APPENDIX D

LICENSING SUPPORT NETWORK (LSN) ALTERNATIVES RISKS

Some risks accrue to all potential design alternatives and raise the issue of fall-back strategies should the admittedly tight implementation schedule be missed. For all three evaluated alternatives, factors to be considered include:

- Licensing under 10 CFR Part 2, Subpart G procedures is no longer a viable alternative.

- DOE and NRC collections are the first to be integrated and are tied to the date of the DOE site recommendation to the President of the United States. This is approximately 9-12 months before the License Application is submitted to NRC. Availability of other parties' document collections is tied to the completion of congressional review of the site recommendation. These staggered connectivity dates provide some ability to prioritize integration work.

- DOE connectivity and certification of its compliance are pre-requisites for the docketing of the License Application, so its delays could impact the acceptance of any license application and opening of an associated docket.

- Non-availability of NRC's collection would be an embarrassment although the LSN schedule is established in an NRC rule that can be changed by the agency.

- Other parties' admission into the proceeding is contingent on their collections being connected to the system.

- In all cases, if the parties have their collections available on schedule, even if the LSN homepage is not ready, the parties could be determined to be in substantial compliance with the rule with no impact on docketing the License Application.

Regarding the risks associated with Alternative 1, it should be noted that this alternative was not recommended by the technical representatives of the members of the LSNARP. Also, OGC and ASLBP staff who will be relying on the LSN to effect electronic discovery have expressed concern that this alternative is not adequate.

Alternative 5 represents the greatest potential for a technical implementation that would not be ready by July 2001, as noted below, because it introduces a large, customized memory array that may involve lengthy purchase, delivery, and integration time lines.

Qualitative evaluations for each of the three alternatives are presented below.

Alternative 1

Qualitative Risk Table - Alternative 1		
	Rating 1 - High Level of Risk 2 - Medium Level of Risk 3 - Low Level of Risk	Comment
Volatility of Requirements (Ability to Accommodate Change)	1	Since changes in requirements (e.g., adding a new data element) must be accommodated separately by each participant, there is a high risk in this area.
Scope of Project (Ability to Accommodate Change)	1	Changes in scope will be difficult to accommodate because the system is architecturally constrained and under-engineered to support quick remediation. In addition, changes in scope that cause deficiencies in participant system performance will take a long time to resolve since LSNA has very limited access to the resources to take remedial actions during licensing.
Technical Risk (Implementation Complexity) - LSNA	3	The risk associated with technical complexity of implementation to the LSNA is low.
Technical Risk (Implementation Complexity) - Participants	3	The risk associated with technical complexity of implementation to the participants is low.
Management Consensus	2	In this alternative, certification of data integrity requires heavy auditing and highly structured guidelines and procedures.
Resource Commitment	3	The Commission has endorsed the allocation of additional resources as necessary to carry out the LSN program successfully.

Qualitative Risk Table - Alternative 1		
Potential Resistance (By Users)	**1**	**LSNARP TWG *did not recommend* this alternative because it has the following limitations that significantly increase the risk of potential resistance from users: too complex; the user interface is not consistent; too difficult to navigate; not possible to aggregate information across collections; not versatile; does not guarantee powerful search and retrieval; inflexible because users have no ability to tailor desktop interface; and lacks standardization of participant search and retrieval tools requiring users to learn multiple systems. Also, participants must visit the multiple sites iteratively to execute the same searches resulting in its use being redundant, repetitive, and inefficient to users. This alternative also potentially excludes some participants from effective participation and "tilts the playing field" toward those with substantial financial resources.**
Procurement/Vendor Risk	**2**	**There is moderate risk in this area because contracts must be awarded for system development and consulting services as well as for hardware and software. However, these procurements can be accomplished through GSA's Advantage!™ Multiple Award Schedule (MAS) or other blanket contract vehicles available through the NRC division of contracts.**
Sponsor Organization's IT Project Management Experience	**3**	**There is low risk in this area because the sponsor organization has key staff members who have experience in managing large IT projects.**
Schedule Risk-LSNA	**3**	**Because there is no extensive integration, there is low schedule risk of having the LSN homepage, ADAMS docket and EIE unavailable for licensing.**
Schedule Risk-Participants	**2**	**Overall, there is only a moderate risk to participants not being operational in time to support licensing; risk accrues mostly to DOE.**
LSNA Custodianship of Participant Documents	**3**	**Parties control their own documents.**
Average Risk Rating	**2.3**	

Alternative 1 is characterized as being comparable in risk to Alternatives 3 and 5. The LSNARP TWG ***did not recommend*** this alternative because it was deemed too complex for users and its user interface was not consistent, making the overall environment too difficult to navigate. Because of the distributed nature of the collections, it is not possible to aggregate information across collections. Additionally, the TWG found that this approach was not versatile, did not guarantee powerful search and retrieval tools would be provided, and potentially excludes some participants from effective participation by "tilting the playing field" toward those with substantial financial resources.

