11 Sample Preparation, Analyses and Security
(Item 15)

Section 11 is extracted in-part from Powertech's Technical Report titled "Updated Technical Report on the Centennial Uranium Project, Weld County, Colorado", dated February 25, 2010. Changes to standardizations, sub-titles, and organization have been made to suit the format of this Technical Report. SRK comments and opinions, where present, contain "SRK" in the pertinent sentences and paragraphs.

11.1 Sample Preparation and Assaying Methods

11.1.1 Core Samples

Analyses of recent core samples are included in this updated report. The down-hole electric log was used in conjunction with the geologist's log of the core to select intervals for testing. Six-inch intervals of whole core (3in diameter) were selected for physical parameter testing (permeability, porosity, density). Mineralized sands selected for chemical analyses were cut into 0.5ft intervals and then split in half. One of the splits was used for chemical analyses and the other split was set aside for metallurgical testing. This sample identification and selection process was performed by Powertech geological staff. Chain-of-custody (COC) sample tags were filled out for each sample and samples were packed into ice chests for transportation to the analytical laboratories.

Samples were sent to ELI's Casper, WY facility for analyses. Upon receipt at the laboratory, the COC forms were completed and maintained, with the lab staff taking responsibility for the samples. The first step in the sample preparation process involved drying and crushing the selected samples. This pulp is then subject to an EPA 3050 strong acid extraction technique. Digestion fluids are then run through an Inductively Coupled Argon Plasma Emission Spectrometer (ICPMS) according to strict EPA analytical procedures. Multi-element chemical analyses included values for uranium (chemical), vanadium, selenium, molybdenum, iron, calcium and organic carbon. This "rock chemistry" provides valuable information for the design of ISR well field operations.

11.1.2 Testing Laboratories

ELI is a certified through the National Environmental Laboratory Accreditation Program (NELAP). NELAP establishes and promotes mutually acceptable performance standards for the operation of environmental laboratories. The standards address analytical testing, with state and federal agencies serve as accrediting authorities with coordination facilitated by the EPA to assure uniformity. Maintaining high quality control measures is a prerequisite for obtaining NWLAP certification. As an example, nearly 30% of the individual samples run through ICPMS are control or blank samples to assure accurate analyses. In the author's opinion, ELI has demonstrated professional and consistent procedures in the areas of sample preparation and sample security, resulting in reliable analytical results.

11.1.3 Gamma Logging (SRK)

The basic analysis that supports the uranium grade reported in most uranium deposits is the down-hole gamma log created by the down-hole radiometric probe. That data is gathered as digital data on approximately 1.0in intervals as the radiometric probe is inserted or extracted from a drillhole and typically reported as fractional-foot digital counts per second (CPS) data.

The down-hole radiometric probe measures total gamma radiation from all natural sources, including potassium (K) and thorium (Th) in addition to uranium (U) from uranium-bearing minerals. In most uranium deposits, K and Th provide a minimal component to the total radioactivity, measured by the instrument as counts per second (CPS). At the Centennial Project, the uranium content is high enough that the component of natural radiation that is contributed by K from feldspars in sandstone and minor Th minerals is expected to be negligible. The conversion of CPS to equivalent uranium concentrations is therefore considered a reasonable representation of the in-situ uranium grade. Thus, determined equivalent uranium analyses are typically expressed as ppm eU_3O_8 ("e" for equivalent) and should not be confused with U_3O_8 determination by standard X-Ray Fluorescence (XRF) or ICP analytical procedures (commonly referred to as chemical uranium determinations). Radiometric probing (gamma logs) and the conversion to eU_3O_8 data have been industry-standard practices used for in-situ uranium determinations since the 1960s. The conversion process can involve one or more data corrections; therefore, the process is described here.

