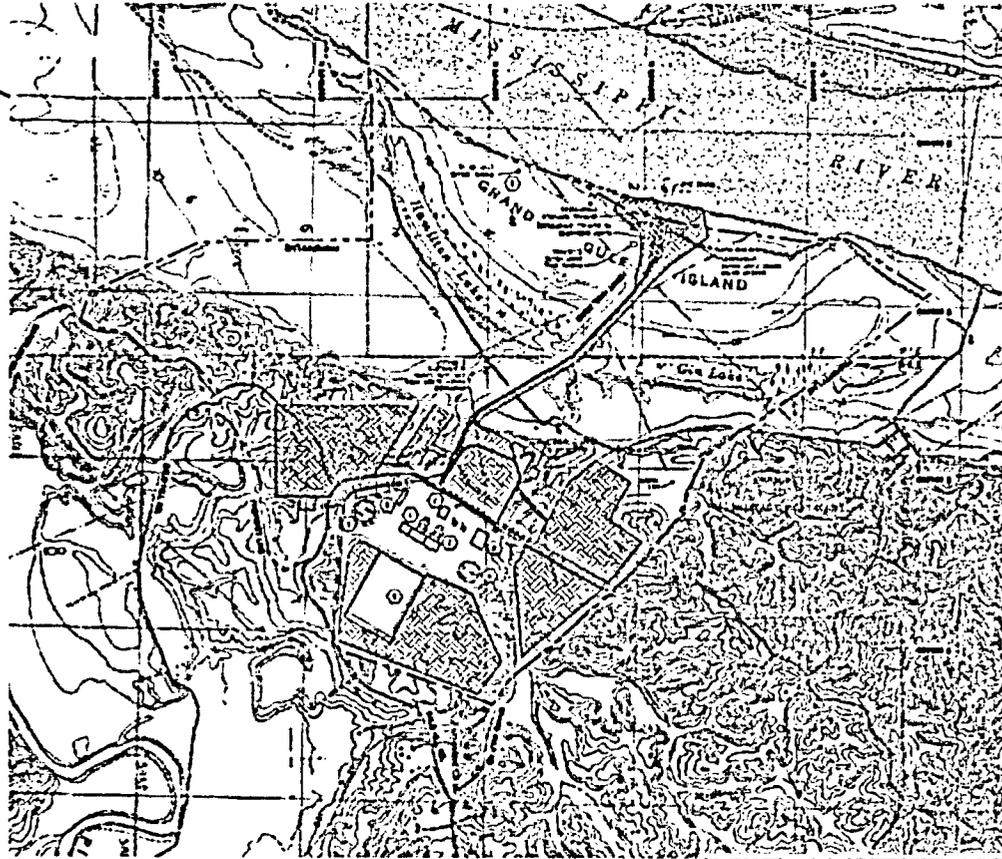


# Public Meeting on Draft Environmental Impact Statement for the Early Site Permit at the Grand Gulf ESP Site



U.S. Nuclear Regulatory Commission  
June 28, 2005



# Introduction

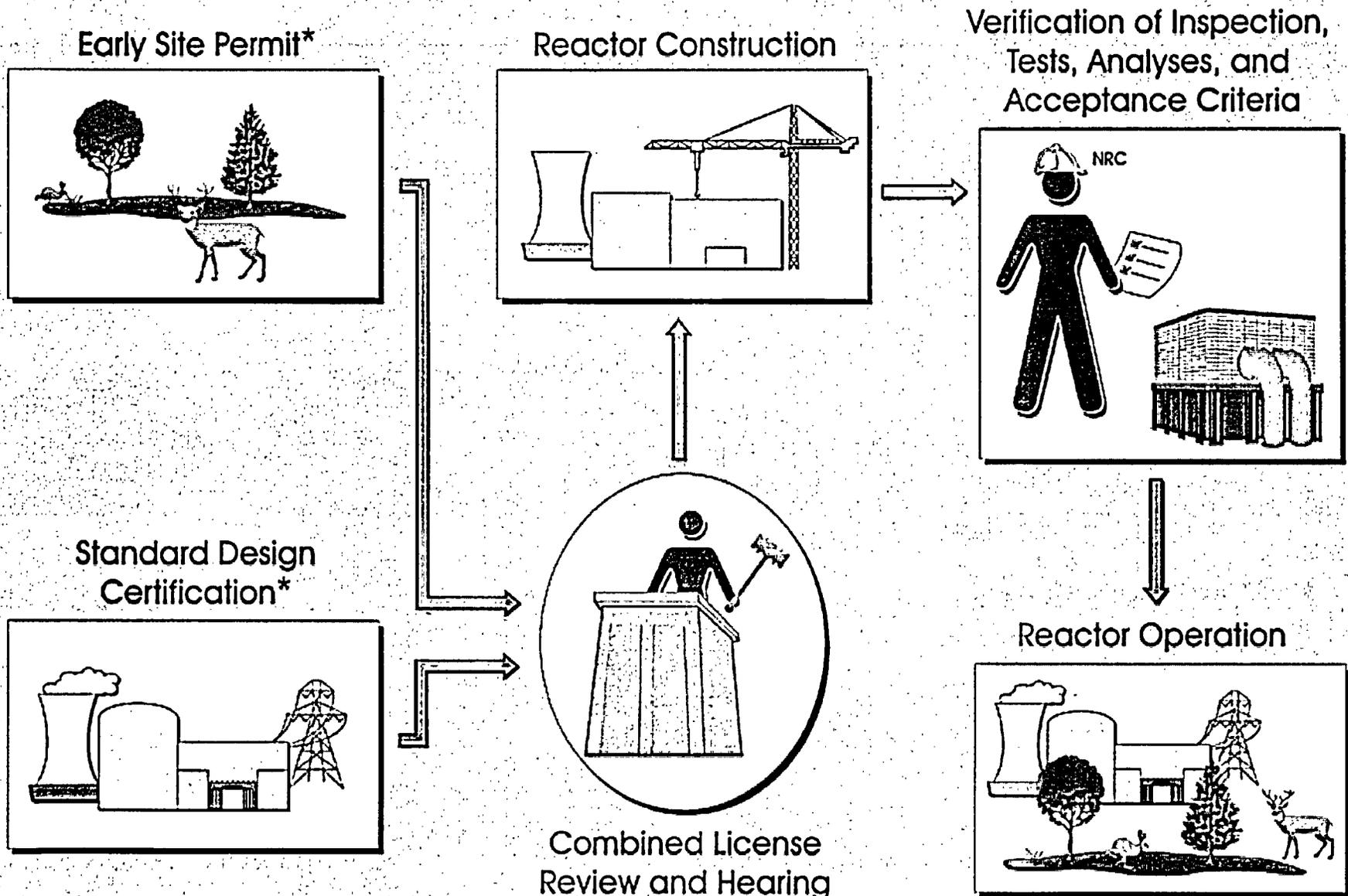
- Describe NRC's Mission
- Discuss ESP permitting process
- Describe the environmental review process
- Discuss the results of our review
- Provide the review schedule
- Describe how to submit comments



# Who is the U.S. Nuclear Regulatory Commission?

- Independent Federal agency
  - Five Commissioners
  - Professional staff
- Experienced regulator
- Mission: To protect public health and safety, promote common defense and security, and protect the environment
- Regulate commercial nuclear reactor activities

# Combined Licenses, Early Site Permits, and Standard Design Certifications



\* or equivalent process



# What is an Early Site Permit?

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- An NRC decision regarding some of the safety and environmental analyses of the proposed site, assuming construction and operation of a nuclear power plant or plants
- The permit is not authorization or a decision to actually build and operate a plant
- Site preparation and limited construction activities could be authorized, provided that a site redress plan is approved



