments: (1-3-3)

B.19.2 Cumulative Impacts—Regulatory Comments

The NRC staff received comments and recommendations from the EPA and the TDEC regarding potential cumulative impacts of current and future hazardous waste impacts at and near the proposed project site. The TDEC recommended presenting a review of any ongoing CERCLA activities in proximity to the proposed project site. The EPA recommended the EIS evaluate the potential for future and historical impacts of the proposed project and describe the efforts to address indirect and cumulative impacts, primarily regarding CWA issues related to surface and groundwater, such as the potential for radionuclide releases and hyper-salinity in surface and groundwater. The EPA requested that the EIS also address groundwater monitoring for radionuclides, underground injection of effluent, spent nuclear fuel storage, and contamination transport.

Response: The cumulative impacts evaluation will assess the impacts of construction, operation, and decommissioning of the proposed project combined with the impacts of other past, present, and reasonably foreseeable future actions, including CERCLA activities, in the vicinity of the proposed project site. Additionally, the EIS analysis will discuss the applicant's proposed plans to manage and treat surface/stormwater runoff at the proposed project site and the best management practices (BMPs) the applicant proposes to implement to avoid, minimize, or mitigate potential impacts to groundwater and offsite ecological resources, including waterbodies and wetlands. Further, the EIS will address direct, indirect, and cumulative impacts of solid and hazardous waste associated with the proposed project and will describe the projected solid and hazardous waste types, volumes, expected storage, disposal, and management plans, and applicable State and Federal hazardous waste requirements and the mitigation measures the applicant intends to implement for waste management as required by other agencies and associated permits or that are recommended by the NRC.

Comments: (3-1-1) (18-1-1)

B.19.3 Cumulative Impacts—Quality of East Fork Poplar Creek

The NRC staff received comments regarding the current and future quality of East Fork Poplar Creek and the presence of mercury in the surrounding sediments, the potential for radionuclide transport in groundwater, and ongoing groundwater remediation in the project area. The commenters asserted that East Fork Poplar Creek is extensively contaminated and that all drainage from the proposed project would eventually flow into East Fork Poplar Creek and requested that the EIS discuss potential project impacts on groundwater and any proposed groundwater management or treatment that would occur as part of the proposed project.

Response: As noted above, the EIS will contain a cumulative impacts evaluation that will assess the impacts of construction, operation, and decommissioning of the proposed project combined with the impacts of other past, present, and reasonably foreseeable future actions in the vicinity of the proposed project site, as well as a discussion of the applicant's proposed plans to manage and treat surface/stormwater runoff at the proposed project site and the BMPs the applicant proposes to avoid, minimize, or mitigate potential impacts to groundwater and offsite ecological resources, including waterbodies and wetlands.

Comments: (20-2-4) (1-9-5) (1-9-6) (3-1-3)

B.20 Miscellaneous Comments

B.20.1 Miscellaneous—General

The NRC staff received comments inquiring about the source of the TRISO fuel, the veracity of referring to TRISO fuel as HALEU fuel, the process by which the fuel would be fabricated, alternate sources of enriched uranium, and how the applicant would manage radiological waste from the proposed FFF.

Response: The Proposed Action and Alternatives section of the EIS will provide an accurate description of the proposed project and the components necessary to construct and operate the proposed FFF. The Waste Management, Public and Occupational Health, and Transportation sections of the EIS will discuss uranium sourcing, radiological waste management associated with the proposed FFF, and the safe transportation of radioactive materials to and from the proposed FFF, as well as potential direct, indirect, and cumulative impacts of potential accidents associated with the proposed project.

Comments: (23-1-11) (50-1-12) (50-1-13) (36-1-2) (45-1-1) (45-1-2) (48-1-3) (47-1-3) (36-1-7) (36-1-14) (45-1-7)

B.21 General Support Comments

B.21.1 General Support

Many commenters expressed support for the applicant or the proposed project that would produce proprietary TRISO fuel. Some of the reasons cited for support include the creation of a safe, abundant, cost-effective, and reliable energy source that serves as a pathway for reducing or eliminating fossil fuel use, reducing carbon dioxide emissions, and combating or mitigating climate change. Some commenters indicated a preference for nuclear power over wind and solar projects, which were deemed as unreliable; they also noted benefits to the commercial nuclear industry, local community and region, broader public interest, and socioeconomics (e.g., creation of jobs). Several commenters voiced support for the nuclear industry as a whole and the DOE's and NRC's rigorous oversight and regulation. Several commenters cited community support or local consent for the project.

Response: While these comments are useful for the NRC staff to understand the public perspective on the proposed project, they do not provide any specific information related to the environmental effects that would occur under the proposed action; therefore, they will not be evaluated further in the EIS. Some of the comments mentioned specific aspects of the applicant's proposal that will be evaluated in the EIS. For example, the scope of the EIS with respect to safety will be discussed in the Accident Impacts section of the EIS, and the scope of the EIS with respect to socioeconomics will be discussed in the Socioeconomics section of the EIS. As appropriate, the EIS will discuss potential cumulative impacts associated with the proposed project.

