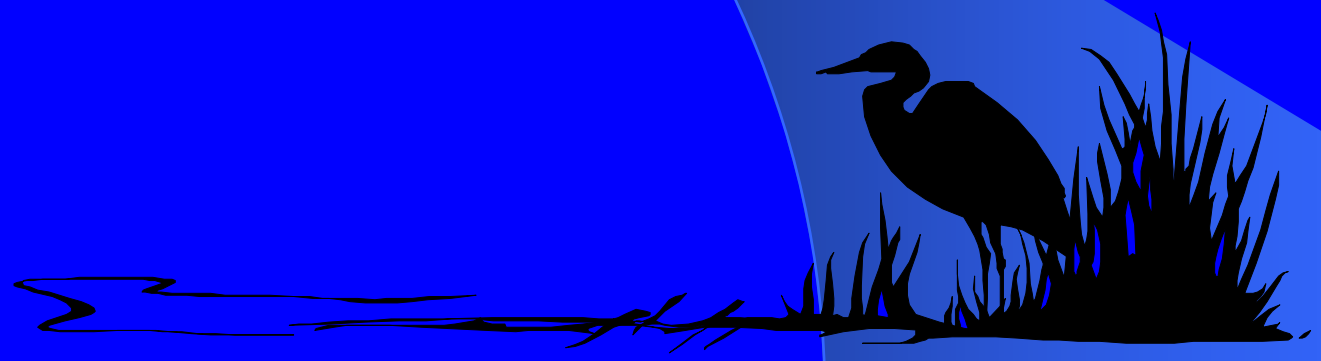
Preliminary Results of Environmental Review Arkansas Nuclear One, Unit 2

Nuclear Regulatory Commission

October 21, 2004



Purpose of Today's Meeting

- Discuss NRC's license renewal process
- Describe the environmental review process
- Discuss the results of our review
- Provide the review schedule
- Accept any comments you may have today
- Describe how to submit comments

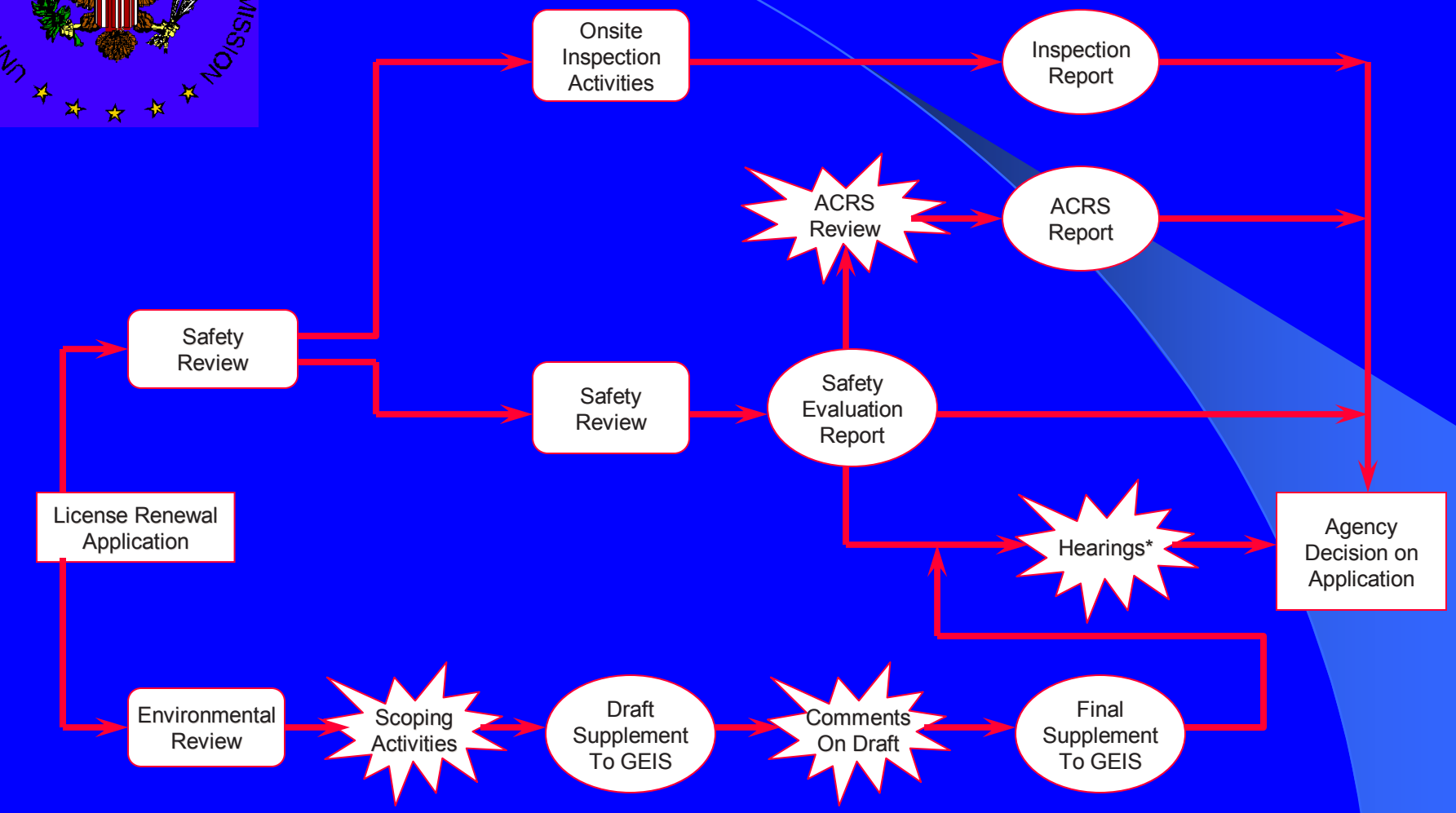
Arkansas Nuclear One, Unit 2 License Renewal Application

