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SAVANNAH RIVER NATIONAL LABORATORY

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H-Area Tank Farm Closure Cap and Infiltration

The H-Area Tank Farm (HTF) closure cap conceptual design is provided in Figures 1 through 3. This conceptual design has the following characteristics:

- A maximum surface slope length of less than 585 feet at a maximum surface slope of 2%
- A maximum drainage layer slope length of less than 585 feet at a maximum drainage layer slope of 2%
- The cap layers outlined within Table 1, as described within Section 4.3 of Phifer et al. 2007
- A maximum slope height of 50 feet

Based upon the above stated HTF conceptual closure cap characteristics and a commitment to maintain a minimum 600-foot area surrounding the HTF closure cap free of pine trees during the 100-year institutional control period (i.e., same commitment as for the F-Area Tank Farm (FTF) closure cap), the infiltration estimates produced for the FTF closure cap (Phifer et al. 2007) and provided in Table 2 are considered applicable to the HTF closure cap. Since the maximum slope height (i.e., 50 feet) for the HTF closure cap is slightly greater than that of the FTF closure cap (40 feet), the FTF side slope and toe of the side slope rip rap size will have to be re-evaluated for applicability to the HTF closure cap at some point in time. However the need to recheck this rip rap size does not impact the applicability of the FTF closure cap infiltration rates (Table 2) to the HTF closure cap.

Reference:

Phifer, M. A., Jones, W. E., Nelson, E. A., Denham, M. E., Lewis, M. R., and Shine, E. P. 2007. FTF Closure Cap Concept and Infiltration Estimates, WSRC-STI-2007-00184, revision 2. Washington Savannah River Company, Aiken, SC. October 2007.

