

## B. NUCLEAR TASK GROUP ISSUES LIST

### 1. Standardization . . . . . 91

The present procedure for the design, construction and licensing of a nuclear powerplant is time-consuming, inefficient, and costly. An ERDA-supported standardization program could alleviate these difficulties,

### 2. Performance and Reliability . . . . 93

Problems relating to the performance and reliability of light-water reactors have received insufficient attention since the AEC ceased nonsafety light-water reactor R&D.

### 3. Floating Nuclear Powerplants . . 95

Floating nuclear powerplants offer potential improvements in LWR licensing and construction, but implementation is in doubt.

### 4. Helium - Cooled Reactors— Converters and Breeders . . . . . 97

Helium-cooled reactors have some potential advantages not offered by water- or sodium-cooled plants, yet have a relatively low priority in ERDA's program.

### 5. Liquid Metal Fast Breeder Reactor 99

The liquid metal fast breeder reactor has great potential as an "inexhaustible" long-term energy source, but it poses serious technological and societal problems.

### 6. Light-Water Breeder Reactor . . 102

The light water breeder reactor concept has several advantages, but the need for it is questionable.

### 7. Molten Salt Breeder Reactor . . 104

Support for the molten salt breeder reactor development program is small compared to other reactors and may be insufficient to permit evaluation within a reasonable time period.

### 8. Nuclear Environmental Effects 105

There is a continuing need for the evaluation of the environmental effects associated with nuclear energy sources.

### 9. Plutonium Toxicity . . . . . 107

The toxicity of plutonium may pose a serious threat to a plutonium-based nuclear option, such as the LMFBR or plutonium recycle in light-water reactors.

### 10. Waste Disposal . . . . . 108

Satisfactory handling of nuclear fission wastes appears to be technologically feasible, although it has yet to be demonstrated. Other problems exist, mainly societal and institutional, which greatly influence the nature of the demonstration required.

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Safeguards must be adequate to prevent the theft or loss of fission materials, with subsequent clandestine construction of nuclear weapons.

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Nuclear Regulatory Commission policy changes for siting could influence reactor and supporting system design.

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The lack of precision in present uranium resource estimates and questions as to the rate of expansion of uranium production capability make resource-related issues difficult to address,

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Expansion of uranium enrichment capacity is required to meet domestic requirements and foreign commitments for LWR and HTGR fuel.

**15. Fuel Recycle . . . . . 117**

Fission fuel recycling capability is needed for the orderly development of nuclear power.

**16. Public Understanding . . . . . 119**

Public understanding of the energy problem, and especially of the nuclear option, receives minor emphasis in the ERDA Program,

**17. Controlled Fusion . . . . . 121**

Great care must be exercised to ensure that the ERDA-controlled fusion program does

not expand at a rate so fast that proper attention is not given to the different physics problems of controlled fusion and that development of new concepts is not prematurely abandoned.

**18. Technologies for Fusion . . . . . 123**

New technologies, which will be critical to fusion's successful development through the 1980's, require a long time to develop and will require rapidly increasing effort with time,