# NI 43-101 Preliminary Assessment **Powertech Uranium Corp. Centennial Uranium Project** Weld County, Colorado

## **Prepared for:**

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## Appendix A

Certificate of Author

## Summary (Item 3)

The Centennial Project is an advanced-stage uranium exploration project located in northern Colorado, controlled 100% by Powertech Uranium Corp. (Powertech). Powertech conducted confirmatory drilling to verify the results of extensive historical drilling, established current Indicated and Inferred classified resources, and conducted hydrogeologic tests to evaluate the project as an in situ recovery (ISR) mining and uranium production operation. Powertech conceptually designed well fields and a uranium recovery processing facility, and developed cost estimates for a proposed ISR operation that would be similar to existing uranium ISR operations currently in production in Nebraska and Wyoming. Lyntek, Inc. (Lyntek) reviewed and confirmed these designs and cost estimates in the preparation of this report.

SRK reviewed and compiled all project information into this Preliminary Assessment NI 43-101 technical report document.

The uranium mineralization of the Centennial Project is comprised of "roll-front" type uranium mineralization hosted in sandstone stratigraphic horizons of the Fox Hills formation that is amenable to ISR technology. Several deposits are located along the reduction-oxidation boundary that trends generally north-south. The combined Centennial deposits contain Indicated resources totaling 6.87 million tons @ 0.09% eU<sub>3</sub>O<sub>8</sub> for 10.4 million contained pounds U<sub>3</sub>O<sub>8</sub>, and an additional Inferred resource of 1.36 million tons @ 0.09% eU<sub>3</sub>O<sub>8</sub> for 2.3 million contained pounds U<sub>3</sub>O<sub>8</sub>, at a 0.2GT (grade-thickness product) cut-off.

The proposed ISR project envisions a 700,000 pounds per year U<sub>3</sub>O<sub>8</sub> production rate and a 75% ultimate recovery; generating a 14 year mine life. The base case economic analysis results indicate a pre-tax Net Present Value (NPV) of US dollars (USD) 51.8million at an 8% discount rate with an Internal Rate of Return (IRR) of 18%. Phase I (initial) capital costs are estimated at USD71.1million and Life of Mine operating unit costs of USD34.95/lb U<sub>3</sub>O<sub>8</sub>. The Centennial Uranium ISR project is sufficiently attractive from a technical and economic perspective that it justifies further work by Powertech toward completion of project permitting, and further definition of hydrogeological characteristics that would allow for ISR production parameters.

## **Property Description and Location**

The Centennial Project is located in west central Weld County, in north central Colorado; about 13 miles south of the Colorado-Wyoming state line. Property access includes major U.S. Highways and numerous state and county roads that follow land subdivision lines. Interstate Highway 25 between Denver, Colorado and Cheyenne, Wyoming is approximately 4 miles west of the project. The project lies within portions of Townships 8, 9 and 10 North, Range 67 West, approximately 14 miles northeast of the city of Fort Collins and 16 miles northwest of Greeley.

## **Ownership**

Originally, the Centennial Project consisted of private mineral rights totaling 6,880 acres. This total included 5,760 acres (nine sections) of mineral rights purchased by Powertech from Anadarko. The Anadarko mineral rights were originally part of the Union Pacific Railroad land grant, which was comprised of alternate sections (checkerboard pattern) for 20 miles on both sides of the railroad right-of-way. Anadarko retained mineral rights pertaining to oil and gas and leasable minerals.

Powertech's land position has steadily increased. In July 2009, Powertech entered into two option agreements for the purchase of an aggregate of 3,585 acres of land, together with the associated water, mineral and lease interests. Powertech entered into an option agreement with M.J. Diehl & Sons, Inc. and Howard Diehl and Donna Diehl (collectively, Diehl) to purchase approximately 2,160 acres of land. Pursuant to the option agreement, the Company has 24 months to exercise the option. During the term of the option, the Company is permitted to access the property for the purposes of pumping, testing, monitoring and sampling water. An option agreement was also established with Thomas Varra and Dianna Varra (collectively, Varra) for the purchase of approximately 1,425 acres of land. The option agreement is for a term of 12 months but can be extended for two 12-month periods. Powertech's gross mineral rights in the area include 9,615 acres, while its surface use acreage increased to 7,262 acres. The addition of the surface use acreage provides Powertech access to its privately owned minerals, as well as enabling it to conduct drilling, pump testing, mine planning, and support operational facility design.

## **Geology and Mineralization**

The uranium deposits in the Centennial Project are classic roll front type deposits occurring in subsurface sandstones deposited in shallow marine regressive and transgressive sequences within the Fox Hills Formation of late-Cretaceous age. The uranium roll fronts in the Centennial area are associated with oxidation/reduction interfaces and are known to cover a linear distance of at least 30 miles, extending throughout an area of more than 50 square miles. Maps prepared by a prior property owner, Rocky Mountain Energy Company (RME) from 1978 until 1984, indicate the regional oxidation occurs in three separate sands within the Fox Hills Formation and that potentially economic concentrations of uranium occur in seven distinct deposits within the Project along the oxidation/reduction boundary. Historical exploration drilling by RME defined the deposits that comprise the Centennial Project, and Powertech performed confirmatory drilling to verify the mineralization.

## **Exploration**

Historical exploration by RME provides Powertech with a project database including data from 3,500 drillholes. The exploration drillhole data obtained consists of the original electric down hole probe log of each hole. Samples of the cuttings from each hole were collected at 5-foot intervals and the geologic description of the cuttings was recorded on lithologic logs by the project geologist. Numerous cores were taken and chemically assayed from the mineralized zones to substantiate the radiometric values determined by the electric log. RME also logged nearly 800 holes with Princeton Gamma Tech (PGT) instrumentation that conducted spectrometric down hole measurements of protactinium. Protactinium is an early radiometric decay product of uranium and historically it was determined that the presence of protactinium, due to its short half-life, can be directly related to the quantity of uranium present within the subsurface. RME drilled another 12 holes to depths of 250-400 feet on the northern portion of the project that were also probed using a PGT down hole tool. These data are also included with the Powertech database received from Anadarko. Numerous historical reports define uranium "reserves" (resources by current standards).

From August 2007 to October 2007 and from August 2008 to September 2008, Powertech completed three drilling programs, totaling 41 drillholes and 14,931 feet of drilling on the

Centennial Project. The depths of these holes ranged from 103 to 900 feet-below-surface. Geological and geophysical information was collected from all drillholes. There were 18 holes completed as water wells, 15 as rotary drillholes, and 8 as core holes.

During 2009, Powertech drilled 16 water wells and 2 additional core holes on the project for a total of 8,677 feet of drilling. These water wells are for the purpose of conducting an aquifer test to investigate the characteristics of the aquifer and the quality of groundwater in the vicinity of Powertech's initial ISR well field. As of the effective date of this report, the aquifer test has not yet been conducted.

Powertech used the historical data and Powertech drilling data to estimate resources for the Centennial Project compliant with CIM definitions sufficient for NI 43-101 reporting. Powertech first reported resources for the Centennial Project in March 2007, with a second revision in June 2009. The most recent revision of the resources was completed in an updated 43-101 technical report dated February 25, 2010 and stated in this report. The Powertech resource estimate was completed by an independent consultant, Cary Voss, and audited by SRK. The resources reported by Powertech are shown in Table ES.1 and further described in Section 15 of this report.

**Table ES.1: 2010 Centennial Resources – 0.20 GT Cut-off (Voss 2010)** 

Classification	Tons	Average Grade (eU <sub>3</sub> O <sub>8</sub> )	Pounds (U <sub>3</sub> O <sub>8</sub> )
Indicated Resources	6,873,199	0.09%	10,371,571
Inferred Resources	1,364,703	0.09%	2,325,514

## **Proposed Development and Operations**

The Centennial mineralization is located at depths of 100 to 500 feet below surface, as primarily three separate mineralized horizons, which are sinuous and narrow but extend for several miles along trend. The deposits are planned for ISR mining by development of individual well fields for each mineralized horizon. A well field will be developed as a series of injection and recovery wells, with a pattern to fit the mineralized horizon, typically a five-spot well pattern on 70 to 100 foot (ft) drillhole spacing depending on local hydrogeologic character.

The Centennial Project has two sections, the Northern project area and the Southern project area, both of which will be developed for ISR mining. The Northern deposits are located below the water table in the host formations with conditions favorable for ISR methods. Much of the mineralization in the Southern project area lies at or just above the water table, which will require a localized enhancement of the water table with a well field encircling freshwater injection fence to facilitate ISR mining methods.

A Central Processing Plant (CPP) will be constructed in the Northern project area, and a satellite facility (SF) in the Southern project area. The SF will only contain ion exchange vessels for resin loading, and the loaded resin will be hauled by truck to the CPP. The central uranium recovery and processing plant is planned to produce uranium as "yellowcake".

Total recovery of uranium from the mineral deposits is projected at 75%. This value is an estimate based on similar existing operations in Powertech's experience profile. Leaching studies were conducted in a lab setting to support this estimate of recovery. Therefore, the overall potential yellowcake production is estimated to be 9.52 million pounds U<sub>3</sub>O<sub>8</sub>. Considering the

well field development and production schedule, the life of mine, at a production rate of 700,000 pounds per year  $U_3O_8$  is 14 years.

The Centennial area is well positioned for technical and support services from nearby towns and infrastructure. Major highways and a railroad line are located a few miles west of the property, and a power sub-station of the Colorado power grid is located a few miles east of the project at the community of Nunn.

## **Preliminary Assessment**

Powertech technical and management staff have prior experience with ISR uranium mine development and operations. Therefore, Powertech developed much of the preliminary well field design and cost estimates in-house, with vendor quotes as support in many instances. Lyntek provided independent preliminary engineering design support for the surface uranium recovery and processing facilities, and is a major contributor to the estimate of project costs for Centennial.

SRK completed a preliminary economic analysis for the Project. The base case economic analysis results indicate a pre-tax NPV of USD 51.8million at an 8% discount rate with an IRR of 18%. The economics are based on a USD65/lb U<sub>3</sub>O<sub>8</sub> long-term uranium price and a design production rate of 700,000lbs U<sub>3</sub>O<sub>8</sub>/yr. Total capital costs are estimated at USD129.3million comprised of initial capital costs of USD71.1million, and ongoing capital costs over the LoM of USD58.2million.

**Table ES.2: Technical Economic Results (\$000s)** 

	units	Value
Net Revenue		
U <sub>3</sub> O <sub>8</sub> Price (\$/lb)	$I_{\rm O}$	\$65.00
Prod.	klbs	9,523
Gross Revenu	e \$000s	618,983
Transportation	\$000s	(1,428)
Severance Tax	\$000s	(4,928)
Surface Royalty	\$000s	(12,380)
Mineral Royalty	\$000s	(30,949)
Property Tax	\$000s	(4,974)
Net Revenu	e \$000s	564,324
<b>Production Costs</b>		
Central Processing Plant	\$000s	61,919
Satellite/Well Field	\$000s	135,862
Restoration	\$000s	9,404
Decommissioning	\$000s	4,466
G&A Labor	\$000s	14,311
Corporate Overhead	\$000s	5,600
Contingency	\$000s	46,598
Production Cost	s \$000s	278,160
Gross Margin	n \$000s	286,164
Project Capital (Equity)	\$000s	(129,286)
Income Tax	\$000s	0
Free Cash Flow	v \$000s	156,878
IRI	R -	18%
Present Valu	e -	51,774

This Preliminary Assessment presents a study of the potential ISR minability of the project, utilizing industry standard criteria for Scoping Level studies, which is normally at  $\pm 35$  to 40% on costing estimates. In many cases, the cost estimates provided by Powertech are defined to a prefeasibility level, with vendor quote backup; as a result, contingency costs for the base case are set at 20%.

## **Conclusions and Recommendations**

SRK concludes the Centennial Project is a sufficiently drill-defined sandstone-hosted roll front uranium deposit to support the approximately 12.7 million pounds of in-situ uranium resource stated by Powertech and confirmed by SRK. Historical and current drilling information support the resource estimation defining several deposits of uranium mineralization on private surface and mineral lands at the Centennial Project. Continued work is justified by Powertech towards the goal of defining the potential ISR uranium recovery and production operation. Most of the basic information necessary to evaluate the conceptual development of the resources by ISR methods has been addressed at a scoping study level to assess the project's potential economic viability. SRK recommends that Powertech's 2010 aquifer testing program be completed, and the data be evaluated to better define the hydrogeologic characteristics, to progress the evaluation of the Centennial Project for ISR development.

Powertech's plan is to fully permit the Centennial Project for operations and upon receiving all permits to proceed, delineate the initial well fields, conduct detailed hydrogeologic studies of the initial well fields and aquifer enhancement in the Southern project area, and construct the processing facilities. Upon review of the detailed site-specific well field data, including additional resource definition and hydrogeologic data, Powertech plans to design, construct, and operate their well fields. SRK recommends that Powertech continue the ongoing process of project permitting and hydrogeologic data collection, advancing towards project development and production.

To achieve initial well field construction, Powertech will require capital expenditures of USD71.1million over a 1-year period (initial project capital), as a recommended Phase I program and budget. A Phase II program and budget will be the annual capital and operating costs required to operate the project for the life-of-mine, net of revenue, which is variable from year to year – the project will be self-funding after Year 1.

## 1 Introduction (Item 4)

## 1.1 Terms of Reference and Purpose of the Report

Powertech (USA) Inc, a wholly owned subsidiary of Powertech Uranium Corp. (Powertech), commissioned SRK Consulting (U.S.), Inc. (SRK) to prepare a Canadian National Instrument 43-101 (NI 43-101) format Preliminary Assessment for the Centennial Uranium Project in Weld County, Colorado. Powertech has a corporate address of 5575 DTC Parkway, Suite 140, Greenwood Village Colorado, telephone 303-790-7528, and Centennial Project field offices in Fort Collins Colorado. Powertech is a publicly traded company listed on the Toronto Stock Exchange (TSX) under the symbol "PWE"; and has Canadian corporate offices at Suite 3023, Three Bentall Centre, 595 Burrard Street, PO Box 49212, Vancouver, BC V7X 1K8, telephone: 604-685-9181.

The Centennial Project is an advanced-stage exploration project with established uranium resources, and project conceptual designs for in situ recovery (ISR) of uranium. Powertech controls 9,615 acres of fee mineral ownership and 7,262 acres of surface ownership which covers the project areas of uranium mineralization

This document provides a Preliminary Assessment Technical Report, including a SRK audit of Powertech's resource estimate, and scoping study level design criteria for ISR uranium production, and is prepared according to NI 43-101 guidelines. Form NI 43-101F1 was used as the format for this report. The intent of this Technical Report is to provide the reader with a brief review of the historical and current exploration activities conducted at the Centennial Project, an independent audit of Powertech's resources, and a discussion of the elements of the scoping study conceptual design, including a preliminary assessment of the projects potential economic viability.

Uranium resource estimates were completed by "Qualified Person" Cary Voss for the Centennial Project and further described in a Powertech NI 43-101 Technical Report on resources dated February 25, 2010.

This report is prepared using the industry accepted Canadian Institute of Mining, Metallurgy and Petroleum (CIM) "Best Practices and Reporting Guidelines" for disclosing mineral exploration information, the Canadian Securities Administrators revised regulations in NI 43-101 (Standards of Disclosure For Mineral Projects) and Companion Policy 43-101CP, and CIM Definition Standards for Mineral Resources and Mineral Reserves (December 11, 2005).

## 1.2 Reliance on Other Experts (Item 5)

The Qualified Persons (QP), Allan V. Moran and Frank Daviess, examined the historical and current data for the Centennial Project provided by Powertech with respect to resources, and relied upon that basic data to support the statements and opinions presented in this Technical Report. Various other contributors to this report provided information for the Preliminary Assessment. In the opinion of the authors, the project data is present in sufficient detail, is credible and verifiable, and is an accurate representation of the uranium deposits that comprise the Centennial Project.

It is the opinion of the QPs that there are no material gaps in the information for the Project. Sufficient information is available to prepare this report, and statements in this report related to

deficiency of information are directed at information, which, in the opinion of the author, should be sought as the project progresses.

This report includes technical information, which requires subsequent calculations to derive subtotals, totals, and weighted averages. Such calculations inherently involve a degree of rounding and consequently can introduce a margin of error. Where these rounding errors occur, SRK does not consider them material.

The authors relied upon the work of others to describe the land tenure and land title in Colorado, referring specifically to Sections 2.1 – Property Location and 2.2 – Mineral Titles. The information contained in these sections was obtained from the NI 43-101 (updated) Technical reports of Powertech. The Authors relied upon the work of Powertech to describe the Royalties, Agreements and Encumbrances in Section 2.4. The authors relied upon the work of Cary Voss, "Qualified Person", who is responsible for the Resources stated in Section 15 of this report, as previously reported in Powertech's updated NI 43-101 on resources dated February 25, 2010. SRK conducted an audit of those resources for verification. The authors relied upon the work of Lyntek, as a contributor to this report, for the conceptual plant design criteria, costing and property and severance tax calculations presented in Section 17 of this report.

The authors relied upon the work of fellow SRK experts in the fields of environmental/permitting, hydrogeology, metallurgy, and ISR uranium mining techniques. Those individual consultants are: Vladimir Ugorets and Matt Hartmann (hydrogeology, well field design, environmental/permitting), Terry McNulty (metallurgy and ISR uranium recovery), and Nick Michael (technical economic model).

The results of this Technical Report are not dependent upon prior agreements concerning the conclusions to be reached, nor are there undisclosed understandings concerning future business dealings between Powertech, SRK, and the authors. SRK will be paid a fee for its work in accordance with normal professional consulting practice.

#### 1.2.1 Sources of Information

The authors reviewed project data provided by Powertech, conducted site visits to confirm the data and mineralization, and reviewed the project site access and layout.

SRK is responsible for the overall content of this report; however, the sources of information for the various key technical aspects of this report are as follows:

- Sections 2 through 11: Information provided by Powertech (NI 43-101 on resources) and reviewed and augmented where necessary by SRK;
- Section 12 Data Verification SRK;
- Section 14 Mineral Processing and Metallurgical Testing: Data from Powertech and Lyntek;
- Section 15 Mineral Resource and Mineral Reserve Estimates: Powertech's NI 43-101 Technical report on Resources dated February 25, 2010, by Qualified Person Cary Voss; and audited by SRK; and
- Section 17 Additional Requirements for Development Properties: SRK, with contributions by Powertech on engineering design and Lyntek on the process plant design, costing and severance tax and property tax estimation.

## 1.3 Qualifications of Consultants (SRK)

#### Allan V. Moran, R.G., C.P.G.

Allan Moran is a Principal Geologist with SRK, with 38 years experience in exploration, exploration management, and project evaluations, including 8 years direct experience with uranium exploration methodologies and evaluation of uranium deposits for resource estimation and project development. He is a Qualified Person for this Technical Report.

#### Frank A. Daviess, MAusIMM.

Frank Daviess is a Principal Resource Geologist with SRK, with 36 years total industry experience with, and he has 9 years direct experience with uranium exploration and evaluation of uranium deposits for resource estimation, and 26 years conducting resource estimation. He is a Qualified Person for this report and is responsible for the resource estimation presented in Section 15 of this report.

#### 1.3.1 Site Visit

Mr. Moran conducted a site visit to the Centennial Uranium Project on December 08, 2009, along with Matt Hartmann. Frank Daviess did not visit the project site.

#### 1.4 Effective Date

The effective date of this report, June 2, 2010, is the date SRK was in receipt of the most current project data, including resource database information, and plant costing information from Lyntek.

## 2 Property Description and Location (Item 6)

Section 2 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.

#### 2.1 Property Location

The Centennial Project is located in west central Weld County, in north central Colorado; about 13mi south of the Colorado-Wyoming state line Figure 2-1. Access is provided from major U.S. Highways by numerous state and county roads that follow land subdivision lines. Interstate Highway 25 between Denver, Colorado and Cheyenne, Wyoming is approximately 4 miles west of the project. The project lies within portions of Townships 8, 9 and 10 North, Range 67 West, approximately 14mi northeast of Fort Collins and 16mi northwest of Greeley. The southern portion of the project lies between the small towns of Wellington and Nunn.

#### 2.2 Mineral Titles

Originally, the Centennial Project consisted of private mineral rights totaling 6,880 acres (Figure 2-2). This total included 5,760 acres (nine sections) of mineral rights purchased by Powertech from Anadarko Land Corporation (Anadarko). The Anadarko mineral rights were originally part of the Union Pacific Railroad land grant, which was comprised of alternate sections (checkerboard pattern) for 20mi on both sides of the Railroad right-of-way. Anadarko retained all mineral rights pertaining to oil and gas and all leasable minerals.

Powertech's land position has steadily increased. In July 2009, Powertech entered into two option agreements for the purchase of an aggregate of 3,585 acres of land, together with the associated water, mineral and lease interests. Powertech entered into an option agreement with M.J. Diehl & Sons, Inc. and Howard Diehl and Donna Diehl (collectively, Diehl) to purchase approximately 2,160 acres of land. Pursuant to the option agreement, the Company has 24 months to exercise the option. During the term of the option, the Company is permitted to access the property for the purposes of pumping, testing, monitoring and sampling water. An option agreement was also enter into with Thomas Varra and Dianna Varra (collectively, Varra) to purchase approximately 1,425 acres of land. The option agreement is for a term of 12 months but can be extended for two 12-month periods. Powertech's total gross mineral rights in the area have increased to 9,615 acres, while its surface use acreage has increased to 7,262 acres. This additional surface acreage provides Powertech access to its privately-owned minerals, as well as enabling it to conduct drilling, pump testing, mine planning, and support operational facility design.

#### 2.3 Location of Mineralization

The uranium deposits of the Centennial Project are classic roll front type deposits occurring in subsurface sandstones deposited in shallow marine regressive and transgressive sequences within the Fox Hills Formation of late-Cretaceous age. The uranium roll fronts in the Centennial area are associated with oxidation/reduction interfaces and are known to cover a linear distance of at least 30 miles and extend throughout an area of more than 50 square miles. Historical data describe miles of mineralized trends developed along these oxidation/reduction interfaces, with

discontinuous uranium deposits concentrated along the length of these systems. Maps prepared by RME from 1978 until 1984 (and available to the author) indicate the regional oxidation occurs in three separate sands within the Fox Hills Formation and that economic uranium occurs in seven distinct deposits within the project area (Figure 2-3). Historical drillhole exploration suggests most of the favorable environments for economic accumulations of uranium have been identified, but this limited drilling cannot exclude the possibility for discovery of future economic uranium deposits in the area.

