

Reclamation Plan for Geotechnical Drilling Investigation Gateway West Transmission Line Project

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1.0 INTRODUCTION

The overall Gateway West Transmission Line Project (Project) consists of the construction, operation, and maintenance of high voltage, above ground, alternating current power lines, to the service areas of Idaho Power Company and Rocky Mountain Power (Companies). The project consists of transmission lines that will run between eleven existing, proposed, or expanded substations. The Project crosses private land and public lands administered by the Bureau of Land Management (BLM), US Forest Service (USFS), Bureau of Reclamation (BOR) and the states of Idaho and Wyoming.

The Companies are proposing to conduct geotechnical site investigation at 76 locations in 2011 in addition to the 124 borings completed in 2010. These investigations, laboratory testing and engineering analyses will be completed to determine the engineering properties of the soil and bedrock, and will be used to design the foundations for the transmission line towers and associated equipment. Since the transmission line will primarily use four-legged lattice steel towers, the geotechnical data will be used to determine the appropriate depth requirements for the pier foundations at each leg.

Drilling will be conducted using truck or track-mounted drill rigs on public and private lands. The drilling proposed for 2011 includes 27 drill sites on public land managed by the Wyoming BLM, one site on the Medicine Bow National Forest, and one site on BOR lands.

1.1 Reclamation Plan Purpose

This reclamation plan is specific to activities related to geotechnical drilling investigations only on BLM managed lands. The Project has a reclamation plan in place for activities related to construction of the transmission line structure. The focus of this plan is to monitor and document recovery of areas that have been temporarily disturbed by drilling activities. This reclamation plan is intended to meet the reclamation requirements specified in BLM Instruction Memorandum (IM) No. WY-2009-022. Many of the elements of this plan are included as Environmental Protection Measures in the Geotechnical Drilling Revised Plan of Development (WYW175498-01).

1.2 Reclamation Goal

The primary goal of conducting reclamation activities is to restore temporarily disturbed areas to pre-drilling conditions, to the extent practicable. The goal of this plan is to provide a structure for implementing the reclamation process.

Measures to achieve the reclamation goal include:

- Utilizing applicable Best Management Practices (BMPs) which would minimize surface disturbance and erosion and facilitate plant re-establishment (see Section 2.2).
- Site observation within one growing season following drilling to document the establishment of native vegetation (see Section 3.1).
- Develop and implement a site specific action plan in the event observations indicate lack of suitable progress towards achieving pre-drilling conditions (see Section 3.2).

2.0 NATURE AND EXTENT OF DISTURBANCE

Geotechnical site investigations will consist of drilling deep borings from which soil and/or bedrock samples will be taken for laboratory testing and analysis. The borings will typically be 40 feet in depth or deeper where soils with weaker strength properties are encountered. Similarly, depths could be less where bedrock is encountered. The drilling equipment needed to perform the drilling and sampling activities will include a truck mounted, track mounted or all terrain drill rig, water truck, 4WD support vehicle including an air compressor, and a 4WD vehicle for the field engineer. The type of rig used will depend on accessibility of boring locations, and practicality of using continuous flight hollow-stem auger, mud rotary, or ODEX drilling techniques to advance the borings. Possible types of drilling equipment are listed below:

- Conventional two-ton or larger truck with a drill rig mounted on the chassis.
- A 30,000 pound gross vehicle weight 6-wheeled truck, about 30 feet long, with or without 4 wheel drive capabilities.
- All-terrain vehicle consisting of a similar drilling rig mounted on a lighter framed, shorter vehicle equipped with oversized low-pressure tires. Tracked mounted drilling rigs place varying sizes of drilling machinery on a tracked vehicle with low (about 10 psi) ground pressure.

The borings themselves will be approximately 6 to 8 inches in diameter and they will be advanced with continuous flight hollow-stem auger, mud rotary, or ODEX drilling techniques. Where bedrock is encountered, standard rock coring techniques will be used. Samples will be collected by driving a sampling device into the undisturbed soils just below the augers. Where necessary, rock core samples will also be taken using a rock coring barrel. Upon completion and before leaving each site, the soil boring will be backfilled with the cuttings removed from it during drilling or the hole covered securely. No open holes will be left unattended, and all holes will be fully backfilled before moving to the next boring.

In addition to the drilling rig, typically there will be an auxiliary four wheel drive pickup truck to haul water if needed for drilling and/or rock coring, haul extra drilling supplies, and to transport personnel. A third four wheel drive vehicle may be used by the geotechnical engineer overseeing the drilling program and logging the borings.

In the event high groundwater conditions are found during boring, particularly if they are artesian conditions, vibrating well piezometers would be installed and revisited periodically to collect groundwater depth readings throughout the year, to better understand the fluctuation of the groundwater and the challenges that could pose to foundations for the transmission line. Boring locations having these conditions are presently unknown and would be identified in the field.

