Of the 192 constituents evaluated in the non-groundwater analysis, the Agency directly accounted for chemical hydrolysis for 18 constituents. For the remaining constituents, hydrolysis was not considered for the following reasons: The constituent has no hydrolyzable chemical group; hydrolysis is not expected to be important or significant; the degradation half-life of the chemical, which includes hydrolysis, is greater than one year; or, there was no data available for the constituent.

The extent to which fate and transport processes play a role in the removal of a constituent from a pathway, or its movement from one environmental compartment to another is determined by site-specific environmental conditions as well as chemical-specific parameters. To simplify the analysis, the Agency used fate and transport data based on one set of environmental conditions to represent all possible spatial and temporal environments encountered in any given exposure pathway. The Agency solicits comments on this simplification for modeling fate and transport processes throughout the exposure pathways considered in the MPA.

(ii) Other Fate and Transport Processes

Fate and transport processes other than hydrolysis may be important in determining the concentration of a constituent reaching a receptor. The Agency's approach to incorporate consideration for these other processes involved the use of biodegradation and volatilization rates into the fate and transport pathways, when applicable. The Agency recognizes that the rate for many chemical-specific fate and transport processes (in particular, biodegradation) varies with characteristics of the environment (e.g., temperature, soil type). However, the Agency simplified the non-groundwater analysis by applying chemical-specific fate and transport rates generically across environmental settings found in the various exposure pathways. This simplification may overestimate the exit level in some instances and underestimate the exit level in other instances. The Agency solicits comments on this simplification for modeling fate and transport processes throughout the exposure pathways considered in the non-groundwater analysis.

(iii) Bioavailability

With regard to the metals examined in the risk assessment, there is considerable uncertainty about their bioavailability that affects their fate, transport, and uptake in various media (e.g., plant tissue, animal tissue) and receptors. Speciation and associated solubility of metal species in wastes which contain metals are key factors that influence the bioavailability of metals. The Agency had no information on the speciation, solubility, or availability of the metals in the wastes in which they are disposed or how they may transform in the environment. The Agency assumed that the metals were in a soluble form, mobile, and available. In the absence of this information, the Agency assumed that metals are soluble, mobile, and bioavailable. The Agency seeks comment on this approach, and requests data on the speciation and solubility of metals in wastes, together with the conditions of the waste (e.g., pH) that could be disposed by the methods considered in this rulemaking and methodologies that account for the transformation of the metals through changing environmental conditions.

(iv) Meteorological Data

The approach for setting central-tendency and high-end meteorological conditions in the risk assessment was to evaluate sets of meteorological data from a variety of locations, and then select locations that reflect central tendency or high-end conditions for a given exposure pathway.

The Agency used the set of 29 meteorological stations identified during its efforts to develop soil screening levels for Superfund sites. These are considered representative of the United States. Central-tendency and high-end locations were then selected from these 29 locations for the exposure pathways where meteorological conditions were required as input to the models; these were the air pathways and overland pathways. The meteorological data were evaluated as location sets as opposed to individual parameters. Once locations were selected, the annual average values for those locations were used.

For air pathways, which required data on wind speed, wind direction, temperature, sunshine, cloud cover, and air mixing height, selection of meteorological data was waste management unit-specific and based on extensive sensitivity analysis. EPA considered only the effect of meteorological data on emissions and dispersion in selecting locations for air pathways. However, for consistency, once a pair of high-end and central tendency locations were selected for a pathway, any meteorological data used in that pathway were selected to correspond to the locations chosen, even in any overland transport component of the pathway.

Overland pathways were driven by soil erosion, for which the critical meteorological input is the Universal Soil Loss Equation (USLE) rainfall factor (R). Therefore, to select central tendency and high-end locations for overland pathways, the 29 locations were ranked based on the rainfall factor, and the 50th and 90th percentile locations chosen for all overland pathways.

See Section 6.8, Fate and Transport Inputs and Section 7.1.5. Air Modeling, of the Technical Support Document for the Hazardous waste Identification Rule: Risk Assessment for Human and Ecological Receptors for a detailed discussion of how meteorological data were selected and used. The Agency solicits comment on how meteorological data was selected and used in the risk assessment.

(v) Soil Data

A variety of soil parameters were required for the modeling. These parameters are interdependent and vary with the type of soil (e.g., loam, clay). However, values for these parameters also vary within a soil type. Due to the interdependence of the parameter, the Agency chose to maintain them as a set and determine a central-tendency property set and a high-end property set.

The Agency used loam type soils to characterize all soils simulated in the risk assessment because these types of soils are fairly prevalent in the United States. All soils are composed of varying percentages of sand, silt, and clay. Loam, by definition, is composed of equal proportions of sand, silt, and clay; therefore, it represents a combination of each of the physical properties of the individual soil textures. Central tendency and high-end values were selected from the range of values for loam soil so that each individual soil parameter required by the model is consistent with a loam soil. (Sec Section 6.8, Fate and Transport Inputs, in the Technical Support Document for the Hazardous Waste Identification Rule: Risk Assessment for Human and Ecological Receptors for more detail.) The Agency solicits comments its approach for characterizing soil in the assessment.

(vi) Soil Pathways

The Agency seeks comment on the following issues related to the modeling of soil pathways:

- Use of the Universal Soil Loss Equation to predict soil erosion in a generic application - This is a widely-used model intended for site-specific