There has been no attempt made to extract uranium from the project area. Although RME had planned in detail to surface mine a large shallow uranium deposit within the southern portion of the project, market conditions in 1982 thwarted its production plans. RME discussed ISR extraction of the deeper uranium deposits in the northern portion of the Project but no development activities were undertaken before closing the project in 1984.

## 2.4 Agreements, Encumbrances, and Royalties

The Purchase and Sale Agreement between Powertech Uranium Corp. and Anadarko, dated September 27, 2006, for the acquisition of 5760 acres of mineral rights contain the "core" resources for the Centennial Project. In addition to this agreement, Powertech has entered into option agreements to purchase surface and mineral rights, as well as private mining leases in the area. To the best of Powertech's knowledge, there are no liens or encumbrances on the properties.

The current leases on the properties have sliding scale royalties that range from a five percent to nine percent gross royalty based on the sale price of "yellow cake" by Powertech. The royalty burden for the properties include royalties for surface and minerals. The average royalty for "yellow cake" for the Centennial Project would be 7%.

## 2.5 Environmental Liabilities and Permitting

The Centennial Project is in the early stages of environmental permitting, and although there is some uncertainty to the period required to permit an ISR facility in the State of Colorado, based upon present knowledge SRK is of the opinion that the Centennial Project could be fully permitted by late 2012, with production commencing in 2013.

#### 2.5.1 Residual Environmental Liabilities

The Centennial Project was the previous site of intensive drilling by RME. All disturbances from previous exploration activities were reclaimed by RME. SRK's site visit examination of the property indicated there are no visible historical drill sites or other surface disturbance that would require reclamation of other mitigation efforts.

Present operational liabilities are limited to restoration of ground disturbed by drilling operations at the project site. Powertech conducts this work on an ongoing basis.

#### 2.5.2 Required Permits and Status

Colorado is historically a mining state with a long history of underground and open pit mining. However, in situ uranium development has not been undertaken in the state to date. A number of permits and licenses must be acquired from federal, state and county agencies to meet established permitting requirements. Table 2.1 lists the required permits, and their current status for the Centennial Project.

The U.S. Nuclear Regulatory Commission (NRC) oversees all radioactive source material licenses under the Atomic Energy Act. In the State of Colorado, the Colorado Department of Public Health and Environment (CDPHE) is authorized by the NRC to administer programs related to Source Material Licenses. This program covers all activities such as processing, concentrating and shipping and sale of uranium to a utility buyer. The CDPHE is also responsible for issuing air quality, water discharge and storm water permits.

The Colorado Department of Natural Resources and its sub agency, the Division of Reclamation, Mining and Safety (DRMS) are responsible for permitting and oversight of all large-scale mining operations. The regulatory framework and guidelines for the uranium ISR mine permitting process has been developed by the State of Colorado; however, the final rule-making process is still in progress at the time of this report. Powertech will likely be the first applicant under the final rules of Colorado House Bill 2000-1161.

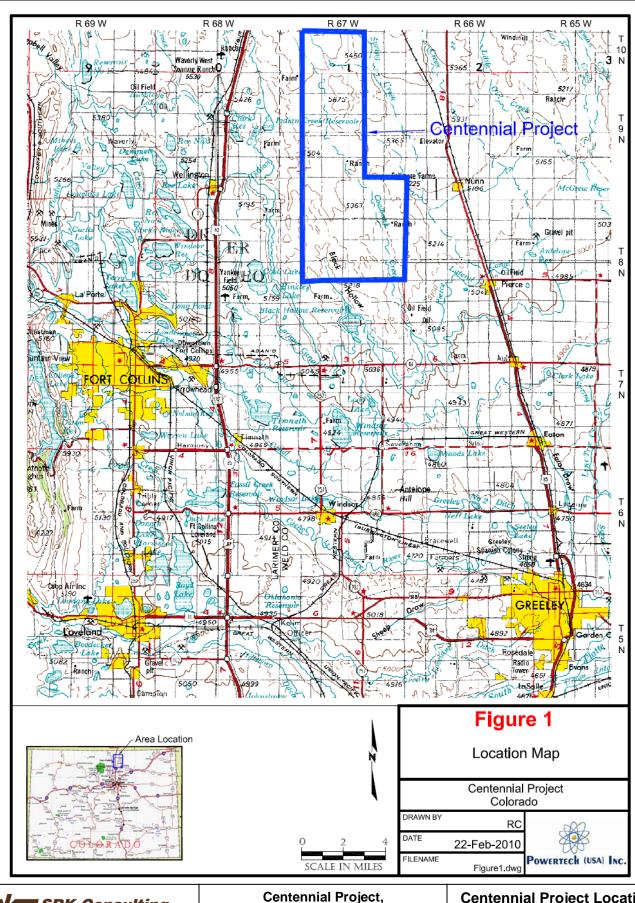
Underground Injection Control (UIC) in the State of Colorado is regulated by Region 8, of the U.S. Environmental Protection Agency (EPA). Powertech will complete the EPA UIC Permitting process for both the ISR well field and the deep disposal wells.

Weld County is responsible for the special land use permit, as well as sewage, construction, zoning and public works permits

Powertech conducted an environmental background data collection program for the Centennial Project from July 2007 to February 2009. A third-party directed the sampling program and investigated pre-mining environmental conditions related to water, soils, air, vegetation and wildlife of the site and surrounding areas. Data from this program will be incorporated into the required mining permit applications. Further data collection will be limited completion of a pump test scheduled for the 2<sup>nd</sup> Quarter 2010 pending receipt of applicable permits.

**Table 2.1: Primary Permits – Status** 

Permit/License	Agency	Submitted/TBS*	Processing Time (as specified)	Comments
Mine Reclamation Permit	Colorado Division of Reclamation, Mining & Safety	TBS 3 <sup>rd</sup> Q 2010	270 days	Awaiting final rules under HB 2000-1161
UIC Class III Permit	Environmental Protection Agency	TBS 3 <sup>rd</sup> Q 2010	Not specified, no experience at Region 8	
Source and By-Product Materials License	Colorado Department of Health and Environment	TBS 3 <sup>rd</sup> Q 2010	435 days	Time includes responses by applicant and Weld County
UIC Class I Permit	EPA	TBS 3 <sup>rd</sup> Q 2010	Not specified	
Special Land Use Permit	Weld County Commission	TBS 3 <sup>rd</sup> Q 2010	9 – 18 months, depends on NEPA process (EA v. EIS)	Must be performed during CDPHE review
Water Rights Permit	Colorado State Engineer's Office	TBS 3 <sup>rd</sup> Q 2010	8 – 12 months	Time estimate based on discussions with water brokers and legal counsel
Groundwater Discharge Plan	CDPHE – Water Quality Control	TBS 4 <sup>th</sup> Q 2010	180 days	
Air Quality Control Permit	CDPHE – Air Quality Control	TBS 4 <sup>th</sup> Q 2010	180 days	
Other Permits: Stormwater Permit, NPDES Permit, Spill Contingency Plan, Septic Tank Permit, Drinking Water Permit, Hazardous Waste Permit	All issued by CDPHE	TBS 4 <sup>th</sup> Q 2010	All processed in 6 months or less	
*TBS=To be submitted				





SRK Project No.: 194300.020

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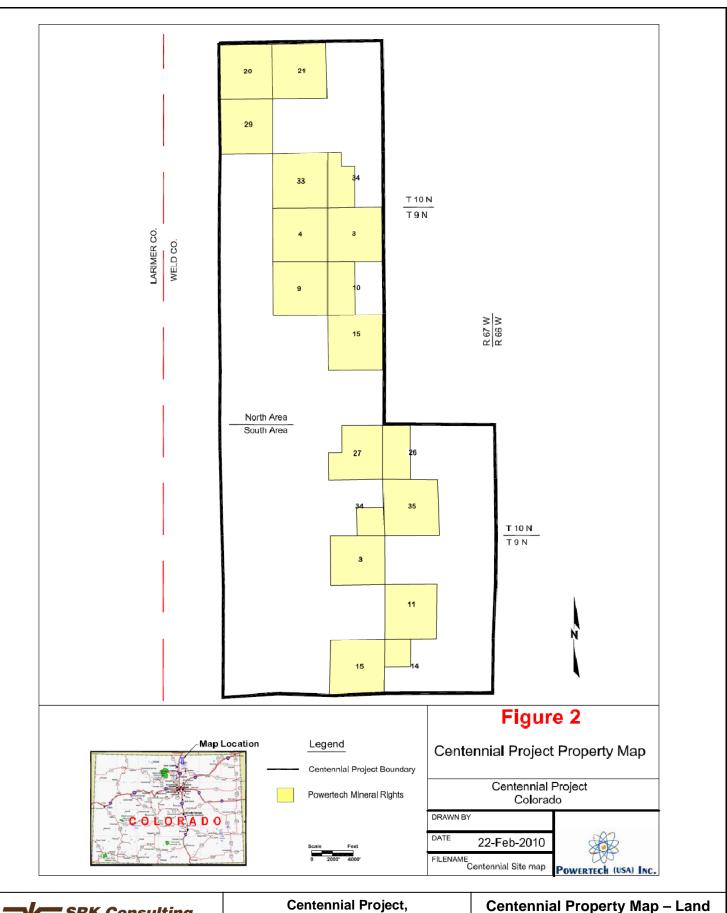
Centennial Project, **Weld County, Colorado** 

Source: Powertech (USA) Inc.

**Centennial Project Location Map** 

Approved: AM Date: 20100503

Figure: 2-1





SRK Project No.: 194300.020

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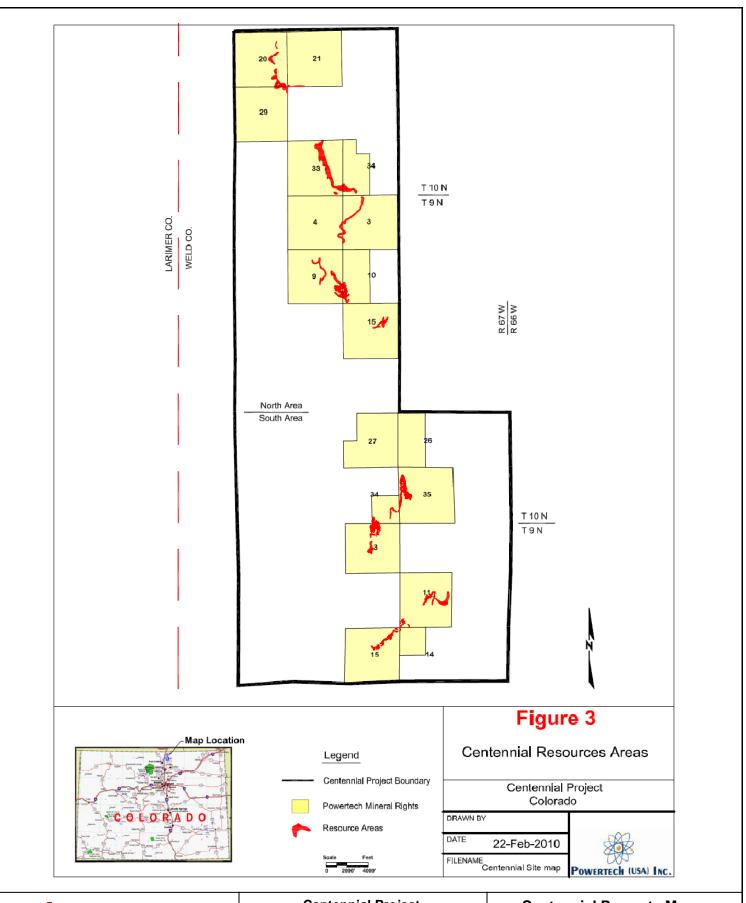
Centennial Project, Weld County, Colorado

Source: Powertech (USA) Inc.

# Ownership

Approved: AM Date: 20100503

Figure: 2-2





SRK Project No.: 194300.020

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Centennial Project, Weld County, Colorado

Source: Powertech (USA) Inc.

Centennial Property Map -**Location of Mineralization** 

Approved: AM Date: 20100503

Figure: 2-3

# 3 Accessibility, Climate, Local Resources, Infrastructure and Physiography (Item 7)

Section 3 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.

#### 3.1 Access

The Centennial Project is located about 80mi north of Denver, Colorado (a major international airport site and supply center). The project area is connected to Denver via Interstate Highway 25. The Union Pacific Railroad between Cheyenne, Wyoming and Denver runs through the village of Nunn, 5mi east of the project area. Access is provided from major U.S. Highways by numerous state and county roads that follow land subdivision section lines. Improved county roads surround numerous land sections throughout the Project area. Fort Collins is a major city located 11mi southwest of the southern part of the project. Several small communities such as Wellington and Nunn lie near the west and east portions of the Project, respectively.

## 3.2 Climate and Vegetation

The annual mean temperature in this area of Colorado is 62 degrees Fahrenheit (°F). The mean low temperature of 13°F occurs in January. The mean high temperature of 85°F occurs in July. Sub-freezing temperatures generally do not occur after early-May or before early-October.

The average precipitation in the Centennial Project area is 12 inches (in). The wettest month is May when the area receives 3in of precipitation. Blizzards are common throughout the winter, with March receiving the greatest amount of snow at an average 10in.

Dry land farming occurs in the southern portion of the project area where wheat is the primary crop. Vegetation in the northern portion is mainly grassland amenable to cattle ranching.

#### 3.3 Local Resources

Fort Collins and Greeley are nearby cities providing housing, supplies, labor pool and temporary accommodations. Denver provides international travel communication as well as all support services necessary for the mining industry.

## 3.4 Topography and Elevation

The topography of the Centennial Project is generally flat to rolling prairie with occasional steep-sided, flat-top mesas. The whole area is incised by intermittent streams flowing southeasterly and flowing only during spring melt or from summer thunderstorms. Elevation varies from near 5,700 feet (ft) above sea level in the northern part of the project to about 5,300ft in the south part of the project. Maximum differential relief is only about 150ft within a given section (1 square mile) of land.

#### 3.5 Infrastructure

The Centennial Project, being located in northern Colorado, is available to a large network of transportation allowing product transportation throughout the U.S. Denver is an international

center to the mining industry and offers all of the technical services required for the mining industry.

#### 3.5.1 Power Supply

A major high-tension power transmission line passes through the property; however, a power grid sub-station is located at the village of Nunn, 5mi east of the project area. The power substation is the likely source of power for the Centennial Project.

#### 3.5.2 Water Supply

Water for a mining operation is available from wells in the area or for purchase from municipal water sources

#### 3.5.3 Buildings and Ancillary Facilities

Powertech owns two facility buildings on the property, a metal storage building that houses core and drilling supplies, and a house that is currently vacant.

#### 3.5.4 Camp Site

There is no camp site on the property and none is needed, as local towns and villages offer housing opportunities.

#### 3.5.5 Manpower

Skilled workers are available in the larger metropolitan cities including Fort Collins and Denver.

# 4 History (Item 8)

Section 4 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 in 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.

#### 4.1 Ownership

Alternating sections of land for a distance of 20mi on either side of the railroad in Weld County in northeastern Colorado were granted to the Union Pacific Railroad by the U.S. Land Grant Bill in 1862. This grant included both surface and mineral rights. The majority of the surface has subsequently been sold and is now in private ownership. Uranium was discovered in Weld County in 1969, where RME controlled the mineral rights to over 115,000 acres of the Union Pacific Land Grant.

In 1974, RME began initial investigation of the area by radiometric survey and water well sampling. RME acquired the surface rights to about 5,000 acres overlying their mineral rights in the Centennial area and began an exploration-drilling program. RME held these leases until sometime after the market collapse in 1984 and then allowed the surface leases to expire. Mineral ownership remained within the Union Pacific Railroad until sold to Anadarko Petroleum in 2000. Powertech purchased these mineral rights from Anadarko in October 2006 and is currently acquiring other mineral and surface rights.

## 4.2 Past Exploration and Development

Following the original uranium discovery in Weld County in 1969, RME began exploring the Cheyenne Basin by conducting a reconnaissance program consisting of outcrop examinations, water sampling, and radon soil survey. Results were favorable and in December 1971, 11 holes were drilled to the north of the Centennial Project area. In 1973, a second radon survey was done and in 1974, 104 widely spaced stratigraphic test holes were drilled that discovered the presence of uranium in the Fox Hills Formation. Exploration drilling, between 1977 and 1979, delineated uranium ore bodies at depths of 250-600ft in the northern portion of the project and at depths of 85-125ft to the south.

RME focused on the southern shallow deposits, with a plan to develop a surface mining operation. This portion of the project was turned over to RME's Engineering Department in 1980, while its Exploration Department continued exploration activities in the northern area through 1982.

During this period, other uranium exploration companies acquired mineral rights to non-Land Grant sections in the general region and adjacent to the RME land position for their own exploration programs. These companies included Getty Oil, Wyoming Mineral Corp. (the uranium production company of Westinghouse Electric Corp.), Powerco and Mobil Oil Corp. All these companies dropped their land holdings with the collapse of the uranium market in the 1980's. However, much of the data from these exploration programs was acquired by RME through data trades. The majority of these data remained within the Centennial database that Powertech acquired from Anadarko. The acquisition of adjacent properties with historical resources was based on these data.

RME's database, including 3,500 drillholes, was included in the files acquired by Powertech from Anadarko. Exploration drillhole data obtained consists of the original electric down-hole probe log of each hole. Samples of the cuttings from each hole were collected at 5ft intervals and the geologic description of the cuttings was recorded on lithologic logs by the project geologist. Numerous cores were taken and chemically assayed from the mineralized zones to substantiate the radiometric values determined by the electric log. Data including drillhole logs and maps of drillhole locations from adjacent properties acquired from former competitors is of equivalent quality to the main database developed by RME.

Within the proposed surface mine area on the southern portion of the project, the RME Engineering Department logged nearly 800 holes with Princeton Gamma Tech (PGT) instrumentation that conducted spectrometric down-hole measurements of protactinium. Protactinium is an early radiometric disintegration product of uranium and historically it was determined that the presence of protactinium, due to its short half-life, could be directly related to the quantity of uranium present within the subsurface. RME drilled another 12 holes to depths of 250-400ft on the northern portion of the project that were also probed using PGT logging. These data are also included with the data received from Anadarko.

All of the drillhole data was analyzed by a computer assisted program to determine the equivalent uranium value for each half-foot interval of all drillholes. RME interpreted these drillhole data to develop maps that showed oxidation-reduction (O/R) boundaries and uranium accumulations. This information was then used to evaluate the amount of uranium "ore" present within the Centennial Project and to determine a uranium "reserve" on the project that RME considered minable via open pit, and to be shipped to their milling facility north of Douglas, Wyoming. These data were incorporated into numerous reports containing drillhole maps, ore reserve estimates and proposed activities which periodically described the project. These reports and their maps were a part of the Anadarko files acquired by Powertech.

#### 4.3 Historical Mineral Resource Estimates

RME prepared numerous reports on exploration of the Centennial Project beginning in 1974. Significant shallow uranium mineralization became apparent in the southern portion of the project by 1978 and a concerted effort was made to evaluate this deposit. Only limited exploration was directed toward deeper uranium resources in the northern part of the project. An RME report dated October 1979 estimates shallow uranium resources in the inferred category as 4.9Mlb U<sub>3</sub>O<sub>8</sub> with an additional probable category of 1.2 to 2.2Mlb U<sub>3</sub>O<sub>8</sub> for a total resource of 5.1 to 7.1Mlb. The depth to the top of the mineralization is stated at 82.3ft below the surface. This same report suggests that a possible economic resource of 7.9Myd<sup>3</sup> of gravel overlies the uranium resource.

SRK notes that the resource numbers stated here in Section 4.3 are historical estimates and not current CIM compliant resource estimates, they have not been reviewed by a Qualified Person for CIM classifications, and they should not be relied upon as current or CIM compliant resources. These resources are not being reported by Powertech as current resources for the Centennial Project.

Current CIM-compliant resource for the Centennial Uranium Project are reported in Section 15 of this report

A later report in the Anadarko files written by RME in March 1982, using PGT and core hole data, estimates a uranium resource in the southern portion of the project of 6.3Mlb U<sub>3</sub>O<sub>8</sub>. Use of PGT and core assays eliminates the possible conflict with radiometric disequilibrium. Powertech has carefully evaluated these reports, completed internal calculations of resources and agrees with the interpretation presented therein.

These numerous reports demonstrate that the total resources and average grades of the resources vary with respect to the grade and GT cut-offs used in the calculations. For example, the following average grades and resource totals were calculated from 1979-1982 for the shallow resources in the southern portion of the Centennial Project using different GT and grade cut-offs:

Table 4.1: Historical Uranium Resources for Southern Portion of the Centennial Project

	Grade Cut-off	Ave. Grade %		
GT Cut-off	%eU <sub>3</sub> O <sub>8</sub>	eU <sub>3</sub> O <sub>8</sub>	Average Thickness (ft)	Pounds U <sub>3</sub> O <sub>8</sub>
0.04	0.02	0.115	9.41	6,533,246
0.1	0.02	0.122	8.63	6,297,421
0.4	0.05	0.143		4,332,840

Source: Powertech, 2009

Other reports available from the files during the same time period estimated a uranium resource in the northern portion of the project at 3.3Mlb, with an average thickness of 9.0ft, an average grade of 0.08% eU<sub>3</sub>O<sub>8</sub> and using a 0.20 grade/thickness (GT) cut-off. Based on RME reports and using a GT cut-off of 0.20, the entire Centennial Project was estimated to contain resources of over 9.6Mlb, with an average grade of 0.10% eU<sub>3</sub>O<sub>8</sub>.

Recent resource estimates by Powertech estimated resources by plotting all of the 2,235 drillholes from a spreadsheet compilation. Radiometric intercepts that met or exceeded 0.02% eU<sub>3</sub>O<sub>8</sub> and were of sufficient thickness to yield a GT of 0.2 were included in the calculations. The authors calculated resources by multiplying the area in square feet enclosed by the 0.2 GT contour multiplied by the average GT times 20 and divided by the tonnage factor of  $17\text{ft}^3/\text{t}$  (Avg. GT x Area in  $\text{ft}^2$  x 20)/17 $\text{ft}^3/\text{ton}$  = lbs uranium oxide.

