TASK TEAM RECOMMENDATIONS

The Task Team noted that although all of the technologies it considered were potentially capable of converting aluminum spent fuel into an acceptable waste form for disposal, no single technology appeared to be optimal for all fuel types or sufficiently mature to be relied on to the exclusion of others.[18] Therefore, the Task Team recommended that DOE continue to examine and develop several treatment options to maintain flexibility and increase the overall likelihood of success.

The Task Team recommended direct co-disposal treatment as the primary treatment option, with melt and dilute treatment as a "parallel" option. The task team noted that direct co-disposal treatment "is the simplest of the technology options evaluated, and seems technically achievable in all respects, at moderate cost and on a timetable consistent with DOE's needs" (Task Team, 1996, p. 68). However, the Task Team recognized that the acceptability of HEU in the repository was a major uncertainty for the success of direct co-disposal treatment, and noted that the waste form produced by melt and dilute treatment was potentially more acceptable and probably more easily licensed.

The Task Team also recommended electrometallurgical treatment, which was the highest-scoring advanced treatment technology (Table 2.2), as a backup option, because the technology is fundamentally different from the others and thus offers some protection against unforeseen technical or licensing problems. The Task Team also noted that the borosilicate glass waste form, the product of this treatment option, is "very robust and highly likely to meet the regulatory requirements . . ." (Task Team, 1996, p. 68).

Finally, the Task Team recommended that DOE focus its development funds on direct co-disposal treatment and melt and dilute

[18] As noted previously, the Task Team did not consider conventional reprocessing in its evaluation.

treatment, and that it follow the work being done elsewhere (at Argonne National Laboratory) on electrometallurgical treatment.

TABLE 2.3 Results of Sensitivity Study to Determine Significance of Various Evaluation Criteria in Table 2.1

	Sensitivity Case Rankings[a]				
Technology	Base	Case 1	Case 2	Case 3	Case 4
Direct disposal	5	3	5	3	
Direct co-disposal	1	1	2	1	1
Press and dilute (20%)	3	3	3	4	3
Press and dilute (2%)	4	5	1	5	4
Melt and dilute	2	2	3	2	2
Plasma arc	9	8	9	8	9
GMODS[b]	8	7	8	8	8
Dissolve and vitrify	7	9	7	7	7
Electrometallurgical	6	6	6	6	6

[a] Rankings range from 1 to 9, with a lower number indicating a higher ranking.
[b] Glass material oxidation and dissolution.
NOTE: Base case: Rankings with all screening criteria (Table 2.1) included; Case 1 = confidence in success excluded; Case 2 = cost excluded; Case 3 = technical suitability excluded; Case 4 = timeliness excluded.
SOURCE: DOE Task Team (1996) Table 4.4-3.

RESPONSE TO FIRST CHARGE IN STATEMENT OF TASK

The first charge of the statement of task involves an examination of the set of technologies chosen by DOE for treatment of aluminum spent fuel and to the identification of other alternatives that DOE might