Comments: (1-1-1) (1-2-1) (1-2-2) (1-2-3) (1-3-5) (1-5-1) (1-5-4) (1-6-1) (1-6-3) (4-1-1) (5-1-1) (7-1-1) (8-1-1) (9-1-1) (10-1-1) (11-1-1) (16-1-1) (16-1-6) (20-1-1) (21-1-1) (21-1-2) (22-1-1) (25-1-1) (26-1-1) (27-1-1) (28-1-1) (29-1-1)

B.22 General Opposition Comments

B.22.1 General Opposition

The NRC received comments expressing concern about the integrity or motivation of the process that transferred the site of the proposed project facility or provided tax incentives to the applicant (e.g., for the benefit of a few individuals, not the public). Other comments raised concerns about the history of protection and preservation of sensitive biota and natural areas. Several of these comments expressed opposition to the use of HALEU fuel because it is nearly bomb-grade material. Some commenters also included concerns about the general danger of handling or processing nuclear fuel or nuclear fuel material and requested full disclosure about the process for fabrication. Some commenters were concerned about the process for uranium recovery and the security of uranium recovery. Some commenters simply stated general opposition to the construction and operation of the proposed project. Other commenters included general statements about site safety and suitability, the potential for accidents, and the need for a full and honest assessment with full disclosure of impacts to the environment and health.

Response: The NRC is an independent agency established through the Energy Reorganization Act of 1974. It was established to ensure the safe use of radioactive materials for beneficial civilian purposes while protecting people and the environment. The NRC conducts its regulatory responsibilities in an open and transparent manner with full disclosures, consistent with “The NRC Approach to Open Government” (<https://www.nrc.gov/public-involve/open.html>). The NRC does not advocate for or endorse the nuclear industry. Because comments regarding the history of the land transfer or taxation of the proposed facility do not provide information related to the environmental impacts of the proposed project, they will not be addressed further in the EIS. Regarding the integrity of the applicant, the NRC will carefully review the license application and supporting materials to determine whether the proposed project meets all regulatory requirements related to safety and security and will disclose the potential environmental impacts of the proposed project in its EIS, which will be published for public comment. Comments related to security and terrorism are safety issues that are not within the scope of the environmental review.

The EIS will contain a discussion of the affected environment that exists at and around the proposed project location and fully assess the potential impacts on the environment. The assessment categories will include land use, socioeconomics, environmental justice, air quality, geology and soils, water resources (surface water and groundwater), ecological resources (terrestrial and aquatic resources), historic and cultural resources, noise, visual and scenic resources, waste management, transportation, and public and occupational health. The EIS will evaluate the potential impacts on each of these categories from the proposed action. The NRC staff will consider factors such as the disturbance or removal of vegetation, habitat loss or alteration, displacement of wildlife, changes in surface water and groundwater quantity and quality, and silting due to the proposed activity. The EIS will provide a discussion of the potential effects of radiation doses on humans and environmental biota.

In parallel to its environmental review under NEPA, for which this scoping process was conducted, the NRC is conducting a safety review of the license application. The safety review will carefully assess the proposed methods for processing uranium and uranium recovery. It will assess the potential safety impacts of the proposed activities. The results of these reviews and assessments will be documented and publicized. The NRC will use the information from these evaluations to decide whether to grant a license to the applicant to construct, operate, and

decommission the proposed FFF. Security issues will be evaluated in a separate report that will not be made public because divulging security information could degrade the level of security protection.

While the comments expressing opposition are useful for the NRC to understand public opinion about the licensing action, the comments that do not provide new information regarding the scope of the potential impacts will not be addressed further in the EIS. Related comments and responses that contain additional detail about the scope of the EIS are in other sections of this report (e.g., Safety and Waste Management).

Comments: (19-3-15) (36-1-1) (37-1-1) (50-1-6) (39-1-1) (40-1-1) (41-1-1) (44-1-3) (46-1-2) (47-1-1) (48-1-1)

B.23 Out of Scope Comments

B.23.1 Out of Scope—Support for Nuclear Power and the Nuclear Industry

The NRC received comments regarding support for nuclear power and the nuclear industry. Some commenters expressed support for small modular reactors, nuclear power, and investments in new nuclear facilities over the use of alternative fossil fuel energy sources. Another commenter urged the NRC to account for nuclear energy's contribution to reducing climate and non-climate issues.

Response: Comments in support of nuclear power and nuclear applications are beyond the scope of the EIS. This environmental review addresses the potential impacts that could result from the proposed project. Furthermore, the NRC is an independent regulatory agency that does not promote nuclear or other types of energy. These comments will not be addressed further in the EIS, except for the issue of climate change impacts from the proposed project, which will be addressed in the Meteorology and Air Quality section of the EIS.