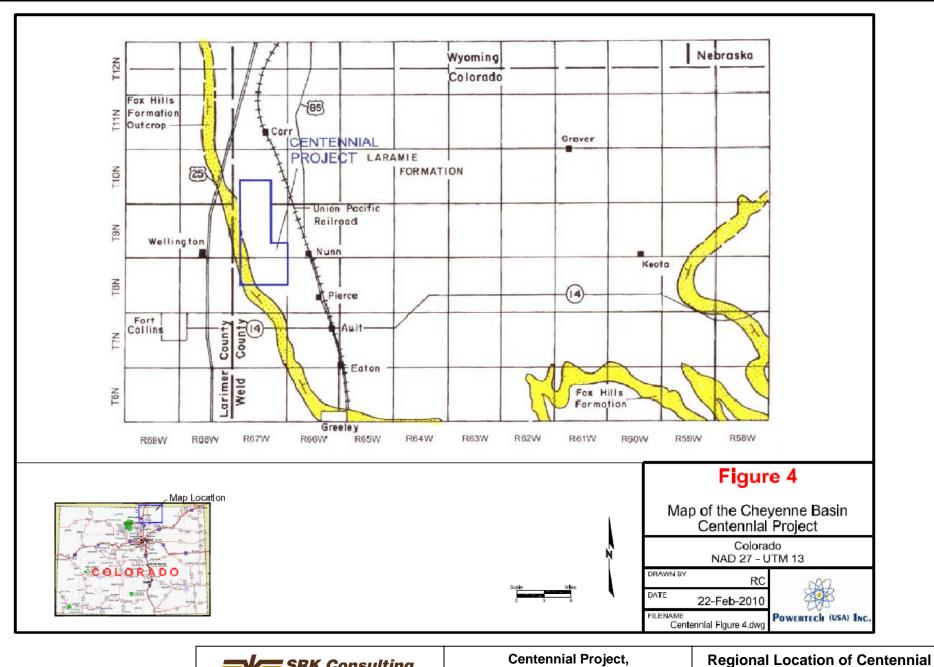
In the northern portion of the Centennial Project, calculations on four individual resource areas yielded a total of 3,843,092lbs U<sub>3</sub>O<sub>8</sub>. These pounds had an average thickness of 9.0ft and an average grade of 0.085% eU<sub>3</sub>O<sub>8</sub> (GT=0.77). Two resource areas in the southern portion of the project had a total of 5,887,398lbs U<sub>3</sub>O<sub>8</sub>, averaging 8.6ft of 0.10% eU<sub>3</sub>O<sub>8</sub> (GT=0.86). Total inferred uranium resources for the entire Centennial Project totaled 9,730,490lbs U<sub>3</sub>O<sub>8</sub>, contained in 5,175,800tons and averaging 8.8ft of 0.094% eU<sub>3</sub>O<sub>8</sub> (GT=0.82). SRK notes that these are not the current resources for the Centennial Project. Current and CIM compliant resource estimates for Centennial are presented in Section 15 of this report.

#### 4.4 Historical Production

There has been no uranium production from the Centennial Project.

In the early 1980's, Wyoming Mineral Corp. constructed an ISR pilot plant facility within the Cheyenne Basin. As shown in Figure 4-1, this plant was located on its Grover Project located approximately 35mi east of Centennial, to evaluate uranium in the Laramie Formation. The Grover test facility operated for only a short period of time and there is no record available of how much uranium was produced. The site was successfully restored to State of Colorado standards.

A second pilot plant was planned at Keota, located 42mi east of the Centennial Project to evaluate uranium resources within the Fox Hills Formation. The Keota plant was never developed.





SRK Job No.: 194300.020

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# Weld County, Colorado

Source: Powertech (USA), Inc.

# **Project**

Date: 20100503

Approved: AM

Figure: 4-1

# 5 Geologic Setting (Item 9)

Section 5 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.

## 5.1 Regional Geology

The Centennial Project is located within the Cheyenne Basin, a sub-basin of the greater Denver-Julesburg Basin, which is bordered on the northwest by the Hartville Uplift in Wyoming and on the east and northeast by the Chadron Arch in Nebraska Figure 5-1. To the south, the Cheyenne Basin is separated from the Denver Basin by the Greeley Arch and the western edge is bordered by the Colorado Front Range. Sediments within the basin dip inward from 0.5° to 10.0°, with the basin axis trending generally north-south.

As a result of uplift of the ancestral Rocky Mountains to the west, the slowly subsiding Cheyenne Basin accumulated sediments that range in age from Pennsylvanian to Quaternary. The Late Cretaceous age Pierre Shale represents offshore marine sedimentation and has a gradational contact with the overlying Fox Hills Sandstone. Sandstones of the Fox Hills represent nearshore sedimentation. Overlying the Fox Hills Sandstone is the Laramie Formation which consists of terrestrial fluvial deposits. These three formations represent the last regression of the Late Cretaceous Sea.

Unconformably overlying the Laramie Formation is the tuffaceous White River Formation. This Oligocene formation is rich in volcanic fragments and is thought to be a source of uranium in the Centennial Project and the remainder of the Cheyenne Basin. In the Centennial Project area, the White River Formation has been deeply eroded with only isolated remnants remaining. Quaternary arkosic gravel and sand deposits cover a large portion of the present surface and form large wide southeast-trending channels. The source for these channels is thought to be the White River Formation as well as the granitic highlands to the west.

## 5.2 Local and Property Geology

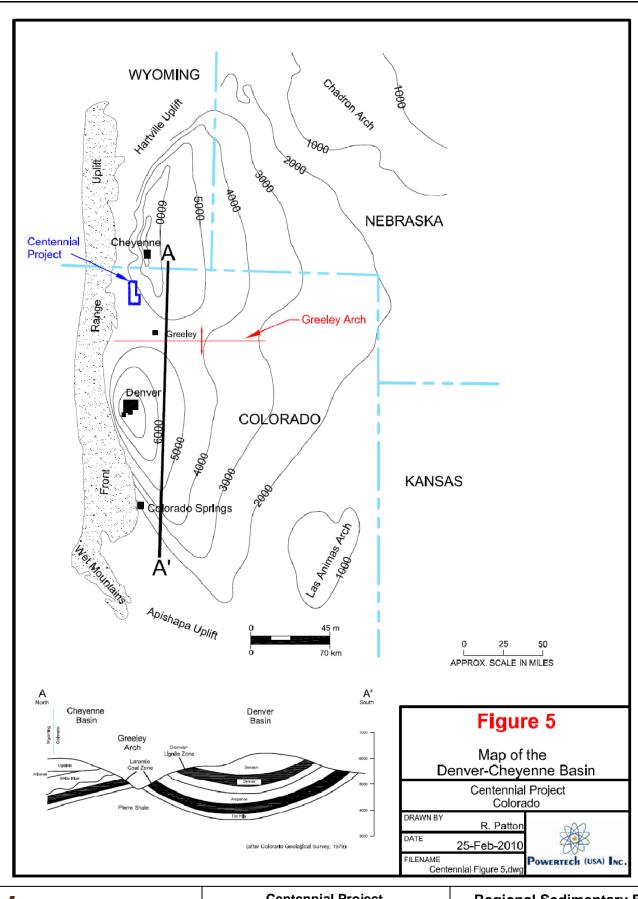
The depositional environment interpretation, as reported by RME, is based on resistivity E-logs, sedimentary structures from 3-inch core and limited outcrops, isopach maps, and the lateral and vertical relationships between different facies. Figure 5-2 shows the generalized stratigraphic section for the Fox Hills Sandstone. In general terms, this regressive sequence of sandstones was deposited by longshore currents from major distributary channels depositing sediments along a wave-dominated coastline.

The Fox Hills Sandstone on the western flank of the Cheyenne Basin can be separated into an upper and a lower member based on the depositional environment. The upper member termed the "A-WE" which includes the "A<sub>1</sub>, A<sub>2</sub>, A<sub>3</sub>, A<sub>4</sub>, and WE" sands, is interpreted to be deposited in a barrier-island tidal-inlet complex. The lower member termed "B, C, and D" is interpreted by RME to be deposited in a wave-dominated delta complex. No economic concentrations of uranium mineralization were observed in the drillhole logs within these lower member sands.

The lithologic units of the Fox Hills Formation now dip gently eastward, off the western flank of the basin. Groundwater flow through permeable sands is down this regional gradient. Since the

uranium roll front ore bodies below the water table are dynamic, their deposition and tenor are factored by groundwater migration slowly moving the mineralization further down dip by multiple migration and accretion and in the process creating an oxidation/reduction roll front uranium deposit. In the southern portion of the project, recent oxidation from surface exposure has invaded the previously formed uranium roll fronts and has partially remobilized the mineralization. For this reason, RME used chemical uranium values obtained from cores and interpreted uranium values from PGT logging to calculate uranium resources for these shallow deposits. In this manner, it was not necessary to apply disequilibrium factors (DEF) to radiometric logs for the purpose of resource calculation.

On outcrop, most of the sandstones of the Fox Hills Formation exhibit trace to pervasive limonite staining of various shades of yellow and orange. Red hematite staining is less common and occurs as scattered streaks in most outcrops. Generally, the more porous and thicker the sandstone, the more pronounced the alteration. Alteration within the host sands has been mapped by RME for distances of over 30mi within outcrops of Fox Hills Formation in the Centennial Project area. Other workers have mapped redox boundaries for similar distances in other parts of the Cheyenne Basin.





Centennial Project, **Weld County, Colorado** 

Source: Powertech (USA) Inc.

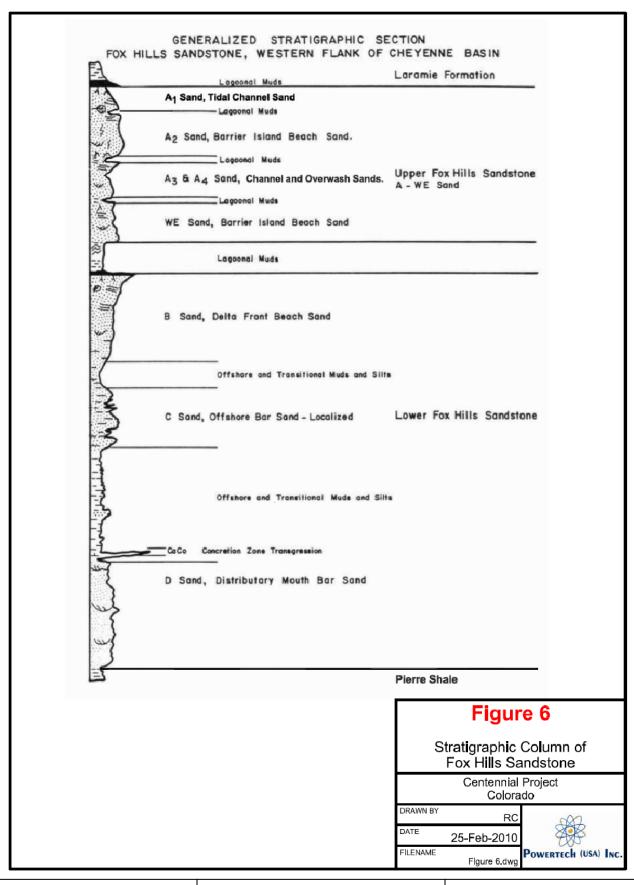
## **Regional Sedimentary Basins**

Date: 20100503

Approved: AM

Figure: 5-1

SRK Project No.: 194300.020 File Name: Figure\_5-1.docx





Centennial Project, Weld County, Colorado Centennial Project Stratigraphic Column

SRK Project No.: 194300.020

File Name: Figure\_5-2.docx

Source: Powertech (USA) Inc.

Date: 20100503 Approved: AM

Figure: 5-2

# 6 Deposit Type (Item 10)

These introductory two paragraphs of Section 6 are extracted 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 has provided a description of the Geological Model in Section 6.1.

Uranium deposits in the Centennial Project are sandstone, roll front type typical of those in Wyoming, South Dakota and Texas. These type deposits are usually "C" shaped in cross section, a few tens of feet-to-100 or more-feet wide and often thousands of feet long. Uranium minerals are usually deposited at the interface of oxidizing solutions and reducing solutions or redox boundaries. Typical alteration associated with this redox boundary consists of limonitic and hematitic staining of the sandstones.

As the uranium minerals precipitate, they coat sand grains and fill the interstices between grains. As long as oxidizing groundwater movement is constant, minerals will be solubilized in the interior portion of the "C" shape, and precipitated in the exterior portion of the "C" shape, increasing the tenor of the ore body by multiple migration and accretion. The thickness of the ore body is generally a factor of the thickness of the sandstone host unit. Mineralization may be 10 to 15ft thick within the roll front while being inches to feet thick in the tail portions.

#### 6.1 Geological Model

The uranium deposits in the Cheyenne Basin are characteristic of the Rocky Mountain and Intermontane Basin uranium province, United States (Finch, 1996). The uranium province is essentially defined by the extent of the Laramide uplifts and basins.

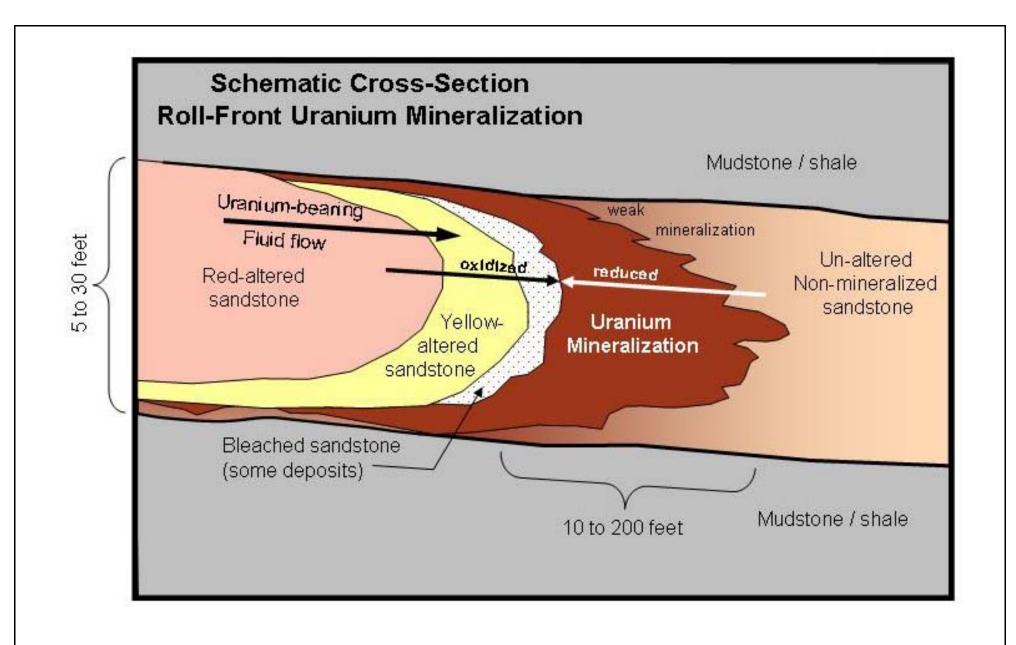
Roll-front sandstone uranium deposits formed in the continental fluvial basins developed between uplifts. These uranium deposits were formed by oxidizing uranium-bearing groundwaters that entered the host sandstone from the edges of the basins. Two possible sources of the uranium were (1) uraniferous Precambrian granite that provided sediment for the host sandstone and (2) overlying Tertiary age (Oligocene) volcanic ash sediments. Major uranium deposits occur as sandstone deposits in Cretaceous and Tertiary age basin sediments. Cluster size and grades for the sandstone deposits range from 500 to 20,000t U<sub>3</sub>O<sub>8</sub>, at typical grades of 0.04 to 0.23% eU<sub>3</sub>O<sub>8</sub>.

The tectono-stratigraphic setting for roll-front uranium ores is in arkosic and fluvial sandstone formations deposited in small basins. Host rocks are continental fluvial and nearshore sandstone. The principal ages of the host rocks are Early Cretaceous (144–97Ma), Eocene (52–36Ma), and Oligocene (36–24Ma), with epochs of mineralization at 70 Ma, 35–26Ma, and 3Ma.

Ore mineralogy consists of uraninite, pitchblende, coffinite, and carnotite, with associated vanadium in some deposits. Typical alteration in the roll-front sandstone deposit includes oxidation of iron minerals up-dip from the front and reduction of iron minerals down-dip along advancing redox interface boundaries (Figure 6-1).

Probable sources of uranium in the sandstone deposits are Oligocene volcanic ash and/or Precambrian granite (2,900–2,600Ma). Mineralizing solutions in the sandstone are oxygen-bearing groundwater. Uranium mineralization of the sandstone deposits began with inception of Laramide uplift (approximately 70Ma) and peaked in Oligocene.

Size and shape of individual deposits can vary from small pod-like replacement bodies to elongate lobes of mineralization along the regional redox boundary.





SRK Job No.: 194300.020

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Centennial Project, Weld County, Colorado

Source: SRK 2007, modified from

several sources

Schematic Cross-Section – Roll Front Uranium Mineralization

Date: 20100503 Approved: AM

M Figure: 6-1

# 7 Mineralization (Item 11)

Section 7 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.

#### 7.1 Mineralized Zones

Uranium deposits are concentrated along the down-dip flank of sand deposits. Alteration depicting the oxidation/reduction contact can occur in several sand units and may be several miles in length. Uranium deposition in significant deposits occurs discontinuously along the redox boundary with individual deposits ranging from several hundred-to a few thousand feet in length. Width of concentration is dependent upon lithology and position within the sand unit. Widths are seldom less than 50ft and are often over 200ft. Thickness of highly concentrated uranium mineral varies from 1 or 2ft in limbs to 10 or 15ft in rolls. Tenor of uranium mineralization may vary from minimal to a few percent at a given point within the ore body.

Multi-element analyses of mineralized core indicate that there are minor amounts of associated minerals such as iron, vanadium, selenium and molybdenum, occurring with the uranium. These associated minerals are found only as trace amounts and therefore should not be of concern in terms of the ISR mining method or restoration of ground water.

# 7.2 Surrounding Rock Types

SRK notes that underlying and overlying conformable rock types act as fluid-confining barriers that provided for channeling of uranium-bearing fluids and development of the uranium roll-fronts, and will allow for confinement of ISR production fluids. In the case of Centennial, those confining rocks are Late Cretaceous Pierre shale below the Fox Hills host sandstone, and Laramie Formation shale overlying the Fox Hills sandstone.

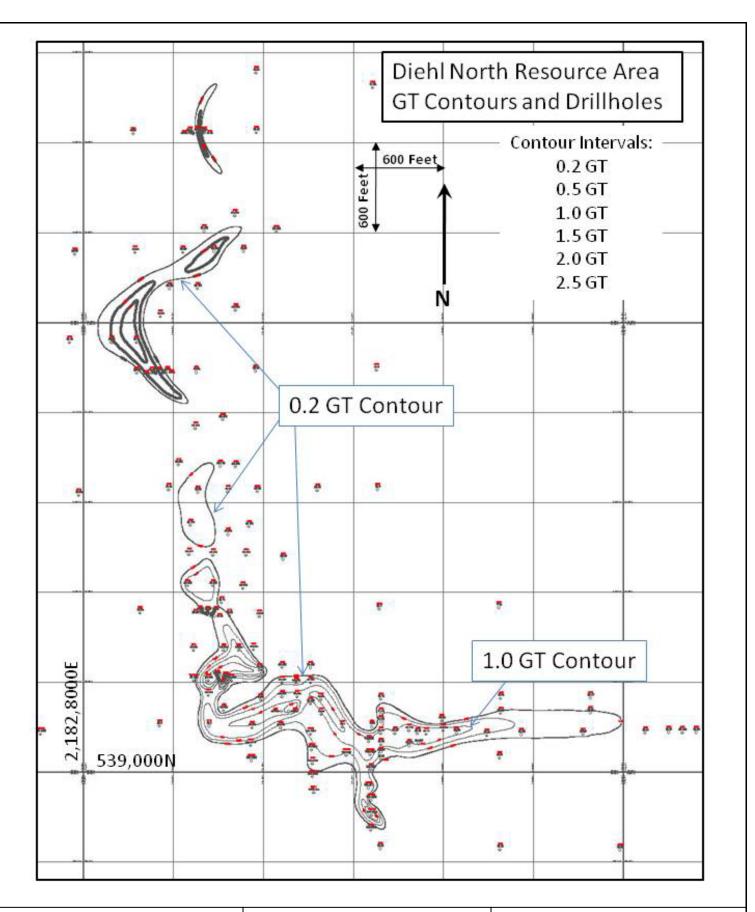
# 7.3 Relevant Geological Controls

The primary control of uranium mineralization in the Centennial Project is the presence of permeable sandstone within a major marginal marine, barrier bar sand system that is also a groundwater aquifer. A source rock for uranium in juxtaposition to the aquifer is necessary to provide mineral to the system. As described above the uranium-rich White River Formation originally overlay the subcropping sandstone units of the Laramie and Fox Hills Formations. The last control is the need for a source of reductant to precipitate dissolved uranium from groundwater solutions. Back barrier swamps and lagoons within the marginal marine depositional environment are responsible for generating extensive reductants in the form of humic acids derived from carbonaceous materials deposited with the sediments.

SRK notes that that redox boundary is approximately defined by the generally north-south sinuous location of the mineral deposits as depicted on Figure 2-3, with oxidized rock to the west (up-dip) of the deposits, and reduced rock east (down-dip) of the deposits.

# 7.4 Type, Character and Distribution of Mineralization

SRK notes that individual uranium deposits are best depicted on plan maps as contour maps of grade x thickness products (GxT or GT maps), as shown in Figure 7-1 for Diehl North. For Centennial, the GT maps show the shape and extent of mineralization, and the 0.2 GT contour represents the limits of mineralization. Greater thicknesses and higher grades of mineralization are noted by higher value GT contours.





Centennial Project, Weld County, Colorado Diehl North Resource – GT Contours

SRK Project No.: 194300.020

File Name: Figure\_7-1.docx

Source: Powertech, 2009, modified by SRK

Date: 20100503 Approved: AM

Figure: 7-1

# 8 Exploration (Item 12)

Section 8 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.

In Colorado, all mineral exploration drilling is permitted by the Colorado DRMS through the filing of a Notice of Intent (NOI). Prospecting is defined as "the act of searching for or investigating a mineral deposit". Powertech's initial NOI was approved in June 2007 for the completion of 23 water wells to investigate the quantity and quality of groundwater in the vicinity of historical uranium resources within the Centennial Project. In July 2007, a modification to this NOI was approved for the completion of 24 drillholes to confirm the presence of these historical resources and to obtain core of the mineralization for chemical analyses. All drilling associated with these NOIs was completed in 2007 and will be discussed in the following section.

In August 2008, a second NOI was approved for the completion of two additional water wells and eight additional drillholes. The purpose of these drillholes were to obtain more core for testing and to investigate the uranium potential of known host sandstones, below planned production facilities, to ensure that no surface construction would take place over uranium resources. In October 2008, a modification to this NOI was approved to complete an additional 15 water wells and another core hole. These water wells would be used to conduct a large-scale pump test in the northern portion of the project area, which is planned for early 2010. The status of drilling associated with these NOIs will be discussed in the following section. No additional mineral detection exploration surveys or investigations, other than drilling, were conducted on the Centennial Project.

