



May 17, 2004

Mr. Randall Ferguson  
State of Colorado  
Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, CO 80203

**Subject: Cost Estimate for Site Investigation and Reclamation Plan Development  
Koenig-Ashby #1 – Reclamation Project  
Logan County, Colorado**

Dear Mr. Ferguson,

URS is pleased to submit this estimate to the Colorado Oil and Gas Conservation Commission (COGCC) to complete a limited site investigation and reclamation plan for the Koenig-Ashby #1 site located in the Yenter Field in Logan County, Colorado.

The COGCC requested this investigation to evaluate the current soil conditions at the Koenig-Ashby#1 site and to develop a reclamation plan for returning the soils to a condition suitable for sustaining appropriate levels of plant growth.

URS is proposing to team with Dr. Lloyd Deuel to complete this project for the COGCC.

## **BACKGROUND**

URS understands that the Koenig-Ashby#1 reclamation project involves one general areas of impacted soil approximating a total of 5 acres.

The specific cause of impact to the soil at the Koenig-Ashby#1 project area is associated with the historic discharge of “brine-based” produced oil and gas waters. This discharge of produced water may have occurred over an extended period.

The Koenig-Ashby#1 site is located in Logan County Colorado in the southwest of the southeast quarter of Sections 34, Township 9 North, Range 54 West. The project area is primarily classified as rangeland and agricultural land.

Some preliminary investigation activities were conducted at the site by the COGCC in October 2003, including the collection of one soil sample from the down-gradient discharge area. The results of this sampling event indicate that the surface soils at the sampling location have a sodium absorption ratio (SAR) of 56, a pH of 8.88, and a specific conductance of 6,930 umhos/cm.

**URS**

## **SCOPE OF WORK**

The Scope of Work for this limited investigation is summarized below and is comprised of the following tasks:

- Task 1 – Project organization and planning
- Task 2 – Site investigation / sample collection
- Task 3 – Report and development of Reclamation Plan

The scope of each task is described below.

### **Task 1 – Project Organization and Planning**

This task consists of up-front project planning and coordination including discussions with the COGCC regarding the proposed investigation strategies and coordination of field activities. The primary purpose of this task will be to confirm the proposed investigation and sampling strategy outlined in this proposal. Part of this strategy will be to confirm the appropriate number of samples to collect and the appropriate laboratory analyses to perform.

During this task, URS will coordinate with a qualified soils testing laboratory (Energy Laboratories of College Station, Texas) to obtain appropriate sample containers and chain of custody forms.

It is assumed that site access will not be an issue with the landowner(s) and that the COGCC will coordinate access efforts as needed.

URS proposes to meet with the COGCC to discuss the specifics of the proposed investigation strategy prior to commencing any field activities.

A site-specific health and safety plan will be developed for the project.

### **Task 2 – Site Investigation / Sample Collection**

URS will visit the Koenig-Ashby#1 site to conduct visual observations, collect soil samples, and document existing conditions with a photographic log. URS is currently proposing to collect the following samples for a total of 10 samples from the entire site.

The Koenig-Ashby#1 site will be divided into two to three sampling areas based on visual observations and past analytical results of relative impact (least and most impacted). For each of the two to three identified areas, the following samples will be collected.

- One 5-point composite sample will be collected from 0" – 6" below ground surface (bgs) from each of the two impacted areas.
- One 5-point composite sample will be collected from 6" – 12" bgs from each of the two impacted areas.
- One discrete sample will be collected from 12" – 24" bgs from each of the two impacted areas. This sample will be collected and held for analysis pending the results of the 0" – 6" and 6" – 12" sample results.

URS will also collect one background sample representative of the general area for the Koenig-Ashby#1 location.

The samples will be collected using standard, decontaminated and/or disposable field equipment and sample containers. The samples will be sealed and shipped to Energy Laboratories of College Station, Texas under appropriate chain-of-custody procedures. Laboratory analyses for each sample will be completed under standard turn-around times and will include the following as per USDA Agriculture Handbook 60:

1. Cation Exchange Capacity (CEC) using analytical method 19
2. Exchangeable Sodium Potential (ESP) using analytical method 20
3. pH using analytical method 21A
4. Saturated paste moisture using method 3A
5. Electrical conductivity using method 4B

The above suite of analyses will be conducted at a reduced rate of \$75.00 per sample.

It is anticipated that the sample collection process will take a maximum of one extended field day, including travel. Should this effort take less time, the COGCC will only be billed for the actual number of hours needed to complete the sampling effort.

A formal work plan will not be developed for this project, however URS will follow and document appropriate field practices.

### **Task 3 – Report and Reclamation Plan**

URS will complete a brief letter report outlining the procedures and findings of the site investigation / sampling effort. The report will include a brief write-up of the project activities, a summary of the analytical results, a site sketch, and a photographic log.

The information collected and analysed from the site investigation will be used to develop a site-specific reclamation plan for the project area. The plan will be designed to reclaim the soils at the site to a condition suitable for sustaining appropriate levels of plant growth.

The specific content of the plan will not be known until the limited site investigation is completed, however, the plan will most likely include the following type of information / recommendations:

- Type and rate of soil amendments
- Soil tilling and preparation activities
- Soil sampling activities
- Seed mixtures
- Estimated costs to implement the reclamation plan
- Schedules

### **ESTIMATED COSTS**

Estimated costs to complete this limited site investigation and reclamation plan are \$8,300. A detailed cost breakout is provided on the attached spreadsheet. The work will be conducted on a time and materials basis not to exceed \$8,300 without permission from the COGCC.

Project costs could potentially be reduced if the field efforts on this project were combined with other field activities being conducted on behalf of COGCC in the same general area of the State.

### **SCHEDULE**

The Task 1 planning activities will commence immediately upon approval of this proposal. The Task 2 limited site investigation activities will proceed as soon as possible after coordination with COGCC. It is anticipated that the fieldwork will start within two to three weeks of project approval. A draft letter report and the proposed reclamation plan will be submitted to the COGCC for review approximately two weeks after receipt of laboratory results. These documents will be finalized after review by COGCC.

If our proposal is acceptable, please provide us with your standard approval authorizing the work. We appreciate the opportunity to assist you on this project.

Sincerely,

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Stuart Francone, CES  
Regional Director, Oil and Gas Services

Attachment

**URS**