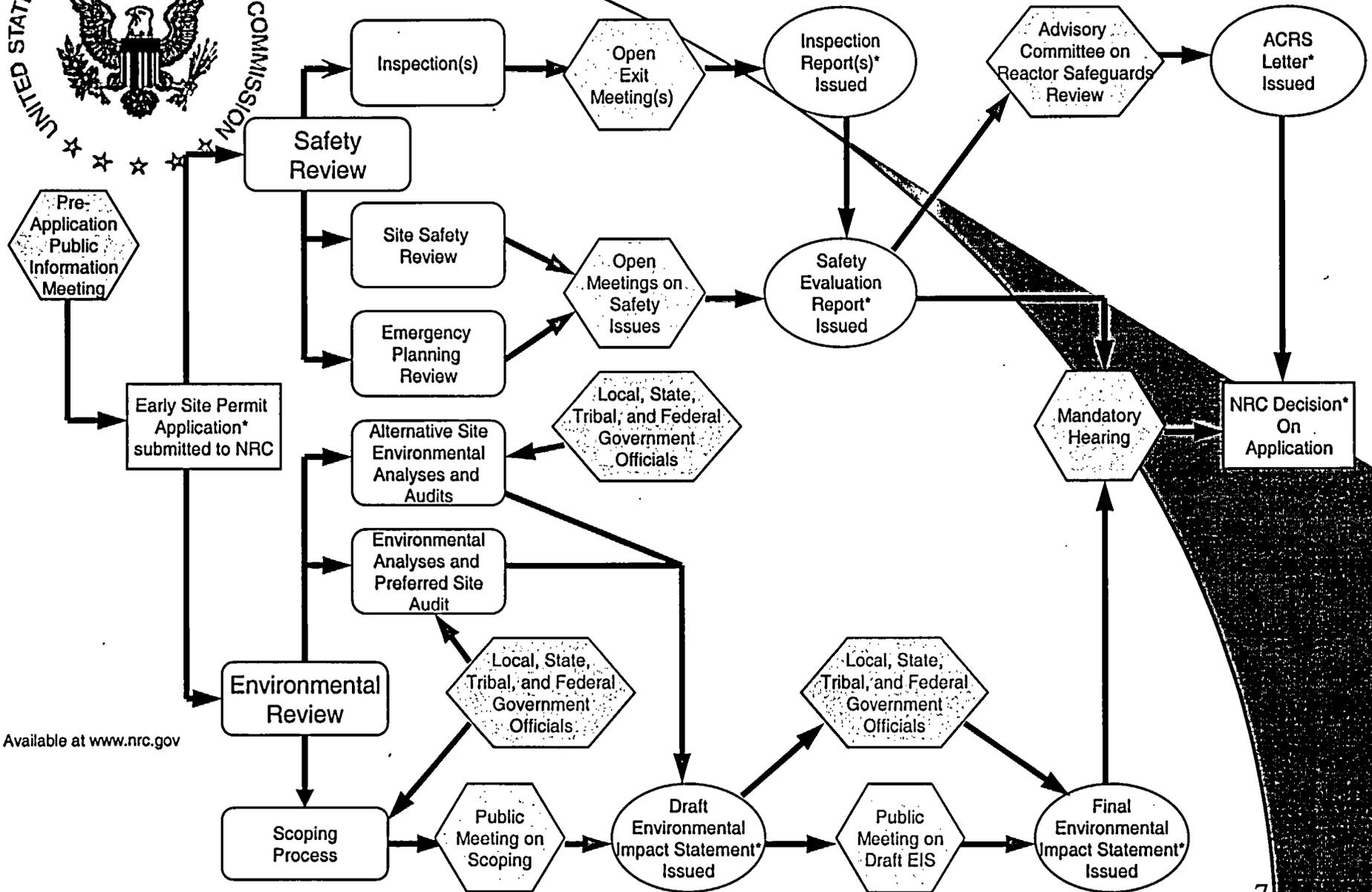
# Why Does an Applicant Want an Early Site Permit?

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- Allows an applicant to “bank” a site for up to 20 years
- Reduces licensing uncertainty
- Resolves siting issues before construction



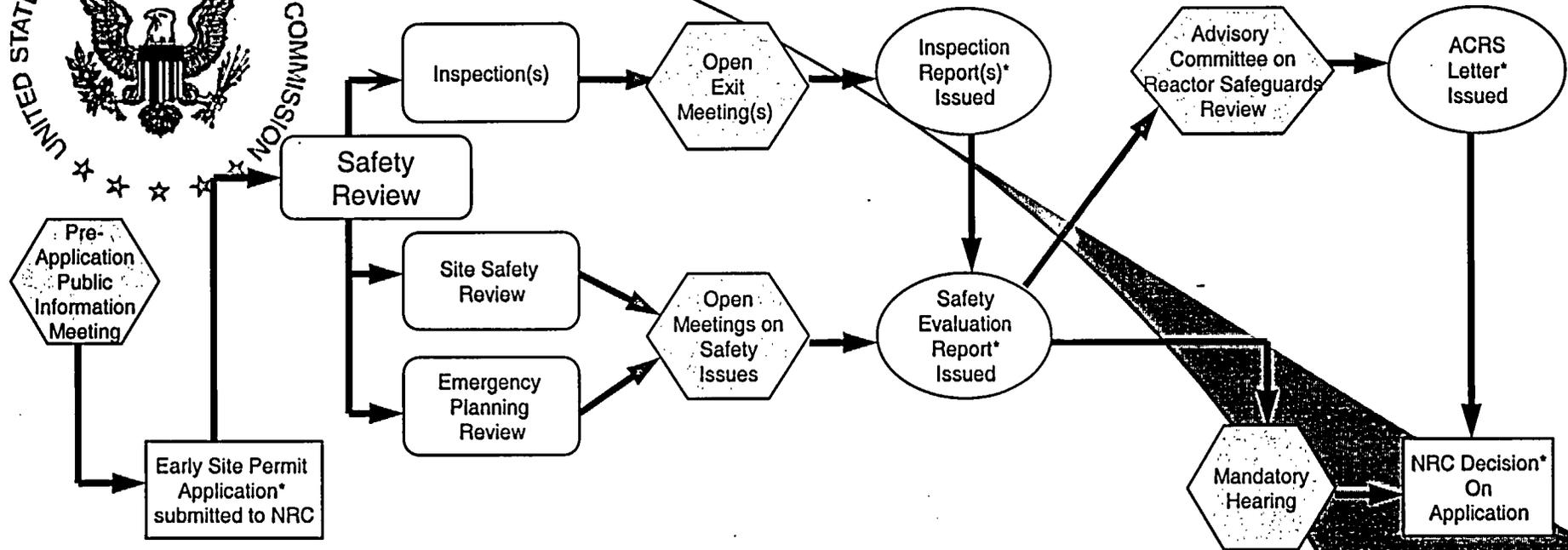
# Early Site Permit Process



\* Available at [www.nrc.gov](http://www.nrc.gov)