# 8.1 Surveys and Investigations

SRK notes that down-hole gamma logging procedures employed by Powertech are industry standard techniques of using total gamma down-hole probes. In addition, Powertech has used a protactinium probe (PGT probe) for estimating direct  $eU_3O_8$  content for the southern part of the property where disequilibrium occurs due to parts of the deposits being above the water table (see discussion of PGT probe in Section 12 – Data Verification).

### 8.2 Conclusion

SRK reviewed the current and historical drilling results, and finds Powertech's drilling results provide a reasonable comparable validation of the historical drilling results. The Powertech programs of validation drilling and core sampling, water wells for ground water characterization, ground water monitoring, and pump testing, are valid and appropriate exploration methods for verifying, exploring, and characterizing the uranium deposits for possible ISR uranium production.

# 9 Drilling (Item 13)

Section 9 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.

From August 2007 to October 2007 and from August 2008 to September 2008, Powertech (and its contractor) completed three drilling programs, totaling 41 drillholes and 14,931ft of drilling on the Centennial Project. The depths of these holes ranged from 103 to 900ft-below-surface. While geologic and geophysical information was collected from all drillholes, they were used for multiple purposes. There were 18 holes completed as water wells, 15 as rotary drillholes and 8 as core holes. With the exception of the holes converted to wells, all other drillholes were plugged and abandoned in accordance with State of Colorado regulations.

Since the filing of the June 2009 updated technical report on resources, 16 water wells and 2 core holes have been completed on the project. This drilling was approved by the Colorado DRMS through the filing of a NOI. These wells were developed for the purpose of conducting a pumping test to investigate the characteristics of the aquifer and the quality of groundwater in the vicinity of Powertech's initial proposed well field. As of the writing of this report, the pumping test has not yet been conducted. Four hundred and fifty-four feet of core was collected from the two core holes and selected intervals of two water wells. Laboratory analyses were performed on this core to examine the nature of the uranium mineralization, as well as chemical and physical characteristics of the host sandstones and confining units in the subsurface. A total of 8,677ft of drilling was completed during this field program.

The two core holes were plugged and abandoned in accordance with State of Colorado regulations. The latest DRMS guidelines describe filling the drillhole, from the bottom upward, with a sodium bentonite plugging gel. The viscosity of this plugging gel is measured to be, at a minimum, 20 seconds higher than the viscosity of the bottom-hole drilling fluid. After a 24-hour settling period, this method of hole sealing emplaces a solid plug in the abandoned hole that has a high degree of elasticity. This type of plug conforms to irregularity within the drillhole and is considered to provide a more effective seal than a rigid cement plug. Once the plugging gel has been allowed to settle (24-hour period), the sealing procedure is completed by filling the remaining portion of the open hole with bentonite chips to within 13ft of the surface. A 10ft cement cap is placed on the bentonite chips and the final 3ft of the hole is filled with soil.

# 9.1 Mud Rotary Drilling

Powertech has used truck-mounted rotary drilling methods, utilizing a bentonite based circulation fluid. This style of drilling is consistent with historical drilling programs from the 1970's and 1980's. A 6.5in hole was drilled and rotary cutting samples were collected at 5ft intervals. A description of these cuttings are made by the on-site geologist and compiled into a lithology log for each drillhole. This rotary drilling was used to confirm several critical issues regarding previously identified uranium resources at the Centennial Project as described below.

Electric logs and geologic logs from this drilling confirmed the presence and tenor of multiple, mineralized Fox Hills sand units in the area. This drilling also examined the geologic setting of the project and the nature of the Fox Hills host sands, by demonstrating that the depositional

environments and lithologies of the Fox Hills Sandstone and the overlying Laramie Formation were found to be consistent with descriptions presented in the geologic literature and by previous operators on the project site.

Most importantly, the observation that geochemical oxidation cells within the host sands in the subsurface were directly related to uranium mineralization, establishes well-known geologic controls to uranium resources on this project. Encountering mineralized trends associated with "oxidized" and "reduced" sands within multiple sand units, provides reliable guides to the identification of resource potential, as well as to demonstrating continuity within known resource areas. This drilling demonstrated that originally hypothesized "roll-front" deposit model is appropriately applied to this project.

# 9.2 Core Drilling

The core drilling programs designed by Powertech utilized rotary drilling to reach core point. At that point, a 10ft-long, HX or 3in diameter core barrel (with core bit) is lowered into the drillhole. In the fall of 2009, two core holes were completed. In addition, mineralized core was obtained during the drilling of two water wells, totaling 454ft of HX or 3in core. Among other purposes, the coring was planned to intercept various parts of these uranium roll front deposits to obtain samples of mineralized sandstone for chemical analyses and metallurgical testing. Two of these core holes also provided core of the entire Upper Fox Hills Sandstone, and portions of the Laramie and Lower Fox Hills Formations. Powertech used the coring information to examine the stratigraphy of this portion of the formation in detail to gain an in-depth understanding of the geologic character of the host sands, as well as the overlying and underlying sands and confining sediments.

One hundred twenty and a half foot samples of mineralized core were sent to Energy Laboratories, Inc. (ELI) in Casper, Wyoming for multi-element analyses. These analyses included values for uranium (chemical), uranium (gamma), vanadium, selenium, molybdenum, iron, arsenic, calcium, sulfur and organic carbon. This "rock chemistry" provides valuable information for the design of ISR well field operations. Results of uranium assays are included in the equilibrium analyses contained in Section 12.0 (Data Verification) of this report.

Laboratory analyses were performed on selected core samples to determine the physical parameters for permeability and porosity of the mineralized sands, as well as overlying and underlying clays. This data will be incorporated into hydrological modeling for future aquifer pumping tests in the project area. Composite bulk densities were calculated for mineralized sands, yielding a 16.75ft<sup>3</sup>/t value, which was used in the resource evaluation portion of this report.

### 9.3 Groundwater Wells

Two pumping tests in the northern portion of the project area were conducted in October 2007 and February 2008. These tests demonstrated that production rates varied from 10 to 30 gallons per minute (gpm) and that there was excellent confinement between the mineralized Fox Hills sands and sub-aquifers in the overlying Laramie Formation. These tests also determined that an additional large-scale pumping test should be conducted in this region to obtain more hydrologic data for mine planning.

In anticipation of this large-scale pump test, sixteen water wells were completed within the northern portion of the Centennial Project area. The pump well for this test is completed in a mineralized A2 Sand, while monitoring wells were installed:

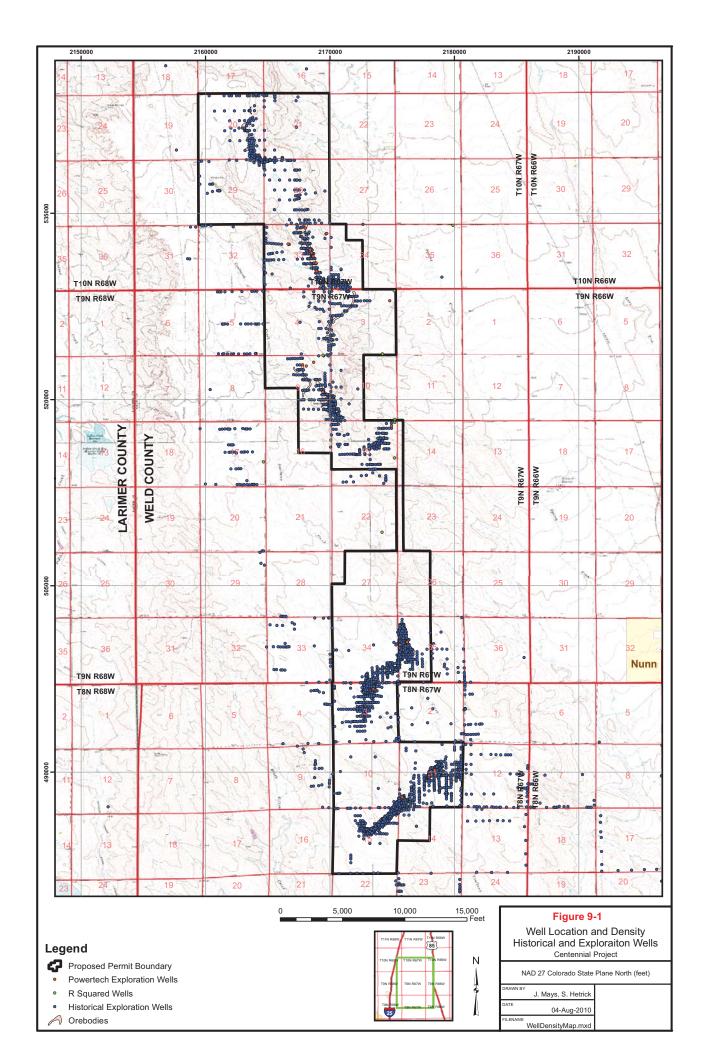
- Within the A2 Sand at varying distances from the pump well;
- Within the overlying Laramie sands; and
- Within the underlying WE and B Sands.

It is expected that the pumping test will be conducted in the first half of 2010.

#### 9.4 Conclusion

SRK concludes the drilling practices and have been conducted by industry-standard procedures. The drilling conducted by Powertech has confirmed historical drilling in terms of thickness and grade of uranium mineralization and has provided confirmatory geological controls to that mineralization – conformation of the redox roll-front model.

Core drilling has provided the verification of the mineralization as being largely in equilibrium for those deposits that are below the current water table. Water wells have provided some information on groundwater characterization, and preliminary information to support potential ISR production parameters. See Section 17 for further discussion of the hydrogeology of the Centennial Project.



# 10 Sampling Method and Approach (Item 14)

Section 10 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.

# 10.1 Sample Methods

## 10.1.1 Electric Logs

The majority of historical electric logs at the Centennial Project were run by nationally recognized contracting companies, such as Century Geophysical Corporation and Geoscience Associates. These logging companies were equipped with on-board processors that allowed for down-hole ore grade calculation of uranium mineralization. This type of log calculation was extremely accurate and eliminated the possibility of human error. The contracting companies routinely calibrated gamma ray logging equipment at one of several AEC/DOE test pits located across the western United States.

Powertech owns a geophysical logging truck, manufactured by Geoinstruments Logging, Inc. This unit produces down-hole electric logs, consisting of resistivity, "spontaneous" or "self"-potential and gamma ray curves. This suite of logs is the industry standard for defining lithologic units in the subsurface. The resistivity and self-potential curves provide qualitative measurements of water conductivities and permeability respectively, which are used to identify sandstones, clays and other lithologic units in the subsurface. These geophysical techniques enable geologists to interpret and correlate geologic units and perform detailed subsurface geologic mapping. These electric logs were run on all Powertech drillholes completed within the Centennial Project site. The geophysical logging tools currently employed are practically identical to the geophysical instruments used historically throughout the uranium industry in the U.S. and are readily correlated to RME's historical drillhole logs for the project.

The gamma ray curves are extremely important as they provide an indirect measurement of uranium in the subsurface. Uranium in nature primarily consists of the isotope  $U_{238}$ , which is not a major gamma emitter. However, many of uranium's daughter products are gamma emitters and when the uranium is in equilibrium with its daughter products, gamma logging is a reliable technique for calculating in-place uranium resources.

# 10.1.2 Drill Cuttings

Mud rotary drilling relies upon drilling fluids to prevent the drilling bit from overheating and to evacuate drill cuttings from the hole. These drill cuttings (samples) are collected at 5ft intervals by the drill rig hands at the time of drilling. The samples are collected in order to determine the lithology of the material being drilled at its respective depth. After the hole is completed, a geologist will record the cuttings into a geologist's lithology log of the hole. This log will describe the entire hole, but detailed attention will be directed toward prospective sands and alteration (oxidation or reduction) associated with these sands. Chemical assaying of drillhole cuttings is not practical since dilution is so great by the mud column in the drillhole and sample selection is not completely accurate to depth.

### 10.1.3 Core Samples

Core samples were collected in order to perform accurate chemical analyses and metallurgical testing, as well as to obtain physical parameters of mineralized sands and confining units. The mud rotary drill rig had the capability to selectively core portions of a drillhole, using a 10ft barrel.

A portable core table was set up at the drilling site. Core was taken directly from the inner core barrel and laid out on the table. The core was measured to determine the percentage of core recovery, then washed, photographed and logged by the site geologist. The core was then wrapped in plastic, in order to maintain moisture content and prevent oxidation and cut to fit into core boxes for later sample preparation. Overall core recovery was greater than 92%.

### 10.2 Conclusion

Gamma logs historically were the standard "sampling" tool by which to determine in situ uranium grades. Current uranium exploration methods use a combination of gamma logging and core samples, as Powertech has, to determine in-situ uranium grades, and the nature and extent of uranium equilibrium/disequilibrium. The use of Prompt Fission Neutron (PFN) logging techniques, as described in Section 9.2, were historically used as well for direct determinations of U<sub>3</sub>O<sub>8</sub>, thus avoiding disequilibrium issues in reading uranium daughter products in deposits above the water table. The methods employed by Powertech are appropriate for the mineralization at Centennial and are standard industry methods for uranium determination.

# 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. Sixinch 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<sub>3</sub>O<sub>8</sub> ("e" for equivalent) and should not be confused with U<sub>3</sub>O<sub>8</sub> 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<sub>3</sub>O<sub>8</sub> 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 downhole 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<sub>3</sub>O<sub>8</sub> 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:

$$10,000$$
CPS x K = %eU<sub>3</sub>O<sub>8</sub>

The total CPS at the Centennial Uranium Project is dominantly from uraninte/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<sub>3</sub>O<sub>8</sub> 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.

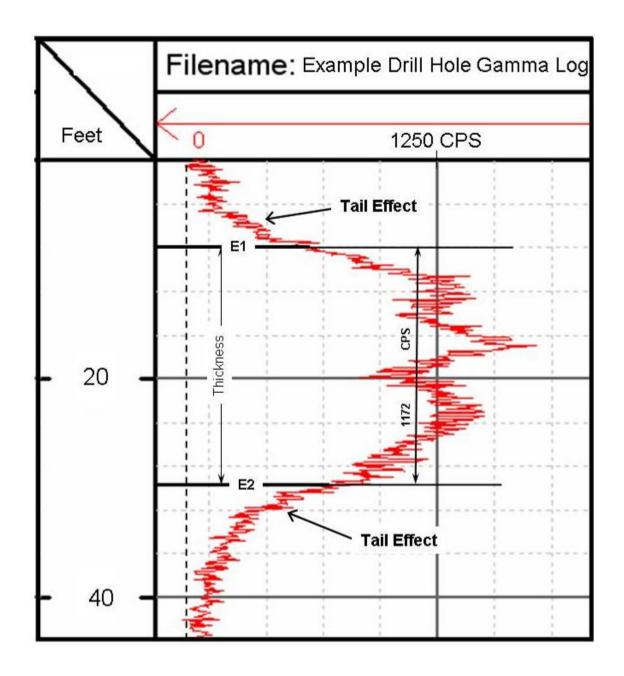
# 11.2 Quality Controls and Quality Assurance

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<sub>3</sub>O<sub>8</sub>.

### 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 Project No.: 194300.020

File Name: Figure\_11-1.docx

Centennial Project, **Weld County, Colorado** 

Source: Powertech (USA), Inc.

**Example Gamma Log – Half-**

**Amplitude Method** 

Approved: AM Date: 20100503

Figure: 11-1

# 12 Data Verification (Item 16)

Section 12 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.

The historical database contains most of the data used to calculate resources for the project. This database consists of over 3,500 drillholes, which includes down-hole assay logs for 799 drillholes and 124 core holes, with supporting electric logs, lithology logs, assay reports and resource calculations. Numerous reports written by various departments within RME are also present. All drillholes were surveyed by a Registered Professional Land Surveyor, resulting in collar elevations and survey coordinates (Colorado Northern State Plane System) for each drillhole. A computer-generated listing of this survey information is part of the database.

RME utilized a Princeton Gamma-Tech (PGT) down-hole logging system to obtain in-situ chemical assays within the shallow resource areas in the southern portion of the Centennial Project. PGT had been used successfully on South Texas roll front deposits and RME was the first company to employ this technology to roll front deposits in Colorado. The PGT probe is a high-resolution gamma ray spectrometer that is capable of separating and identifying all of the gamma ray emitters present in a uranium deposit. It measures a 1 MeV (million electron volt) gamma ray from Protactinium-234 (a 24.1-day half-life), very promptly after the decay of Uranium-238. Since there can be virtually no geochemical mobilization in such a short time, the 1 MeV gamma ray is an excellent measure of the concentration of uranium, unaffected by disequilibrium. The PGT system was determined to be quite reliable for the in situ measurement of uranium, although when this technology was compared to the results of chemical analyses of core holes, it was determined that this logging technique was conservative, underestimating mineable resources by approximately 6%.

All historical drillhole intercept data from gamma logs were digitized by RME and converted to 0.5ft printouts. In addition, 1ft digital printouts are also available for the 799 down-hole PGT logs and the assay data of the 124 core holes. Individual databases for each resource area were developed using this digital data, along with recent intercept data from confirmation drilling.

### 12.1 Data Verification Procedures

An overall assessment of the data used for the classification of resources into various categories is required by the CIM Definition Standards for Mineral Resources and Mineral Reserves. This assessment showed that historical data gathering and interpretation of the data was conducted by a well-respected and major uranium exploration company, with a highly qualified uranium exploration staff. The assessment also showed that at key points, professional geologic consultants reviewed and verified the results of the historical exploration programs. Numerous academic reports have also been published on geologic settings and uranium mineralization in and around the project area. Current interpretive work has been completed under the direction of Powertech's senior geologic staff. Powertech's Chief Geologist alone has over 40 years of uranium experience, including well field development assignments at several South Texas ISR facilities. All these factors provide a high level of confidence in the geological information

available on the mineral deposit and that historical drillhole data on the Centennial Project is accurate and useable for continued evaluation of the Project.

The author of the Powertech's resource NI 43-101 reports (Cary Voss) is in a unique position to verify that the historical data is valid and can be relied upon. Mr. Voss was the Exploration Manager for RME, which had a reputation in the uranium industry as a reliable and knowledgeable uranium operating company. He spent considerable time in the field overseeing RME operations and procedures. With respect to all data used in this resource evaluation, the author examined geologic data located in Powertech's Denver office; performed quality assurance checks of gamma logging data contained in resource databases/maps and prepared or reviewed geologic cross sections to assure continuity of geology and grade throughout the resource areas.

#### 12.2 Data Confirmation

Geological information and evidence used to support an assessment of the geologic and grade continuity of the uranium resources at the Centennial Project is derived from the interpretation and analyses of the results of historical and recent drilling and coring programs. This drillhole information is used to define both uranium resource areas and the geologic setting that contains these resources.

<u>Confirmation Drilling</u> - Powertech's confirmation drilling programs were successful in verifying RME's geologic and geochemical controls on the deposition of uranium mineralization within the Centennial Project. This drilling demonstrated that the uranium mineralization within the project area fits into a sandstone roll-front deposit model. Accordingly, the oxidized host sandstone encounters strong reducing conditions at depth and there is a consistent and predicable precipitation of uranium at the oxidation/reduction (redox) boundary.

Figure 12-1 is a cross section of Powertech confirmation holes located in Section 33, T10N, R67W in a northern resource area of the Centennial Project. This section illustrates the geochemical system associated with a sandstone roll-front uranium deposit and the concentration of uranium resources at the redox boundary. It also shows the location of this concentrated uranium mineralization with respect to a GT contour map of the resource area. The high-grade uranium encountered in the confirmation drilling corresponds to the higher GT contours based on historical drilling, thus demonstrating continuity of grade within this resource area.

Figure 12-2 is a frequency distribution plot from the same northern resource area, utilizing 230.5ft uranium intercepts from confirmation drillholes compared to an equal number of 0.5ft uranium intercepts from historical drillholes in the immediate area. The similar nature of the distribution curves indicate that the grades of uranium encountered in the Powertech drilling were comparable to the grades of the historical drilling. The slightly higher average grade of the confirmation drilling is due to the fact that these holes were located on a previously identified roll-front.

**Equilibrium Analyses** – Naturally occurring uranium ( $U_{238}$ ) is detected in the subsurface by gamma ray emissions from its radioactive daughter products. Uranium is in a state of equilibrium when these gamma ray emissions are equal to its chemical uranium values. It has been calculated that uranium and the gamma ray signature of its daughters are in equilibrium when the uranium remains stationary for approximately one million years. Along the oxidation/reduction boundary associated with a typical "roll front" uranium deposit, there is a natural and expected change in

the equilibrium state of uranium. Because these uranium deposits are dynamic, there is continual accretion of uranium under oxidizing conditions. This results in roll fronts exhibiting chemical depletion at the oxidized boundary and chemical enrichment further down gradient. These values can be graphed on an equilibrium plot to indicate if the subsurface uranium is in equilibrium or if there has been separation (mobilization) of the chemical uranium from the daughter products.

Figure 12-3 shows an equilibrium plot of  $U_{\text{Gamma}}$  and  $U_{\text{Chemical}}$  values of the mineralized intercepts of 0.02% U<sub>3</sub>O<sub>8</sub> or greater from four core holes in the northern Section 33 resource area. Overall, the character of the plot demonstrates a state of equilibrium – with some chemical enrichment. This is to be expected when the location of the core holes are reviewed. They were all located to retrieve reduced core from the center or adjacent to the "roll front". Accordingly, the chemical assays showed equivalent to positive chemical:gamma uranium ratios, with an average ratio of 1.1:1. This is a typical equilibrium ratio for this portion of a sandstone roll-front deposit and demonstrates that conventional down-hole gamma ray logging in this area provides a valid representation of in-place uranium resources.

