

Memorandum

To: Dan Bjerke, Public Works Director
Ted Vore, Assistant Public Works Director
Jerry Wright, Solid Waste Operations Superintendent
Carolyn Trautman *Carolyn*

4/9/2003

Request to Renew Environmental Monitoring Contract for Landfill

I request renewal of the attached contract with American Engineering Testing (AET) for the sampling, analysis and reporting related to environmental monitoring at the Rapid City Landfill. The annual cost of this contract will not exceed \$48,550.30.

This contract resulted from a request for proposals (RFP) in 2001. The RFP included a clause giving the city the opportunity to renew this contract annually for up to five years. We are very satisfied with AET's performance in 2002. They have fulfilled the requirements of the proposal in a timely and cost effective manner.

The annual cost for 2002 was \$27,385.65. Additional cost in 2003 results from about \$6,500.00 in testing related to yard waste and co-compost market quality (United States Compost Council testing standards), \$8,600.00 in testing related to co-compost permit requirements, and \$6,200.00 in additional groundwater sampling and analysis for the landfill.

Environmental permits require the landfill to sample, analyze and report all surface water discharges, wastewater discharges, semiannual groundwater monitoring, compost quality and pathogen destruction, and petroleum contaminated soil treatment results. Renewal is important to continuity of the data, especially the groundwater data. The groundwater monitoring makes up the bulk of this project.

PURPOSE AND SCOPE OF WORK TO BE PERFORMED

The purpose of our work on the project will be to assist the City of Rapid City in Compliance with the Administrative Rules of South Dakota and Environmental Protection Agency regulations specified in 40 CFR Parts 257 and 258, "Solid Waste Disposal Facility Criteria," October 9, 1991.

In order to accomplish the above purpose we propose to provide professional services to the City of Rapid City in the form of labor, equipment, supplies, insurance, and other necessary work components necessary to perform the following tasks for Rapid City's Solid Waste Operations Division:

1. Field sampling surface water discharges, wastewater discharges, and groundwater monitoring wells;
2. Laboratory analysis of surface water samples, wastewater samples, groundwater samples, petroleum contaminated soil samples, yard waste compost samples and municipal solid waste/biosolids co-compost samples; and
3. Evaluation of the groundwater statistical baseline data and completion of the annual groundwater monitoring report.

Anticipated Work Items

Surface Water:

1. Providing qualified personnel for surface water discharge sampling with a minimum of one-hour notice. This is estimated to occur eight times per year during high precipitation months.
2. Picking up prepared sample bottles, trip blanks, etc. from state-certified lab and returning all to lab upon completion of sampling with a properly completed chain-of-custody.
Grab samples to be collected weekly during discharge from Outfall 001. Analytes include: TSS, pH, BOD₅, cd, cu, pb, hg, zn, as, crIII, crVI, se, ag, hardness, phenol, toluene, ammonia, DO, and temperature.
4. Grab samples to be collected three times during the first week of the discharge and once per week thereafter from Outfall 002. Analytes include: pb, TSS, pH, BTEX, Naphthalene and hardness.
5. Sampling for whole effluent toxicity testing on Outfall 002 quarterly during a discharge. This is a two species test consisting of five dilutions and a control. *For the purposes of this proposal we have budgeted for two whole effluent toxicity tests per year.*

6. Measuring field pH and temperature at time of sampling. Temperature will be measured with a thermistor, a mercury-filled, or dial type thermometer. Readings will be recorded to the nearest whole degree Celsius. The date and time will be recorded on field logs and chain-of-custody.
7. pH will be taken within 15 minutes of sample collection with a pH meter. The pH meter will be read to .01 SU, be equipped with a temperature compensation adjustment, and be capable of simultaneous calibration to two points on the pH scale bracketing the expected pH.
8. If a visual sheen is observed during sampling, a grab sample for TPH will be taken. This applies to Outfalls 001 & 002. If no sheen is present, a TPH sample is not required. *For the purposes of this proposal we have not budgeted for TPH analysis of Outfalls 1 and 2. However, a unit rate for the analysis has been provided, should it be required.*
9. Metals analysis will be performed on a "Total Recoverable" basis and hardness will be measured in the laboratory.
10. Analytical results will be reported to the Rapid City Landfill, 300 6th Street, Rapid City, SD 57701.
Copies of the field logs, including visual observations and field measurements, will be forwarded to the Rapid City Landfill, 300 6th Street, Rapid City, SD 57701 within 72 hours of the sampling event.

