

SRS

interoffice memo

SED-GTE-2007-00002

7 September 2007

To: Barry Shedrow

From: Laura Bagwell 

DATA TO SUPPORT SUPPLEMENTAL EIS (U)

As requested, we have compiled site-specific data and references to support SAIC's request for information concerning possible new missions in K, H, F, and S Areas.

If you require additional information or would like to discuss any of these points in greater detail, please get in touch.

Soil Type:

Soil types within 0.5 km radii of the four areas are shown at Figures 1 through 4. Soils of the Dothan Sand series may constitute prime farmland. For greater detail concerning each soil type, including suitability for agriculture, development, and habitat, please refer to the USDA/SCS Soil Survey of the Savannah River Site (Rogers et al., 1990).

Karst and Unstable Conditions:

The subject of karst geology and whether such conditions exist at SRS is a complex issue. However, nearly all environmental and regulatory documents produced by and for SRS in the last 20 years have concluded that karst features do not exist at SRS. Consequently, no engineered measures or treatments have been required to counterbalance or remediate potential effects of karst processes.

Many investigations have identified the existence of "soft zones" in the subsurface, especially in the mixed carbonate-clastic Santee Formation approximately 100 to 150 feet beneath the four areas of interest. A recent technical report (WSRC, 1999) expounds on the origin, extent, significance, and stability of soft zones and includes a comprehensive chronology and review of subsurface investigations that encountered or specifically looked for soft zones.

Liquefaction Potential of SRS Soils:

Despite multiple investigations (for example, SAIC, 1996; Amick and Gelinas, 1991; Amick et al., 1990) into the phenomenon, no evidence of liquefaction or paleoliquefaction has been discovered at SRS. Nonetheless, due to the critical importance of SRS facilities, liquefaction assessments exist for the site as a whole and are completed for new facilities on a site-specific basis. The methods used to assess liquefaction potential have been developed specifically for SRS, and the estimated dynamic settlement resulting from hypothetical liquefaction is incorporated into the design of critical facilities at SRS.

Commercially Valuable Mineral Resources:

The mixed sand and clay soils beneath the four areas of interest are of limited intrinsic commercial value (Denham, 2005). A possible exception might be well-sorted, quartz sand, which is valuable as a filtration medium, for abrasive applications, and as engineering structural backfill, but no sizable deposits of such material are evident at the surface or in the shallow subsurface in the four areas of interest.

References:

Amick, D., Gelinas, R., Maurath, G., Cannon, R., Moore, D., Billington, E., Kempainen, H., 1990. Paleoliquefaction Features along the Atlantic Seaboard, US Nuclear Regulatory Commission, NUREG/CR-5613 RA, 146 pp.

Amick, D. and Gelinas, R., 1991. The Search for Evidence of Large Prehistoric Earthquakes along the Atlantic Seaboard, *Science*, v. 251, p. 655-658.

Denham, M.E., 2005. "Harvestable Resources," *Ecology and Management of a Forested Landscape: Fifty Years on the Savannah River Site*, edited by J.C. Kilgo and J.I. Blake, Island Press, Washington DC.

Rogers, 1990. Soil Survey of Savannah River Plant Area, Parts of Aiken, Barnwell, and Allendale Counties, South Carolina, US Department of Agriculture Soil Conservation Service.

SAIC, 1996. Paleoliquefaction Assessment of SRS (U), Fiscal Year 1996 Status Report, Science Applications International Corporation, Subcontract C001015P.