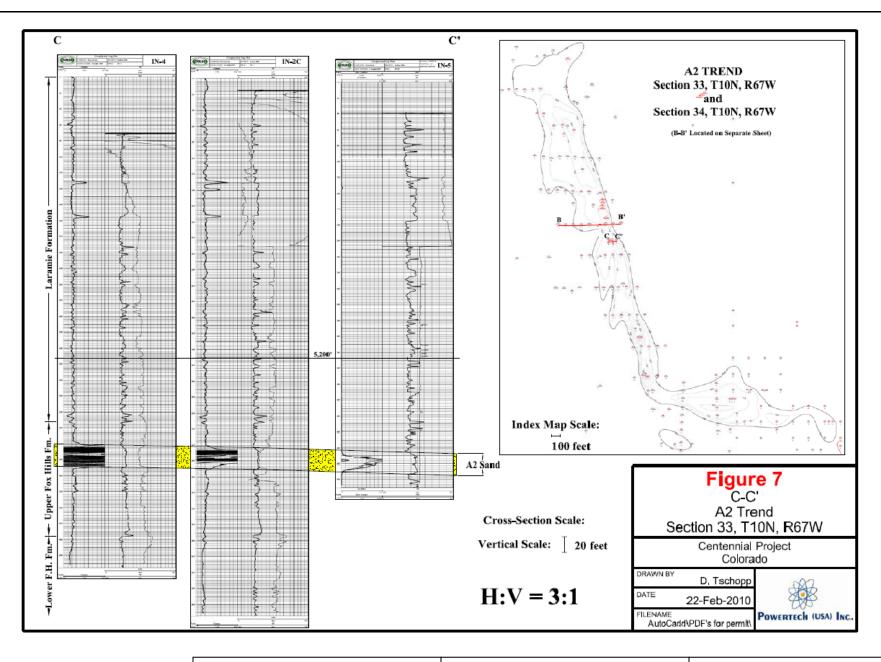
In the southern portion of the Centennial Project, the resources are shallow, ranging from 60-260ft below surface. Because of these shallow depths, approximately only 26% of these resources are located below the zone of saturation, with the remainder at or above the water table. Historical drilling and coring, along with confirmation coring by Powertech, has demonstrated that there has been some recent mobilization of chemical uranium from its daughter products in this area. For this reason, conventional gamma logging is not sufficient to characterize these shallow resource areas. Historically, RME utilized 799 previously described PGT drillholes and 124 core holes to delineate the shallow, southern resource areas. Figure 12-3 also shows an equilibrium plot of U<sub>Gamma</sub> and U<sub>Chemical</sub> values of mineralized intercepts of 0.02% U<sub>3</sub>O<sub>8</sub> or greater from the Section 34/35 Resource Area. Over 1,900 PGT log data points from this resource area were used in this analysis. Even though there has been some recent minor mobilization of uranium within the roll fronts, by using the down-hole assays, it can be demonstrated that uranium was mobilized only a short distance and that an overall state of equilibrium exists within the deposit. This equilibrium analysis showed chemical:gamma uranium ratios averaging 1.58:1. This equilibrium ratio is much higher than that associated with deeper resources in the northern portion of the project and is indicative of recent uranium mobilization. Similar results were obtained from equilibrium plots for the other southern resource areas.

For this reason, only chemical uranium values were used in the GT contouring of these resource areas for this updated report. These chemical values were derived from downhole assays from 799 PGT drillholes and from laboratory analyses of core from 124 historical and 5 confirmation core holes. Powertech recognizes that future work on the Centennial Project will involve continuously monitoring the equilibrium state of uranium within its resource areas. In addition to collecting core samples, Powertech has the capability of performing down-hole chemical logging with its Prompt Fission Neutron (PFN) logging tool. This tool overcomes the issue of disequilibrium of  $U_{238}$  by measuring  $U_{235}$  directly, then back-calculating to  $U_{238}$ . This sophisticated technique involves generating pulsed neutrons down-hole and measuring the response returning to the tool. Future delineation drilling using this logging technique will provide accurate measurements of uranium resources.

### 12.3 Conclusion

SRK concludes the work done by Powertech to verify the historical records has validated the project information. SRK visited the site and noted the location of current Powertech drillhole sites and water well and monitor well above-ground casings. There is a limitation in defining the historical drilling in that most if not all historical drillholes are no longer identifiable as to collar location. This is due in part because the holes were collared in soil/alluvium/shale, which would not visibly retain evidence of the drillhole collars unless the holes were abandoned with steel casing protruding from the ground surface. This is not the case as much of the land surface is farmland that has been cultivated for dry-land farming or irrigated farming (alfalfa) in some areas. SRK notes that the drilling by Powertech has verified the location and grade of uranium mineralization. There are no known discrepancies in locations, depths, thicknesses, or grades that would render the project data questionable. It is SRK's opinion that Powertech has adequately verified the historical data.

While portions of the Centennial Project uranium deposits are above the water table and oxidation has occurred, disequilibrium has also occurred. As noted above, Powertech used PGT logging technology (PFN logs) to determine in-situ uranium grades; thus, avoiding the need to use disequilibrium corrections to total gamma count eU<sub>3</sub>O<sub>8</sub> determinations, in the same way that RME conducted similar logging historically. SRK concurs that this approach provides for a more accurate representation of true uranium grades for the southern portion of the Centennial Project.





SRK Job No.: 194300.020

File Name: Figure\_12-1.docx

Centennial Project, Weld County, Colorado

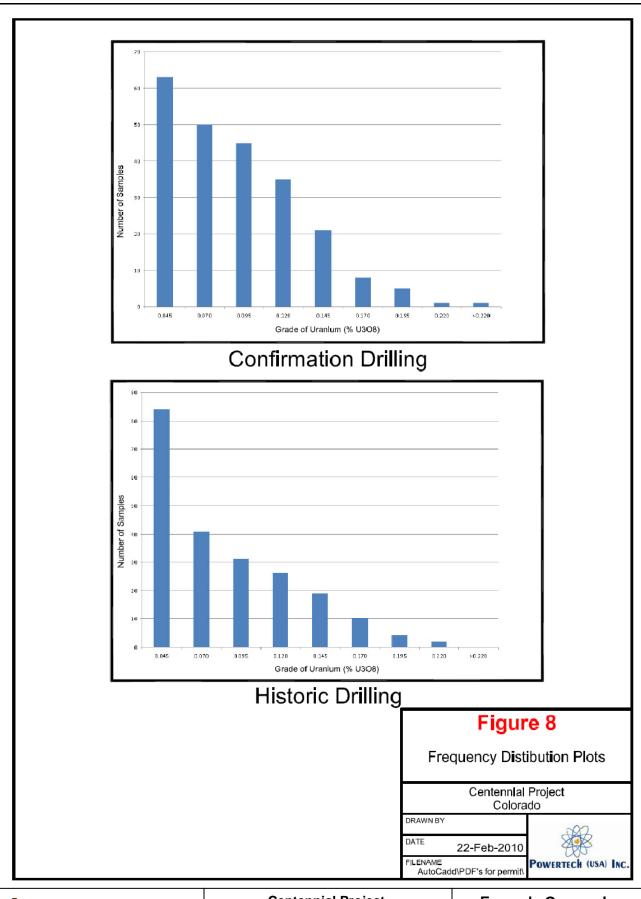
Source: Powertech (USA), Inc.

E-Log Sectional Representation for the Centennial Project

Date: 20100503

Approved: AM

Figure: 12-1





SRK Project No.: 194300.020

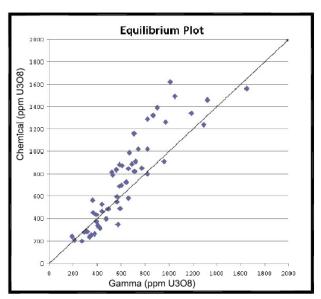
File Name: Figure\_12-2.docx

Centennial Project, **Weld County, Colorado** 

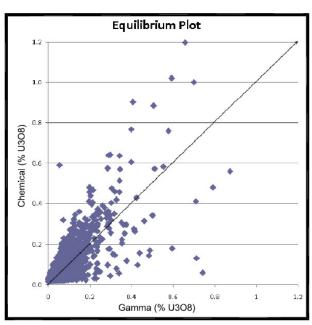
Source: Powertech (USA), Inc.

# **Example Gamma Log – Half-Amplitude Method**

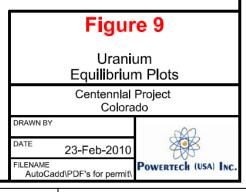
Figure: 12-2 Date: 20100503 Approved: AM



# A - Northern Area



B - Southern Area





SRK Project No.: 194300.020

File Name: Figure\_12-3.docx

Centennial Project, Weld County, Colorado

Source: Powertech (USA), Inc.

**Centennial Equilibrium Plots** 

Approved: AM

Date: 20100503

Figure: 12-3

# 13 Adjacent Properties (Item 17)

There are no immediately adjacent properties that contain uranium mineralization or uranium deposit and there are no uranium operating mines near the Centennial Project.

The nearest uranium deposit for which uranium is or has been produced by ISR method are the mines in the Powder River Basin of Wyoming, approximately 100mi to the northwest, and those deposits are hosted in different age and stratigraphic sandstone units.

There are no nearby or adjacent uranium properties that have bearing on the merits of the Centennial Project.

# 14 Mineral Processing and Metallurgical Testing (Item 18)

Section 14 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.

# 14.1 Mineral Processing/Metallurgical Testing Analysis

Powertech conducted leach amenability studies on uranium core samples obtained in the previously described coring program. The tests were conducted at the ELI Casper facility between October 27 and November 5, 2007. Leach amenability studies are intended to demonstrate that the uranium mineralization is capable of being leached using conventional ISR chemistry. The leach solution is prepared using sodium bicarbonate as the source of the carbonate complexing agent (formation of uranyldicarbonate (UDC) or uranyltricarbonate ion (UTC). Hydrogen peroxide is added as the uranium oxidizing agent and the tests are conducted at ambient pressure. Sequential leach "bottle roll" tests were conducted on the two core composite intervals selected by Powertech personnel. The tests are not designed to approximate in-situ conditions (permeability, porosity and pressure) but are an indication of mineralization reaction rate and the potential for uranium recovery.

The leach tests were conducted on two core intervals recovered from two holes. One interval represented low-grade at 0.073% as U and the other interval represented higher-grade material averaging 0.116% as U. Based on the known volume of core in the selected intervals and the apparent wet density, wet masses of sample representing a 100ml pore volume (PV), assuming 30% porosity, were delivered to the reaction vessels. Five PV lixiviate charges (500mL of 2g/L HCO<sub>3</sub>, 0.5g/L H<sub>2</sub>O<sub>2</sub>) were mixed with the mineralized samples and vessel rotation was started. Over a six day period, 30 PV of lixiviate was delivered to and extracted from the vessels. Analysis of the resulting leach solution indicated leach efficiencies of 71% and 95% [SRK revised these extraction efficiencies to 74% and 78% as described in Section 14.1.3).

These preliminary leach tests showed normal leach curves and indicated that the uranium deposits at Centennial appear to be readily mobilized in oxidizing solutions.

### 14.1.1 SRK Comments

SRK notes that the preliminary lab testing of porosity and leachability are favorable first steps in determining amenability of ISR methods of uranium recovery. Currently available pump test data suggest the potential for movement of fluids through the rocks in situ. Additional pump tests are necessary to determine aquifer drawdown and restoration criteria. These additional pumps test are planned by Powertech, and will provide additional information of the potential for ISR; however, SRK notes that only direct injection and recovery of lixiviant, and processing will provide direct information on the leachability rate, leach solution chemistry, and ultimate uranium recovery that can be expected.

This section includes reviews of the following topics:

• Uranium analysis of core samples;

- Bottle roll leaching tests;
- Pressurized leaching test; and
- Dissolved species and implications on process solution bleed.

## 14.1.2 Uranium Analysis of Core Samples

Chemical analyses for uranium were performed by ELI in Casper, WY. Core samples were dried and pulverized through 100-mesh, then subjected to closed-can gamma counting, as well as "chemical uranium" determination by strong mineral acid digestion and analysis of the resulting solutions by Inductively Coupled Argon Plasma (ICP) emission spectroscopy.

# 14.1.3 Bottle Roll Leaching Tests

Bottle roll leaching tests were carried out on core samples from Hole #IN-1C and Hole #IN-2C, respectively, representing lower-grade resource at 0.073% U (0.086% U<sub>3</sub>O<sub>8</sub>) and higher-grade resource at 0.116% U (0.137% U<sub>3</sub>O<sub>8</sub>). Assuming a porosity of 30%, a pore volume of 100mL was estimated for  $333\text{cm}^3$  of core. (According to the ELI procedure as provided to another of our clients, the core samples were pulverized through 60-mesh prior to head analysis and bottle roll leaching.)

The core composite samples were placed in 2-liter plastic bottles and leaching solution ("lixiviant") containing 2.0g/L HCO<sub>3</sub> (as sodium bicarbonate) and 0.5g/L H<sub>2</sub>O<sub>2</sub> (as aqueous hydrogen peroxide) was added at a liquid/solid ratio of five pore volumes (500mL for 333cm<sup>3</sup> of solid sample). The bottles were then rotated around their long axis for 16 hours at 30 RPM. Following the initial leaching cycle, the bottles were emptied and centrifuged and the solutions were analyzed for uranium, vanadium, sodium, sulfate, alkalinity (bicarbonate and carbonate), selenium, pH, and conductance. The solids were then returned to the bottles and 500mL of clean lixiviant was added. Over a six-day period, 30 estimated pore volumes of solution were added to and extracted from each bottle. The final solid residue was dried, ground, and analyzed for uranium to enable calculation of an overall mass balance.

The uranium extractions, reported on the basis of comparing the uranium contained in the leachate solutions with the total uranium as measured in the post-test ore assay, were 78% for #IN-1C and 74% for #IN-2C. Core Laboratories conducted various tests on Hole # IN-3C core, including porosity measurements ranging from 32.77 to 50.24%, and averaging 40.21%. If there was similar granulometry in Holes #IN-1C and #IN-2C, the assumed porosity was too low, resulting in underestimation of the pore volume; the effect of this error would be that the reported extractions were actually conducted with fewer than 30 pore volumes of lixiviant.

To quote the ELI report dated November 29, 2007, "The tests are not designed to approximate in situ conditions (permeability, porosity, pressure) but are an indication of the ore's reaction rate and the potential uranium recovery." It is sufficient to say that the bottle roll tests confirmed that the uranium mineralization in the core samples is amenable to dissolution at ambient conditions with oxygenated water containing a bicarbonate/carbonate complexing agent.

### 14.1.4 Pressurized Leaching Test

During December 2008, Hazen Research, Inc. (Hazen) performed a sealed bottle roll test using pressurized oxygen and carbon dioxide, rather than aqueous reagents, to simulate in-situ conditions near the bottom of a commercial injection well. The medium was natural ground

water and the sample was a composite from Hole #IN-3C. The test was interrupted periodically to separate the aqueous phase and to contact it with ion exchange resin to isolate uranium dicarbonate (or tricarbonate) and other anionic species before returning the solution to the pressure vessel for another leach cycle. Four 4-day to 5-day cycles were completed at partial pressures of 5 psi CO<sub>2</sub> and 95-98 psi O<sub>2</sub>.

The composite was made up of splits from core intervals between 367 and 373ft below the collar of the hole. A weighted average of the assays of the eleven 0.5ft intervals was 1,040mg/kg U, or 1,226mg/kg (ppm)  $U_3O_8$ , based on analyses completed earlier by ELI. However, the blended composite was sampled twice prior to testing and the assays were 0.076% and 0.141%  $U_3O_8$  versus the weighted average of 0.123%  $U_3O_8$  based on ELI analyses. It is not clear why the analytical agreement was so poor, but there are several possible explanations: (1) the composite may not have been blended properly; or (2) sampling of the blended composite by Hazen may have been flawed, or (3) sensitivity to matrix effects may have introduced errors into ELI's ICP procedure, whereas Hazen's fluorometric determinations would not have been influenced.

The outcome of the pressurized bottle roll leach experiment is uncertain, especially as a result of the head assay question, but uranium extractions of 71 and 75%, respectively, can be inferred on the basis of residue and solution assays. The #IN-3C test was terminated after contact with 25 pore volumes and prior to cessation of leaching with the cumulative extraction still increasing.

### 14.1.5 Dissolved Species and Implications on the Process Solution Bleed

Final production composite solutions (CS) from the ambient and pressurized bottle roll tests contained only trace concentrations of molybdenum, selenium, and vanadium, indicating that bleeding solution for the sake of control of those impurities in yellowcake will not be necessary. However, total dissolved solids (TDS) increased from approximately 1,000mg/L in natural groundwater to about 3,340mg/L in the final CS, primarily reflecting increases in sodium, bicarbonate, and chloride ions. Also, radium increased from 20 pCi/l Ra<sup>226</sup> to approximately 2,500 pCi/l Ra<sup>226</sup> in the CS. Should impurities inhibit IX loading, Powertech will utilize the planned reverse osmosis (RO) circuit to perform a chemical bleed, reintroducing the RO permeate into the injection stream.

# 15 Mineral Resources (Item 19)

Section 15 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.

#### 15.1 Resource Estimation

The primary purpose of this technical report is to re-categorize the total resource base within the Centennial Project. To date, all subsequent technical reports have categorized these resources as "inferred resources", based solely on historical data. As presented in Section 12.0 - Data Verification of this report, the results of Powertech's confirmation drilling programs from 2007 - 2009 have successfully verified historical project data. This re-categorization is therefore based upon a combination of historical and recent drilling data. In order to perform this recategorization, an extensive evaluation of Centennial Project resources was undertaken. The first step in this evaluation process was the GT contouring of all identified resources. The next step involved a strict application of criteria and definitions presented in the CIM Definition Standards for Mineral Resources and Mineral Reserves, dated November 22, 2005 to these identified resource areas to establish resource categories.

# 15.2 GT Contouring

For the ISR industry, GT contour mapping is the accepted method of resource calculation, as well as for well field design and layout. GT is a summary of mineralization, based on the grade times thickness of a mineralized intercept. After extensive subsurface correlation of mineralized sand units to determine geologic continuity, a listing of all mineralized intercepts for individual sand units was developed. For each resource area, these intercepts (to include elevation, depth, thickness, grade and GT) were plotted on drillhole maps. Mineralized intercepts that met or exceeded a GT of 0.2 were placed on drillhole maps. In cases where two or more mineralized zones were present in the same sand unit, if the separation of these mineralized intercepts was 10ft or less, the GTs were summed. If this separation of mineralized intercepts was greater than 10ft, only one GT value was used. Hand-drawn contouring of the GT values was then performed. Standard extrapolation techniques were used in the contouring process, along with the incorporation of some geologic interpretation. This interpretation took the physical characteristics of a roll-front uranium deposit into consideration, allowing for the projection of contour lines along the trend of the observed oxidation/reduction boundary. Individual contour lines were drawn for GTs of 0.20, 0.50, 1.0, 2.0, etc. The resulting GT contour map provides an excellent representation of the distribution of uranium grades and delineates the roll-front within each resource area. Figure 15-1 is a GT contour map of the Section 11 Resource Area and a representative example of the detailed GT contour maps prepared for this resource recategorization project.

For each resource area, the first step in estimating resources was to calculate areas (ft²) between each GT contour line. AutoCAD® mapping software was used for this purpose. Resources were calculated by multiplying the area of each interval enclosed by the GT contours by the average GT of that interval. That number was then divided by the tonnage factor of 16.75ft³ft/t. The mathematical formula is abbreviated as follows:

(Avg. GT x Area in  $ft^2$  x 20)/16.75 $ft^3/t = lbs U_3O_8$ 

All individual interval resources were summed to determine a total for each resource area. Spreadsheets for these calculations were maintained.

### 15.3 CIM Definitions

To categorize these GT contoured-resources, criteria from the CIM Definition Standards were applied to each resource area. The GT contour maps (and the drillhole data from which they were prepared) were the primary focus of the resource reclassification effort. The CIM Definition Standards state that a mineral resource is known, estimated or interpreted from specific geological evidence and knowledge. A resource is further subdivided into categories based on increasing geological confidence, such that inferred resources have a lower level of confidence than that applied to an indicated resource. An indicated resource has a higher level of confidence than inferred resources but has a lower level of confidence than a measured resource. CIM resource definitions are as follows:

**Inferred Mineral Resource** - An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes.

**Indicated Mineral Resource** - An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes that are spaced closely enough for geological and grade continuity to be reasonably assumed.

Measured Mineral Resource - A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes that are spaced closely enough to confirm both geological and grade continuity.

As previously discussed in Section 12.0 - Data Verification, the author believes that the exploration techniques used by RME and Powertech to delineate these resources were reliable, accurate and appropriate. To complete the categorization process, the results of the historical and confirmation drilling was examined to verify that the uranium mineralization at Centennial fit an accepted uranium deposit model and that the mineralized sands could be fit into an accepted depositional environment model. As previously discussed in this report, uranium mineralization within the project area fits a sandstone roll-front uranium model and the host sands were

deposited in a marginal marine depositional system. Based on industry knowledge of these models, site-specific criteria were applied to the GT contoured-resources in order to establish a level of confidence for resource areas. These criteria apply to the geological and grade continuity of the resource areas, as well as the drillhole spacing within individual resource areas.

## 15.3.1 Geologic Continuity

Specific geologic data were reviewed for each resource area (GT contour map) to confirm that the mineralization is consistent with a sandstone roll-front deposit model within marginal marine sands. Sufficient drillhole electric and geologic lithology logs were reviewed for each area to determine the presence of a consistent mineralized oxidation/reduction (redox) boundary in the subsurface. At the same time, drillhole data within the project were reviewed to gain an understanding of the identification and correlation of stratigraphic units in the subsurface. Cross-sections were developed and reviewed, along with a review of existing isopach maps, to demonstrate the presence of individual, mappable continuous host sandstones. Laboratory results of core analyses indicate sufficient permeability and porosity of host sandstones for movement of mineralized solutions. Results showing physical parameters of low vertical permeabilities for confining clay units above and below the host sandstones are ideal for control of ISR solutions. Preliminary laboratory analyses on the leachability of uranium within the resource areas were also reviewed. These analyses support the interpretation of roll front uranium as opposed to refractory mineralization. All data reviewed confirmed the presence of uranium mineralization within a geologic environment that is continuous throughout the project area.

## 15.3.2 Grade Continuity

Again, the confirmation that Centennial mineralization is associated with sandstone roll front deposits is an important factor in establishing grade continuity of the resources. In a roll front deposit, the continuity of the grade of a deposit or resource area is directly related to the mineralized redox boundary. Uranium mineralization in a roll front deposit has a readily identifiable elongated, crescent-shaped configuration. The "points" of the crescent are within the oxidized portion behind the redox boundary. The highest-grade portion of the mineralization is found in the center of the crescent at the redox boundary or the "front". The length of a deposit or resource area is roughly parallel to the redox boundary and can have a length of a few hundreds of feet to a few thousands of feet. The width of a resource is at a right-angle to the redox boundary and will measure from a few tens of feet to a few hundreds of feet. Cross sections drawn or reviewed by the author within all resource areas illustrated the presence of roll front uranium and the continuity of uranium mineralization along redox boundaries within sand units. Drillhole data gathered on the Centennial Project demonstrates that the grades of uranium mineralization within these roll front deposits are both continuous and predictable.

