

	Subject: RUSLE Calculation		
	Job No. 130-0193	Made By: DPM	Date: 9/3/13
	Ref:	Checked: ATN	Sheet 1 of 1
	Reviewed: JRD		

### **OBJECTIVE**

To compute the expected amount of soil to be lost from the site after closure, by using the Revised Universal Soil Loss Equation (RUSLE).

### **METHOD**

RUSLE is an empirically derived formula based on several decades of field research by the National Resource Conservation Service (NRCS). It is based on several site-specific factors involving precipitation, soil type, slope, and cover/conservation practices employed.

### **REFERENCES**

1. Predicting Soil erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE) USDA Handbook Number 703 (AH-703), July 1996.

### **CALCULATIONS**

The RUSLE equation is as follows:

$$A=R*K*LS*C*P$$

Variable	Description	Value Used
A	soil loss in tons/yr/acre	-
R	Rainfall-Runoff erosivity factor	250 (for Chesapeake, VA)
K	Soil Erodibility factor	0.30 (aggregate)
LS	Slope Length/Steepness factor	2.60 (16.7% slope, 100' long, moderate rill to interrill erosion (Table 4-2))
C	Cover management factor	.005 (good stand of dense grass)
P	Support Practice Factor	1.0 (no specific measures)

Values for each of the above variables were chosen based on guidance presented in AH-703. Soil erodibility factor (K) was selected as an aggregate average value of soils in the vicinity of the Facility, based on the NRCS's Web Soil Survey website.

### **RESULTS**

$$A=250*0.30*2.60*.005*1.0 = 0.98 \text{ tons/acre/year}$$

### **CONCLUSIONS**

The landfill final cover as designed meets the criteria of less than two tons of soil loss per acre per year.