1   Review of Waste Estimation Workbook

The waste estimates in Section 4 were derived from an Excel-based spreadsheet tool developed by the Inventory team to estimate the mass, volume, container count, and decay heat for wastes generated from reprocessing UNF. Given a UNF composition, the spreadsheet tool can compute waste metrics under four different reprocessing methods: COEX, NUEX, UREX, and Electrochemical. A description of these reprocessing methods appears in Section 4.1.

The spreadsheet tool consists of an Excel workbook containing a series of calculation worksheets and two reference worksheets. The calculation worksheets contain the logic representing the flow of material through a reprocessing method. One calculation worksheet is necessary for each combination of fuel composition and reprocessing method. Each column in the calculation worksheet represents a numbered waste stream as seen in the reprocessing method flow diagrams in Figure 4-1 to Figure 4-4. Each row in the calculation worksheet represents a material processed in the reprocessing method.

The two reference worksheets in the spreadsheet tool contain data required for the calculation worksheets. The first reference worksheet, '*Fuel Compositions*', contains UNF compositions that serve as the input stream to the calculation worksheets. The second reference worksheet, '*Aqueous Distribution*', contains process recovery percentages referenced by calculations in various processes where materials are separated.

In FY12, an independent review of the spreadsheet tool was conducted to document the calculations and assumptions used by the tool. The scope of the review was limited to implementation of the calculations. The scope did not include an assessment of the assumptions and bases of the chemical processes themselves.

The results of the review are contained in a report titled "Reprocessing Waste Spreadsheet Model Documentation". The report describes the structure of the spreadsheet tool, explains the calculation methods used, and presents key assumptions contained in the spreadsheet tool. It also contains a list of corrections to revision 5 of the spreadsheet tool. These revisions were implemented in revision 6 of the spreadsheet tool.