# 15.3.3 Drillhole Spacing

It was determined that in order to complete an orderly re-categorization of resources, some site-specific clarification of definitions within the CIM Definition Standards was required. With respect to the required drillhole spacing, the following definitions apply:

### 15.3.4 Drilling Density for Measured Resources

Within the Centennial Project, the uranium deposits are contained within marginal marine sandstones. The scale and the continuity of these host sands are much greater than fluvial channel sands, resulting in resource areas with average widths of 200ft or greater and lengths

exceeding 5,000ft. However, the grades of these marginal marine deposits are lower, averaging  $0.10\%~U_3O_8$ . A review of historical RME drilling within resource areas shows that a 100ft grid pattern was successful in confirming geological and grade continuity. In fact, this was the drillhole spacing RME used to support surface mine planning of the southern resource areas. This density of drilling yields an average Area of Influence per hole of  $10,000\text{ft}^2$ . Therefore, it was determined, for the purpose of delineating Measured Resources, drillholes within a resource area must be spaced at a sufficient density to yield an average Area of Influence of less than 10,000ft.

## 15.3.5 Drilling Density for Indicated Resources

A review of historical RME drilling shows by increasing drillhole spacing to a 200ft grid pattern, the geological and grade continuity of the resource areas could be reasonably assumed. This density of drilling yields an average Area of Influence per hole of 40,000ft<sup>2</sup>. Therefore, it was determined, for the purpose of delineating Indicated Resources, drillholes within a resource area must be spaced at a sufficient density to yield an average Area of Influence of between 10,000 to 40,000ft<sup>2</sup>.

## 15.3.6 Drilling Density for Inferred Resources

Historical RME drilling shows that wide spaced exploration drillholes can identify the redox boundary and encounter higher-grade mineralization along this boundary. From this limited drilling, a GT cut-off can be applied to an area and resources can be estimated. However, additional grid drilling is required before the geological and grade continuity of the resource areas can be reasonably assumed. Therefore, for delineating Inferred Resources, drillholes within a resource area yielding an Area of Influence of 40,000ft<sup>2</sup> to 100,000ft<sup>2</sup> can be used.

### 15.4 Mineral Resource Estimates

As previously stated, the initial Centennial technical report from March 2007 and the updated technical report from June 2009 categorized all uranium resources as Inferred Resources, based solely on historical data. The initial technical report used a 0.20 GT cut-off for all inferred resource calculations, while the 2009 updated report calculated inferred resources using both a 0.20 and a 0.50 GT cut-off. The results of those two reports are summarized in table below:

**Table 15.1: Centennial Resource Previously Reported by Powertech** 

Voor	Tong	Average Grade	Pounds (II O )
Year	Tons	(%eU <sub>3</sub> O <sub>8</sub> )	Pounds (U <sub>3</sub> O <sub>8</sub> )
2007 Resources – 0.20 GT	5,175,793	0.094	9,730,490
2009 Resources – 0.20 GT	6,115,193	0.094	11,465,500
2009 Resources – 0.50 GT	3,369,455	0.114	7,692,300

Through acquisition of additional property, Powertech drilling and the continued evaluation of RME historical close-spaced drilling within the project boundaries, Powertech continued to increase its resource base on the Centennial Project. In this updated technical report, using the above-described evaluation criteria, project resources were calculated and reported for both Inferred Resources and Indicated Resource categories. In the opinion of the author, there was not sufficient drillhole records or density to support the calculation of Measured Resources. In addition, project resources are being reported for both a 0.20 GT and a 0.50 GT cut-off.

All indicated resources were calculated using detailed GT contour mapping (Figure 15-1). Resources were calculated by multiplying the area of each interval enclosed by the GT contours by the average GT of that interval. That number was then divided by the tonnage factor of 16.75ft<sup>3</sup>/t. The mathematical formula is abbreviated as follows:

(Avg. GT x Area in 
$$ft^2$$
 x 20)/16.75 $ft^3/t = lbs U_3O_8$ 

All individual interval resources were summed to determine a total for each resource area. The author reviewed all GT contour maps, audited drillholes and mineralized intercepts used in the construction of these maps and examined drillhole densities in accordance project-specific criteria. Individual resource areas that met the evaluation criteria were summed to determine total indicated resources for the Centennial Project.

Areas within the Centennial Project where significant uranium mineralization had been encountered, but without sufficient drilling to perform GT contouring were considered for Inferred Resource status. A 0.20 GT outline was drawn around these mineralized areas. This lower cut-off was used to increase confidence in continuity of mineralization along the mineralized trends. If the drillhole spacing within these mapped outlines met the project-specific criteria, they were designated as Inferred Resources. Average GTs from adjacent resource areas were applied to these areas for resource estimation. The results of this resource categorization are listed in the tables below:

Table 15.2: 2010 Centennial Resources – 0.20 GT Cut-off (Voss 2010)

		Average Grade	
Year	Tons	(%eU <sub>3</sub> O <sub>8</sub> )	Pounds (U <sub>3</sub> O <sub>8</sub> )
Indicated Resources	6,873,199	0.09	10,371,571
Inferred Resources	1,364,703	0.09	2,325,514

For mine planning purposes, an additional analysis of the indicated resources was performed using a higher 0.5 GT cut-off. Because the gradational continuity of uranium in roll fronts, the author was able to use the same contour maps employed in the previous calculations. The results of this higher GT cut-off are shown below:

**Table 15.3: 2010 Centennial Resources – 0.50 GT (Voss 2010)** 

Year	Tons	Average Grade (%eU <sub>3</sub> O <sub>8</sub> )	Pounds (U <sub>3</sub> O <sub>8</sub> )
Indicated Resources	5,111,154	0.11	8,120,866
Inferred Resources	488,507	0.09	641,470

The above estimate was reviewed by W. Cary Voss, Certified Professional Geologist (Wyoming PG No. 1806). Mr. Voss has over twenty-five years experience in the uranium exploration and development industry has performed numerous uranium resource analyses. It is the opinion of Mr. Voss that the resources identified in this evaluation, based on the density of drilling, the quality of drillhole data and the sound geologic interpretation of that data, clearly meet the category definitions of inferred and indicated resources as defined in the CIM Definition Standards for Mineral Resources and Mineral Reserves.

### 15.5 SRK Resource Audit

As part of this Scoping Study Preliminary Assessment, SRK has audited the resource methodology used for Centennial Project by Powertech and independent "Qualified Person" Carry Voss. SRK audited a representative portion (The North Diehl) of the Centennial mineralized area, not the entire resource.

### 15.5.1 Thickness Digital Terrain Models

Using the top and bottom elevations for each of the mineralized zones composite intercepts, digital terrain models for the top and bottoms of the surfaces were created and loaded into the block model to create a thickness representation for each zone of each sandstone unit. The horizontal extent of the zones was limited by the respective 0.2 GT contour outlines created by Powertech as described in Section 15.2. Given the limited amount of available data points for the creation of surfaces, controlling elevations were created external to the outlines by a method whereby triangulation control "points" were fitted to the known plane of existing true data. The results of this process are displayed on Figure 15-2 and the 3-D projection of Figure 15-3 for the North Diehl area.

Variograms, indicator variograms and correlograms were constructed with limited success for the North Diehl data. Given the variation of lower and higher-grade values and the lack of closely spaced values very erratic results were obtained with very high nugget values relative to sills. In particular, no preferential orientations (anisotropies) of the continuity of mineralization could be observed. SRK is of the opinion from general geologic inspection that broad orientation trends exist. The GT contouring carried out by Powertech clearly identifies mineralized trends; data is too sparse for geostatistical confirmation.

The dynamic anisotropy option in Datamine Studio3® allows the anisotropy rotation angles for defining the search volume to be defined individually for each cell in the model. The search volume is oriented precisely and follows the trend of the mineralization. The rotation angles are assigned to each cell in the model; it is assumed that the dimensions of the ellipsoid, the lengths of the three axes, remain constant. Since the three axes of the search volume are orthogonal and only two rotations are used (dip and dip direction) the orientation of all axes are explicitly defined. The point values can be taken from the orientation of the triangular facets that comprise the surface of a wireframe. In this case, the rotations are in plan only (one-dimensional) and a point file, where each point has a value for direction, is created from the GT contour strings defined by Powertech as described above. These points are displayed on Figure 15-4; each "arrow" is a locally interpreted "direction". These points are interpolated into each zone of the block model (using zonal control) and control the subsequent ellipsoidal search orientation for grade estimation for that block.

#### 15.5.2 Grade Estimation

Block grades of  $eU_3O_8$  were estimated using the dynamic search orientation as described above, with a three to one anisotropy (search along primary orientation was three times that across), hard boundary zonal control and an inverse power of two. The primary search was set initially to 100' (secondary and tertiary to 50') with the requirement of a minimum of two composites and subsequently doubled for an interpolation of non-interpolated blocks.

A grade times thickness variable (GT) was calculated from the estimated eU<sub>3</sub>O<sub>8</sub> variable and the thickness (T) variable derived from the digital terrain models. SRK further constrained the

estimated resource for the trends to areas that were considered to demonstrate reasonable geologic continuity and in particular to areas that were more or less interior to the drilling pattern. Projections beyond the extent of drilling were minimized; however, certain projections between intercepts in zones with a reasonable appearance of good geologic continuity were in some cases allowed. This interpretation is partly subjective; being based on the available sample intercepts but also on an appraisal of continuity.

The resources estimated by SRK and those estimated by Powertech within the limited North Diehl area modeled were globally similar. This is expected given the use of 0.2 GT contours provided by Powertech to limit the horizontal extent of each mineralized zone within each sandstone unit and the use of essentially an identical data set of composite intercept picks provided by Powertech. In general, SRK finds no flaws in the overall Powertech global resource. The areas outlined on Figure 15-5 in blue would constitute "inferred" areas with insufficient data to be considered indicated.

The major differences in resource estimation methodology are:

- The SRK representation is three-dimensional. This allows the spatial distribution of available sample intercepts and modeled grades to be more fully examined.
- SRK created a block model that allows an analysis of the spatial internal variation of available sample intercepts and modeled grades within a given unit.
- With a "computer model", SRK was able to examine alternative representations, assumptions and sensitivities.

#### 15.5.3 Comments

SRK found that for the North Diehl area modeled, the "fence" drilling provided a uniform delineation. SRK also found that the distribution of grade, thickness and grade-thickness product somewhat uniform within the relevant GT contours. Higher GT intercepts have in many cases been confirmed with infill drilling to the original fence pattern. This is seen on Figure 15-3. In general, SRK is in agreement with the Powertech resource classification. Areas outlined in blue would constitute inferred resources within the overall classified as indicated.

Powertech used the following criteria for resource classification:

"Therefore, it was determined, for delineating Indicated Resources, drillholes within a resource area must be spaced at a sufficient density to yield an average Area of Influence of between  $10,000 - 40,000 \text{ft}^2$ ."

For future resource updates, SRK recommends the Powertech approach to resource classification be further modified to take into account two characteristics

- The grade (GT) of the intercept; and
- The position of the intercept.

These characteristics are not independent. A higher-grade (GT) intercept surrounded by, or close to, in line with a reasonable geologic interpretation, that is not on the margin of the overall delineation warrants a reasonably high area of influence while one isolated, or on the edge of the overall delineation should be constrained. In many cases, this requires a subjective assessment of geologic continuity however the position of other samples must also be taken into account.

SRK recommends that isolated holes with high grades (high GT) be tested with offset drillholes along the mineralized trend to better define the area of influence of these high GT holes. Powertech plans to conduct definition drilling to achieve 10,000ft<sup>2</sup> areas of influence as part of the planned ISR well-filed design for production. At that time, the area of influence of high GT holes will be better defined.

SRK understands that Powertech has purchased Micromine, version 11.0.4, a 3-D modeling software, for use in final resource planning within the planned wellfields. This industry standard software will allow the creation and maintenance of various databases for all forms of data. In addition, it will provide the ability to represent and manipulate all data in three dimensions including drillholes, geologic interpretations and spatial models. Numerical estimation methods, beyond arithmetic averaging within outlines, should be implemented; as discussed above, not solely for the global resource calculation but as importantly for resource confidence classification, and for estimation of in-place reserves to establish uranium recovery within each wellfield. Many, if not most, of the commonly accepted industry standard practices for resource estimation are very difficult to achieve with manual methodologies.

SRK also cautions that the resource is planned for ISR mining and recovery of uranium; however, a significant portion (74%) of the resource in the southern portion of the Centennial project (approximately 1/3 of the total resource) is at or above the water table. This portion of the resource is presently considered as having the potential for economic extraction by ISR technology, because Powertech plans to inject water to locally raise the water table for this mineralization to allow for total saturation and thus permit ISR recovery of uranium. Demonstration that raising the water table can be adequately accomplished will not be done until injections permits are in hand.

# 15.6 Recovery and Mine Life

Based on the well field design, estimated reserves and expected recovery during production the estimated total reserves recovered for Centennial is shown in Table 15.4.

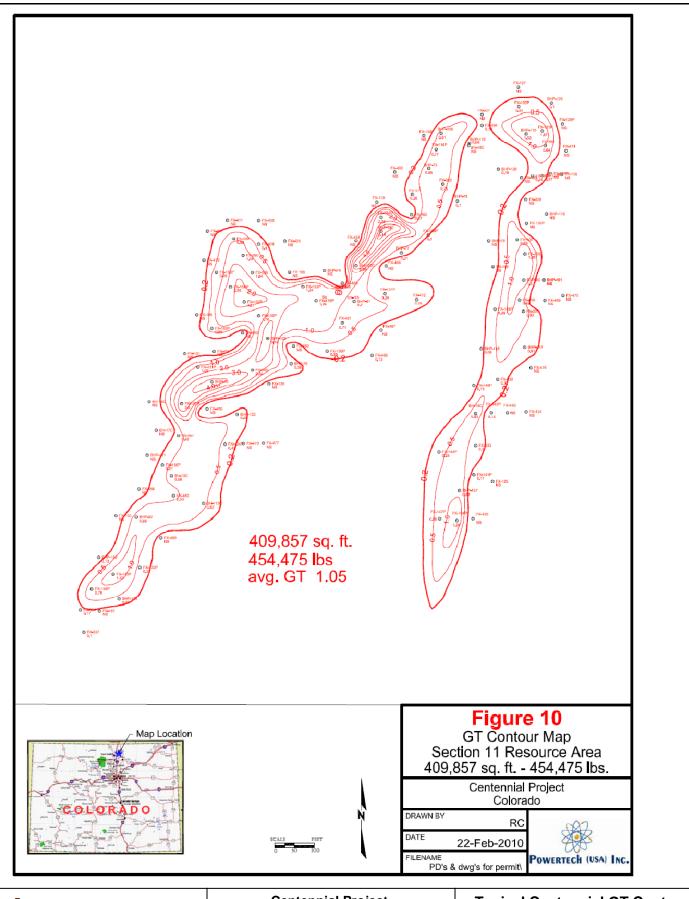
Recovery of mineral is projected at 75% from the ore deposit through to feed to the plant. This value is an estimate based on similar existing operations in Powertech's experience profile. Leaching studies have been conducted on the ore. Therefore, the overall yellowcake produced is estimated to be 9,523,000 lb. Considering the well field development and production schedule, the life of mine, at a production rate of 700,000lbs per year  $U_3O_8$  is 14 years.

The Centennial project has two distinct locations; the North site, which will be mined first, and the South site. Loaded resin will be trucked from the South satellite IX facility to the North central processing plant, whereas the resin for the North site will be loaded on resin located at the central processing site.

Table 15.4 presents the assumed design criteria for the Centennial Project that were used in the economic model.

Table 15.4: Summary of Design Criteria for Centennial Project

Statistic	Units	Value
Centennial total resources	$U_3O_8$ lb	12,697,085
Estimated overall recovery		75%
Total reserves recovered	$U_3O_8$ lb	9,522,813
Annual yellowcake production	U <sub>3</sub> O <sub>8</sub> lb/year	700,000
Est. mine life	years	14
Daily operating schedule	Hours/day	24
Annual operating schedule	Days/year	350
Daily production required	U <sub>3</sub> O <sub>8</sub> lb/day	2,000





SRK Project No.: 194300.020

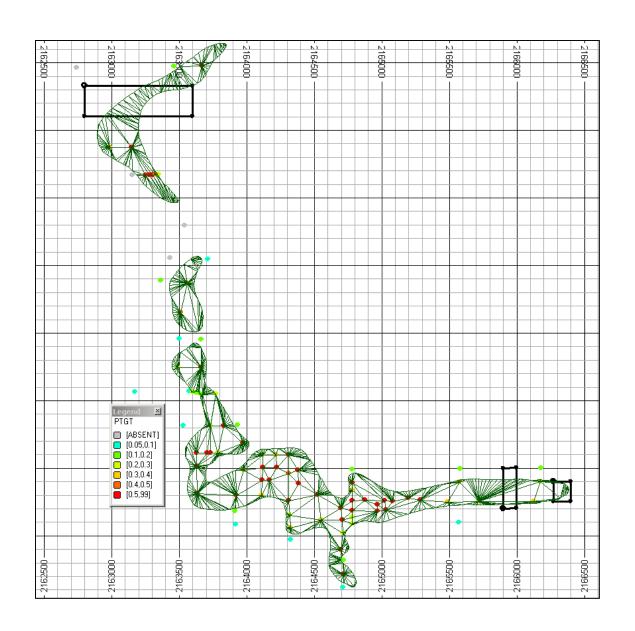
File Name: Figure\_15-2.docx

Centennial Project, **Weld County, Colorado** 

Source: Powertech (USA), Inc.

# **Typical Centennial GT Contour** Map

Date: 20100503 Figure: 15-1 Approved: AM





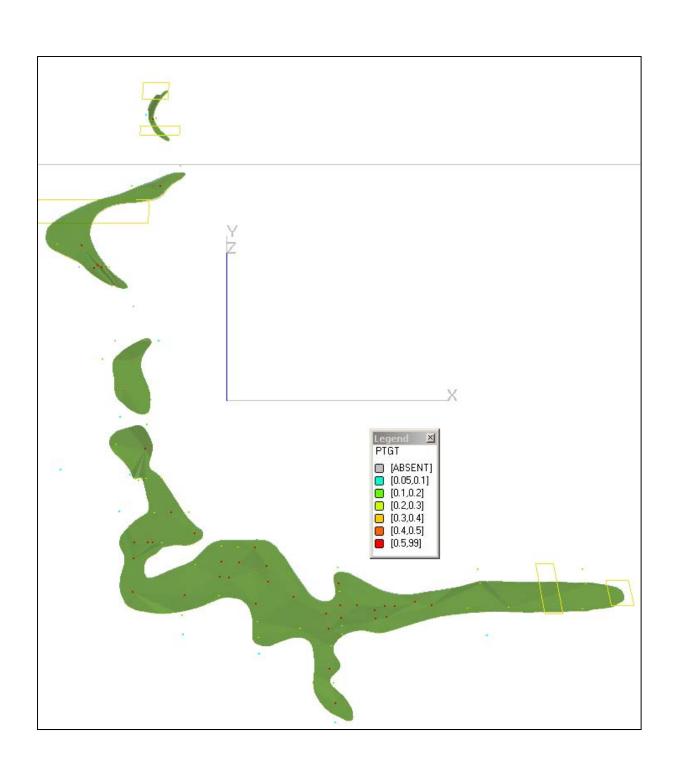
File Name: Figure\_15-2.docx

Centennial Project, Weld County, Colorado

Source: Powertech (USA), Inc.

**North Diehl Block Model** 

Figure: 15-2 Approved: AM Date: 20100503





File Name: Figure\_15-3.docx

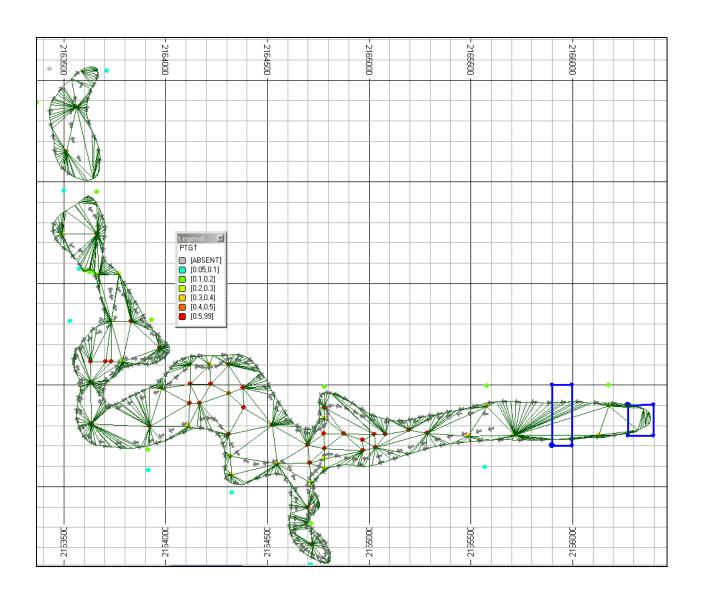
Centennial Project, Weld County, Colorado

Source: Powertech (USA), Inc.

**North Diehl Digital Terrain Model** 

Date: 20100503 Approved: AM

Figure: 15-3





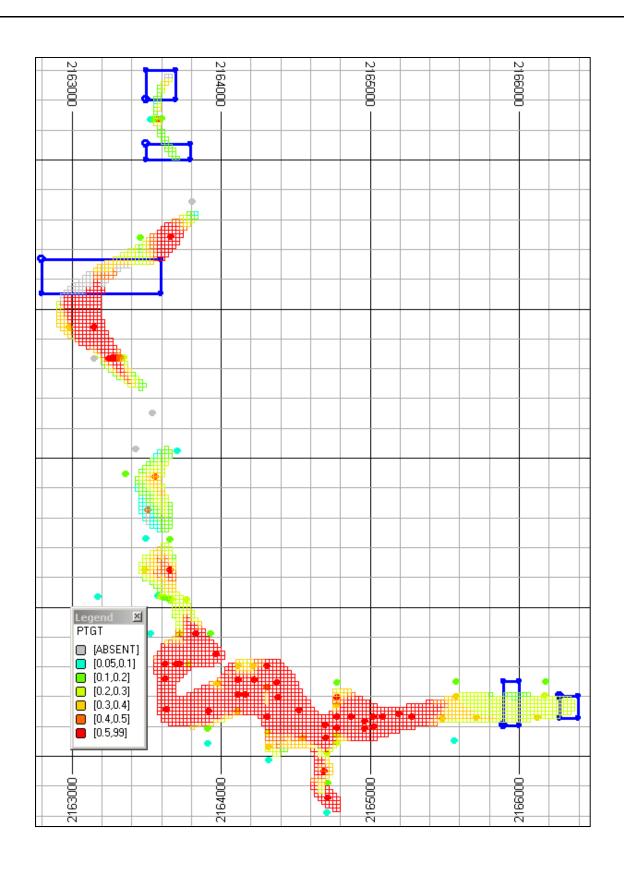
File Name: Figure\_15-4.docx

Centennial Project, **Weld County, Colorado** 

Source: Powertech (USA), Inc.

