

## **Three-dimensional Depiction of Coal Tar in Soils and Sediments within the Overburden Stratigraphic Framework Using TarGOST®**

Scott Saroff (CH2M HILL, Syracuse, New York)

Tar-specific Green Optical Screening Tool (TarGOST®) laser-induced fluorescence (LIF) survey data and Mining Visualization System (MVS®) software were used to delineate and illustrate in 3-dimensions (3D), coal tar in upland soils and adjacent river sediments at a former roofing material manufacturing and petroleum bulk storage Superfund site in New Jersey. TarGOST® instrument LIF technology utilizes light-energy in the form of a pulsed green laser to energize and excite coal tar and creosote range hydrocarbons to fluoresce a characteristic wavelength of light which is detected by the probe tip optical assembly.

Upland, 93 TarGOST® LIF profiles were conducted to soil depths of approximately 37 feet to the confining layer using a Geoprobe® 6010 direct push rig. For the river sediments, 49 TarGOST® profiles were conducted to depths of 50 feet. The TarGOST® results facilitated revision and refinement of the site conceptual site model which is being used to better characterize risks and to evaluate remedial alternatives that include source management and risk reduction, thereby saving considerable costs for site remediation.

The vertical distribution of coal tar using TarGOST™ data from each boring was interpolated using a 3D kriging model. Using lithology descriptions from more than 280 soil borings, the surfaces of key geologic units were created in the model using kriging. The 3D coal tar interpolation and geologic surfaces were combined with a base plan depicting surface features at the site to create a 3D geologic model illustrating the lateral and vertical extent of coal tar in the subsurface. Results indicate that the coal tar is not present as a single contiguous mass, but instead occurs in distinct isolated areas lying above and on top of the upland silty clay confining unit, and as thin isolated layers in sediment in a smaller extent than had been previously interpreted.

*Scott Saroff, CPG, PG, Principal Technologist (Hydrogeology/Innovative Technologies), CH2M HILL, Syracuse, NY, has more than 26 years of geological/environmental consulting, college level instruction, and government service experience. He currently is Northeast Region Site Management Practice Lead at CH2M HILL where he serves as senior technical lead on more than 20 projects and serves as Global Subject Matter for MGP and petroleum remediation. Previously, Mr. Saroff has served as an environmental scientist for the NYS Attorney General's Office, Geology Group Manager for USEPA's REAC Superfund Program, Principal Hydrogeologist/Division Manager and Regional Remediation Manager for other national environmental firms. He holds a B.S. degree in Forest Biology from SUNY College of Environmental Science & Forestry and a M.S. degree in Geology from Syracuse University. He is currently completing his Ph.D. degree in Hydrogeology/Geochemistry at Syracuse University.*

## **FUTURE SPEAKERS:**

- September 18, 2008 (to be determined)

## **MEETING LOGISTICS:**

The meeting will take place on **Thursday, June 19th** at the Glen Loch Restaurant in Jamesville. Directions are below.

A social hour will start at 5:30 pm and will be followed by a dinner starting at 6:30 p.m. The presentation by Mr. Bussey will begin at about 7:30 p.m.

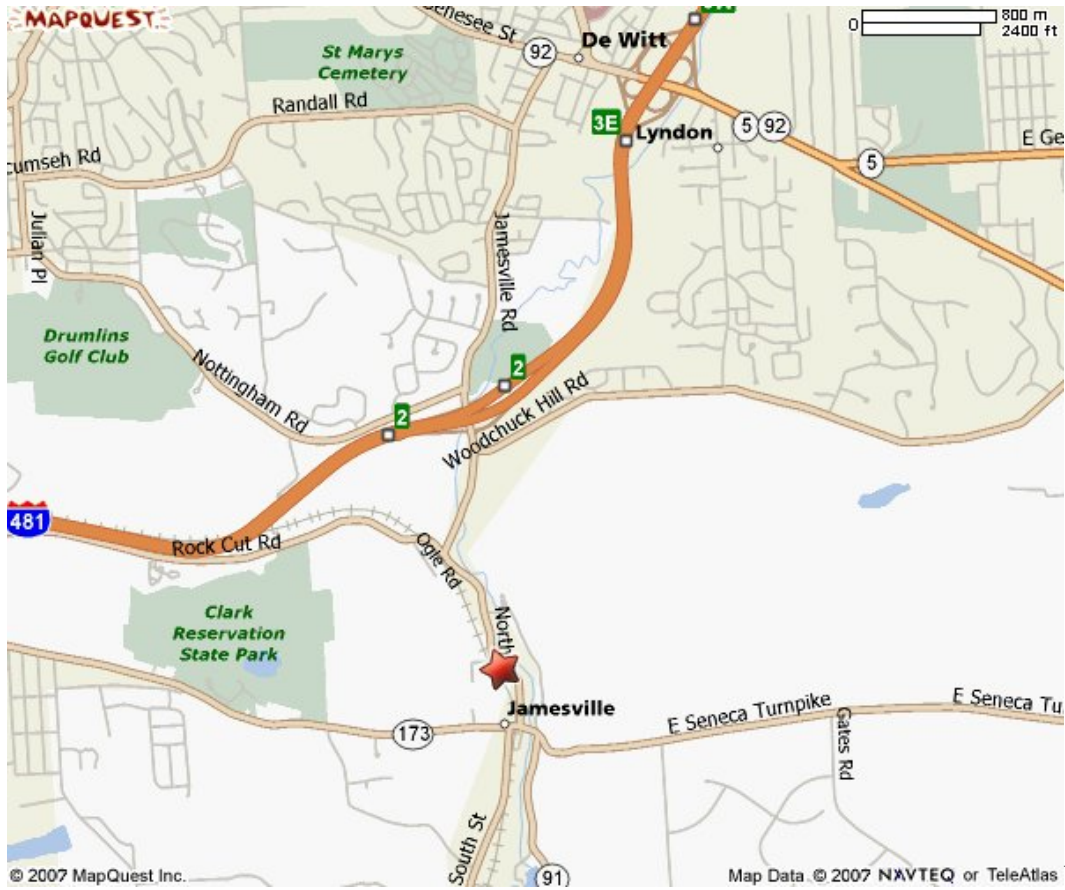
The cost of the dinner/meeting is:

- Members – Dinner & Meeting - \$25
- Members – Meeting only - \$5
  
- Nonmembers – Dinner & Meeting \$30
- Nonmembers – Meeting only \$10
  
- Students – Dinner & Meeting \$15 (CNYAPG pays \$10 per student for dinner)
- Students – Meeting only \$5
  
- CNYAPG will sponsor first 4 students for Dinner & Meeting

**Please RSVP by Wednesday, January 15<sup>th</sup> Noon to Annette at Parratt-Wolff, [info@pwinc.com](mailto:info@pwinc.com) or (315) 437-1429.**

**Directions to the Glen Loch Restaurant – [www.glenloch.net](http://www.glenloch.net)  
4626 North Street, Jamesville, NY 13078. 315-469-6969**

Take Route 481 to Exit 2 in Jamesville. Go South on Jamesville Road (up the hill) until you come to a three way intersection. Bear left onto North Street. Continue down this road, and you will see the Glen Loch on your left.



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