canister loading operation would be controlled to limit the fissile material in the canisters, in accordance with nuclear criticality considerations. The number of canisters produced for dry storage would be about 630 to be loaded as one per co-disposal overpack for repository disposal.

The primary advantage of Press and Dilute technology is its simplicity. However, the variable sizes of Group C SNF might make the technology unsuitable for those fuels without special disassembly before compaction. Particulate fuels (Group D) would not be amenable to pressing. Figure A-3 shows the Press and Dilute process flow diagram.

A.2.3 CHOP AND DILUTE

In the Chop and Dilute treatment, the shipping cask would be received and unloaded, and the SNF would undergo a limited characterization as described in Section A.2.2 Press and Dilute. The fuel assemblies would be cropped to eliminate most of the nonfuel structural components and reduce storage space. The assemblies would be vacuum-dried to remove free water.

The dried assemblies would be fed into a shredder. Similarly shredded depleted uranium-aluminum alloy would be combined with the shredded fuel to produce a mix of reduced enrichment. The shredded fuel would be placed into 17-inch (43-centimeter) diameter canisters, which would be filled with inert gas and welded closed. The canister loading would be controlled to limit the amount of fissile material in the canisters in accordance with nuclear criticality requirements. The number of canisters produced for dry storage and repository disposal would be about the same as for the Press and Dilute process (630).

The material resulting from Chop and Dilute would not be homogeneous and would result in a considerable amount of free space in each canister. The free space would contribute to an increase in the number of canisters required and could increase vulnerability to a nuclear criticality. In addition, the material could be pyrophoric. Because of these difficulties with Chop and Dilute, DOE considers it to be the least attractive of the three dilution technologies (Melt and Dilute, Press and Dilute, and Chop and Dilute).

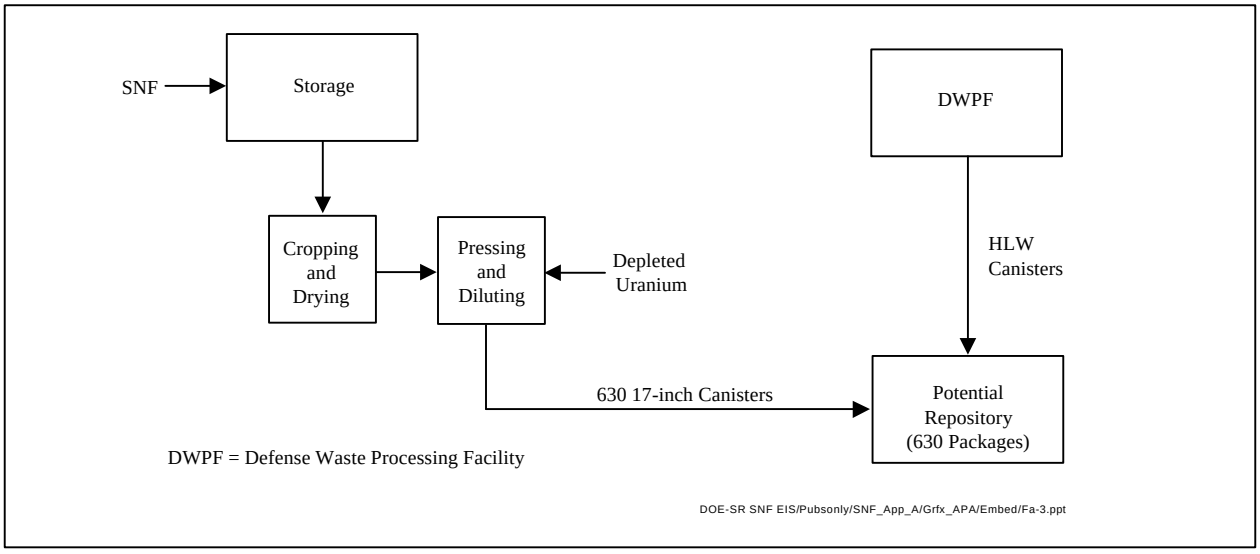

Figure A-3. Press and Dilute process flow diagram.