# **North Diehl Digital Terrain Model** Perspective

Figure: 15-4 Approved: AM Date: 20100503





File Name: Figure\_15-5.docx

Centennial Project, Weld County, Colorado

Source: Powertech (USA), Inc.

North Diehl Digital Terrain Model Dynamic Anisotropy

Date: 20100503 Approved: AM

Figure: 15-5

# 16 Other Relevant Data and Information (Item 20)

Powertech notes that pertinent data concerning uranium deposits in the Centennial Project area are bound to exist in other data storage or, even within the RME data acquired from Anadarko that will enhance the understanding of this project. In addition to the data already obtained, there are likely university or government reports that deal with groundwater conditions in the project area. Census data and weather data will also aid in the completion of permitting and licensing.

Powertech will continue to attempt to locate other pertinent project historical data as the Centennial Project progresses. Powertech is not aware of other relevant data, not in its possession, that could detract from the conclusions presented in this report.

SRK is aware that there are some property owners in the immediate location of the Centennial project that are against uranium mining in Colorado, as evidenced by posted signs to that effect in the project area. Social and political opposition to uranium mining and specifically this project may have bearing on the project; however, the extent of that opposition will likely not be fully known until the public hearing potion of the permitting process begins for the proposed Centennial mine development. As of the date of this report, the potential for social-political impacts on the project cannot be adequately addressed by SRK. This report is based on the technical aspects of the project.

All information relating to the Preliminary Assessment, since the study is geared toward project development, are presented in Section 17 (Item 25) of this report (Additional Requirements for Development Properties and Production Properties).

# 17 Additional Requirements for Development Properties and Production Properties (Item 25)

# 17.1 Hydrogeology

Powertech completed a preliminary characterization of the groundwater system at the Centennial project for mine planning and permitting purposes. In addition to descriptions of the aquifers and confining units above and below the sub-aquifers hosting the uranium mineralization, the hydraulic conductivity and transmissivity of the production aquifer will be addressed in detail, looking independently at the North and South project areas.

# 17.2 Regional Hydrogeology

The Centennial project is located within the South Platte River basin, the eastern part of which is composed of low relief plains with low precipitation. Due to favorable geologic conditions and readily available shallow groundwater, there has been limited development of deeper groundwater resources within the basin. Important aquifers within the region include alluvial and terrace deposits along major watercourses and streams, the Ogallala and Arikaree formations in Wyoming and northern Colorado, the White River Group, the Laramie formation, and the Fox Hills formation.

In addition, the underlying Pierre shale, although considered poor quality water, has historically produced and is the deepest source of water in the region because its thickness (up to 7,000ft) limits deeper drilling for groundwater resources. This hydrogeological unit shale is characterized by a thick sequence of inter-bedded sandy shale, claystone, and massive to lenticular sandstone. There are numerous wells in the region that yield up to 30gpm from the sand deposits of the Pierre (Weist 1965). The aquifer is confined, with artesian pressures not uncommon. No hydraulic conductivity or specific capacity data for the Pierre are known in the vicinity of the Centennial Project. The extreme thickness of the unit (up to 7,000ft in the area of the project) excludes the discussion of underlying aquifers due to practical drilling depths for groundwater resources.

# 17.3 Project Hydrogeology

Project hydrogeologic information is based upon the results of work completed or directed by Powertech. Work completed by Powertech and their consultants includes monitor and pumping well construction, aquifer testing, groundwater sampling, and completion of a preliminary numerical groundwater model to evaluate well field hydraulics (Petrotek, 2009b).

Powertech completed two pumping tests, both within the North project area in 2007 and 2008 (R Squared, 2008), and installed wells for the completion of a third pumping test in the North project area to be completed in 2010 (Powertech, 2009a). Sixty groundwater wells have been sampled for baseline parameters within and around the Project area. In addition, core samples obtained during resource drilling activities have been analyzed for hydrogeologic parameters.

# 17.3.1 Project Hydrostratigraphic Units

The following describes the general characteristic of the aquifers and confining units in the vicinity of the Centennial Project. These units are shown in cross sections A-A' and C-C' in Figures 17-1 and 17-2 for the North and South project areas, respectively (locations of these

cross sections are given in Figures 17-3 and 17-4. The hydrostratigraphic units are discussed in order of decreasing age and depth below ground surface.

#### **Fox Hills Formation**

Throughout the Project area, the Fox Hills formation can be divided into two major units – the Upper and Lower Fox Hills formations. The Upper Fox Hills is then locally sub-divided into "A" and "WE" sands, and the Lower Fox Hills into "B", "C", and "D" sands. There are four A sands, labeled A<sub>1</sub> through A<sub>4</sub>, and one each of WE, B, C, and D sands. When present, local confining units adjacent to each sand sub-division are named according to the sands to which they are adjacent. In addition to these local confining units, the Upper and Lower Fox Hills are regionally divided by a thick sequence of mudstone immediately underlying the WE sand. Regionally, the entire Fox Hills formation is at some point a host to uranium mineralization. However, the current targets of economic interest to Powertech are the heavily mineralized "A" and "WE" sands of the Upper Fox Hills formation. These mineralized A and WE sands have been classified through petrographic thin-section analyses as generally well-sorted, fine-grained, feldspathic litharenites with an abundance of sub-angular to sub-rounded monocrystalline quartz and igneous rock fragments. The sediments are generally moderately indurated and are interpreted to be deposited in a littoral environment during Late Cretaceous time. The lithology and texture of the aforementioned sands appear to be synonymous with barrier island sequences periodically dissected by tidal inlets and storm channels. The sand sequences are typically interbedded with mudstones, siltstones, and lagoonal muds indicative of the backshore and shore face environments they are adjacent to.

In the vicinity of the project area, yields from the Fox Hills aquifer are generally less than 15gpm, however yields as high as 350gpm have been reported (Weist, 1965). The Colorado Division of Water Resources (DWR) jointly classifies the Laramie and the Fox Hills as an unconfined aquifer. However, if looked at in detail, the Fox Hills itself is a regionally confined aquifer. Although given the proximity of the project to outcrop of the formation (1 to 2mi to the west), unconfined characteristics of the Upper Fox Hills formation are also evident. As such, the saturation boundary of the Upper Fox Hills aquifer projects through Centennial South, resulting in uranium mineralization in that area residing above the water table.

#### **Laramie Formation**

Throughout the Project area, the Laramie formation consists primarily of carbonaceous shales, coals, siltstones, and clay; with regionally discontinuous channel sandstones. The Laramie outcrops in the central to southern vicinity of the project, with many of the outcrops covered by remnants of the White River formation or unconsolidated soil or gravel. Where it is not truncated by the ground surface, alluvial deposits, or the White River formation, the Laramie formation conformably overlies the Fox Hills formation. The contact is typically indicated by beds of lignitic shales and clays, and/or the change in sedimentation from marine to a freshwater fluvial environment. Most of the wells in the Laramie formation yield 5 to 10gpm; however, in areas of thicker sandstone deposits, reported yields have been as high as 300gpm (Weist 1965).

#### **Alluvium and Terrace Deposits**

Unconsolidated deposits in the Project area consist of beds and lenses of gravel, silt, sand, and clay. These units are associated with the larger watercourses to the south and east of the project area, and minor tributaries with thin alluvium deposits do exist within the Project area. The

groundwater resources attributed to these in the Centennial project area are minimal to negligible.

### 17.3.2 Water Levels, Groundwater Flow and Recharge

Based on the conceptual groundwater model, completed by Petrotek (2009b), groundwater flow in the vicinity of the Centennial project is in the south-southeastern direction. However, this estimate is preliminary because water level measurements were measured in wells installed:

- With discrete sand completions; and
- Parallel to outcrop line of the Upper Fox Hills formation, which is typically 1 or 2mi west of the Project area.

Location of the wells with measured water levels within the North and South project areas are shown in Figures 17-3 and 17-4, respectively, and measured water levels in production aquifers are given in Tables 17.1 (11 wells) and 17.2 (7 wells).

**Table 17.1: North Area Production Aquifer Water Level Data** 

Well ID	Centennial Project Sub-Aquifer	Top of Casing Elevation (ft)	Elevation of Top of Uppermost Mineralized Sand (ft)	Static Water Elevation (ft)	Available Drawdown <sup>(1)</sup> (ft)
IN08-33-MM4	A2 Sand – Section 33, T10N, R67W	5614	5050	5268	218
IN08-33-PW1	A2 Sand – Section 33, T10N, R67W	5573	5072	5268	196
IN08-33-MM1	A2 Sand – Section 33, T10N, R67W	5555	5077	5267	190
IS-003T	A Sands – Section 33, T10N, R67W	5542	5077	5268	191
IN08-33-MM5	A2 Sand – Section 33, T10N, R67W	5517	5072	5265	193
IN08-3-MM1	A1 Sand – Section 3, T9N, R67W	5465	5022	5226	204
IS-005	A Sands -Section 3, T9N, R67W	5473	4996	5228	232
IS-006	A Sands -Section 9, T9N, R67W	5651	5161	5261	100
IS-009T	A Sands -Section 9, T9N, R67W	5665	5243	5264	21
IS-012	A Sands – Section 15, T9N, R67W	5526	5257	5277	20
IN08-15-MM1	A1 Sand – Section 15, T9N, R67W	5427	5184	5215	31

<sup>(1)</sup> Available drawdown is relative to the top of the target mineralized sand(s). The top of the mineral may be deeper.

Table 17.2: South Area Production Aquifer Water Level Data

Well ID	Centennial Project Sub-Aquifer	Top of Casing Elevation (ft)	Elevation of Top of Uppermost Mineralized Sand (ft)	Static Water Elevation (ft)	Available Drawdown <sup>(1)</sup> (ft)
C-003-35	A2 Sand – Section 35, T9N, R67W	5382 <sup>(2)</sup>	5275	>5240	0(3)
BH-834-1AWE	WE Sand – Section 1, T8N, R67W	5359	5171	5229 <sup>(4)</sup>	58
BH-843-1AWEO	WE Sand – Section 1, T8N, R67W	5359	5171	5227	56
BH-839-3BWE	WE Sand – Section 3, T8N, R67W	5347	5230	5222	0
BH-849-10AWEO	WE Sand – Section 10, T8N, R67W	5319	5259	5225	0
BH-837-11BWE	WE Sand – Section 11, T8N, R67W	5288	5222	5229	7
C-002	WE Sand – Section 11, T8N, R67W	5315	5237	5242	5

<sup>(1)</sup> Available drawdown is relative to the top of the target mineralized sand. The top of the mineral may be deeper.

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<sup>(2)</sup> No as-built survey available. The elevations are estimated from a USGS topography map.

<sup>(3)</sup> Zero available drawdown indicates that the aquifer at this data point is unconfined and the water level is below at least part of the mineralization.

<sup>(4)</sup> BH-834, 839, 843, and 849 water levels are derived from measurements of RME wells in October 1981.

Comparison of water levels in the co-located wells completed in different sub-aquifers is shown in Table 17.3.

**Table 17.3. Comparison of Water Levels in Collocated Wells** 

		Poten	tiometric Eleva	tion (ft) in Sub-A	quifers
Loca	tion	Laramie	A	WE	В
	IN08-33 (MUU3,MM3,MO3)	5,429	5,267	-	5,298
_	IN08-33 (MO1,PW1,MU1,MUU1,MM1)	5,379	5,268	5,274	5,298
North	IN08-33 (MO2, MM2, MUU2)	5,398	5,267	-	5,305
~	IS-003T	5,419	5,264	5,270	-
	IS-009T	5,429	5,274	5,250	-
	BH-833/834	-	-	5,227	5,221
South	BH-836/837	-	-	5,223	5,211
<b>0</b> 1	BH-838/839	-	-	5,220	5,215

Note: All wells are located within than 200ft of each other, and having discrete completions.

Water level data, measured in nested wells in the North Project area, are different vertically and confirm confinement (at least limited hydraulic connection) between different aquifers. In the South project area, water level data are limited and differences in potentiometric elevations between WE and B aquifers is in the smaller range; from 2 to 6ft.

Aquifers in the project area appear to be primarily recharged through precipitation infiltrating at through outcrop. Additional studies to determine recharge from stream flow losses and/or minor inflow from other aquifers may be considered. The relative contribution of each component may be variable or negligible due to confinement of the mineralized sands.

# 17.3.3 Groundwater Chemistry

Uranium ISR permitting regulations require characterization of pre-mining groundwater chemistry data for the production aquifer, underlying aquifer, and all overlying aquifers within the Centennial project, the Laramie and the Fox Hills are jointly classified the Laramie-Fox Hills aquifer by the DWR. However, when looked at in detail specific to the Project, the Laramie formation may be separated from the Fox Hills, and may then be considered the uppermost "aquifer" if saturated Laramie channel sandstones are present. The confined A-WE sands of the Upper Fox Hills may then be labeled by Powertech as the production aquifer, and the underlying aquifer is the confined B sand of the Lower Fox Hills. In portions of the southern Project area, there may be no additional major aquifer(s), as defined by the DWR, overlying the production formation. Reasons for such occurrences were previously discussed in detail in Section 17.3.1 of this report.

Dependant on the degree and nature of truncation of overlying formations, the production aquifer may be specified as the exact sub-aquifer containing the target mineralization (example – solely the WE sand), and geologically continuous aquifer above the confining unit local to that mineralization (A/WE confining unit) may be monitored if applicable (saturated). Such cases may exist where localized alluvial deposits are the only material suitable for aquifer storage overlying the production aquifer. However, none are known to contain water and be developed

within the Project area. During production, Powertech may evaluate the need for vadose zone monitoring devices to collect data (groundwater quality and water level) where non-saturated aquifer materials are present above the production formation.

As part of Powertech's background data collection, two wells (IS-003T and IS-009T) within the A<sub>2</sub> sands have been sampled in Centennial North, and two wells (BH-120 and C-002) within the WE sand (including thick A<sub>4</sub> sand in BH-120C well) were sampled in Centennial South. The groundwater data for these two areas are summarized in Table 17.4. Minimum, maximum, and mean concentrations are based upon data collected for the mine permitting process. In general, the water within the uranium ore zones of the Upper Fox Hills aquifer is characterized by high concentrations of dissolved solids, sulfates, and radionuclides. Mean concentrations of dissolved solids, sulfate, iron, manganese, selenium, uranium, and radionuclides (gross-alpha, radium-226, radon-222) exceed drinking water quality standards (EPA maximum contaminant levels (MCL), secondary MCLs, and proposed MCLs). Dissolved uranium concentrations as high as 0.401mg/L and 1.68mg/L were obtained from the A sands and WE sand respectively.

# 17.3.4 Hydraulic Properties of the Fox Hills Aquifer

The following section presents the hydrogeologic characterization completed to date and includes water level measurements, aquifer tests, and geotechnical laboratory test results.

#### **North Project Area**

Powertech conducted three aquifer tests within the Project area. Two were completed in Section 33, T10N, R67W from 2007 to 2008 utilizing the same wells, and one was completed in 2007 in Section 9, T9N, R67W.

The 2007 test in Section 9 consisted of pumping from the A sands of the Upper Fox Hills formation for 23 hours at an average rate of 6.33gpm from a screened interval 40ft in length. The results of the pumping test yield the following data:

- Transmissivity of 61.6ft<sup>2</sup>/d;
- Hydraulic conductivity of 1.05ft/d;
- Storage coefficient of 0.051;
- Near the end of the test, there is a suggestion of recharge influence. The pumping test
  monitor well in the WE sand indicated potential minor influence from pumping of the A
  sands;
- No influence from pumping in the Upper Fox Hills A sands was observed in the overlying Laramie formation; and
- The target-pumping rate for the test was 10gpm; however, that production rate could not be achieved.

Table 17.4: Groundwater Chemistry for the Upper Fox Hills within the Centennial Project Area

		MCL or Other Advisory	* *	Fox Hills – A <sub>2</sub> Sar th Project Area	nds	* *	Fox Hills – WE Sa ath Project Area	and
Analyte	Units	Value	Minimum	Maximum	Mean	Minimum	Maximum	Mean
	0	, ,,,,,,,,		ılk Properties				
	рН			,				
pН	Units	6.5 - 8.5(a)	7.47	7.64	7.56	7.31	7.91	7.67
Solids-Total		Ì						
Dissolved (TDS)	mg/L	500(a)	389	1,140	759	10	3,200	1,314
			Ca	tions/Anions				
Bicarbonate as								
HCO3	mg/L	-	278	537	356	176	634	366
Calcium-								
Dissolved	mg/L	-	80	212	139	62	461	165
Magnesium-								
Dissolved	mg/L	-	25	64	42.9	28	164	90.2
Sodium-Dissolved	mg/L	200(a)	29	68	45	9	210	71.3
Potassium-	, and		7	10	10		10	
Dissolved	mg/L	-	7	18	12	2	12	6.5
Chloride	mg/L	250(a)	8	17	12.3	26	85	49.5
Sulfate	mg/L	250(a)	200	529	467	56	1,371	639
		0.01		etals – Total	0.002	0.001	0.006	0.002
Arsenic	mg/L	0.01	0.001	0.005	0.002	0.001	0.006	0.002
Chromium	mg/L	0.1	0.01	0.01	0.01	0.01	0.07	0.02
Copper	mg/L	1.0(a); 1.3(b)	0.01	0.05	0.017	0.01	0.01	0.01
Iron	mg/L	0.3(a); 5(c)	0.06	26.6	4.32	0.03	1.98	0.32
Lead	mg/L	0.015	0.01	0.01	0.01	0.01	0.05	0.013
Manganese	mg/L	0.05(a); 0.8(c)	0.09	0.24	0.15	0.01	0.35	0.11
Mercury	mg/L	0.002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Molybdenum	mg/L	0.04(d)	0.01	0.02	0.02	0.01	0.1	0.02
Selenium	mg/L	0.05	0.001	0.003	0.001	0.024	0.425	0.18
Strontium	mg/L	4(d)	1.2	3.4	2.2	0.8	5.5	2.9
Uranium	mg/L	0.030	0.0154	0.401	0.131	0.0249	1.68	0.77
Zinc	mg/L	5(a); 2(d)	0.01	0.06	0.02	0	0.07	0.03
	T		R	adionuclides		•		
Gross Alpha-	G: 7		20.1	1000	451 .		1.000	
Dissolved	pCi/L	15	20.1	1,060	451.4	15.1	1,390	568
Radium-226-Total	pCi/L	5(e)	1.7	349	105	0	38.8	16.2
Radon-222-Total	pCi/L	300(f)	1,850	260,000	77,300	396	37,700	8,889

- (a) Secondary drinking standard
- (b) Action level, which if exceeded, triggers treatment
- (c) Permit limit calculated by Region 8 Drinking Water Toxicologist based on human-health criteria
- (d) Health advisory-lifetime
- (e) MCL for Radium-226 and Radium-228 Total, Radium-228 not analyzed
- (f) Proposed MCL

The 2008 test completed by Powertech in Section 33 also consisted of pumping from the A sands of the Upper Fox Hills formation. The first test was 29 hours in duration at an average rate of 10.5gpm from a screened interval 30ft in length. The results of the pumping test yielded the following data:

- Transmissivity of 51.7ft<sup>2</sup>/d;
- Hydraulic conductivity of 1.67ft/d; and
- Storage coefficient of 3.8 x 10<sup>-4</sup>.

The second test was 102 hours in duration at an average rate of 37.5gpm (via airlifting) from a screened interval 30ft in length. The results of the pumping test yielded the following data:

• Transmissivity of 23.9ft<sup>2</sup>/d;

- Hydraulic conductivity of 0.77ft/d; and
- Storage coefficient of 6.25 x 10<sup>-5</sup>.

In both pumping tests conducted in Section 33, immediate drawdown was observed within the WE sand of the Upper Fox Hills formation. Approximately 16ft of mudstone exists between these two sand units. Several potential causes for the communication have been presented, including pumping test well construction, exploration drillholes open at depth, secondary porosity in the intervening mudstones, and/or discontinuity of the local confining units adjacent to the A sands. After reviewing the extensive geologic and geophysical data available within the Project area, Powertech may evaluate the need for further investigations of confinement of the WE from the A sands. The WE sand is a mining designation for a sub-unit of the Upper Fox Hills, and is a mineralized target within the project area.

An additional aquifer-pumping test is planned for the A2 sand of the Upper Fox Hills formation in Section 33, T10N, R67W for spring 2010. The wells to be utilized in the test were installed in 2009. The plan calls for the A2 sand to be pumped for a duration of 72 hours or longer, at a pumping rate of 8 to 15 gpm. Numerous monitor wells have been installed in the A2 and WE sands of the Upper Fox Hills, the B sand of the Lower Fox Hills, and various saturated sands of the Laramie formation. The intent is to collect sufficient data for ISR mine planning.

Core samples were collected for geotechnical laboratory analysis from seven drillholes within the northern Project area. Permeability values were estimated for the sand units from 800 to 1,900mD, hydraulic conductivity – 1.8 to 176ft/d, and porosity – from 33 to 48%. Permeability of confining units was measured in the range from 12 to 152mD (or 1-2 order magnitudes lower than from productive sand units).

Powertech prepared a preliminary 3-dimensional numerical groundwater model of ISR well field hydraulics within the A2 sand of Section 33 (Petrotek 2009) that indicates a predicted drawdown in a recovery well in excess of 95 and 115ft with a net bleed rate of 0.5% and 1.0%, respectively. The predictions assume a pumping rate of 20gpm from each recovery well, totaling nearly 3,000gpm from the entire well field. The model utilized a hydraulic conductivity of 2ft/d. This value for hydraulic conductivity was based upon. Theis simulations developed to mimic the observed aquifer response to well development activities, and is consistent with conservative values derived from core analyses. Fifteen simulations were completed with an input range of 0.77ft/d to 3.08ft/d. The best fit to the data was 2.05ft/d. In addition, the Theis simulations suggest a long term pumping rate of 10gpm for the planned 2010 aquifer test (Petrotek 2009a).

#### **South Project Area**

Hydrogeologic data are available for Centennial South from previously installed wells, core analyses, and mapping of geophysical log correlations. Present water level data indicate that saturation within the mineralized sands varies throughout the southern project area. To supplement RME data, Powertech has completed two wells in this portion of the project area, and available data is being compiled from RME wells that are also discrete sand completions. To date, no aquifer tests are known to have been completed in the South Project Area.

Both the  $A_2$  sands (Mine Units 6 and 7) and WE sands (Mine Units 8 and 9) host mineralization at various points across the southern portion of the Project area, and both vary in saturation. Water level data of the mineralized sands are available from seven wells in Centennial South (Table 17.2); location of these well is shown in Figure 17-4. The variable saturation of the WE

and A2 sands limits the possibilities of aquifer pumping testing within specific areas of Centennial South.