The typical gamma probe is about 2in in diameter and about 3ft in length. The probe has a standard sodium iodide (NaI) crystal that is common to both hand-held and down-hole gamma scintillation counters. The logging system consists of the winch mechanism, which controls the movement of the probe in and out of the hole, and the digital data collection device, which interfaces with a portable computer and collects the radiometric data as CPS at defined intervals in the hole.

Raw data is typically plotted utilizing geophysical logging software to provide a graphic down-hole plot of CPS. The CPS radiometric data may need corrections prior to conversion to eU_3O_8 data. Those corrections account for water in the hole (water factor) which depresses the gamma response, the instrumentation lag time in counting (dead time factor), and corrections for reduced signatures when the readings are taken inside casing (casing factor). The water factor and casing factor account for the reduction in CPS that the probe reads while in water or inside casing, as the probes are typically calibrated for use in air-filled drillholes without casing. Water factor and casing factor corrections are made where necessary; Powertech logged primarily in mud filled drillholes.

Conversion of CPS to %-eU_3O_8 is done by calibration of the probe against a source of known uranium (and thorium) concentration. This was done for the Powertech gamma probe initially at the U.S. Department of Energy (DOE) uranium test pits in George West, Texas. Throughout Powertech's field projects the probe was then regularly calibrated at the DOE uranium test pits in Casper, Wyoming. The calibration calculation results in a "K-factor" (K) specific to the probe. The following can be stated for thick (+60cm) radiometric sources detected by the gamma probe:

$$10{,}000\text{CPS} \times K = \%eU_3O_8$$

The total CPS at the Centennial Uranium Project is dominantly from uraninite/pitchblende uranium mineralization therefore, the conversion K factor is used to estimate uranium grade, as potassium and thorium are not relevant in this geological environment. The calibration constants are only applicable to source widths in excess of 2.0ft. When the calibration constant is applied to source widths of less than 2.0ft, widths of mineralization will be over-stated and radiometric determined grades will be understated.

The industry standard approach to estimating grade for a graphical plot is shown in Figure 11-1, and is referred to as the half-amplitude method.

The half-amplitude method follows the formula:

$GT = K \times A$;

where GT is the grade-thickness product,

K is the probe calibration constant, and

A is the area under the curve (ft-CPS units).

The area under the curve is estimated by the summation of the 1.0in (grade-thickness) intervals between E1 and E2 plus the tail factor adjustment to the CPS reading of E1 and E2, according to the following formula:

$A = [\ \sum N + (1.38 \times (E1 + E2))]$;

where A is the area under the curve,

N is the CPS per unit of thickness, here 1.0in, and

E1 and E2 are the half-amplitude picks on the curve.

This process is used in reverse for known grade to determine the K factor constant.

The procedure used at the Centennial Project is to convert CPS per anomalous interval by means of the half-amplitude method; this results in an intercept thickness and eU_3O_8 grade. This process can be done in a spreadsheet with digital data, or by making picks off the analog plot of the graphical curve plot of down-hole CPS.