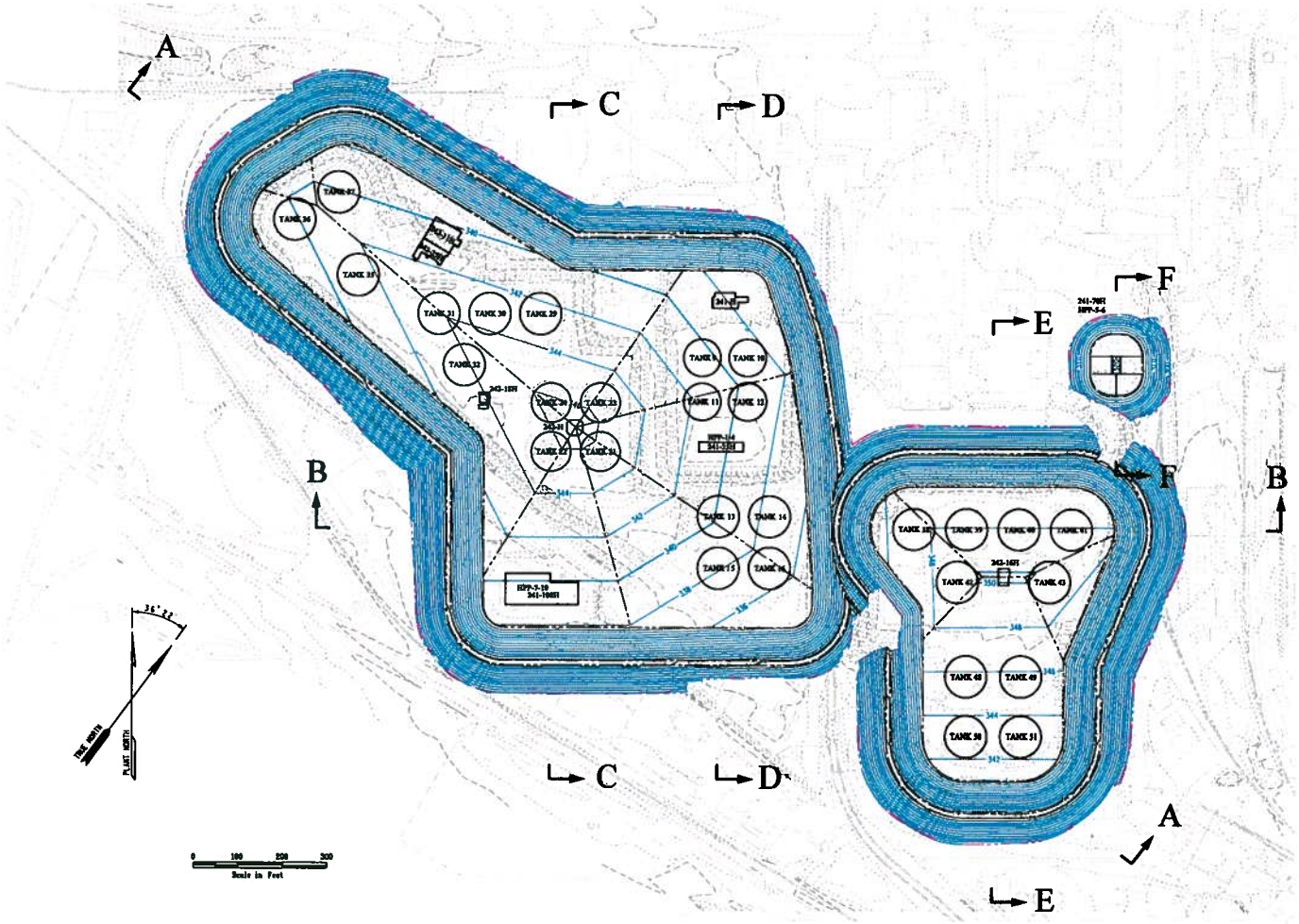
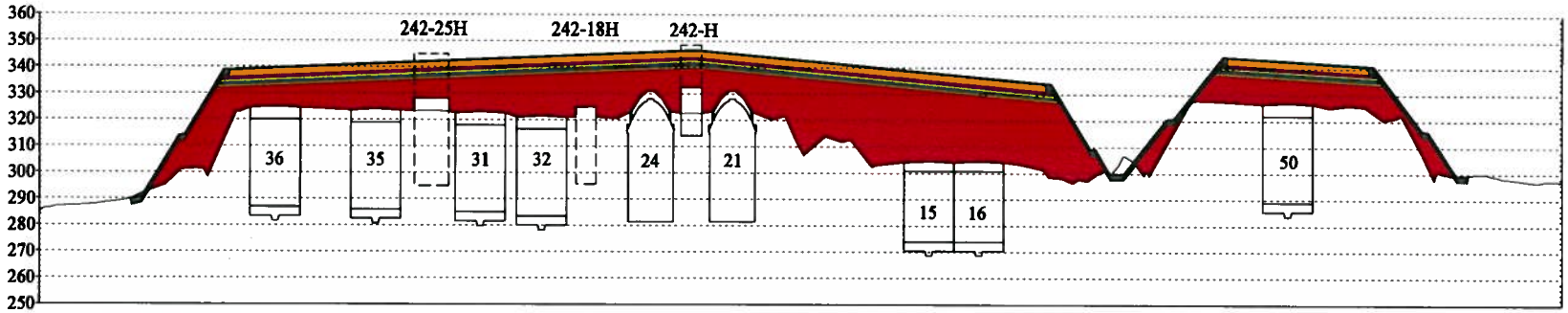
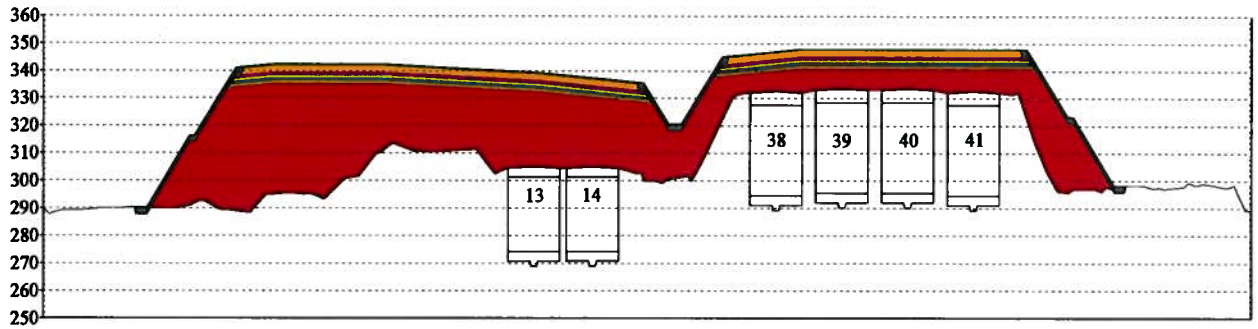


Figure 1. H-Area Tank Farm Closure Cap Conceptual Plan



Section A-A



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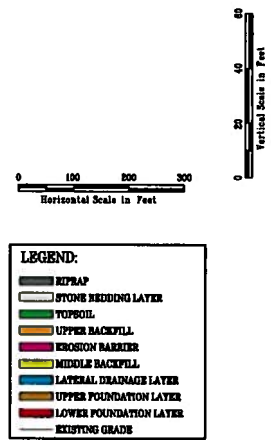
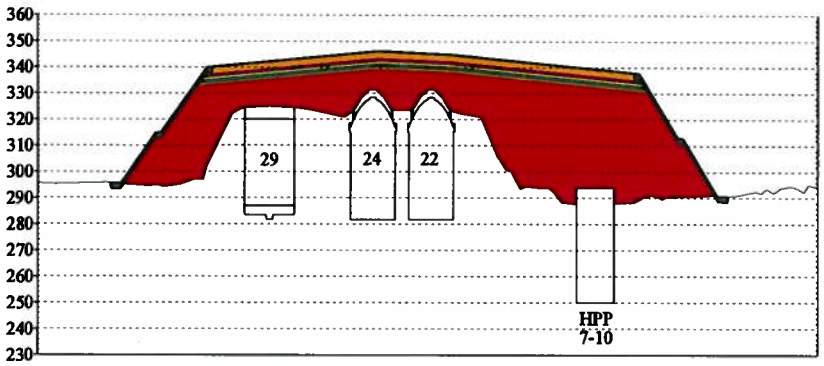


