were not expressly requested in the survey. The rates were calculated from the area receiving the wastes and the waste quantity applied. This introduces uncertainty for it combines rates applicable to both treatment of wastes and rates for specific uses (e.g., farming, mine reclamation). To account for the potential of having application rates be much too high for the site they are being applied to, the data on receiving area and waste quantity applied were linked.

(iv) Waste Characteristics

Limited data were available on the characteristics of wastes being land applied. As a result, soil values for most parameters (e.g., hydraulic conductivity, moisture retention index) were used to characterize nonwastewaters. It is not known to what extent these soil values differ from the waste properties.

(v) Depth of Contamination

Depth of contamination affects the amount of constituent available for exposure. For the non-groundwater pathways, only constituents at the soil surface were assumed available for each exposure pathway. The Agency selected tilling depth as the depth of contamination available to the non-groundwater pathways as over time, the depth of the waste layer would increase and a portion of the mass of waste would move out of the zone available for the surface pathways. The model kept the depth of contaminated soil constant that was available for the surface pathways. The Agency recognizes that the use of the tilling depth may underestimate the depth of contamination in some cases and overestimate it in others. Thus, the Agency requests comment on the use of tilling depth as a surrogate for depth of contamination.

(vi) Partitioning

Releases from the land application unit were partitioned among volatilization, evaporative losses, hydrolysis, erosion, runoff, and leaching. Periodic application of waste was factored into the partitioning model during the active life of the unit. Biodegradation was factored in during both the active life and closed period. The finite source Jury model was used to estimate volatilization emissions. The Jury model, which models the convection of constituents caused by the flux of water in soil, was used for evaporative losses. Runoff and leaching losses were calculated using the soil-water partition coefficient (K_d) to determine constituent concentration in the soil water and multiplying that by the land application unit area and runoff rate for run-off losses or recharge rate for leaching losses. (See Technical Support Document for the Hazardous Waste Identification Rule: Risk Assessment for Human and Ecological Receptors, Section 7, Land Application for full description.)

(5) Waste Pile

(i) Waste Pile Height

No data were available on this parameter; therefore, the value is an estimate based on heights attainable by a front-end loader. This parameter is important in the air dispersion modeling, which is sensitive to the height of the pile. The Agency requests suggestions for alternatives to determining waste pile height and any data which would support those determinations.

(ii) Particle Size Distribution for Air Dispersion Modeling

The same sensitivity analysis and assumptions discussed above for ash monofills were used for waste piles. Given that the air dispersion analysis is not very sensitive to particle size distribution, the simple assumption described above was believed to be an adequate approximation for the assessment.

(iii) Waste Characteristics

Limited data were available on the characteristics of wastes in waste piles. As a result, soil values for most parameters (e.g., hydraulic conductivity, moisture retention index) were used to characterize the nonwastewaters disposed in piles. It is not known to what extent these soil values differ from the waste properties. The soil values, however, were not used for the ash waste pile. The ash disposed in the piles had the same properties as that disposed of in a monofill.

(iv) Vehicle Traffic

The estimates of number of trucks per day are dependent on the size of truck and waste quantity. Limited data were available on truck sizes. These data were used to characterize a range of truck sizes. These truck sizes may either under- or overestimate the size of trucks actually used around waste piles.

(v) Emission Equation for Ash Blown from Trucks

As described in the section above on ash monofills, the emission equation used for ash blown from trucks was developed for windblown emissions from waste piles. It may over- or underestimate actual emissions of particulates blown from trucks.

(6) Surface Impoundment

(i) Two-Phase Sludge Formation Model

The two-phase sludge formation model simplifies the solids concentration gradient in a surface impoundment into two distinct and homogeneous layers, a liquid layer with the same average solids content as the inflow and a sediment or sludge layer with a much higher solids concentration.

(ii) Dilution of Waste During a Spill

Overflows or breaches associated with surface impoundments are a waste release examined in the assessment. The algorithm used for spills does not account for dilution of the wastewater caused by excess run-on. Such run-on is presumably relatively uncontaminated; thus the spill volume, consisting partly of contaminated wastewater from the impoundment and partly of uncontaminated run-on would have a lower concentration than the wastewater in the impoundment. By using the concentration in the impoundment, the mass of contaminant released to surface water is overestimated. This effect could be considerable for the central tendency impoundment, as the quantity of run-on is significant compared to the capacity of the central tendency impoundment. However, to determine the extent of such dilution, the degree to which such run-on becomes mixed with the wastewater would need to be estimated. No model has been found to assist in this estimation.

(7) Tank

(i) Unit characterization

Limited data were available on Subtitle D tanks. The assessment used the profiles (specifies design and operating parameters) for uncovered aerated treatment tanks developed in the *Hazardous Waste TSDF—Background Information for Proposed RCRA Air Emission Standards* (TSDF—BID, U.S. EPA, 1991)

(ii) Volatilization

The Agency used the well-mixed flow model. This model assumes that the contents of the system are well mixed and that the equilibrium concentration in the system is equal to the effluent concentration. The equilibrium concentration is the average concentration throughout the unit and the driving force for volatile emissions.

(8) Combustors

For the reasons stated below, EPA did not modelled a combustion unit in the risk analysis for this regulation. EPA,