**Section 601.100 Application Information – Technical**

The license application shall include, but not be limited to, the following technical information:

a) A description of the natural and demographic disposal site characteristics as determined by disposal site selection and characterization activities. The description shall include geologic, geotechnical, hydrologic, meteorologic, climatologic and biotic features of the disposal site and vicinity.

b) A description of the pre-operational monitoring program and the associated quality assurance plan, and results of the pre-operational monitoring program specified in Section 601.40(b).

c) An environmental report required by 32 Ill. Adm. Code 330.250(b).

d) A description of the design basis natural events or phenomena and their relationship to the principal design criteria.

e) A description of the principal design criteria and their relationship to the performance objectives described in Section 601.30.

f) A description of the design features of the disposal facility and the disposal units. The description shall include design features related to infiltration of water; integrity of covers for disposal units; structural stability of filling material, wastes and covers; contact of wastes with standing water; disposal site drainage; disposal site closure and stabilization; elimination, to the extent possible, of long-term disposal site maintenance; inadvertent intrusion; occupational exposures; disposal site monitoring; and adequacy of the size of the buffer zone for monitoring and potential mitigative measures.

g) Analyses of pathways evaluated in demonstrating protection of the general population from releases of radioactivity shall include air, soil, groundwater, surface water, plant uptake and exhumation by burrowing animals. The analyses shall clearly identify and differentiate between the roles performed by the natural disposal site characteristics and design features in isolating and segregating the wastes. The analyses must clearly demonstrate that there is reasonable assurance that the exposures to humans from the release of radioactivity will not exceed the limits set forth in Section 601.30(a).

h) A description of the environmental monitoring program required by Section 601.240 to be followed during construction, operation, closure and post-closure that includes, but is not limited to, the frequency, type and method of analysis to provide data to evaluate potential health and environmental impacts, and the plan for taking corrective measures if migration of radionuclides is indicated.

i) A description of codes and standards that the applicant has applied to the design and that will apply to construction of the disposal facilities. The standards shall meet local, State and national building code standards.

j) A description of the construction and general operation of the disposal facility. The description shall include, as a minimum, the methods of construction of disposal units, waste emplacement, the procedures for and areas of waste segregation, types of intruder barriers, onsite traffic and drainage systems, survey control program, methods and areas of waste storage, and methods to control surface water and groundwater access to the wastes. The description shall also include a description of the methods to be employed in the handling and disposal of wastes containing chelating agents or other nonradiological substances that might affect meeting the performance objectives of this Part.

k) A description of the quality assurance program applied during the determination of natural disposal site characteristics and during the design, construction and operation of the disposal facility.

l) Analyses of the long-term stability of the disposal site and the need for active maintenance after closure shall be based upon analyses of active natural processes such as erosion, seismic activity, mass wasting, slope failure, settlement of wastes and backfill, infiltration through covers over disposal areas and adjacent soils, and surface drainage of the disposal site. The analyses must provide reasonable assurance that there will not be a need for active maintenance of the disposal site following closure.

m) An identification of the known natural resources at the disposal site whose exploitation could result in inadvertent intrusion into the low-level radioactive wastes.

n) A description of the radiation safety program for control and monitoring of radioactive effluents to ensure compliance with this Part and for occupational radiation exposure to ensure compliance with the requirements of 32 Ill. Adm. Code 340 and to control contamination. Both routine operations and accidents shall be addressed. The program description shall include procedures, instrumentation, facilities and equipment.

o) Analyses of the protection of individuals during operations, including assessments of expected exposures due to routine operations and potential accidents during handling, storage, treatment and disposal of waste. The analyses must provide reasonable assurance that exposures will be controlled to meet the requirements of 32 Ill. Adm. Code 340.

p) A description of the administrative and operating procedures that the applicant will apply to control activities at the facility.

q) A description of the contingency plan required by Section 601.260.

r) A description of the electronic recordkeeping system required in Section 601.140.