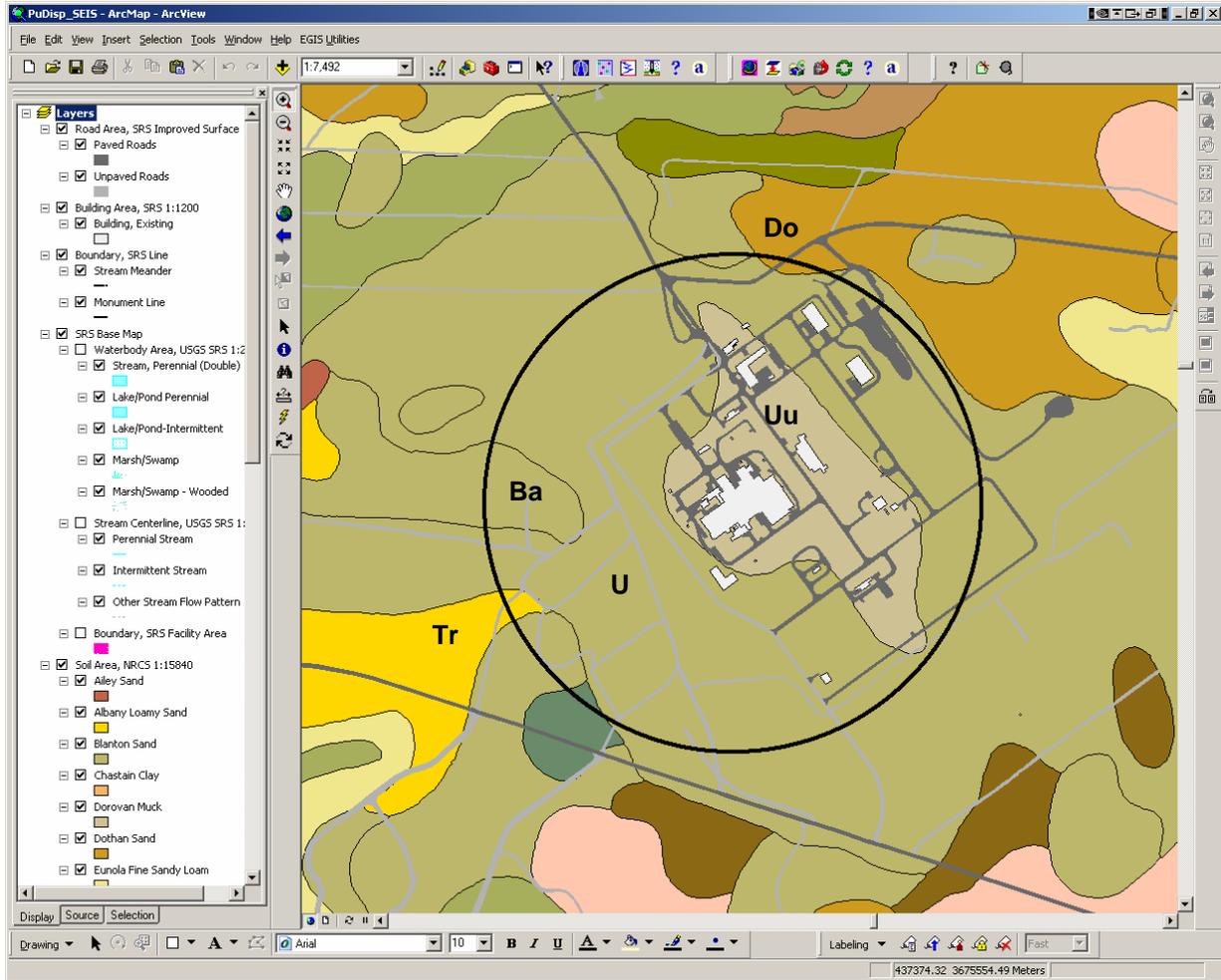
WSRC, 1999. Significance of Soft Zone Sediments at the Savannah River Site, WSRC, TR-99-4083, Rev.0, Westinghouse Savannah River Company, Aiken, SC.

cc:

Mike Lewis

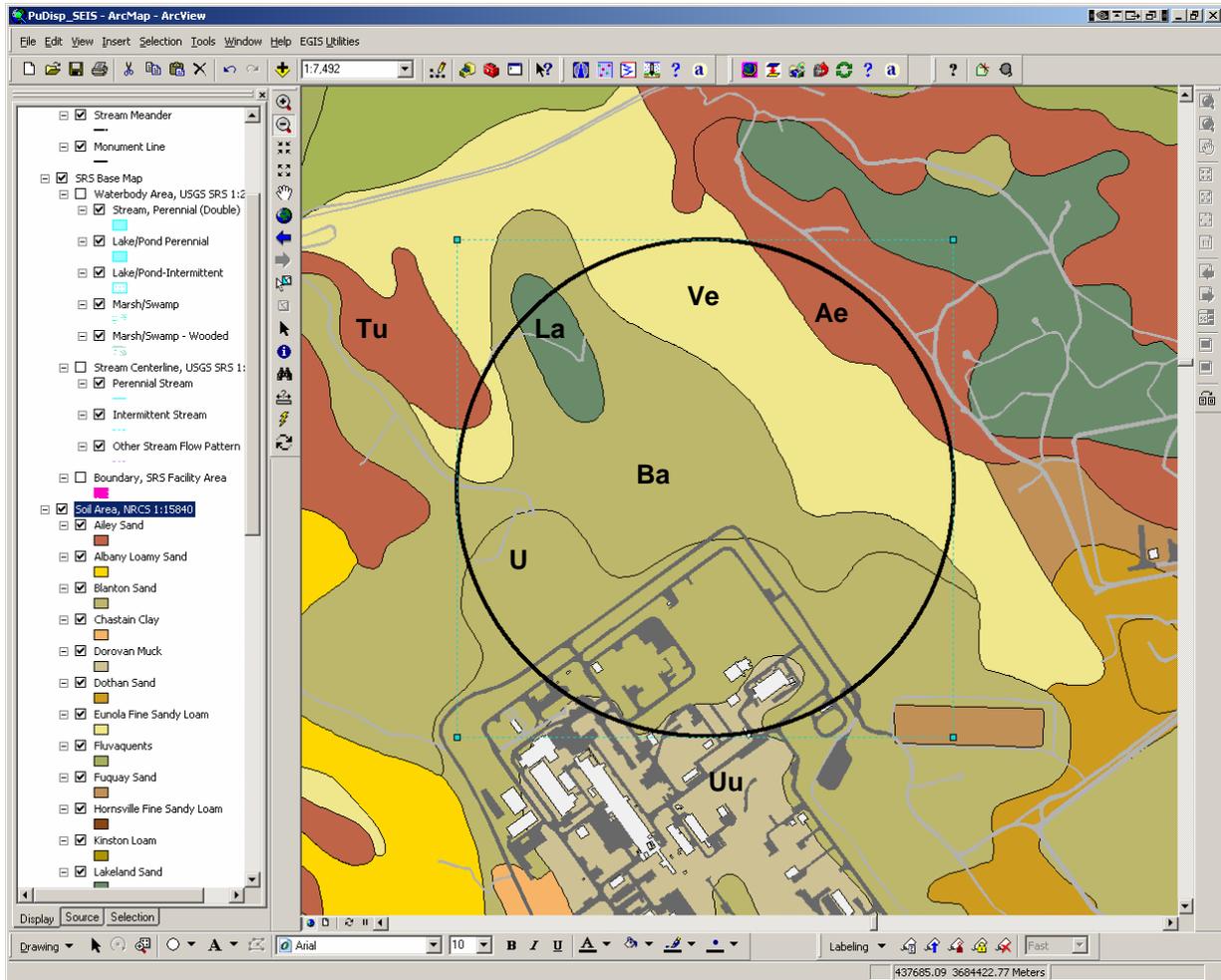
Mike McHood

Larry Salomone



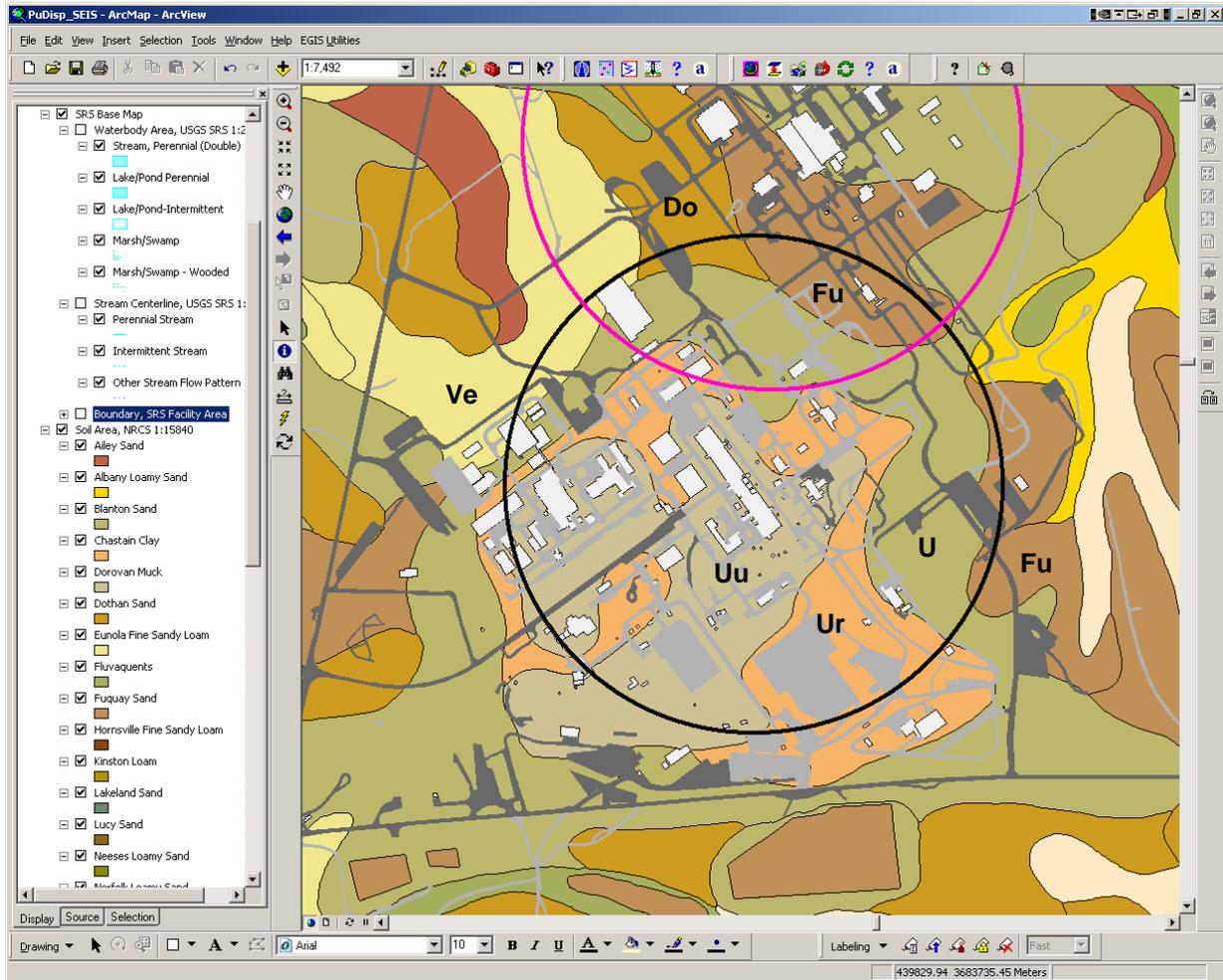
- Urban land (Uu)
- Udorthents (U)
- Blanton Sand (Ba)
- Troup Sand (Tr)
- Dothan Sand (Do)