Comments: (1-5-3) (1-8-1) (22-1-2) (53-1-3)

B.23.2 Out of Scope—Criticism of the City of Oak Ridge and Industrial Development Board (Business Practices of Involved Parties)

The NRC received comments regarding the City of Oak Ridge and its Industrial Development Board (IDB). Several commenters expressed criticism about the City of Oak Ridge and the IDB, which operates the Horizon Center Industrial Park, regarding their record of environmental stewardship, addressing environmental issues, addressing potential conflict of interest concerns, addressing silt fences, and plans to increase electrical power to the Horizon Center Industrial Park.

Response: The NRC staff will independently evaluate the safety and environmental impacts of the proposed FFF during the licensing process. The safety and environmental reviews will determine whether the proposed FFF would comply with the NRC's regulatory standards. Information in the applicant's documents, including its safety analysis report, ER, responses to RAIs, and other supporting documentation will be carefully reviewed and verified by the NRC staff. Beyond determining compliance with the NRC's regulatory standards, the NRC does not exercise regulatory authority over the past business decisions of cities, private companies, or organizations, such as the IDB. Additionally, the NRC does not have authority over unlicensed private business ventures, and specific business interests of cities and private companies will

not be included in the EIS scope. Accordingly, these comments do not provide information related to the environmental impacts of the proposed project and will not be evaluated further in the EIS.

Comments: (19-1-8) (19-3-13) (19-1-10) (19-3-17) (52-3-4) (19-3-18) (19-3-20) (52-3-6) (19-4-1) (52-3-7) (19-4-12) (52-3-18) (20-2-3)

B.23.3 Out of Scope—City of Oak Ridge Zoning Regulations at the Project Site

The NRC staff received comments expressing concern regarding the need for the City of Oak Ridge to change the zoning classification of the project site, from IND-2 to IND-3, to allow for the construction and operation of the proposed facility. The commenter asserted that changing the zoning classification would require the DOE to produce a new EIS regarding the leasing of the Horizon Center Site land to the City of Oak Ridge.

Response: The zoning classification of the project site is discussed in section 3.1.2 of the EIS. The zoning changes for the proposed parcel were reviewed and accepted by the City of Oak Ridge. The decision by the City of Oak Ridge to rezone the project site and the parameters of the DOE's EA associated with the leasing of the Horizon Center Site land are all outside the scope of the current EIS.

Comments: (19-2-20) (19-4-14) (52-3-19) (19-3-11) (52-3-1) (52-3-2) (19-4-13) (20-2-2) (52-1-2) (52-2-10) (19-3-16)

B.23.4 Out of Scope—EPA Requests Related to Cooling Structures and the Aging Management Program

The NRC staff received a comment from the EPA requesting that the NRC confirm that the proposed FFF would use relevant techniques to verify that all discharge structures are intact and able to retain nutrient-rich wastewater and to consider this issue as part of the Aging Management Program or other relevant mechanism.

Response: The proposed FFF would not include discharge structures for wastewater or otherwise. The facility would not be designed to discharge wastewater of any type. The only water discharged from the site would be stormwater runoff for the impervious surfaces (e.g., parking lots). This request from the EPA is not applicable to this project and is therefore out of scope.

Comment: (18-1-2)

B.23.5 Out of Scope—Miscellaneous

The NRC staff received comments about various steps in the uranium recovery process and transportation risks associated with the process. Another commenter expressed concern that nuclear reactors, including a new generation of nuclear infrastructure, with their likelihood of catastrophic accidents and radiation releases over their lifetime, are the wrong way to address climate change, rather than use of low-carbon, safe, renewable fuels.

Response: Because comments regarding the uranium recovery process do not provide information related to the environmental impacts of the proposed facility, they will not be addressed further in the EIS. The transportation of fuel fabrication components to the proposed

project site will be addressed in the Transportation section. The staff's safety evaluation will address accidents. The issue of climate change impacts associated with the proposed FFF will be addressed in the EIS. However, the use of low-carbon, renewable fuels (non-nuclear) and their impact on climate change is outside the scope of the EIS.

Comments: (36-1-2) (36-1-25) (44-1-2) (47-1-2) (48-1-2) (54-1-2)

C References

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- 10 CFR 70.22. Code of Federal Regulations. Title 10, *Energy*, Part 70 Subpart D. License Applications – Contents of Applications. Washington, DC. U.S. Government Publishing Office.
- 36 CFR 800.8. Code of Federal Regulations. Title 36, *Parks, Forests, and Public Property*, Part 800 Subpart B. Protection of Historic Properties, The Section 106 Process – Coordination With the National Environmental Policy Act.
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- 87 FR 77146. Federal Register. Vol. 87, No. 241, pp. 77146–77148. “TRISO-X Special Nuclear Material License.” Washington, DC: U.S. Government Publishing Office.
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- TRISO-X, LLC. 2022. Environmental Report Submittal for the TRISO-X Fuel Fabrication Facility. TRISO-X, LLC, Rockville, Maryland.