This alternative demonstrates a high degree of risk in the areas of efficiency and effectiveness of the automation environment, lack of controls, variability in performance, and cost to the participants.

> **Efficiency and Effectiveness** -- Participants must visit the multiple sites iteratively to execute the same searches, making work redundant and repetitive; this approach is not efficient to users. Additionally, there may well be little standardization of participant search and retrieval tools, thus requiring users to learn multiple systems.
>
> **Lack of Controls** -- There is no built-in uniform numbering system, so this function must be delegated to the participants to implement, introducing possibility for error. This approach also provides no priority access thus leaving licensing proceeding users to compete against all users on the Internet for access to the servers where the file collections are housed. Deficiencies in participant system performance may take a long time to resolve since LSNA has no access to the resources to take remedial actions during licensing.
>
> **Performance Variability** -- Response time performance is variable from system to system. Overall system performance is variable. Participants shoulder greater burden for maintaining system operation at a high level of availability and performance. Even for those participants with the best intentions, the system is architecturally constrained and under-engineered to support quick remediation.
>
> **Participant Commitment** -- Participants incur greater operational cost and require a higher level of computer operations expertise.

While this alternative represents the lowest initial cost to NRC, recurring annual costs and the audit costs could rapidly escalate because certification of data integrity requires heavy auditing and highly structured guidelines and procedures.

Alternative 3

The qualitative risks associated with Alternative 3 are presented in the following table:

Qualitative Risk Table - Alternative 3

	Rating 1 - High Level of Risk 2 - Medium Level of Risk 3 - Low Level of Risk	Comment
Volatility of Requirements (Ability to Accommodate Change)	**2**	**In this alternative, potential requirements changes will be accomplished at the LSN Index and Centralized Portal site rather than at multiple participant sites. Therefore, there is only a moderate risk in this area.**
Scope of Project (Ability to Accommodate Change)	**2**	**This alternative provides the LSNA with tools to support analysis of search and access transactions, design of interface, and system security. This allows the LSNA to monitor and tune system performance. This will facilitate the accommodation of changes in scope and make risks in this area moderate.**
Technical Risk (Implementation Complexity) - LSNA	**2**	**Slight increment in difficulty over alternative 1 is associated with development of a unified search and retrieval interface.**
Technical Risk (Implementation Complexity) - Participants	**2**	**Since the LSNA will be responsible for the bulk of the implementation activity, there are only moderate risks to the participants.**
Management Consensus	**2**	**There is moderate risk in this area, because several LSNARP members, including the DOE representative, did not vote for this alternative.**
Resource Commitment	**2**	**The Commission has endorsed the allocation of additional resources as necessary to carry out the LSN program successfully.**
Potential Resistance (By Users)	**3**	**Since this alternative will require that users learn a single set of seemingly efficient and effective tools rather than multiple and potentially ineffective tools, there should be decreased resistance to the system.**
Procurement/Vendor Risk	**2**	**There is moderate risk in this area because contracts must be awarded for system development and consulting services as well as for hardware and software. However, these procurements can be accomplished through GSA's Advantage!™ Multiple Award Schedule (MAS) or other blanket contract vehicles available through the NRC division of contracts.**

Qualitative Risk Table - Alternative 3		
Sponsor Organization's IT Project Management Experience	**3**	**There is low risk in this area because the sponsor organization has key staff members who have experience in managing large IT projects such as ADAMS.**
Schedule Risk-LSNA	**2**	**In this alternative, there is a moderate schedule risk to LSNA to have operational to support licensing due to unknown amount of integration work that will be required to implement "crawling" of participant sites.**
Schedule Risk-Participants	**2**	**In this alternative, there is a high schedule risk of participants not being operational to support licensing due to integration between portal and participant sites.**
LSNA Custodianship of Participant Documents	**3**	**Parties control their own documents.**
Average Risk Rating	**2.2**	

Alternative 3 is characterized as being of comparable risk to Alternative 1 and a somewhat higher degree of risk than Alternative 5.

