



## North Carolina Department of Environment and Natural Resources

Pat McCrory  
Governor

Donald R. van der Vaart  
Secretary

July 9, 2015

Genna Olson  
ATC Associates Inc.  
2725 East Millbrook Road, Suite 121  
Raleigh, NC 27604

Re: Request for Work Plan and Cost Proposal  
Elon College LDFL – Amick Rd.  
Elon, Alamance, Cumberland County  
ID# NONCD000730  
Task Order 730DP-3&4

Dear Ms. Olson:

Submit a task work plan and cost estimate to perform remedial investigation-contaminant delineation phase activities at the above referenced site. Conduct these activities in accordance with State Contract No. N13003S.

**Investigation Goals:** The goals of this phase of work are to determine cover soil thickness and sample soil cover across the site, advance borings within the waste disposal area and sample for waste characterization, investigate landfill gas across the site, assess impacts to groundwater around the perimeter of the waste disposal area, sample adjacent surface water and sediment, and collect background soil samples.

### **Scope of work for Task Order 730DP-3:**

- Prepare a work plan in accordance with ATC's approved standard operating procedures dated May 30, 2013, and include a schedule of daily activities.
- Submit an itemized cost estimate that identifies personnel and materials involved.
- Reference the most recent Guidelines for Addressing Pre-Regulatory Landfills and Dumps for details regarding procedures.
- Ensure personnel in the field are qualified to identify contaminated material and landfill waste and comply with OSHA-required health and safety training.
- Before task activities begin, photograph areas or objects that may be disturbed. If needed, photograph affected areas and objects, restoration efforts, and noteworthy items encountered during task activities. Submit these photographs upon completion of the activities, and a review will determine if any need to be included in the report.
- Collect GPS coordinates along the waste disposal boundary. Report coordinates in decimal degrees to the seventh order using the North American Datum of 1983 (NAD83) format and latitude and longitude using WGS 84 format. These coordinates will be tabulated and included as an appendix.

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The tabulated coordinates for the landfill perimeter should start at the northernmost point of the perimeter and be listed in a clockwise progression around the perimeter.

- Include background (light grey) topographic contour lines on figures detailing the Site and Site vicinity.
- For any invasive activities, provide a plan to properly manage investigation derived waste (IDW). If sampling results indicate non-hazardous IDW, spread within the waste disposal area. If sampling results indicate hazardous IDW, analyze containerized waste as required by waste hauler and include details of sampling and disposal of drums in the proposal. Remove all drummed waste and associated fencing from site within 90 days after field activities are concluded.
- For any field work, minimize the clearing of vegetative material to enable access to proposed sampling points. Using hand tools for clearing is the preferred method, otherwise an explanation must be provided for use of heavy equipment.
- Submit samples to a North Carolina-certified laboratory and analyze for the following parameters by the most current U.S. EPA Contract Laboratory Program Target Compound List: volatile organic compounds by SW-846 method 8260, 1,4-dioxane by Method 8260SIM, semi-volatile organic compounds by SW-846 method 8270, 14 metals by SW-846 method 6020, mercury by method 7471, ammonia by SM 4500, and nitrate and sulfate by EPA Method 300. Please note that any alternate method should be the U.S. EPA Method having the lowest detection limit and that at least achieves the detections equivalent to the 15A NCAC 2L standards or where these are not available, then federal maximum contaminant limits (MCLs). Soil analysis methods must meet the IHSB Preliminary Soil Remediation Goals Table. Initial samples also need 10 Tentatively Identified Compounds (TICs).
- Note: once all contaminants are determined, laboratory analysis may be reduced to those positively identified contaminants.
- Upon completion of task activities, submit field notes, photographs, and validated analytical results for review.

#### Surface Water/Sediment Investigation:

- Collect both a surface water and sediment sample from the three locations designated on the attached map (SW/SED-1, SW/SED-2 & SW/SED-3).