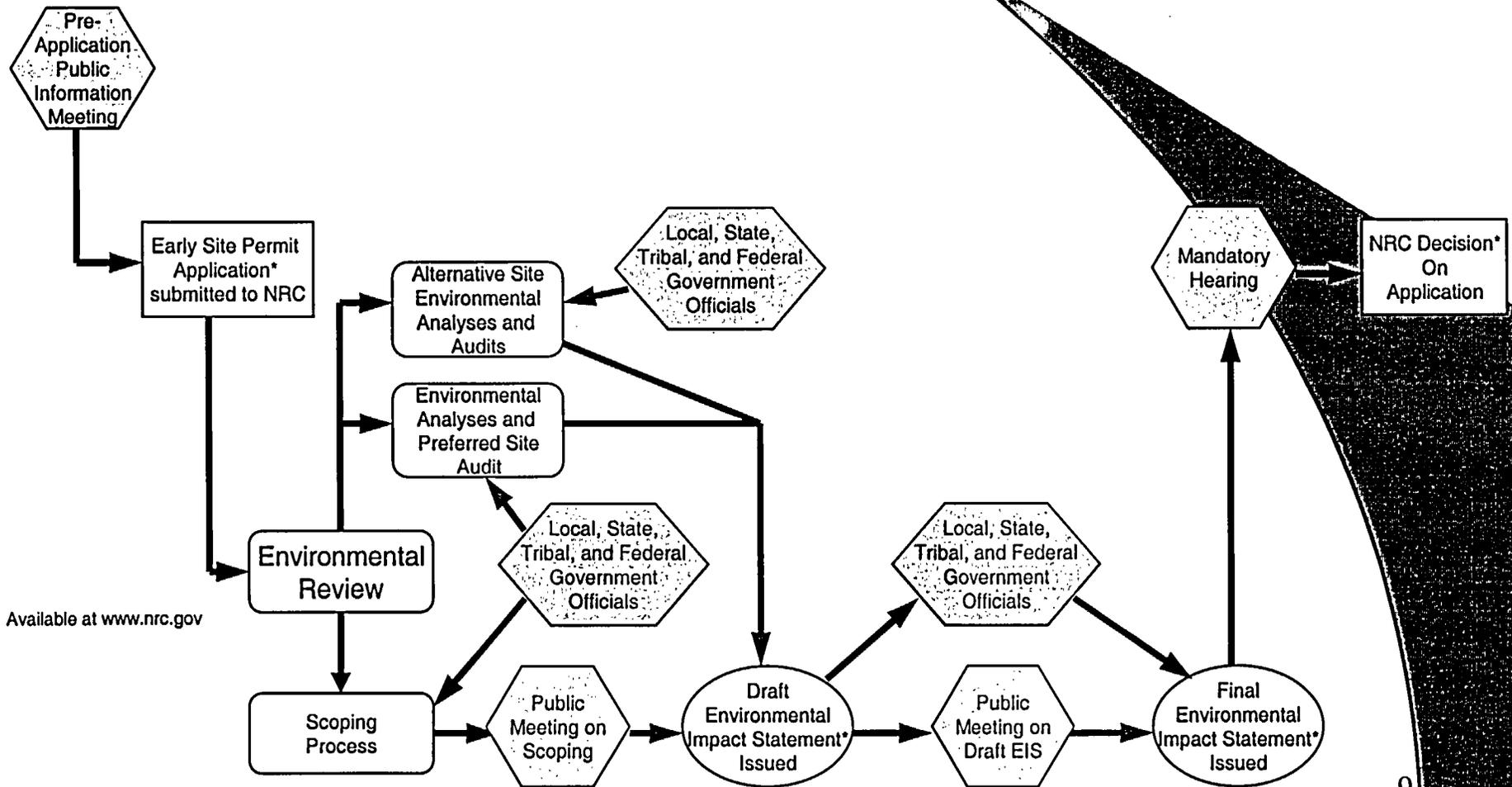
# Early Site Permit Process



\* Available at [www.nrc.gov](http://www.nrc.gov)

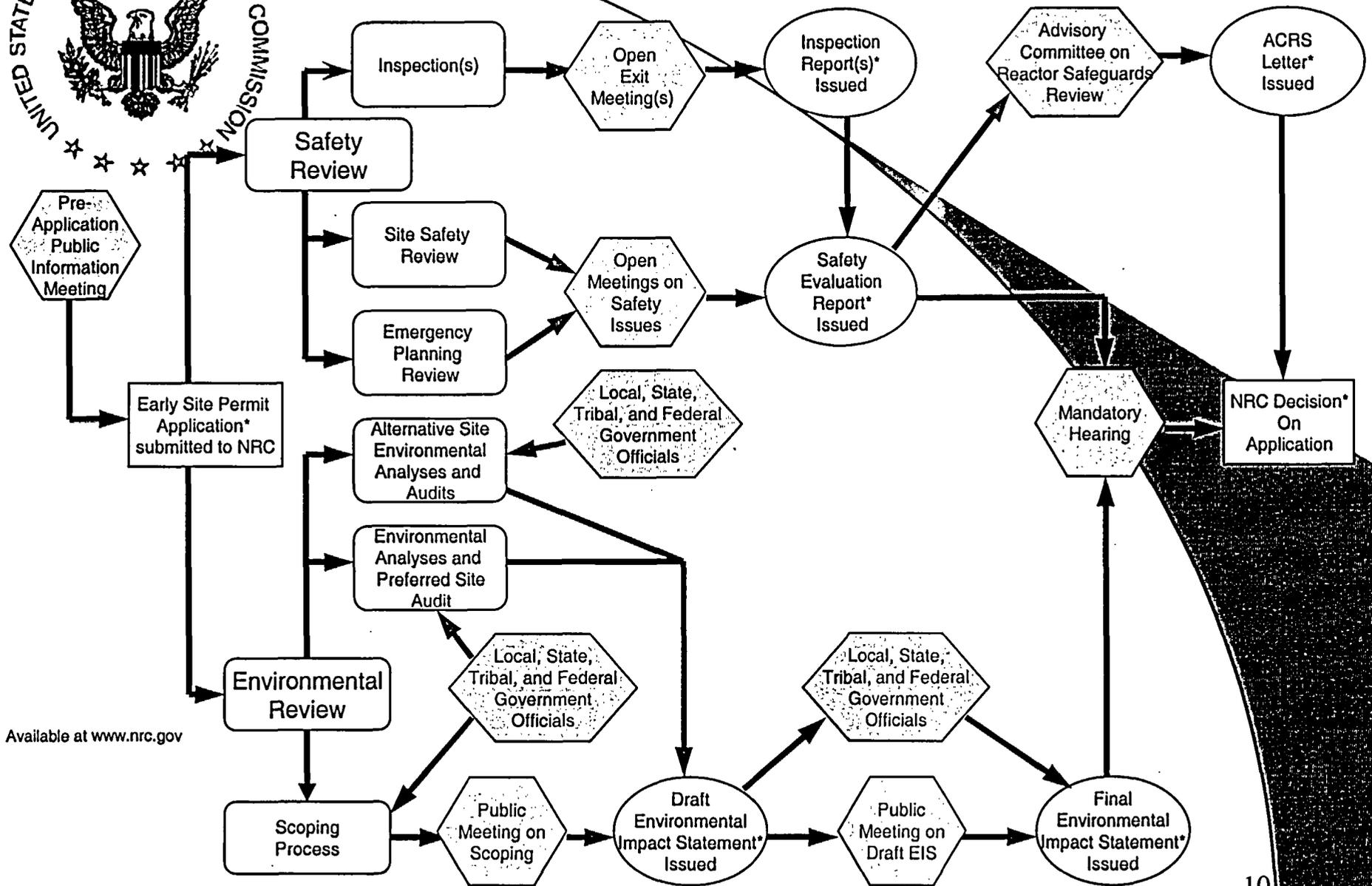


# Early Site Permit Process



\* Available at [www.nrc.gov](http://www.nrc.gov)

# Early Site Permit Process



\* Available at [www.nrc.gov](http://www.nrc.gov)



# Site Safety Review Process

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- Site suitability in relation to
  - Reactor safety – site characteristics pose no undue risk for a reactor sited here
  - Emergency Planning – no significant impediments to the development of emergency plan



# Questions on Draft Safety Evaluation Report (SER)

- Agency point of contact for the SER :  
Raj Anand  
(800) 368-5642, Ext. 1146
- Draft SER is available at the Harriet Person Memorial Library in Port Gibson and the NRC's Public Document Room in Rockville, Maryland
- Draft SER can also be viewed at:  
<http://www.nrc.gov/reactors/new-licensing/esp/grandgulf.html>