Figure 2. H-Area Tank Farm Closure Cap Cross-Section Sheet 1



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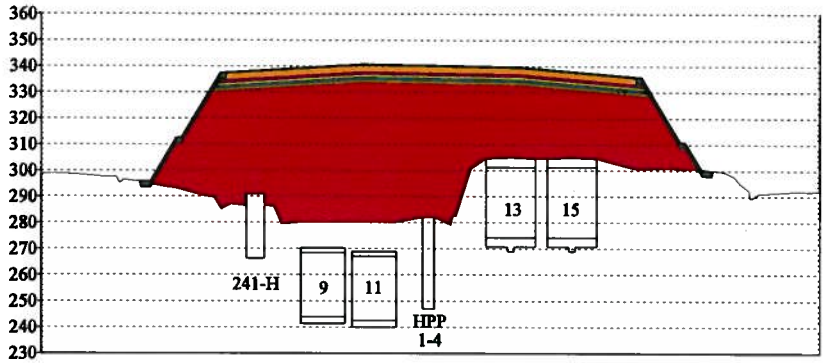

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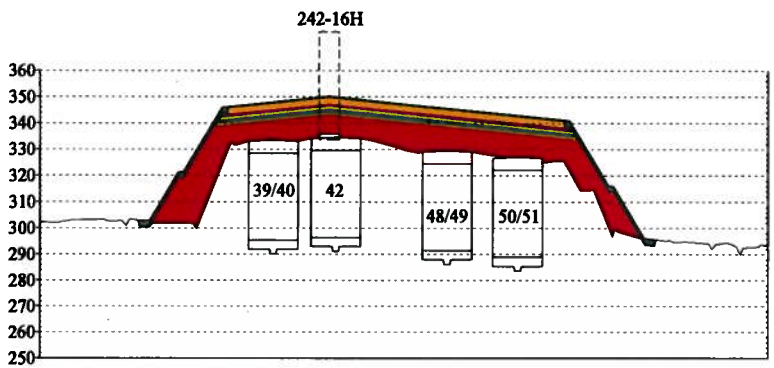

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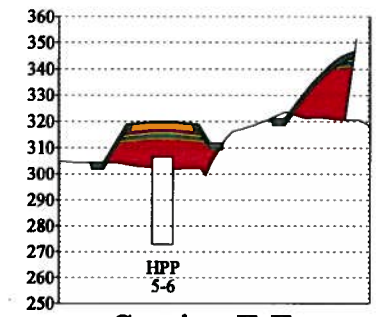

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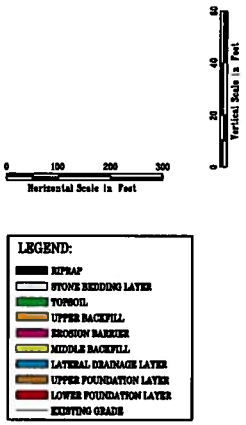

Figure 3. H-Area Tank Farm Closure Cap Cross-Section Sheet 2

Table 1. H-Area Tank Farm Generic Closure Cap Layers (Phifer et al. 2007)

Layer [1]	Layer Thickness (in)
Vegetative Cover	Not applicable
Topsoil	6
Upper Backfill	30
Erosion Barrier	12
Geotextile Fabric	-
Middle Backfill	12
Geotextile Filter Fabric	-
Lateral Drainage Layer	12
Geotextile Fabric	-
High Density Polyethylene (HDPE) Geomembrane	0.06 (60 mil)
Geosynthetic Clay Liner (GCL)	0.2
Upper Foundation Layer	12
Lower Foundation Layer	72 (minimum)

[1] The layers are arranged in the table to reflect their order from top to bottom in the Closure Cap.

Table 2. H-Area Tank Farm Closure Cap Infiltration over Time (Phifer et al. 2007)

Year	**Average Annual Infiltration thru the GCL (in/yr)**
0	0.00088
100	0.010
180	0.17
290	0.37
300	0.50
340	1.00
380	1.46
560	3.23
1000	7.01
1800	10.65
2623	11.47
3200	11.53
5600	11.63
10000	11.67

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