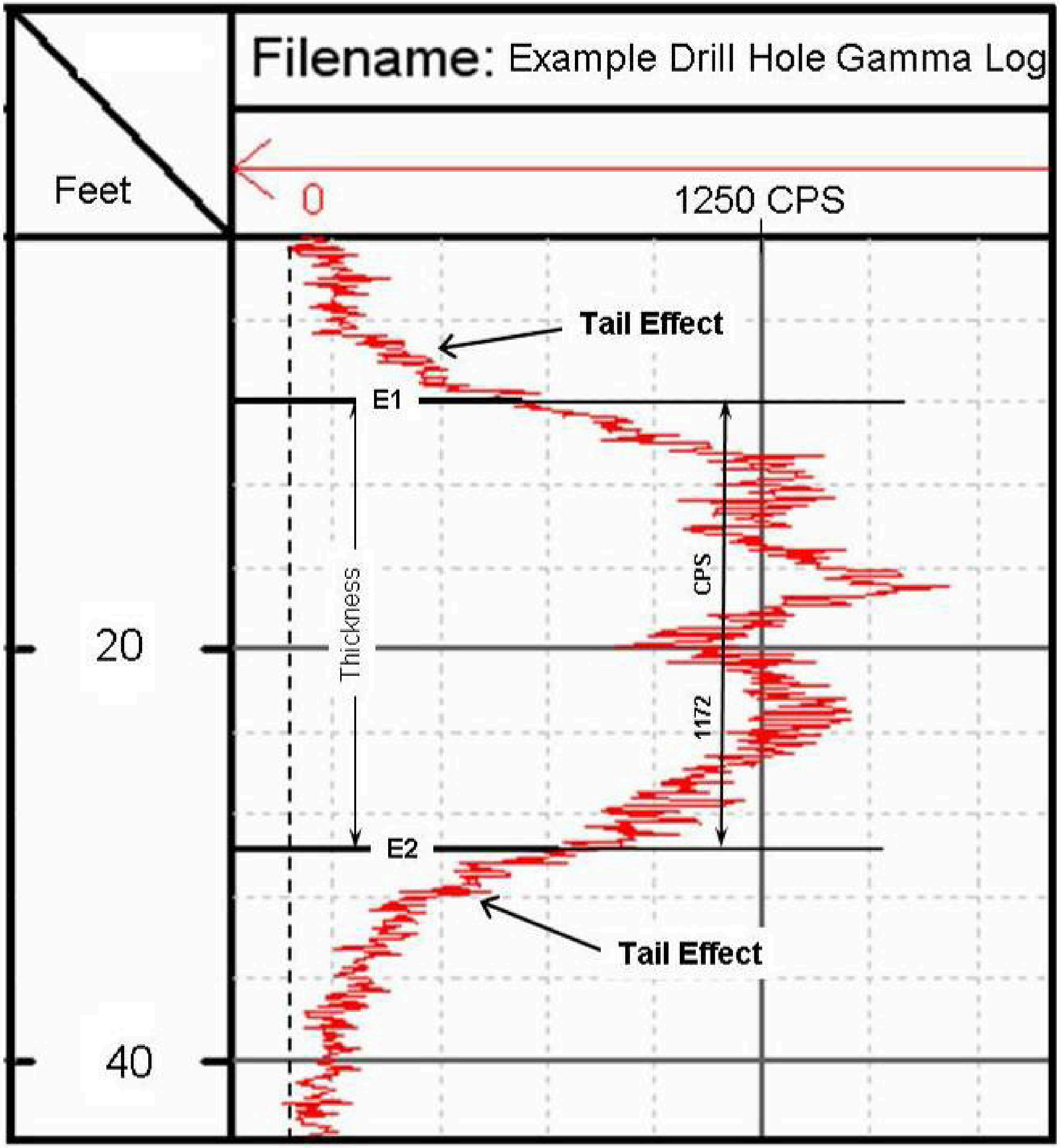
11.2 Quality Controls and Quality Assurance

Geophysical logging during confirmatory drilling programs at the Centennial Project utilized multiple geophysical logging trucks. Century Geophysical provided initial logging services, and later logging was completed by a Powertech owned unit. No discrepancies were seen in results between either service provider. Historical logs, and those completed by Powertech during confirmatory drilling were interpreted on 0.5ft intervals following standard industry practice.

No drillholes completed by Powertech were truly co-located with historical drillholes, however, several drilled within 10ft of historical drillholes displayed similar results for eU_3O_8.

11.3 Conclusion

SRK concludes that Powertech's sample preparation, methods of analysis, and sample and data security are acceptable industry standard procedures, and are applicable to the uranium deposits at the Centennial Project.



SRK Consulting Engineers and Scientists	Centennial Project, Weld County, Colorado	**Example Gamma Log – Half-Amplitude Method**
SRK Project No.: 194300.020	**Source: Powertech (USA), Inc.**	
File Name: Figure_11-1.docx		Date: 20100503 / Approved: AM / **Figure: 11-1**