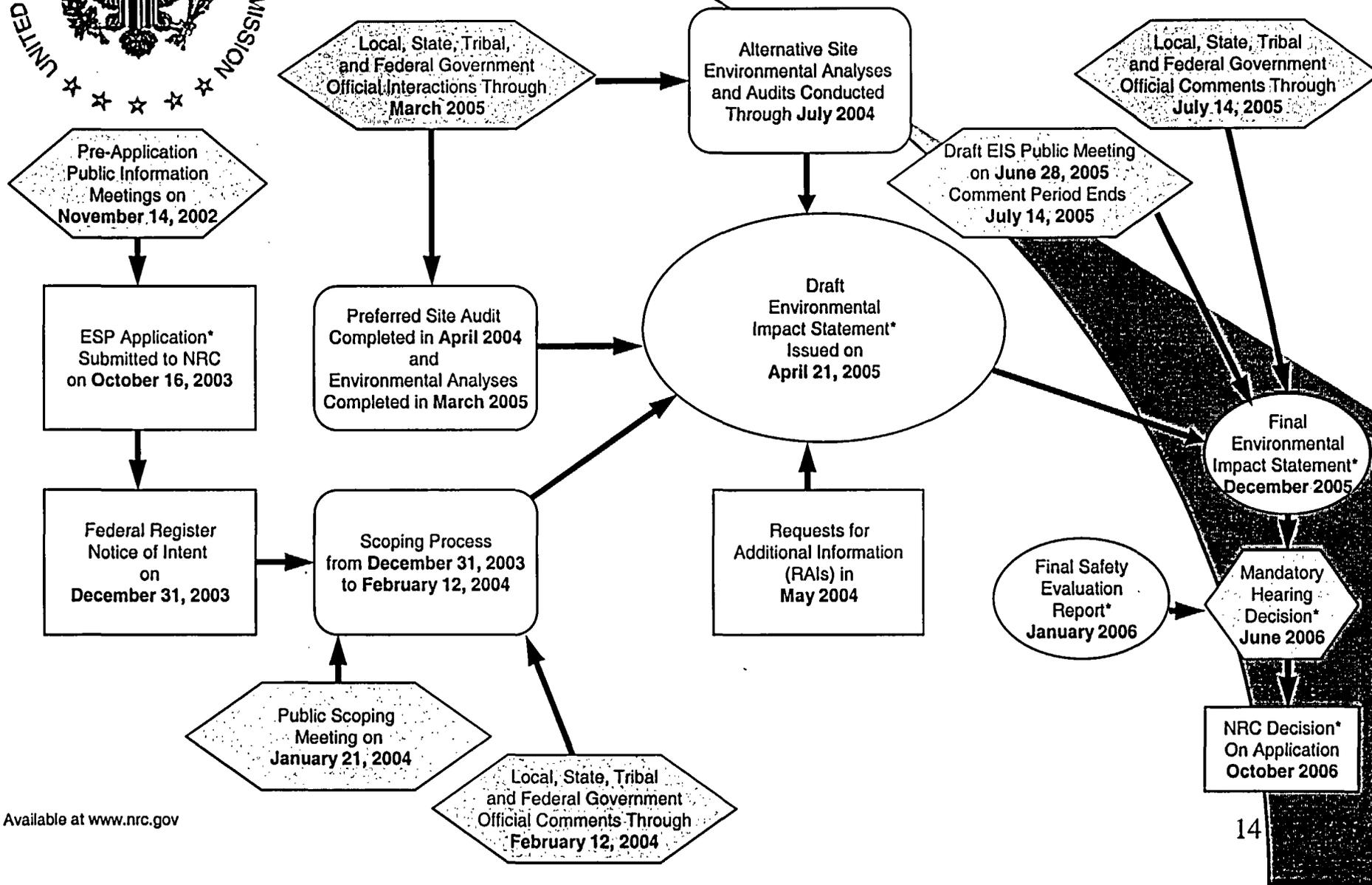
# National Environmental Policy Act

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- NEPA requires Federal agencies to use a systematic approach to consider environmental impacts
- An environmental impact statement (EIS) is required for major Federal actions significantly affecting the quality of the human environment
- Issuance of an early site permit is considered a major Federal action



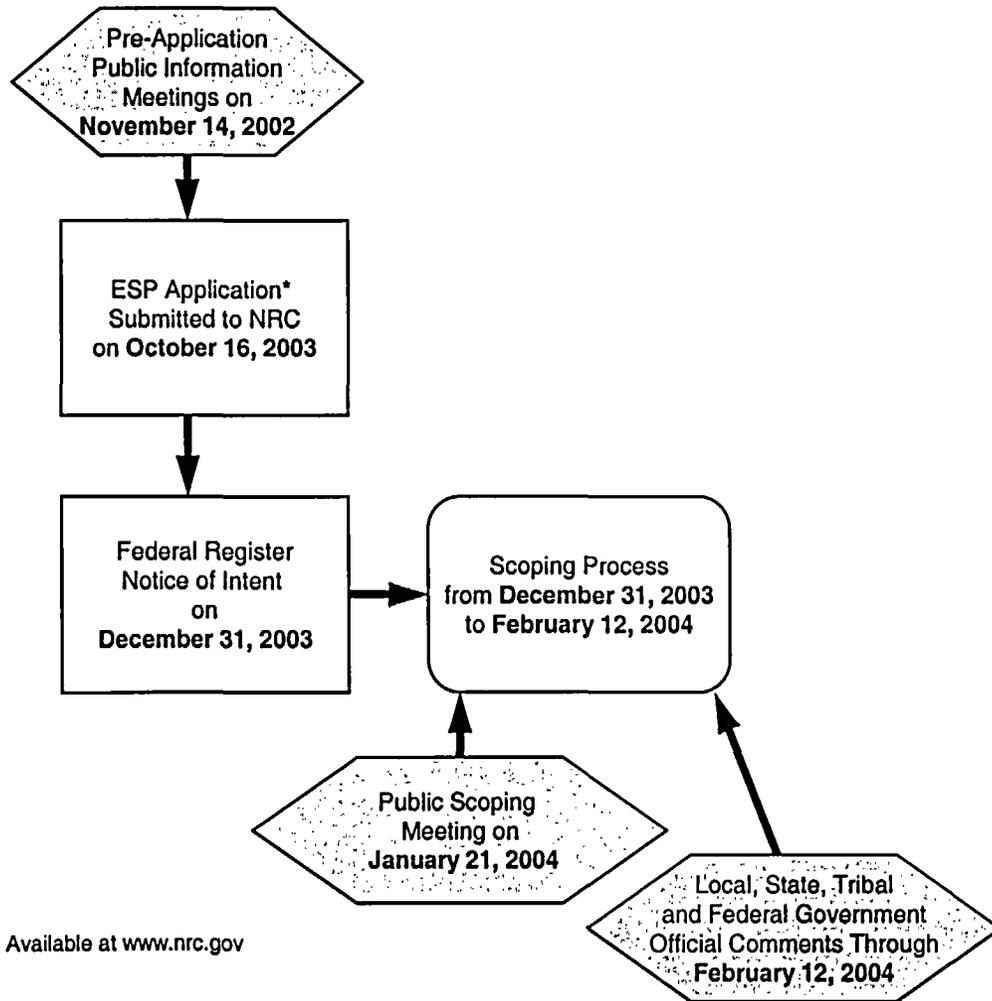
# Environmental Review Process



\* Available at [www.nrc.gov](http://www.nrc.gov)