Wastewater:

- Providing qualified personnel for required wastewater testing with a minimum of two hours notice of a discharge. This is estimated to occur 15 times per year. Occurrence may increase with greater precipitation or future operational changes.
2. Picking up prepared sample bottles, trip blanks, etc. from state-certified lab and returning all to lab upon completion of sampling with a properly completed chain-of-custody.
 3. Grab samples to be collected once per batch discharge from aerated leachate pond. Analytes include: total as, cd, cr, crVI, cu, pb, hg, ni, se, ag, zn, O&G, BOD, TSS, field pH, and temperature. Batch discharges are usually complete within 12 hours of start.
 4. Field pH will be taken within 10 minutes after sample collection.
 5. Analytical results will be reported in mg/l, except for pH in standard units. Analysis will include the date of analysis, the analyst's initials, and a list of analysis method numbers used, as approved by 40 CFR 136.
 6. Notifying Landfill personnel immediately if field pH readings are 5.0 SU or less.

- Analysis results will be reported to the Rapid City Landfill, 300 6th Street, Rapid City, SD 57701 in the units listed under number 5 of this section,
8. Copies of the field logs, including visual observations and field measurements, will be forwarded to the Rapid City Landfill, 300 6th Street, Rapid City, SD 57701 within 72 hours of the sampling event.

Petroleum Contaminated Soils:

1. Analyze soil samples for total petroleum hydrocarbons. Samples may contain gasoline, diesel, JP4 or JP8. There are estimated to be 24 samples per year for analysis.
2. Forward results to the Rapid City Landfill, 300 6th Street Rapid City, SD 57701.
3. Fax results upon request by the landfill.

Groundwater:

1. Providing qualified personnel for semi-annual groundwater monitoring.
2. Picking up prepared sample bottles, trip blanks, etc. from a state-certified lab and returning all to lab upon completion of sampling with a properly completed chain-of-custody.
3. Utilizing all appropriate QA/QC practices for field sampling of groundwater.
4. Measuring groundwater elevations prior to purging wells. *Groundwater elevations will be measured semi-annually, during April and October, on the 17 wells which have been previously measured to obtain data for inferred groundwater contours.*
5. Collecting samples from each well with a disposable bailer.
6. Sampling wells 1-8-19cdd2, 1-8-19ddd1, 1-8-19ddd2, 1-8-19dab1, 1-8-19dab2, 1-8-19cab1 and 1-8-19da2 semi-annually, during April and October, for iron, TOC, chloride, manganese, sulfate, BOD, COD, ammonia, field pH, field temperature, field conductivity and 40 CFR Part 258, Appendix I parameters with unfiltered and filtered metals. *It should be noted that 1-8-19 cdd2, 1-8-19ddd2 and 1-8-19 dab2 will likely contain inadequate quantities of groundwater to facilitate sampling for the above parameters; however, 1-8-19ddd2 will be sampled for Appendix I VOC's if it contains sufficient quantities of groundwater to facilitate sampling for this parameter. For the purposes of this proposal we have budgeted for the sampling of the above seven wells during the April and October sampling events.*
Sampling wells 1-8-19dd and 1-8-19dc semi-annually, during April and October, for iron, TOC, chloride, manganese, sulfate, BOD, COD, ammonia, field pH, field temperature, field conductivity and 40 CFR Part 258, Appendix I VOC's only (no metals).
8. Sampling wells 1-8-19da1, 1-8-19ad2, 1-8-19ca2 and 1-8-19ad1 annually, during October, for 40CFR Part 258, Appendix I VOC's (no metals) and semi-annually,