#### Soil Cover Investigation:

- Advance seventeen direct push soil borings (SB-1 through SB-17) to determine thickness and composition of the existing cover soils. Advance borings in a 100-foot grid located as shown on the attached figure. Install the borings to a depth of 3 feet or waste if encountered first.
- Where cover is greater than or equal to 6 inches, collect a sample at 6 inches below ground surface (bgs). Where cover is greater than or equal to 2 feet, collect one sample at 6 inches and one sample at 18 inches bgs.

#### Waste Characterization

- Utilizing augers, extend soil cover investigation borings SB-2 through SB-5 in the locations within the waste boundary as indicated on the accompanying figure. Continuously log each boring and characterize the waste. Collect solid media samples from each boring at five foot intervals starting at the top of the waste or, using PID instruction, collect samples from the highest readings for analysis and identify the sampled interval(s). Collect one additional solid media sample from the base of waste and one from native soil beneath waste.

### Background Soil Sampling

- Advance four background soil borings (BG-1 through BG-4) as located on the attached figure. Advance the borings to a depth of ten feet below land surface (bls). Collect samples at 6 inches, 18 inches, 5 feet, 10 feet and 15 feet bls. Submit soil samples to a North Carolina-certified laboratory and analyze for 14 metals by SW-846 method 6020, mercury by method 7471, ammonia by SM 4500, and nitrate and sulfate by EPA Method 300.
- Review available published documentation to determine the naturally occurring concentrations that are commonly found in the region of the inorganics identified in the soil at the site.

### Landfill Gas Probe Installation and Screening

- Install two temporary landfill gas probes (GP-1 and GP-2) located as presented in the attached map to monitor subsurface landfill gas.
- If landfill gas probes cannot be constructed according to minimum requirements in the Guidelines, contact the Unit Project Manager and be prepared to conduct Flux Chamber installation and screening.
- Screen the landfill gas probes for volatile organic compounds (VOCs), methane, oxygen, carbon dioxide, barometric pressure and hydrogen sulfide.
- Screen new landfill gas probes at least 24 hours after installation.
- Compare landfill gas probe screening results with the IHSB Residential Vapor Intrusion Screening levels.
- Do not abandon the gas probes following screening. A review of the field testing results will determine subsequent sample collection.

### Groundwater Investigation:

- Advance four soil borings (TMW-1 through TMW-4) outside of the waste to groundwater at the locations indicated on the attached map. Install a 1-inch diameter temporary groundwater well (may use pre-packs if applicable) in each boring. If groundwater is not encountered or if waste is encountered in borings, contact the Unit immediately. Record details of each wells' construction, development and abandonment. Well installation must comply with the most current 15A NCAC 2C well construction standards.
- Log each boring in the field. Boring log information will include but is not limited to; top of ground elevation, detailed soil description and lithology at depths, depth of groundwater observed during drilling, notable reaction of drill rig during advancement, depth of competent rock encountered, detailed notes/remarks, and a well construction diagram.
- Determine ground water elevation for each well and collect water level measurements using all available groundwater wells.
- Collect one groundwater sample from each well to submit for laboratory analysis.
- Provide well construction details in a table and include installation date, top of casing elevation, ground surface elevation, total well depth, well screen interval, depth to groundwater, and groundwater elevation.

**Scope of Work for Task Order 730DP-4: Report Compilation**

Compilation of the report will be approved as a separate task order. The Report will be titled “Remedial Investigation – Media Sampling”.

The report is to contain the following items:

- Text, tables, and figures to adequately summarize task activities.
- A section concerning any variations from the work plan or your SOPs.

Provide the work plan and cost estimate by July 24, 2015. A task authorization to begin work will be issued based on the approved proposal. Do not proceed with tasks prior to receiving this authorization. If you have any questions or concerns, contact me at (919)707-8230.

Sincerely,

A handwritten signature in blue ink, appearing to read 'David P. Kwiatkowski', with a long horizontal flourish extending to the right.

David P. Kwiatkowski, L.G., Hydrogeologist  
Division of Waste Management - NCDENR