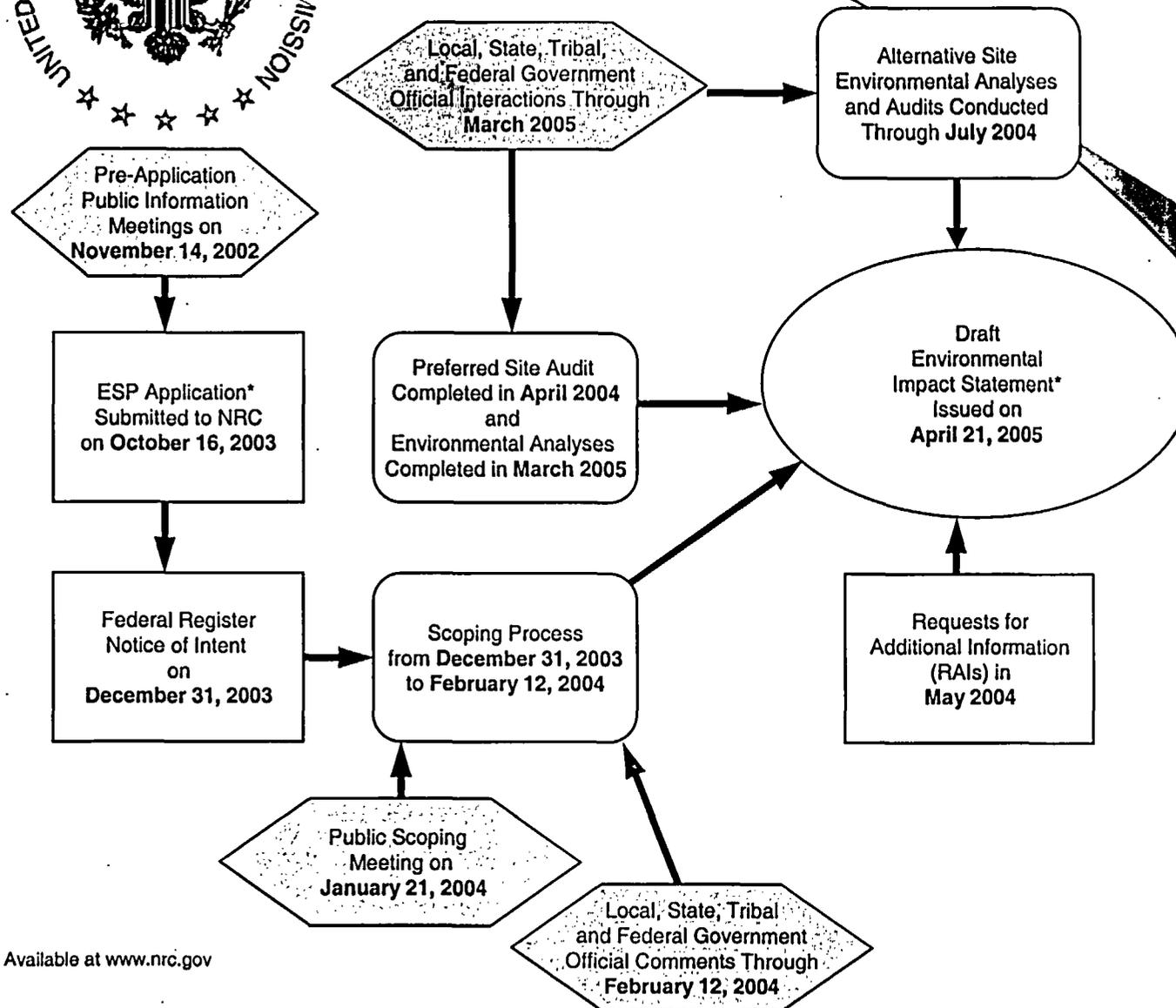
# Environmental Review Process



\* Available at [www.nrc.gov](http://www.nrc.gov)



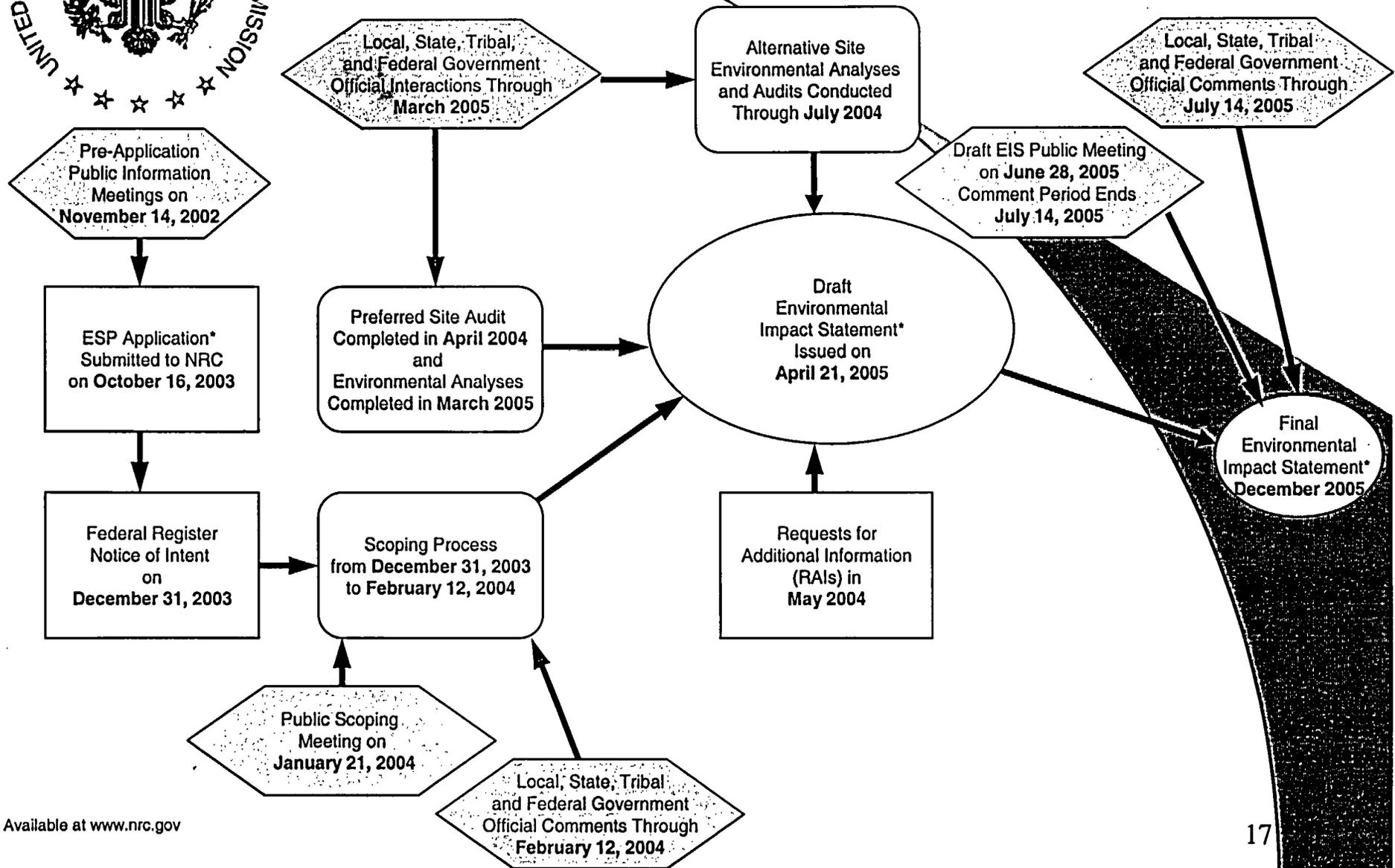
# Environmental Review Process



\* Available at [www.nrc.gov](http://www.nrc.gov)