- Current operating license expires 07/17/2018
- Requests authorization to operate Arkansas Nuclear One, Unit 2 for up to an additional 20 years

NRC's License Renewal Review

- Safety review
- Environmental review
- Plant inspections
- Advisory Committee on Reactor Safeguards (ACRS)

License Renewal Process



Formal Public Participation

*If a request for hearing is granted

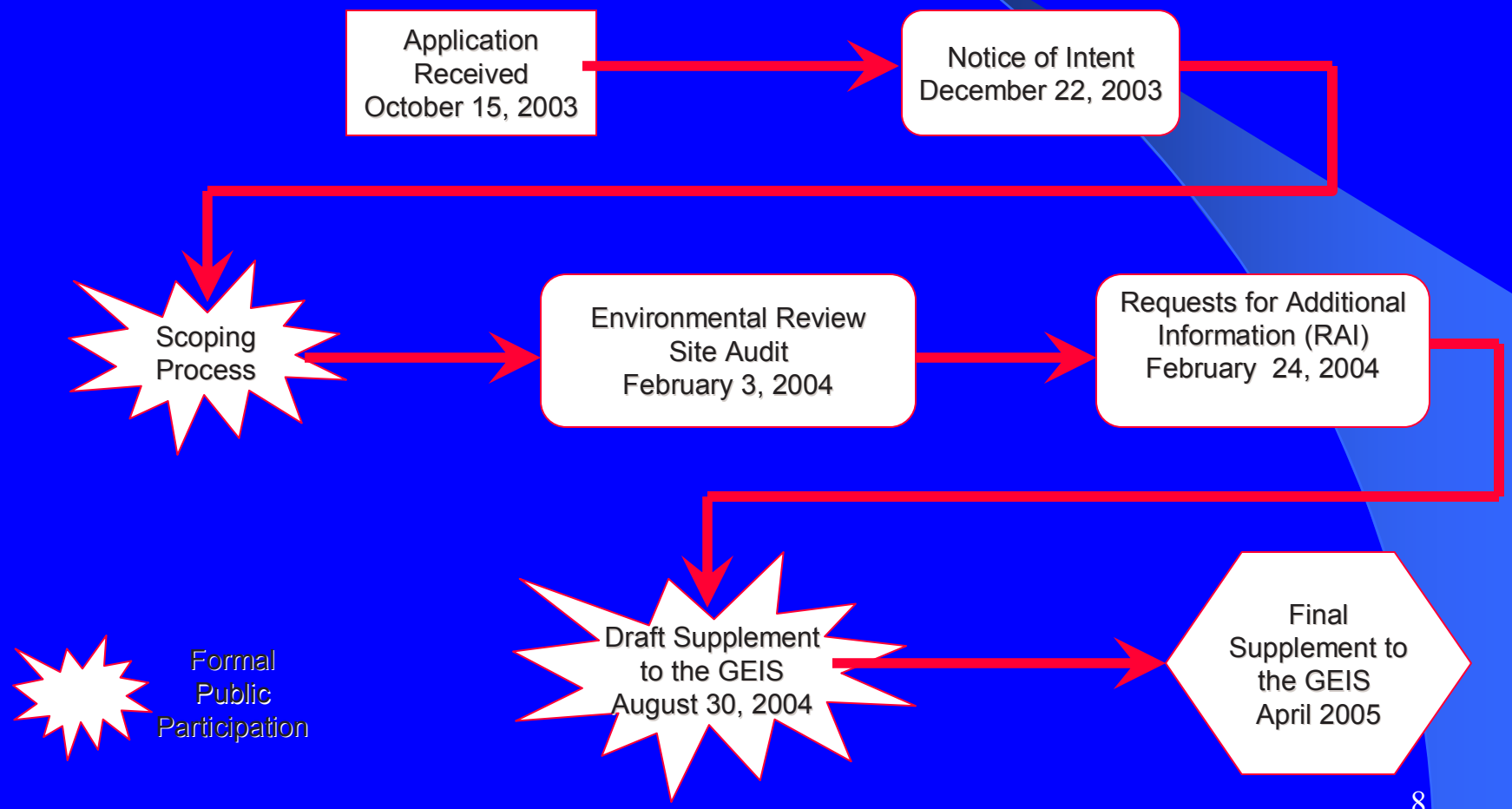
National Environmental Policy Act

- NEPA requires Federal agencies to use a systematic approach to consider environmental impacts
- Commission has determined that an environmental impact statement (EIS) will be prepared for a license renewal action

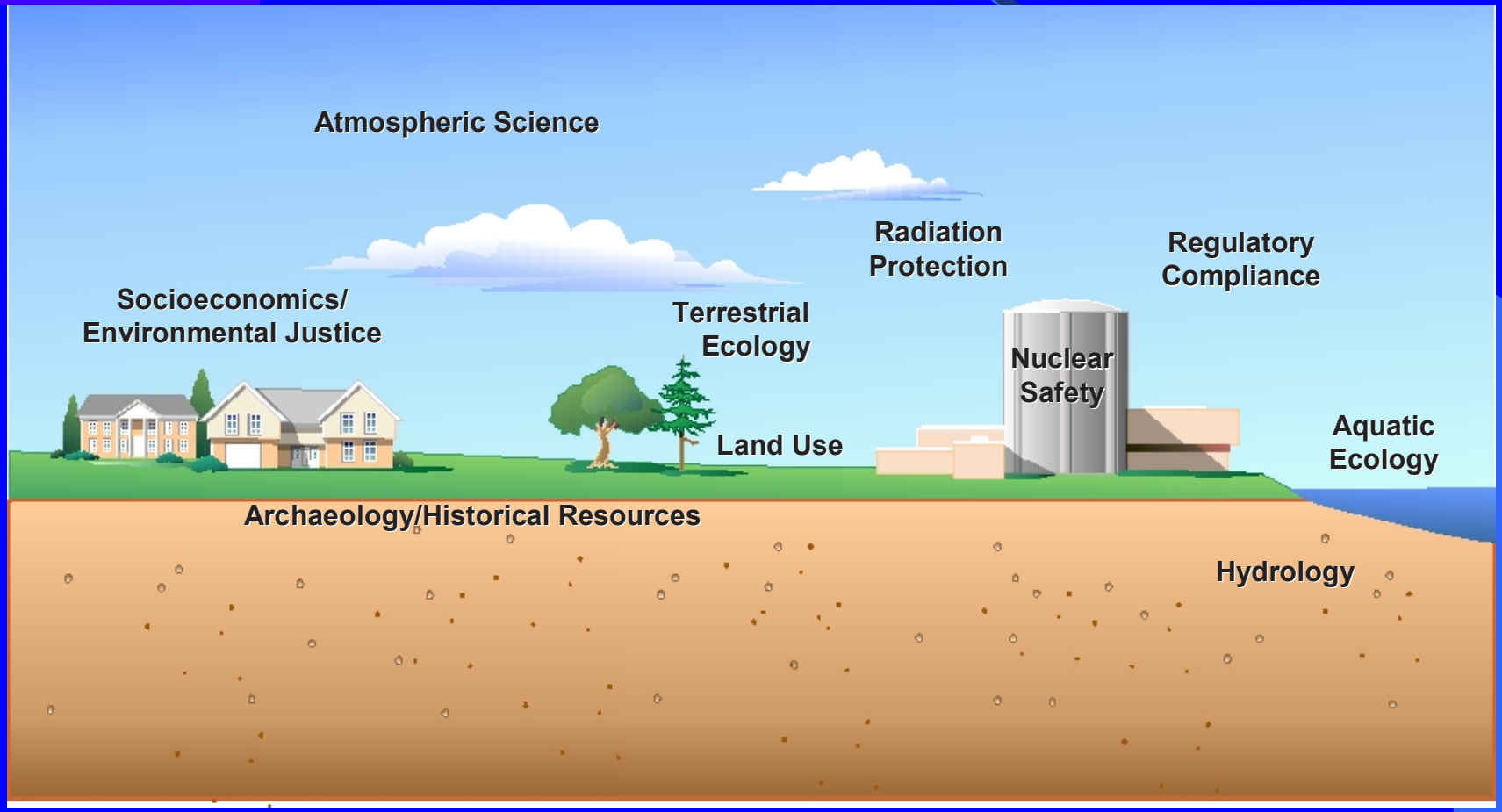
Decision Standard for Environmental Review