Equipment required to monitor groundwater pressure would consist of a vibrating wire (VW) piezometer. It consists of a vibrating wire pressure transducer and signal cables and would be installed in a fully grouted bore hole using bentonite cement slurry. The signal cables would protrude above the ground surface 2 to 5 feet. Cables would be coiled at the soil surface and secured to survey lathe. Depending on site conditions more than one VW piezometer may be installed. Disturbance would be minimal as the VW piezometer is placed in the existing bore hole. Only the survey lathe and cables will be visible at the soil surface.

Monitoring installed piezometers would require site visits once per month for up to two years, and would consist of connecting a data logger to the VW piezometer cables to take readings. At the end of the monitoring program the lathe would be removed, signal cables would be cut below grade, piezometer wires would be abandoned in the hole, and bentonite would be used to fill any visible holes at the surface.

At each boring location a work area of approximately 30 feet by 30 feet will be required where a portion of the vegetation may be temporarily impacted by vehicular and pedestrian travel. The actual ground disturbance where bare soil will be exposed will be contained approximately within a 3-foot diameter circle.



Typical site disturbance following geotechnical drilling.

2.1 Site Characterization

Site disturbance is limited in extent and drill sites are often located in a road right-of-way or on lands previously disturbed by existing transmission line maintenance or other land uses. Site characterization will consist of photographs taken in each of the four cardinal directions before drilling activities. More detailed site characterization will occur at bore holes that are not progressing toward pre-drilling conditions (see Section 3.0).

2.2 Surface Disturbing Activities

Surface disturbing activities will include driving to the drill site, drilling, backfilling the bore hole, and driving to the site for subsequent monitoring of: 1) vibrating well piezometers (if installed) and 2) reclamation success. The Companies have implemented a number of BMPs designed to reduce surface disturbance resulting from these investigations, they are:

- The driller will attempt to minimize the temporary plant damage by driving around thick pockets of vegetation. The driller will also avoid driving over drainage bottoms, surface water, steep slopes, prairie dog towns and other sensitive areas.
- No access will be made through wetlands or other wetted areas.
- Drilling vehicles traveling overland routes will off-set their travel so as not to create a two-track road.
- Truck traffic will not occur when wet conditions would result in wheel rutting greater than 2 inches in depth.
- Vehicles with low ground pressure, such as rubber tracked equipment or balloon tires would be used in areas or conditions where rutting, soils displacement, or compaction could occur.
- To minimize disturbance, existing roads will be utilized as access points to the drill sites. In the case of drill sites located near existing roads, these sites will be no more than 100

feet off the road surface, just far enough that traffic is not impeded and drilling site workers are safe from traffic and disturbance is minimized.

- All vehicles will travel on existing roads, with the exception of minor off-road traverses (less than 1.0 mile) to access drill site locations.

The potential for surface disturbance will be greatly reduced by BMPs; however, some areas will be disturbed in addition to the 3-foot diameter circle resulting from drilling. These areas will also be inspected during post-drilling observation to document reclamation success (see Section 3.0).

2.3 Noxious and Invasive Weed Control

The Companies will implement BMPs to eliminate or minimize the introduction and spread of noxious weeds and invasive species during drilling. These include:

- Contractors will avoid driving, drilling, or parking in weedy areas.
- Drill rigs and transport vehicles will be power washed weekly or when moving from one BLM weed management area to another. An air compressor will accompany the drill rig and used daily to remove weed parts and seed from all vehicles.

The potential exists for noxious or invasive weeds to become established following drilling, despite implementation of BMPs. Post-drilling observations will identify areas where noxious weeds have established and recommend treatment as part of the monitoring report (see Section 3.0).

3.0 POST-CONSTRUCTION MONITORING and REPORTING

The Companies will conduct post-drilling surveys within one-growing season following drilling activities. Surveys will assess the effectiveness of natural vegetation recruitment and document the presence or absence of noxious or invasive weeds. A site specific action plan will be developed and implemented if a drilling area:

- Shows signs of significant surface erosion;
- Shows signs of noxious or invasive establishment; and
- Fails to show establishment of native species from the surrounding community.

3.1 Monitoring Activities

Monitoring will occur on BLM managed lands and occur within one growing season following drilling activities. Specifically, botanists would visit each drilling location and collect a GPS point following BLM geospatial data collection protocol (IM: WY-2009-022; attachment 3). Observations will be recorded for:

- Signs of surface erosion (e.g., pedestalling of plants, rills, debris deposits);
- Signs of noxious or invasive weed establishment; and
- Condition of native vegetation establishment (including genus and species).

Observations will occur once for each drilling site unless the site is not progressing toward pre-drilling conditions. In this instance, the Companies will develop a site specific action plan that

may include seeding or noxious weed control, and subsequent monitoring. Observation of post-drilling site recovery on private lands will be up to the landowner and agreements they negotiate with the Companies.

3.2 Reporting

The Companies will document site conditions with pre-drilling photographs, post-drilling photographs, and follow-up observations on BLM managed lands in a letter report. The report would be prepared for submittal to federal entities that administer public lands in the Project area. The report will provide a summary of observations, and include recommendations for additional corrective actions, if necessary.