> **System Availability** -- This alternative represents a somewhat higher scheduling risk for participants being operational to support licensing due to integration between portal and participant sites. It also represents a moderate schedule risk to LSNA to have operational to support licensing due to unknown amount of integration work that will be required to implement "crawling" of participant sites.

Alternative 5

The qualitative risks associated with Alternative 3 are presented in the following table:

Qualitative Risk Table - Alternative 5		
	Rating **1 - High Level of Risk** **2 - Medium Level of Risk** **3 - Low Level of Risk**	**Comment**
Volatility of Requirements (Ability to Accommodate Change)	**2**	**In this alternative, potential requirements changes will be accomplished at the LSN Index and Centralized Portal site rather than at multiple participant sites. Therefore, there is only a moderate risk in this area.**

Qualitative Risk Table - Alternative 5		
Scope of Project (Ability to Accommodate Change)	**2**	**This alternative provides the LSNA with tools to support analysis of search and access transactions, design of interface, and system security. This allows the LSNA to monitor and tune system performance. This will facilitate the accommodation of changes in scope and make risks in this area moderate.**
Technical Risk (Implementation Complexity) - LSNA	**2**	**Increase technical complexity introduced by integration of mass storage device and providing backup while maintaining availability.**
Technical Risk (Implementation Complexity) - Participants	**3**	**Since the LSNA will be responsible for virtually all of the implementation activity including establishment of a centralized storage facility, there are low risks to the participants.**
Management Consensus	**2**	**There is moderate risk in this area, because some of the LSNARP members voted for this alternative.**
Resource Commitment	**1**	**The Commission has endorsed the allocation of additional resources as necessary to carry out the LSN program successfully. However, in this alternative, a very significant amount of additional funding is needed to supplement the ■■■■ allocated to the ASLBP 2001 budget.**
Potential Resistance (By Users)	**2**	**Since this alternative will require that users learn to use a single set of seemingly efficient and effective tools rather than multiple and potentially ineffective tools, there should be decreased resistance to the system.**
Procurement/Vendor Risk	**1**	**There is high risk in this area because Storage System procurement is not "off-the-shelf" item and timely delivery after ordering cannot be assured.**
Sponsor Organization's IT Project Management Experience	**3**	**There is low risk in this area because the sponsor organization has key staff members who have experience in managing large IT projects such as ADAMS.**
Schedule Risk-LSNA	**1**	**In this alternative, there is a high schedule risk to LSNA to have operational to support licensing due to unknown amount of integration work that will be required to implement "crawling" of participant sites and the fact that implementing large cache storage could be delayed because equipment is non-standard.**

Qualitative Risk Table - Alternative 5		
Schedule Risk-Participants	**2**	**In this alternative, there is a moderate schedule risk of participants not being operational to support licensing due to integration between portal and participant sites and transmission security issues. However, participants could meet Subpart J requirements with a less sophisticated system for search and retrieval and smaller, simpler storage solutions.**
LSNA Custodianship of Participant Documents	**1**	**Participant documents' availability and eventual disposition become responsibility of NRC.**
Average Risk Rating	**1.8**	

Alternative 5 is characterized as presenting the greatest risk of not meeting the implementation schedule and, at the same time, represents the lowest risk solution that ensures overall system performance to the user, and avoids un-resolvable availability issues. Additional risk is associated with the role that NRC assumes in being responsible for the availability of the participants' discovery documents during the course of the proceeding.

Implementation Schedule -- Because the storage system is not an "off-the-shelf" procurement item and timely delivery after ordering cannot be assured, this alternative incurs a moderate-to-high schedule risk to LSNA that the system will not be operational in time for licensing. There is an additional moderate-to-high technical implementation complexity risk for the LSNA.

Overall System Performance -- The system cannot be easily reconfigured or extended without disruption to the system as a whole. Additionally, the level of maintenance and management of the LSN campus system, and the expertise required to accomplish it, will increase in direct proportion to its size.

System Availability -- As is the case for any single large system, the large burden for ensuring implementation that is placed on a small staff can result in implementation delays.

Custody - The LSNA becomes custodian of applicant and intervenor discovery materials during the proceedings. This occurs because the chain of custody goes through the portal site (and the LSNA) in any option where the portal caches everything and that is the file being relied upon as part of the licensing process.

Of the two alternatives (Alternatives 3 & 5) that meet the needs of a complex discovery system and were recommended by TWG, Alternative 5 represents the highest cost for NRC**.**