To determine whether or not the adverse environmental impacts of license renewal for ANO, Unit 2 are so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable.

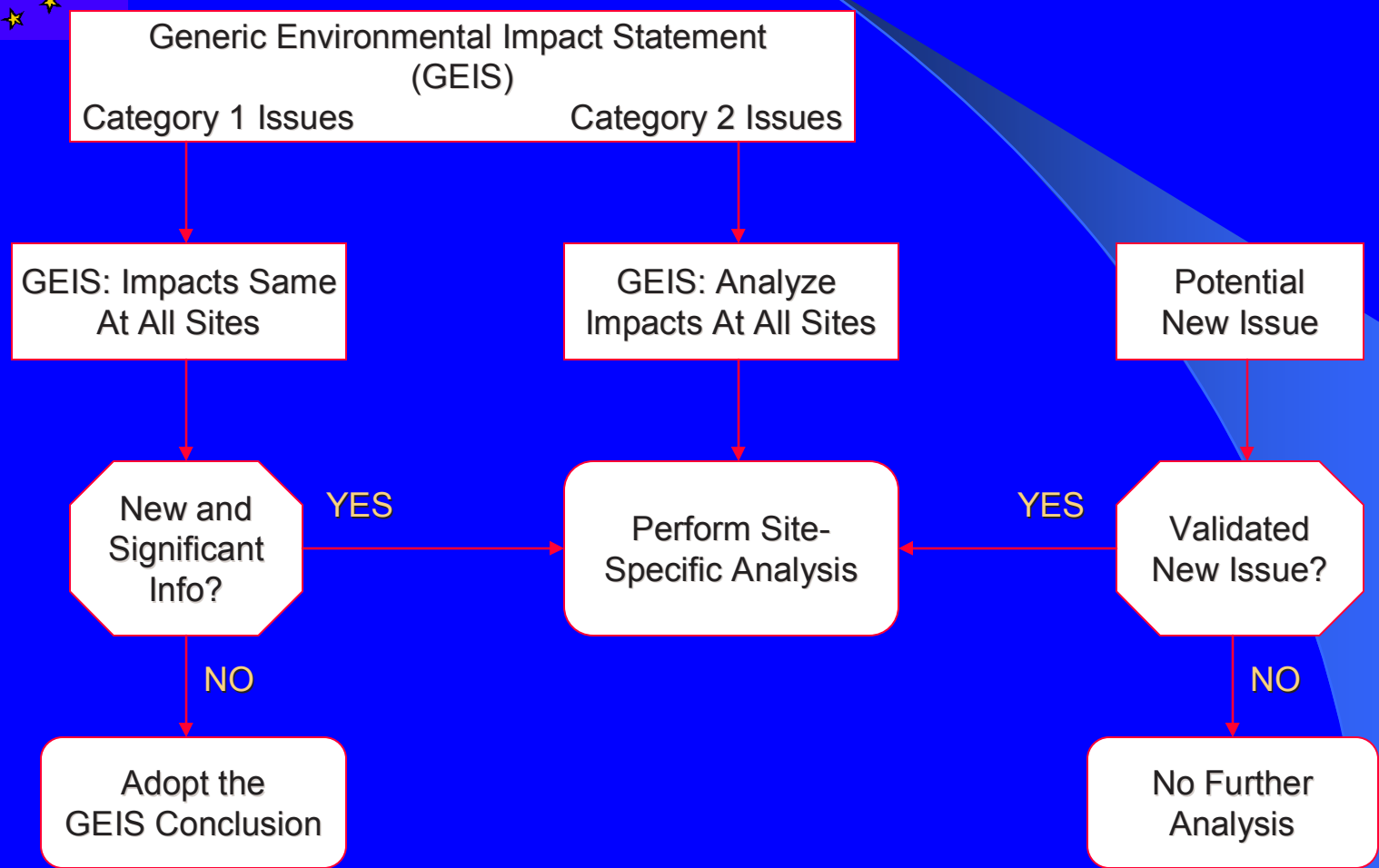
Environmental License Renewal Process



