

# U.S. Geological Survey Proposal

## C. Biosolids

### Base Program: Monitor Biosolids Quality

#### Question:

Are biosolids produced by Metro Wastewater Reclamation District in compliance with biosolids regulations regarding heavy metals?

#### Concerns:

Biosolids must meet regulations for content of heavy metals as set by Federal and state agencies. Exceeding these regulations could adversely affect soil quality and Metro's plans for land application in Elbert and Arapahoe Counties.

#### Objective:

To monitor the biosolids for concentrations of arsenic, bismuth, cadmium, copper, lead, mercury, molybdenum, nickel, nitrogen (total), phosphorus (total), selenium, sulfur (total), uranium, and zinc, and to compare these concentrations with appropriate Federal and state standards for biosolids.

#### Approach:

Sampling of biosolids will be conducted by Metro personnel once per calendar month. Composite samples consisting of approximately 30 subsamples will be taken from the conveyor belt by Metro personnel over a period of twenty-four hours. The mass of each subsample will be determined via an orientation sampling or through discussion with Metro personnel regarding water content, % ash to be expected, etc. The samples will be transported to the USGS laboratories in Denver for analysis by appropriate chemical methods. Selected biosolids samples and biosolids-leachate samples also will be analyzed for organic wastewater compounds (see ground-water base-program proposal).

#### Benefits:

This approach will yield high-quality data for comparison with data generated by Metro's labs and for comparison with Federal and state regulations for biosolids.

The information regarding organic wastewater compounds can be used to evaluate the occurrence and mobility of these compounds in biosolids. This information also can be used to determine future research priorities for organic wastewater compounds associated with biosolids.

#### Limitations:

This approach only provides a "snapshot" of the chemistry of biosolids on the day of sampling. Any short-term variation in chemistry will not be determined with this effort.