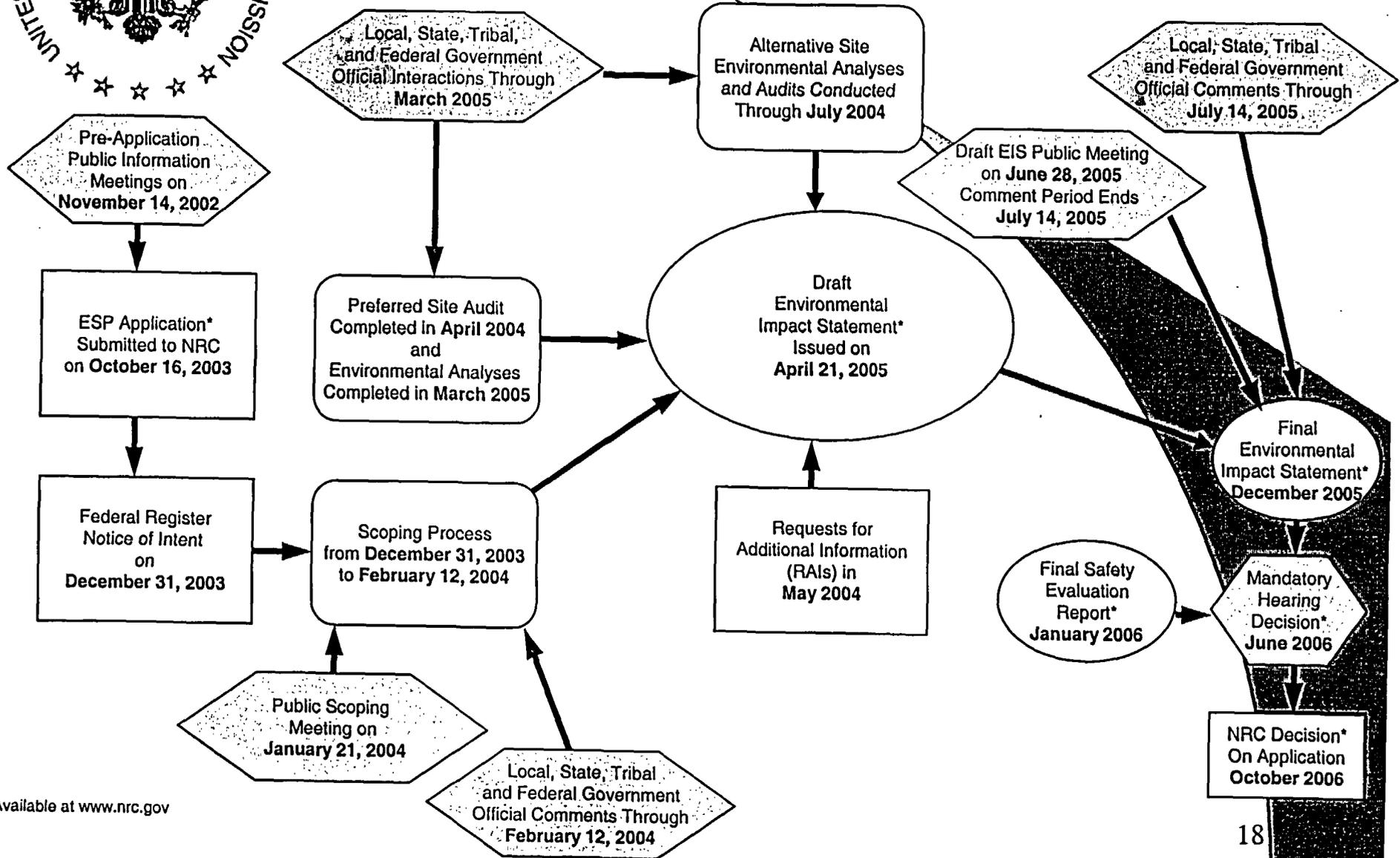
# Environmental Review Process



\* Available at [www.nrc.gov](http://www.nrc.gov)



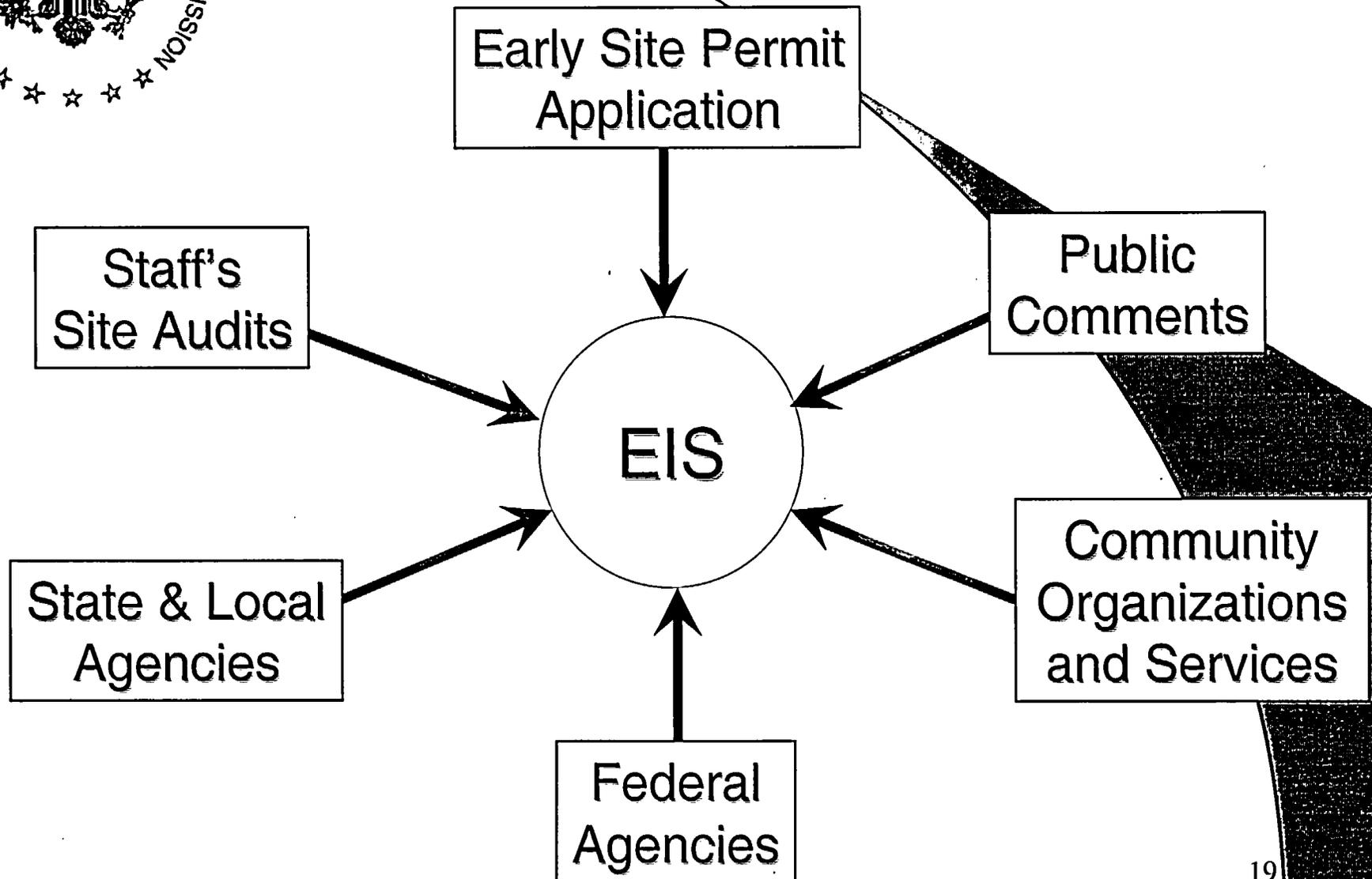
# Environmental Review Process



\* Available at [www.nrc.gov](http://www.nrc.gov)