Team Expertise



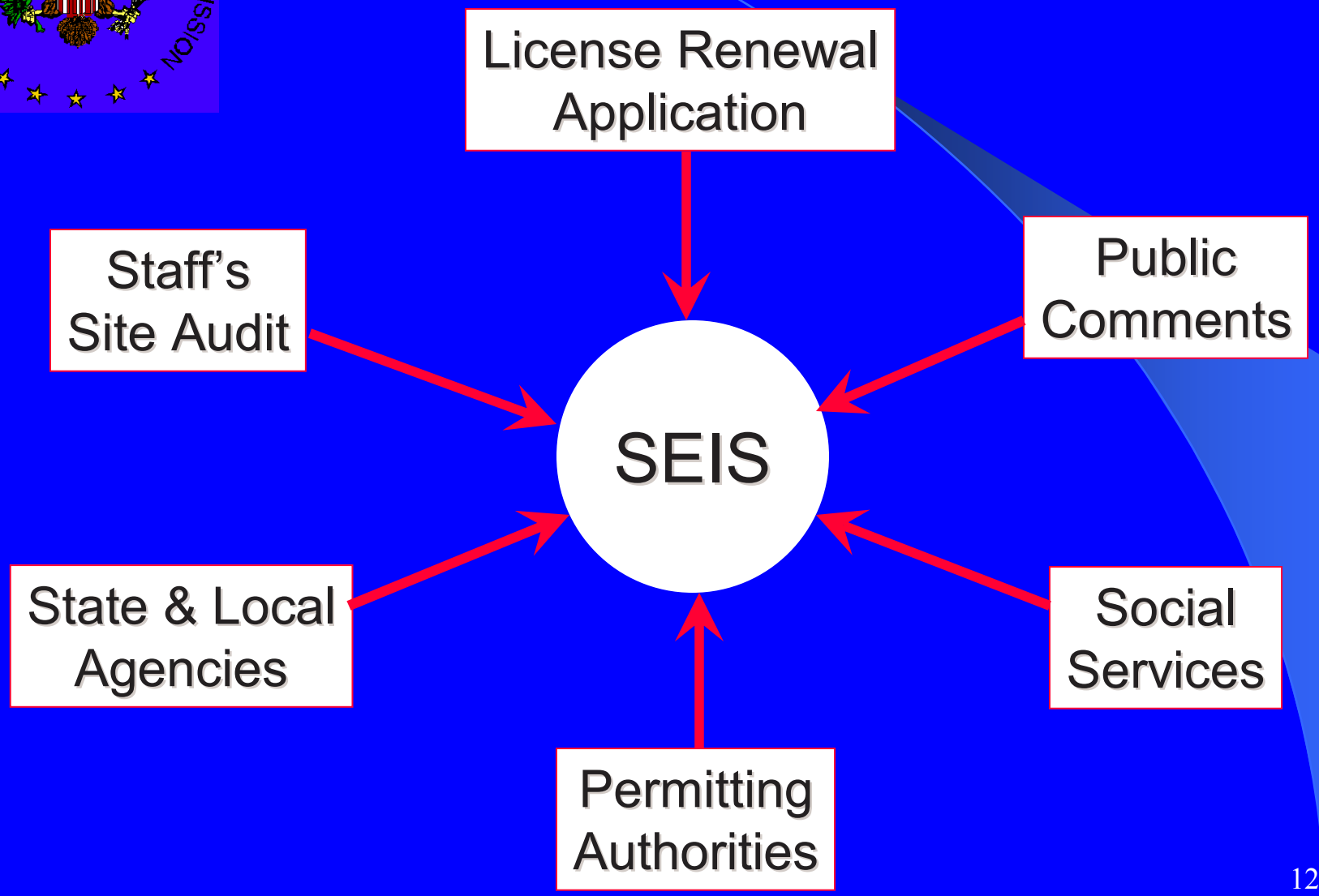
Analysis Approach



How Impacts are Quantified

- 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*
- Consistent with the Council on Environmental Quality guidance for NEPA analyses

