

***Granite Creek Proposed Class III Landfill Site Monitoring and
Reconnaissance Report and Audit
April 19-20, 2006***

This memorandum summarizes water quality results from the Class III landfill monitoring stations on Granite Creek and also includes visual observations of conditions at the proposed biosolids/overburden site as requested by CBS.

Water quality monitoring was completed on April 19, 2006 from 9:30 am through 11:30 am and on April 20 from 1:00 pm through 1:30 pm. A brief field survey of the proposed biosolids disposal site (the old organic waste site) was completed April 19 with photographs taken to document conditions. Weather was partly cloudy with no rain on both days. Snow and moderate rain fell on April 17-18. Conditions for the full week prior to April 17 were generally dry.

Water Quality Monitoring

Water quality was measured at nine stations. These included the five (5) ADEC Class III landfill monitoring stations along Granite Creek, three (3) additional CBS stations immediately below the waste site containment berm and one (1) CBS station (GC #8 in previous monitoring reports) on Granite Creek receiving integrated runoff from the overburden site. GPS coordinates were taken and recorded at each station and all stations marked with orange flagging and red stakes to allow easy relocation. A hand-held Garmin Model 45XL GPS (eight satellites) was used for positioning and permanently recording station coordinates. Datum for STORET purposes is WGS84. Position format was hdddEmm.mmm'.

Water quality parameters measured were turbidity, pH, temperature and fecal coliform bacteria. A team of CBS Environmental staff and the CBS contractor working on the Granite Creek watershed recovery project collected samples. Instruments were calibrated before sampling. A portable Hach model 2100P turbidimeter and hand-held pH/temperature meter were used for instantaneous readouts of values. Replicate turbidity samples were taken. Fecal coliform bacteria samples were collected in sterile containers with gloved hands and analyzed within 4 hours of collection by certified CBS Wastewater Plant staff. Sampling and preservation protocols followed the September 2002 DEC-approved Quality Assurance Project Plan (QAPP) for Granite Creek.

Data results are tabulated below. Laboratory sheets for fecal coliform analyses and blanks are also attached for reference.

<i>Station #</i>	<i>GPS Coordinates</i>	<i>Date/time</i>	<i>pH Units</i>	<i>Temp (°C)</i>	<i>Fecal coliform bact. (CFUs/100ml)</i>	<i>Turbidity (NTUs)</i>
GC Berm#1 ¹	57° 06.174' 135° 23.294'	4/19/06 1138 hrs	6.1	4.1	0	3.36, 5.25
GC Berm #2	57° 06.166' 135° 23.304'	4/19/06 1145 hrs	6.7	4.1	0	1.61, 3.19
GC Berm #3	57° 06.162' 135° 23.342'	4/19/06 1153 hrs	6.8	2.5	0	2.75, 1.76
ADEC Station #1 ²	57° 06.321' 135° 22.838'	4/19/06 1109 hrs	6.3	2.5	0	1.61, 0.48
ADEC Station #2	57° 06.255' 135° 23.185'	4/19/06 1039 hrs	6.7	3.4	0	1.98, 2.39
ADEC Station #3	57° 06.230' 135° 23.224'	4/19/06 1030hrs	6.7	3.1	0	1.65, 0.90
CBS Station #4	57° 06.154' 135° 23.459'	4/19/06 1008 hrs	6.3	2.9	0	1.81, 0.93
ADEC Station #4	57° 06.051' 135° 23.583'	4/20/06 1328 hrs	5.5	4.9	0	0.75, 1.48
ADEC Station #5	57° 06.220' 135° 23.333'	4/19/06 0948 hrs	6.0	3.3	0	1.48, 2.16

¹ GC Berm stations are CBS stations staked at the outer base of the containment berm of the proposed biosolids site.

² ADEC stations are all located on Granite Creek and identified on the map submitted with the Class III solid waste permit application.