# Information Gathering





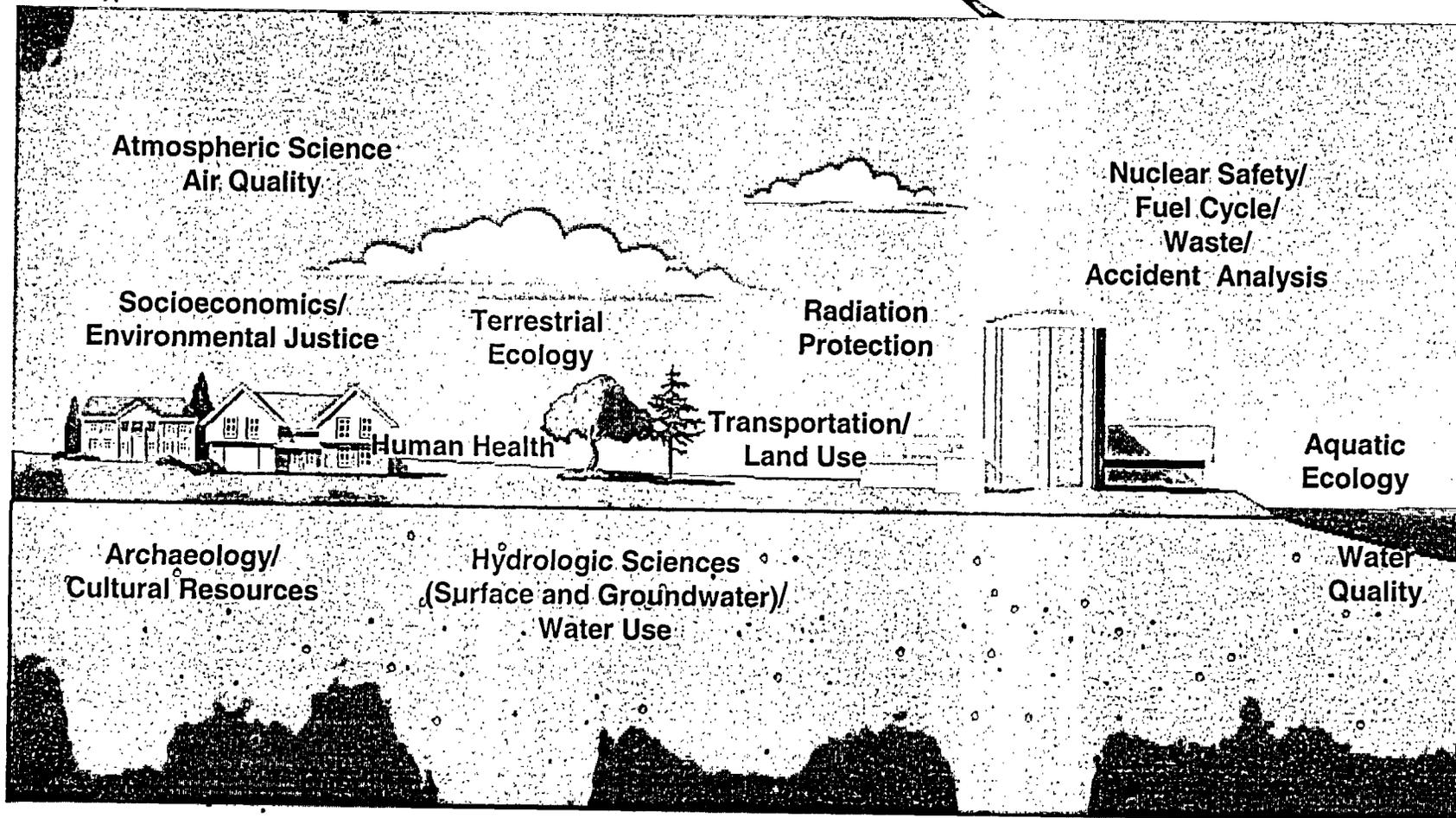
# Issues That Need Not Be Considered in an ESP Environmental Review

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- Need for power
- Alternative energy sources



# Team Expertise





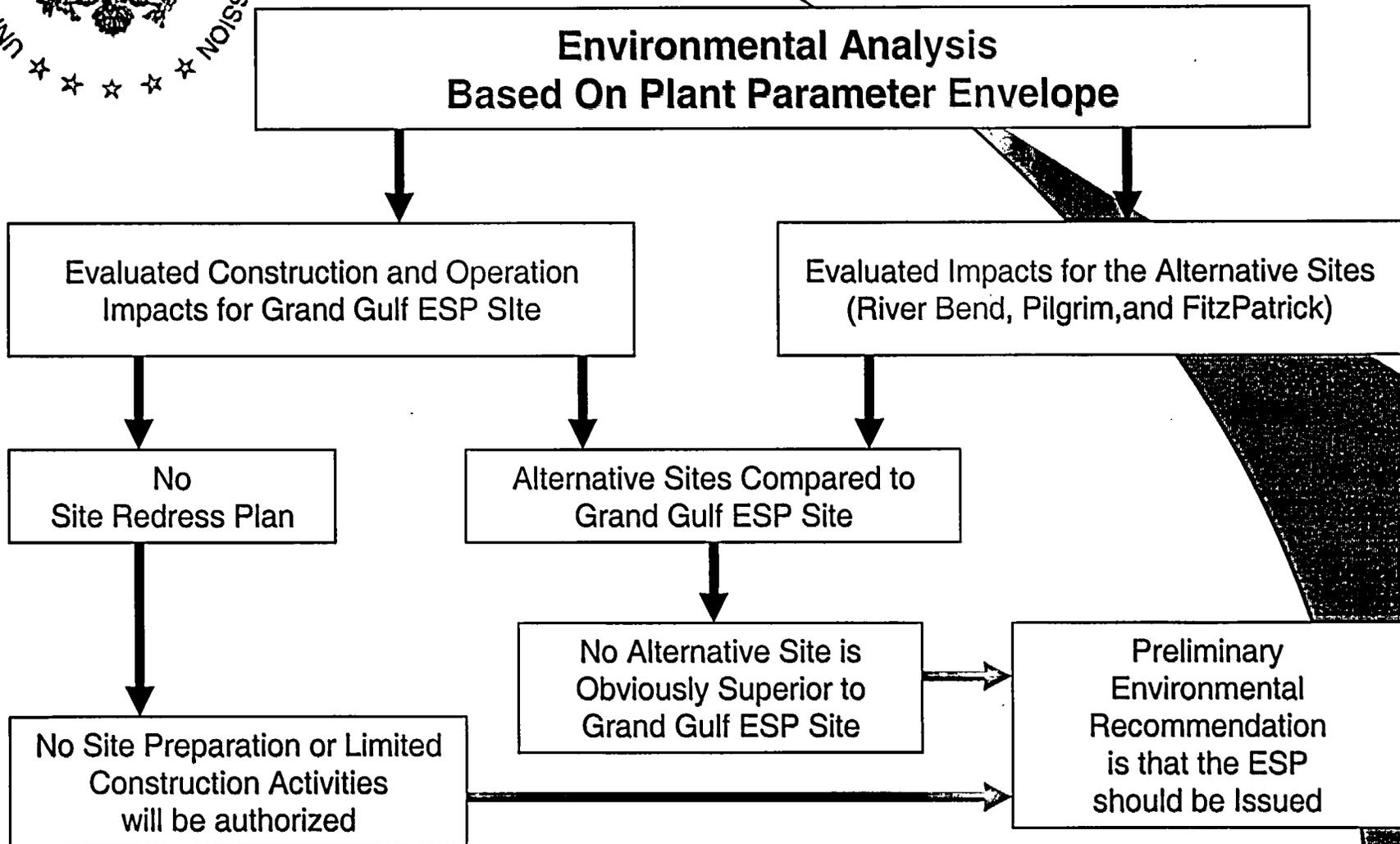
# SERI's Plant Parameter Envelope (PPE)

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- What is a PPE?
  - A surrogate for actual design parameters used because a design has not yet been selected
  - A set of values of plant design parameters that the applicant believes bounds the design characteristics
- Why would SERI use a PPE?
  - Defers a reactor design(s) decision until the CP/COL stage
- Which reactor types are the basis for SERI's PPE?
  - Five light-water reactors
  - Two gas-cooled reactors