- during April and October, for iron, TOC, chloride, manganese, sulfate, BOD, COD, ammonia, field pH, field temperature and field conductivity.
9. Completing an annual report summarizing and evaluating the groundwater monitoring data for the year 2003. This report will be completed and submitted to the City of Rapid City Landfill no later than February 15, 2004. This report will discuss the applicable items in 40 CFR Part 258.53, Sections a through i. It will contain all field logs. Upon review and approval by the Landfill, three final copies will be submitted to the Rapid City Landfill, 300 6th Street, Rapid City, SD 57701.
 10. Arranging and facilitating an annual meeting, during the first two weeks of March in 2004, with City of Rapid City Landfill representatives, appropriate AET staff and subcontractors. This meeting will evaluate the previous year's overall performance, evaluate tasks, propose new tasks, as necessary and summarize revisions to the contract for 2004.
 1. Consolidate all historical groundwater monitoring data from 1992 forward for wells 1-8-19ca1, ca2, cd, dc, dd, da1, da2, ad1 and ad2. This data is on file at the Material Recovery Facility. Any missing data will be reported to landfill staff who will obtain the required documentation. The goal is to tabulate data into an easy to read reference document.
 12. Electronic files related to the groundwater monitoring statistical analysis and annual report shall be maintained and provided to the City of Rapid City upon request.

Yard Waste Compost Samples:

1. Analyze yard waste compost samples for carbon to nitrogen ratio. There are estimated to be 60 samples per year for analysis. Sample collection and transport to laboratory will be done by landfill personnel.
2. Analyze yard waste compost samples, four 3/8 inch and four 3/4 inch per year for pH, total soluble salts (conductivity), nutrient content (total N, P₂O₅, K₂O, Ca, Mg), moisture content, organic matter content, maturity (respiration rate) and stability (germination rate). Fecal coliform and trace metals (As, Cd, Cr, Cu, Pb, Hg, Mo, Ni, Se and Zn) must be analyzed for once every six months on each product.
3. Fax preliminary results to the Rapid City Landfill within 15 days of sample receipt (fax 394-6843).
4. Forward final results to the Rapid City Landfill, 300 6th Street, Rapid City, SD 57701.

Municipal Solid Waste/Biosolids Co-compost Samples:

1. Analyze co-compost samples for fecal coliform (MPN/g of total dry solids), carbon-to-nitrogen ratio (CN) and trace metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Se and Zn). There will be an estimated 25 samples taken during the first six months of operation.

- After the first six months, this sampling may be dropped. Sample collection and transport to laboratory will be done by MRF or wastewater personnel. Purpose of samples is to follow process from the Dano discharge conveyor, to mid-bay, to end of primary. Sample collection rate is once per 14 days. All samples are to be composited.
2. Analyze one co-compost sample for dioxin on or about September first. Sample must be collected from the secondary building prior to refining.
 3. Analyze for fecal coliform after refining, 14 days before release to public. Seven grab samples will be taken, one every two days. The result will be the arithmetic mean of these seven samples. Approximately 100 samples will be analyzed for fecal coliform with production estimated to begin on May 1, 2003.
 4. Analyze composite sample for specific oxygen uptake rate (SOUR - mg of oxygen per hour per gram of total solids (dry weight basis)) at the time the seventh fecal coliform grab is taken. About 15 samples will be analyzed for SOUR annually.
 5. Analysis of co-compost after refining for compost council standards (pH, soluble salts (conductivity), total N, P₂O₅, K₂O, Ca, Mg, moisture content, maturity, stability, carbon-to-nitrogen ratio (ammonia, total Kjehldahl) and trace metals ((As, Cd, Cr, Cu, Pb, Hg, Ni, Se and Zn).
 6. Forward two copies of all final results. One copy to the Rapid City Landfill, Attn: Jerry Wright, 300 6th Street, Rapid City, SD 57701 and the second copy to Rapid City Water Reclamation, Attn: Bob Druckery, 300 6th Street, Rapid City, SD 57701 .