Information Gathering



Environmental Impacts of Continued Operation

- Cooling System
- Transmission Lines
- Radiological
- Socioeconomic
- Groundwater Use and Quality
- Threatened or Endangered Species
- Accidents

Cooling System Impacts

- Category 2 issues
  - Water Use Conflicts
  - Microbiological Organisms
- Preliminary findings
  - Impacts are SMALL
  - No additional mitigation required

Transmission Lines

- Category 2 issues
  - Electromagnetic fields (EMF), acute effects (electric shock)
- Electromagnetic fields, chronic effects not categorized
- Preliminary findings
  - Impacts are SMALL
  - No additional mitigation required

Radiological Impacts

- Category 1 issues
  - Radiation exposures to the public
  - Occupational radiation exposures
- Preliminary findings
  - No new and significant information identified
  - GEIS concluded impacts are SMALL

Socioeconomic Impacts

- Category 2 Issues
  - Housing
  - Public Services: public utilities
  - Offsite land use
  - Public services, transportation
  - Historic and archaeological resources
- Environmental Justice issue not categorized
- Preliminary findings
  - No new and significant information identified
  - Impacts are SMALL

Groundwater

- Category 2 Issues
  - Groundwater use conflicts (cooling towers)
- Preliminary findings
  - No new and significant information identified
  - Impacts are SMALL

Threatened or Endangered Species

Threatened or Endangered Species

- *Myotis grisescens*, gray bat
- *Haliaeetus leucocephalus,* bald eagle
- *Sterna antillarum*, least tern
- *Notropis girardi*, Arkansas River shiner

Cumulative Impacts of Operation

- Considered impacts of renewal term operations combined with other past, present, and reasonably foreseeable future actions
  - evaluated to end of 20-year renewal term
  - geographic boundaries dependent on resource
- No significant cumulative impacts