# Analysis Approach





# How Impacts are Quantified

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- NRC-defined impact levels:
  - **SMALL**: *Effect is not detectable or too small to destabilize or 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*
- Reflects Council on Environmental Quality regulations and guidance for NEPA analyses



# Environmental Impacts of Construction and Operation

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- Land Use
- Air Quality
- Water Use and Water Quality
- Terrestrial and Aquatic Resources
- Threatened or Endangered Species
- Socioeconomic Resources
- Environmental Justice
- Historic and Cultural Resources
- Human Health



# Other Environmental Impacts Evaluated

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- Postulated Design-Basis Accidents
- Postulated Severe Accidents
- Uranium Fuel Cycle and Solid Waste Management
- Transportation of Radioactive Materials
- Decommissioning



# Ecological Impacts

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- MODERATE construction impacts due to loss of hardwood forest (~ 427 ha [1056 ac]) from widening existing transmission line corridors
- Above estimate based on doubling the width of existing transmission corridors
- Actual amount of hardwood forest that would be lost may be larger or smaller, and would be determined by the transmission and distribution system owner and operator at the CP or COL stage



# Water Use Impacts

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- The applicant proposes to withdraw potentially significant amounts of water from the Catahoula aquifer during construction and operation
  - The Catahoula is designated a sole source aquifer by EPA
  - The staff concluded that aquifer characterization data were inadequate to assess the impacts of withdrawals from Catahoula
  - The applicant would need to demonstrate at the CP or COL stages that the impacts of groundwater withdrawals would be small.
- Alternatively, the applicant would obtain construction and operational service water needs from the Mississippi River
  - The staff concluded the impacts of water use would be SMALL, based on this alternative.



# Radiological Impacts

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- Exposures to the public and to workers
  - Estimated doses to public well within regulatory design objectives and standards
  - No observable health impacts to public
  - Occupational doses estimated slightly lower than those from current reactors
- Impacts to biota evaluated and found to be acceptable
- Conclusion – radiological impacts from construction and operation would be SMALL
  - However, additional information will be required at CP/COL stage for reactor designs not currently certified



# Postulated Accidents

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- Impacts of postulated design-basis and severe accidents for advanced light water reactors would be SMALL
- Impacts of postulated design-basis and severe accidents for gas-cooled reactors need to be evaluated at the construction permit or combined license stage



# Socioeconomics and Environmental Justice

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- Impacts on the regional economy positive and SMALL, but positive and MODERATE in Warren County
- Impact on Claiborne County revenues would be positive, and range from SMALL to LARGE, depending on property tax treatment of the new facility
- Impact on regional traffic congestion includes significant planned upgrades and would be SMALL
- Impact on regional recreation expected to be SMALL
- Depending on where the workforce lives, impacts on education, housing, social services would be SMALL to MODERATE (Claiborne County)
- EJ impacts SMALL to MODERATE, depending on tax burden



# Alternatives Considered in Chapter 8 of the DEIS

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- Alternative sites
  - River Bend (LA)
  - Pilgrim (MA)
  - FitzPatrick (NY)
- Plant design alternatives
- No-action alternative
- Energy alternatives
  - Coal
  - Gas
  - Wind
  - Geothermal
  - Hydro
  - Solar
  - Biomass waste
  - Oil
  - Combination



# Plant Design Alternatives

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## ➤ Heat Dissipation Systems

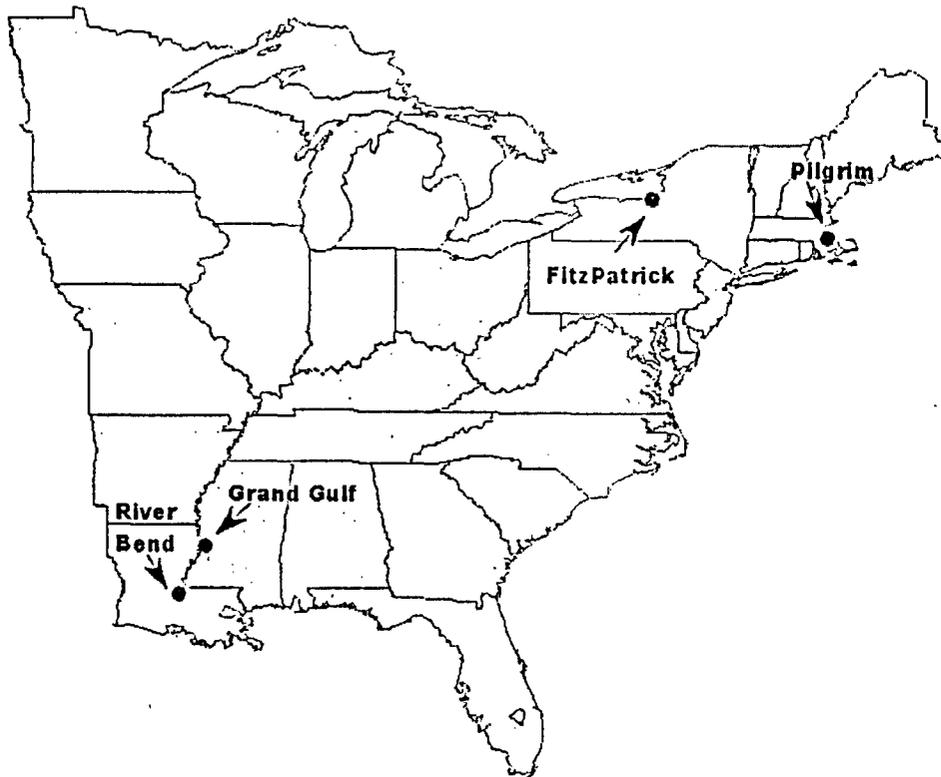
- Once-through cooling
- Wet mechanical draft cooling towers
- Wet natural draft cooling towers
- Wet-dry cooling towers
- Dry cooling towers
- Cooling pond
- Spray canals

## ➤ Circulating Water Systems

- Intake systems
- Discharge Systems
- Water supply
- Water treatment



# Selection of Alternative Sites



- Entergy's region of interest for alternative sites was the location of its 7 existing nuclear power plants
- The 7 sites were screened by Entergy to 4 sites and then to Entergy's preferred Grand Gulf site



# Preliminary Conclusions about Alternatives

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- None of the economically viable alternative energy-generating technologies is environmentally preferable to new nuclear generation
- Alternative ESP sites differ in environmental impacts
  - None sufficiently different to be environmentally preferable to the Grand Gulf ESP site.
- Design alternatives do not lessen impacts
  - Wet mechanical and natural draft cooling towers are suitable for the Grand Gulf ESP site
  - The cooling water intake and discharge systems proposed by SERI would be suitable for the Grand Gulf ESP site
- Under the no-action alternative, the ESP request would be denied and the benefits intended by the ESP process would not occur



# Environmental Review Milestones

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- Draft EIS issued – April 21, 2005
- Comment period ends – July 14, 2005
- Final EIS – December 2005
- Hearing Decision – June 2006
- Commission decision – October 2006



# Point of Contact for Environmental Review

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- Agency point of contact:  
James Wilson  
(800) 368-5642, Ext. 1108
- Draft EIS is available at the Harriet Person Memorial Library and the NRC's Public Document Room in Rockville, Maryland
- Draft EIS can also be viewed at:  
[www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1817/index.html](http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1817/index.html)



# NRC Addresses

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Provide comments on DEIS by July 14, 2005

- By mail at: Chief, Rules and Directives Branch  
Division of Administrative Services  
Mailstop T-6D59  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001
  
- In person at: 11545 Rockville Pike  
Rockville, Maryland
  
- E-mail at: [GrandGulfEIS@nrc.gov](mailto:GrandGulfEIS@nrc.gov)