Figure 1. Soil Types within a 0.5 km Radius of K-Area Facilities



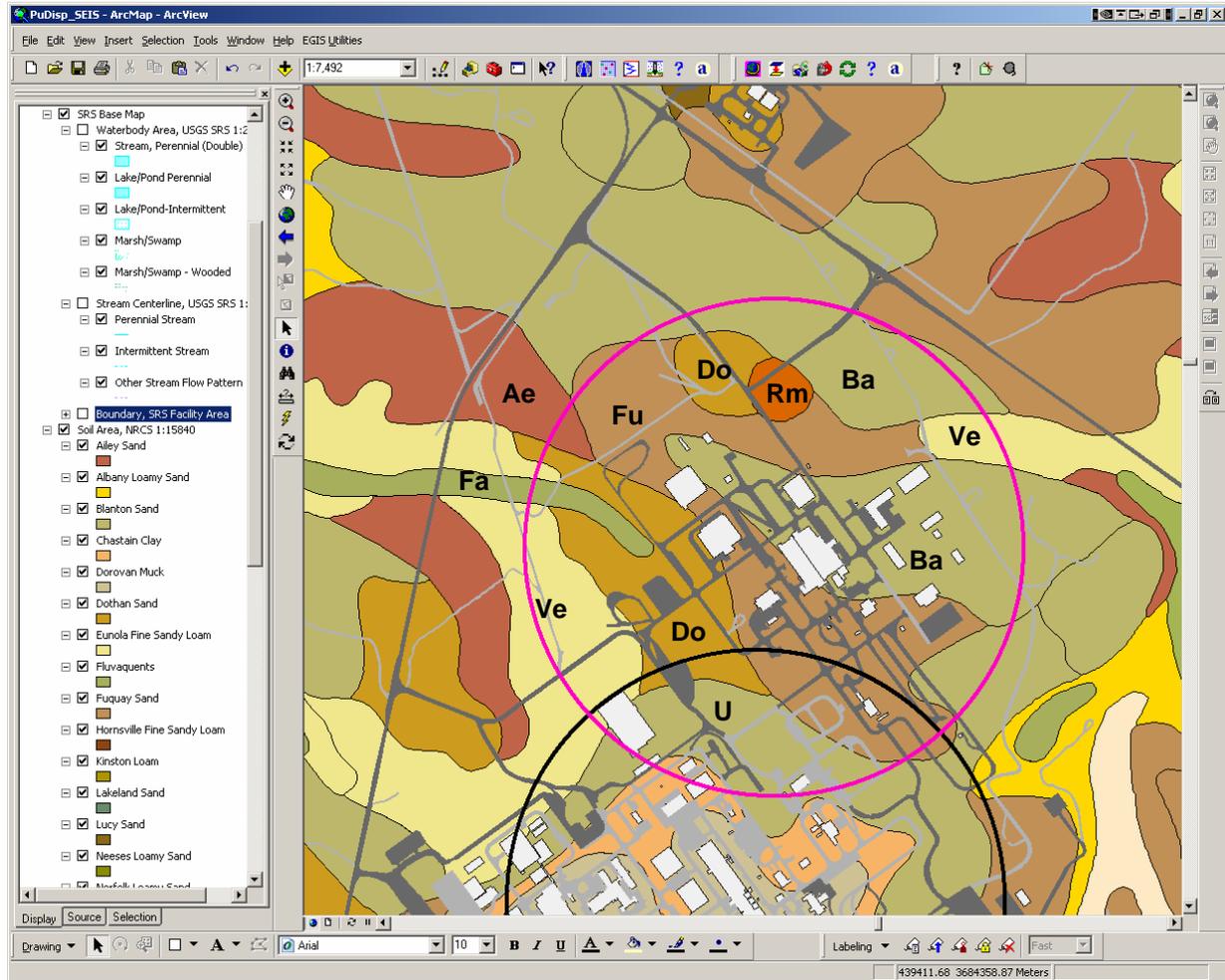
- Urban land (Uu)
- Udorthents (U)
- Blanton Sand (Ba)
- Vaucluse-Ailey Complex (Ve)
- Ailey Sand (Ae)
- Lakeland Sand (La)
- Troup-Lucy Sand (Tu)

Figure 2. Soil Types within a 0.5 km Radius of F-Area Facilities



- Urban land (Uu)
- Udorthents (U)
- Udorthents / urban land complex (Ur)
- Fuquay Sand (Fu)
- Dothan Sand (Do)
- Vaucluse-Ailey Complex (Ve)

Figure 3. Soil Types within a 0.5 km Radius of H-Area Facilities



- Udorthents (U)
- Fuquay Sand (Fu)
- Blanton Sand (Ba)
- Dothan Sand (Do)
- Ailey Sand (Ae)
- Vaucluse-Ailey Complex (Ve)
- Rembert Sandy Loam (Rm)
- Fluvaquents (Fa)

Figure 4. Soil Types within a 0.5 km Radius of S-Area Facilities