Visual Observations of the Proposed Biosolids Site

The CBS overburden waste disposal site is proposed as the location for lime-treated biosolids disposal in the solid waste permit application submitted to ADEC. A reconnaissance survey of this site was previously completed and reported on in October 2003 as part of the solid waste permit application process.

1. The majority of the site was dry and, with a few exceptions, was free of standing and running water. The survey followed a dry spring period with snow flurries and light rain on April 18. As the site is contoured with significant elevation changes, the driest portions were the upper sections towards Harbor Mt. Road, and the areas nearest Tisher's lease access road. Surface flow graded downhill and some water concentrated at the lower mid- to far sections of the overburden site.

As observed in October 2003, a few areas of standing water were observed at the lower and mid- to far edges of the overburden site. A few small rivulets of flowing surface water were observed discharging to the lower mid- and far edges of the site corresponding to the lowest elevations of the site.

2. Riprap containment berms remain intact and silt fencing placed at the base of the outer boundary of the berm remained intact with only a few failed sections due to rock wasting. Photos documented conditions. Alders are taking hold along the upper length of the containment berm.
3. Water/leachate discharges were observed coming from three locations at the bottom of the lower containment berm and flowing past the outside (forest side) of the silt fencing. These locations are identical to those monitored in October 2003 and April 2004. Monitoring stations are staked at these three sites and monitored as a "worst case" prior to biofiltration provided by the forested wetland buffer. One location (GC Berm #1) was located below the 24" culvert discharging from the base of the berm. This culvert is located at the lower, mid cell area of the berm. No water was flowing through the culvert. A trickle discharge coming from the base of the berm was sampled. GC Berm #2 is below the middle portion of the berm. Samples were taken from a ditch receiving a trickle discharge from the overburden site. GC Berm #3 is located at the far, lower corner of the containment berm. Flows at the three sites were estimated to range from 1 to 2 gallons/minute. This compares to estimated flows of 1 to 5 gallons/minute recorded in October 2003.
4. Water/leachate emerging from the base of the berm enters forested muskeg wetlands. Earlier CBS estimates are that an average of 150 feet separates the berm from the South Fork of Granite Creek. *As was reported in October 2003, no evidence exists - from pH or turbidity (NTU) concentrations measured at multiple, permanent Granite Creek monitoring stations - that the overburden site has an effect on creek water quality.*

Granite Creek is a TMDL waterbody, and several BMPs were put into place in the construction of the overburden site to avoid sedimentation and turbidity effects on the creek. These included diverting water around the site, silt fencing, use of vegetated buffers between the site and the creek, and culverting to minimize standing water on the site. These BMPs will also be effective in limiting the impacts on the creek from the disposal of treated biosolids.

5. Surface water flows generated from above the biosolids/overburden site continue to be successfully diverted around the site. Significant surface water was flowing about 50 feet outside the far (Harbor Mt Road side) containment berm. This appears to be diverted water coming from Harbor Mt. Road above the overburden site. While the upper road was not walked and inspected, the upper cells of the site were dry and no surface water was observed entering the organic waste material in this area. This diversion successfully reduces leachate generation from the site.
6. Unauthorized stumps and wood chip piles were disposed of at the upper edge of the overburden site at the end of the access road to the site. The access gate from the Harbor Mountain Road is locked, but additional access controls may be necessary to avoid dumping of unauthorized wastes.
7. The combination of results from the ongoing Granite Creek TMDL monitoring program and the monitoring program established under the Class III landfill permit will effectively capture any significant changes in turbidity, fecal coliform bacteria, pH and temperature resulting from discharges from the proposed biosolids site and Phase I through III expansion of the entire landfill over time.

Photographs of site conditions are enclosed. They depict surface water drainage at the biosolids site, silt fencing and berm integrity, and typical organic waste disposed at the site.

Enclosures

- Map of ADEC-specified Class III landfill monitoring stations
- Fecal coliform bacteria lab sheets
- Photographs of site conditions

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19 May 2006*