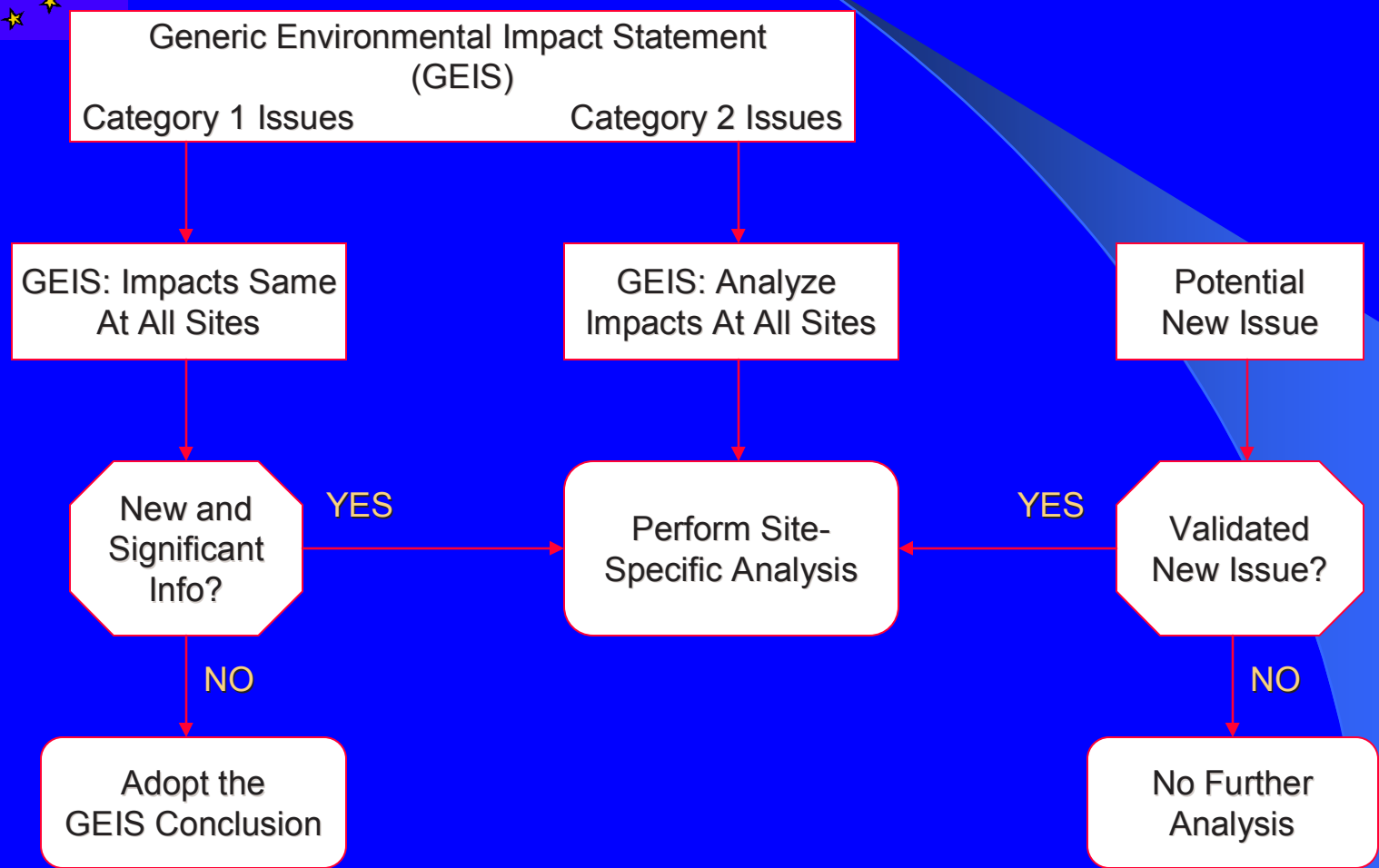
Other Environmental Impacts Evaluated

- Uranium Fuel Cycle and Solid Waste Management
- Decommissioning

Alternatives

- No-action
- Alternative energy sources
  - New generation (Coal, Natural Gas, Nuclear)
  - Purchased electrical power
  - Other alternatives (Oil, Wind, Solar, Conservation)
  - Combination of alternatives
- Environmental effects of alternatives in at least some impact categories reach MODERATE or LARGE significance

Analysis Approach



Preliminary Conclusions

- GEIS Conclusions on Category 1 issues adopted.
- Impacts resulting from Category 2 issues are of SMALL significance.
- No new impacts identified.
- Environmental effects of alternatives may reach MODERATE or LARGE significance.

Postulated Accidents

- Design-basis accidents
- Severe accidents
  - Severe accident mitigation alternatives (SAMAs)

SAMA Evaluation Process

- Characterize overall plant risk
- Identify potential improvements
- Quantify risk reduction potential and implementation costs
- Determine whether implementation of any of the improvements is required to support license renewal

Preliminary Results of SAMA Evaluation

- 192 candidate improvements considered
- Set of SAMAs reduced to 93 based on multi-step screening process
- Detailed cost/benefit analysis
  - 2 procedural SAMAs potentially cost beneficial
  - 2 SAMAs related to diversity of equipment could be cost beneficial

Preliminary Results of SAMA Evaluation

- Potential cost-beneficial SAMAs not related to managing the effects of aging
- Not required to be implemented as part of license renewal

Preliminary Conclusions

- Impacts of license renewal are SMALL for all impact areas
- Impacts of alternatives to license renewal range from SMALL to LARGE
- The staff's preliminary recommendation is that the adverse environmental impacts of license renewal for ANO-2 are not so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable

Environmental Review Milestones

- Draft EIS issued – 8/30/04
- Comment period – 8/30/04 to 11/24/04
- Issuance of Final EIS – April 2005

Point of Contact and Reference Documents

- Agency point of contact:

  Thomas Kenyon

  (800) 368-5642, Ext. 1120

- Documents are located at the Ross Pendergraft Library at Arkansas Tech University

- Draft SEIS can also be viewed at the NRC's Web site (www.nrc.gov) at www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1437/supplement19

Submitting Comments

- By mail at: Chief, Rules and Directives Branch
  Division of Administrative Services
  Mailstop T-6D59
  U.S. Nuclear Regulatory Commission
- In person at: 11545 Rockville Pike
  Rockville, Maryland
- E-mail at: ANOEIS@nrc.gov

UNITED STATES NUCLEAR REGULATORY COMMISSION