Core samples were collected for geotechnical laboratory analysis from four drillholes within the southern Project area. Permeability values of the sand units were estimated from 850 to 3,500mD, hydraulic conductivity – 3.3 to 280ft/d, and porosity – from 26 to 43%. Permeability of confining units was measured in the range from 17 to 204mD (or 1 to 2 order magnitudes lower than from productive sand units).

#### 17.3.5 Hydrogeological Considerations for ISR Mining Performance

This section describes the current well field design and operating parameters for the Centennial North and Centennial South project areas based upon present available data.

An important aquifer parameter to consider in the design of an ISR well field is hydraulic conductivity/transmissivity within the ore body. This parameter defines aquifer drawdown and recovery due to pumping and injection, as well as residence time for the ISR mining lixiviant. An additional aquifer parameter of great importance for ISR well field design is the amount of hydraulic head above an upper confining unit (or available drawdown). A greater hydraulic head allows for higher concentrations of dissolved oxygen within the lixiviant, more aggressive pumping and injection, and reduced risk for gas lock in the producing formation.

#### **Hydraulic Head**

Powertech estimated that a hydraulic head of 40 ft (approximately 17.3 psi water pressure) is necessary within the orebody during mining (Petrotek, 2009a). Sufficient hydraulic head is required to accommodate the drawdown from the recovery wells, as well as maintaining the dissolved oxygen in the production aquifer.

The ability to maintain dissolved oxygen injected into the production aquifer is paramount to successful oxidation and mobilization of uranium required for in situ mining of uranium roll front deposits. The inability to maintain dissolved oxygen at depth within the production formation will reduce uranium recovery. In addition, if sufficient hydraulic head cannot be maintained, oxygen bubbles will fall out of solution and may cause a gas lock condition in the formation. The gas lock can reduce well performance, damage pumps and piping, and change the flow regime in the production aquifer; all limiting resource recovery.

Powertech plans to utilize aquifer enhancement through mine unit perimeter injection well fences to provide and maintain sufficient hydraulic head in mine units 4, 5, 6, 7, 8, and 9. As presented in Tables 17.1 and 17.2 the groundwater level in the southern portion of the Centennial project is not sufficient for in situ mining techniques without artificial enhancement. If designed properly, the use of aquifer enhancement will raise the groundwater level internal to the mine unit, saturating all available uranium ore, and create hydraulic head for recovery well drawdown and maintaining dissolved oxygen injected into the production aquifer.

#### **Development of Aquifer Enhancement**

The current ISR development plan for the Centennial project includes aquifer enhancement by raising the water table through fresh water injection on the well field perimeters of six mine units. Raising the water table will promote saturation of the ore bodies and sufficient hydraulic head above the mineral to maintain the dissolved oxygen at the levels required to recover uranium. Powertech completed a preliminary assessment of the aquifer enhancement process to

estimate the potential development costs associated with the approach (Petrotek 2010) for the four well fields located in Centennial South. Investigations to further hydrogeologic characterization and better define the feasibility of this process may be considered.

Once the permissions are granted, the standard well field development work may be carried out: delineation drilling, installation of monitor wells, baseline groundwater sampling, and a production aquifer test. To collect supplemental data related to parameters for aquifer enhancement, the following studies may be considered:

- Additional core sample analysis to estimate porosity and other relevant hydrogeologic parameters;
- Extended baseline sampling, with an increased number of monitor wells and sampling frequency;
- Installation of injection and monitoring wells for pilot injection testing to demonstrate feasibility of aquifer enhancement; and
- Detailed implementation of hydrogeologic and ISR models to design production, monitoring, and freshwater injection systems of the well field.

Aquifer enhancement and control of mining solutions is proposed through development of a hydraulic fence that may be operated throughout mining and restoration of the well field. Preliminary design of the proposed hydraulic fence consists of a ring of freshwater injection wells located approximately half the distance between the mining patterns and the monitor well ring. Final injection well spacing for the hydraulic fence has yet to be determined, and will likely vary based on individual well field hydrogeologic parameters; at this time a spacing of 200 ft has been chosen for the economic analysis. Well screens for the hydraulic fence will be similar to the monitor wells, with the entire production aquifer screened. Figure 17-5 presents an idealized conceptual cross section of a mine unit utilizing a hydraulic fence for aquifer enhancement.

The injection wells of the hydraulic fence will likely be supplied with Colorado-Big Thompson (CBT) water acquired through purchase. CBT water is of very good quality, and Powertech has completed a preliminary geochemical analysis that show no adverse affects of mixing CBT water with the native groundwater of the Fox Hills aquifer (Knight Piésold, 2010). No modeling has been completed by Powertech to assess the effect of the hydraulic fence on the surrounding water resources during operation.

Several additional factors will be important in the next stages of design of the Centennial project to successfully implement aquifer enhancement:

- Hydraulic conductivity of the mine unit to:
  - o Estimate the area of influence of the freshwater injection wells,
  - o Estimate the required available drawdown for recovery wells,
  - o Estimate the height to which the water table will need to be raised,
  - o Estimate the time required to flood the mineralized zone, and
  - o Calculate the rate of freshwater injection on the perimeter required to maintain the increased hydraulic head within the mine unit.
- Thickness and hydrogeologic characteristics of the vadose zone; and

• Thickness and hydrogeologic characteristics of overlying confining units – if the thickness of the vadose zone is less than the height of the potentiometric surface required to create the necessary hydraulic head for ISR mining.

Further data collection and well field modeling may need to be completed to further understand the application these mining techniques to the Centennial Project.

#### **North Project Area**

The present well field plan for the Centennial North area utilizes five-spot well patterns (four injection wells, and one central recovery well), 100ft well spacing (square side length) for mine units 1, 2, and 3, with an average pumping rate of 20 gpm. Mine units 4 and 5 will be developed with 70ft well spacing and an average recovery well pumping rate of 10 gpm. The average mining thickness (screen length) in the north project area is 15ft. Of the five mine units planned in Centennial North, only units 4 and 5 will require aquifer augmentation via a hydraulic fence (Figure 17-6).

Analysis of the Upper Fox Hills sub-aquifer suggests that the anticipated recovery-well pumping rate of 20gpm is within the aquifer's potential based on aquifer test data from the Mine Unit 2 (Section 33, T10N, R67W). Data from the aquifer test located in the Mine Unit 4 (Section 9, T9N, R67W) indicate that sustainable pumping rates, without aquifer enhancement, may be lower than 10gpm. Aquifer enhancement may be required to successfully develop several planned mine units in this area based upon present available drawdown data (Table 17.5). The North project area may be an ideal candidate for initial testing of aquifer enhancement by using a hydraulic fence. The vertical distance between the present static water level and the ground surface provide ample room for operational testing and optimization of injection wells for artificially raising the water table within the A sands of the Upper Fox Hills formation.

Table 17.5: Assessment of Available Drawdown, Hydraulic Conductivity & Potential for Aquifer Enhancement at Individual Mine Units in Centennial North

Mine Unit	Available Drawdown	Production Aquifer Hydraulic Conductivity Based on Pumping Test Data	Depth to Production Aquifer Static Water Level from Ground Surface	Potential Increase in Available Drawdown Through Aquifer Enhancement
1	Unknown Anticipated to be greater than 200ft	-	Unknown, probably greater than 200ft	Not Required
2	196ft based upon water level measurements from IN08-33-PW1	Aquifer testing resulted in 1.05ft/d	305ft	Not Required
3	IS-006 indicates an available drawdown of 100ft in the south of the mine unit. IN08-3-MM1 indicates 204ft of available drawdown to the north and east of the mine unit.	-	424-239ft	Not Required
4	21ft based upon water level measurements from IS-009T	Aquifer testing yielded results of 1.67ft/d and 0.77ft/d	400ft	360ft
5	IN08-15-MM1 to the northeast of the mine unit indicates 31ft of available drawdown.	-	209ft	169ft

Mine units 1, 2, and 3, will be operated for approximately 21 months based on present mine planning completed by Powertech. Utilizing the planned recovery well pump rate of 20gpm, and

assuming balanced flow within a given five-spot pattern, a 150,000ft<sup>3</sup> mining block will have approximately 41 pore volumes circulated through the pattern during the mining period. Mine units 4 and 5 will be operated for the same 21 month duration, utilizing a recovery well pumping rate of 10 gpm. Within the 73,500ft<sup>3</sup> mining block of these units, approximately 43 pore volumes will be circulated. This number is higher than the 30 pore volumes utilized to obtain the 74% to 78% indicated leach efficiencies during bottle roll testing; however, bottle roll assessment does not account for unbalanced flow regimes within a well pattern that can increase the length of the mining period to achieve the same recovery. Nor do they account for the net effect of the hydraulic fence in operation at well fields 4 and 5.

#### **South Project Area**

The present well field plan for Centennial South project utilizes five-spot well patterns (four injection wells, and one central recovery well), 70ft well spacing (square side length), and an average mining thickness (screen length) of 15ft. The anticipated average pumping rate for the recovery wells is 10gpm. The project area plan outlines the development of four mine units in the South project area; all utilizing a hydraulic fence to raise the operational groundwater level (Figure 17-7).

Hydrogeologic data for Centennial South is limited to water levels, core data, and mapping of geophysical log correlations in that there has been no aquifer tests in the area to date. However, from core data, the hydraulic conductivity of the production aquifer in Centennial South appears similar to that of Centennial North, and therefore the same potential for an increased mining period over 21 months may be conservatively estimated. Within Centennial South, the uranium hosting WE sand is nearer to the surface, and in some places less than 100 ft from the surface. Successful mining of the complete resource will require a competent overlying aquitard to provide the barrier required to raise the hydraulic pressure of the aquifer for ISR mining. Laboratory analyses of the overlying confining units have been completed indicating favorable aquitard characteristics. However, aquifer and injection testing will be required to further investigate the continuity of the confining units throughout the South project area prior to construction of the mining well field.

As stated previously, Powertech performed a preliminary study of enhancing unsaturated aquifers containing uranium mineralization. Although not analyzed in concert, a brief discussion combining the results of the Centennial North groundwater model (Petrotek 2009b) and the Centennial South infiltration study to determine water requirements for aquifer enhancement (Petrotek 2010) is warranted. Utilizing the proposed spacing and pumping rate from recovery well and assuming productive sand hydraulic conductivity of 2ft/d, it was estimated by Petrotek (2009b and 2010) that the hydraulic pressure of the production formation will need to be increased to a point equal to a 40 ft of groundwater elevation above the target uranium mineralization to maintain a pumping rate of 10 gpm and dissolved oxygen in the projected concentrations required for mining based on the completed work to date. Table 17.4 provides the relative projected flood levels to the minimum ground surface within each mining unit of the South project area, although many variables in elevation exist, present data suggest that for mining to approach all mineralization in this project area, the overlying and presently unsaturated aquitard must be competent. Limited core data suggest the adequacy of this unit; definitive data will be collected prior to mining operations.

Table 17.6: Flood Level and Available Drawdown with Planned Hydraulic Fence in Centennial South

Mine Unit	Minimum Ground Surface Elevation (ft)	Projected Flood or Potentiometric Level Elevation* (ft)	Range of Available Drawdown – Height of Flood Level Above Base of Overlying Aquitard (ft)
6	5,360	5,324	35-57 (average of 46)
7	5,358	5,347	29-55 (average of 43)
8	5,310	5,262	17-44 (average of 22)
9	5,302	5,297	22-50 (average of 36)

<sup>\*-</sup> Flood level as determined by Petrotek (2010)

# 17.3.6 Hydrogeologic Considerations for ISR Mining Impact to Groundwater System and Operational Risk

The results of the pumping test planned for spring 2010 will provide sufficient data to develop a groundwater model to assess the potential well field pumping rates, production schedule, and impact of the mining operation to the regional groundwater system for Centennial North. Additional considerations associated with the enhancement of the production aquifer through freshwater injection may include:

- Results from 2007 aquifer testing in Centennial North indicate relatively low hydraulic
  conductivity values for the production aquifer, but are not consistent with core data.
  Hydraulic conductivity in Centennial South is likely similar or greater according to core
  data; however, due to present groundwater conditions, future aquifer testing may be
  limited to specific areas where mineralization is sufficiently submerged;
- Available drawdown over much of Centennial North is sufficient for ISR development. The potentiometric surface may require enhancement at Mine Units 4 and 5 for ISR mining techniques to be efficient;
- Under present pre-mining groundwater conditions, ISR mining techniques likely cannot be applied to Centennial South without aquifer enhancement of the mineralized sands;
- There are likely limitations to increasing the hydraulic head due to relatively shallow mineralization in Centennial South. Investigations of the continuity of the overlying confining units of the shallow mineralization in Centennial South may be considered. The ability to raise the hydrostatic pressure of the mineralized aquifer is directly related to the amount of oxygen which can be dissolved in the lixiviant and can effect extraction rates.
- Further investigation of the geochemical effects of mixing injection water and groundwater in a uranium bearing aquifer may be considered.

# 17.4 Assessment of Centennial Project Hydrogeology

The data confidence level is typical of a uranium ISR project at this stage in development. The completion of the planned 2010 aquifer test will significantly improve hydrogeologic knowledge of the project. The overall development strategy for the Centennial Project, including aquifer enhancement, will require very detailed knowledge of hydrogeologic variability across individual mine units. Prior to the development of each individual mine unit, Powertech will complete a thorough hydrogeologic characterization program including but not limited to:

• Detailed delineation on 50-100 ft centers and mapping of the ore body;

- Installation of monitor wells;
- Baseline sampling of groundwater; and
- Aquifer testing.

Additional activities for mining the well fields where elevation of the water table is necessary include:

- Additional coring to determine porosity and other parameters relevant to the groundwater elevation process;
- Baseline sampling to include existing water within the sand unit if available, but also additional sampling of nearest down gradient water quality. Overlying and underlying sand units are to be sampled as well, with an expected higher sampling frequency than normal well fields:
- Injection tests to demonstrate the hydrogeologic feasibility; and
- Use of hydrogeologic modeling to design the systems (production, monitoring, and CBT injection) in greater detail.

The data derived from this work will utilized in the regulatory approval process for each individual mine unit.

# 17.5 Commercial Operating Plan (Lyntek and SRK)

Section 17.5 is a combined effort of Lyntek and SRK. SRK comments and opinions, where present, contain "SRK" in the pertinent sentences and paragraphs.

#### 17.5.1 Uranium ISR Process Overview

In principle, in situ recovery from permeable sandstone formations is conducted by injecting a solution (lixiviant) into a mineralized section of the formation and extracting a uranium loaded production composite solution (PC) for treatment in a surface facility to recover the dissolved uranium. Typically, solution treatment produces a barren solution from which a bleed stream is disposed for control of soluble impurities. The remaining solution is reconstituted with reagents, restored with natural ground water to the desired flowrate, and re-injected.

As is the case with nearly all ISR operations, the well fields for the Centennial Project will use oxygen as the oxidant for tetravalent uranium and carbon dioxide as a complexing agent to form water-soluble uranyl dicarbonate ,  $[UO_2(CO_3)_2]^{-2}$ , or uranyl tricarbonate,  $[UO_2(CO_3)_3]^{-4}$ . Although the oxygen and carbon dioxide are introduced into the lixiviant as gases, they dissolve under the static pressure produced by the hydraulic head in the injection well. The target concentrations of oxygen and carbon dioxide, respectively, will be 400 mg/L and 200 mg/L, yielding an anticipated PC concentration of 60 mg/L U<sub>3</sub>O<sub>8</sub>.

#### 17.5.2 Process Benefits

Many impacts typically associated with conventional uranium mining and milling processes are avoided by employing uranium ISR mining techniques. The ISR benefits are substantial in that no tailings are generated, surface disturbance is minimal in the well fields, and restoration, reseeding, and reclamation can begin during operations. As a particular well field is depleted, ground water restoration can begin soon after, significantly reducing both the time period of

post-production restoration, and the cumulative area not restored at a point in time. The final uranium product is yellowcake (uranium oxide) that has been dried in a vacuum dryer.

At the end of the project life, all affected lands and groundwater will be restored as dictated by permit and regulatory requirements.

#### 17.5.3 Well Field Mining Unit Concept

The well field areas are logically divided into mining units for scheduling development works, which also allows the establishment of specific baseline data, monitoring requirements, and restoration criteria. Each mining unit consists of a potentially mineable resource block ranging from 9 to 63 acres, representing an area that will be developed, produced and restored as a unit. Approximately 9 such units will be required throughout the total project area. Two to three mining units may be in production at one time with additional units in various states of development and/or restoration. Aquifer restoration of a mining unit will begin as soon as practicable after mining in the unit is complete. If a mined-out unit is adjacent to another unit being mined, restoration of a portion of the unit may be deferred to minimize interference with the operating unit.

# 17.5.4 Well Field Design Concepts

Well fields will be developed based on conventional five-spot patterns. Injection and production wells within a mining unit will be completed in the mineralized interval of only one mineralized zone at a one time. Injection and production wells will be completed in a manner to isolate the screened uranium-bearing interval. Production zone monitor wells will be located in a pattern around the mining unit or units with the completion interval open to most of the production zone. Overlying and underlying monitor wells will also be completed in the aquifers immediately above and below the production zone to monitor for vertical lixiviant migration.

#### Well Field Pattern

The plan envisions dividing the two general production areas (Centennial North and Centennial South) into mining units for the purposes of scheduling, mining, and restoration. Each mining unit will comprise a reserve block with a surface area of 9.2 to 62.4 acres, depending on deposit configuration and topography.

The Centennial North will consist of five mining units extending over approximately 7,745,793ft<sup>2</sup> (177 acres). Pending future changes that will reflect a clearer understanding of site specifics such as permeability variations and well performance, there will be 1090 production wells and 1573 injection wells arranged typically in five-spot patterns averaging 7106ft<sup>2</sup> per pattern. Actual pattern geometry may easily vary from 70ft x 70ft to 100ft x 100ft. Powertech anticipates that there will be 778 delineation holes, assuming one hole for approximately 10,000ft<sup>2</sup> of active mining area.

The Centennial South will include four mining units on 5,573,210ft<sup>2</sup> (127.9 acres) of surface. Given the smaller pattern area noted previously for the southern well fields, there will be approximately 1149 production wells and 1730 injection wells and the five-spot patterns will average 4,850ft<sup>2</sup> per pattern. At a ratio of one delineation well for approximately 10,000ft<sup>2</sup> of active area, there will be 557 delineation wells.

Given uncertainty in average formation permeability and the methods of aquifer enhancement that have been proposed, SRK considers both well field designs to be aggressive.

#### **Well Completion**

Monitor, production, and injection wells will be drilled, logged and reamed to accommodate casing. Casing is set and cemented to isolate the completion interval from overlying aquifers. All production, injection, and monitor wells will be constructed with polyvinyl chloride following standard industry practices.

#### **Well Casing Integrity**

After a well is completed and before it is made operational, a mechanical integrity test (MIT) of the well casing will be conducted. The MIT method that will be employed is pressure testing.

If a well casing does not meet the MIT, the casing will be repaired and the well retested. If a repaired well passes the MIT, it will be employed in its intended service. Also, if the well defect occurs at depth, the well may be plugged back and recompleted for use in a shallower zone provided it passes a subsequent MIT. If an acceptable MIT cannot be obtained after repairs, the well will be plugged. A new well casing integrity test will also be conducted after well repair using a down-hole drill bit or under reaming tool.

Wells will be subject to MIT every five years of operational life.

#### Well Field Control

Well field flow regulation will be managed from portable well field header houses. The header house will contain the collection and distribution interfaces between the injection wells, collection wells, and process facility. A typical header house contains injection and collection manifolds, valves, and flow meters; all controlled on an individual well basis.

# 17.5.5 Processing Plant Design Concept

The processing plant for the Centennial Project will consist of a Central Processing Plant (CPP) and a Satellite Facility (SF). The CPP will be located at the North site and the SF will be located at the South site. Process flow diagrams for each site are presented in Appendix B.

Recovery of uranium by IX involves the following process circuits (described in detail in the following sections):

- Resin loading;
- Production bleed;
- Resin elution:
- Precipitation;
- Product washing, drying and packaging; and
- Radium removal from wastewater.

The Satellite Facility will only contain IX vessels for resin loading. The facility will be capable of processing 3,000gpm of lixiviant. The average uranium concentration for this design is 60ppm. Trucks will transfer resin between the Satellite Facility and the Central Processing Plant.

The Central Processing Plant will contain an IX process line, a precipitation circuit, and a washing, drying and packaging circuit. The IX loading vessels will be capable of processing 3,000gpm of 60ppm lixiviant. The elution, precipitation, product washing/filtering, drying and

packaging circuits will be capable of processing more than 2,000lbs U<sub>3</sub>O<sub>8</sub> per day (700,000lbs per year).

# **Resin Loading**

Each resin loading circuit will consist of six pressurized vessels; each designed to contain a 500ft<sup>3</sup> batch of anionic ion exchange resin. These vessels will be configured in three parallel trains for two-stage down-flow loading. Booster pumps are located upstream and downstream of the trains.

As the pregnant lixiviant enters the IX circuit from the well field, the dissolved uranium in the pregnant lixiviant is chemically adsorbed onto ion exchange resin. Sand or silt entrained in the pregnant lixiviant will be trapped by the resin bed or guard column (similar to a traditional sand filter). The barren lixiviant exiting the second stage will normally contain less than 2ppm of uranium.

The lixiviant is composed of native ground water, carbon dioxide and oxygen. Carbon dioxide is to be added in the IX Facility, both upstream and downstream of the resin vessels. Oxygen is added to the barren lixiviant at the header houses prior to the injection manifold.

#### **Elution Circuit**

As resin in a first stage IX vessel becomes loaded, or saturated, and is removing very little additional uranium, the vessel is isolated from the normal process flow. The 500ft<sup>3</sup> batch of loaded resin is removed from the first stage vessel and replaced with stripped, or barren, resin. At the CPP, loaded resin is washed on vibrating screens to remove sand, and other trash particles. Resin is then gravity fed to the elution vessels to recover uranium and regenerate the resin.

Eluant (10% sodium chloride and 2% sodium carbonate) will be added to the elution vessels, stripping the resin of uranium and regenerating the resin for further use. Eluted, or barren, resin is then rinsed and returned to IX vessels for further loading. In some cases, it may be necessary to add an additional resin regeneration step to fully regenerate the resin. The elution process will consist of four stages: three (3) eluant stages will contact one 500ft<sup>3</sup> batch of resin with four bed volumes of eluant each and one (1) rinse stage will contact the batch with four bed volumes of fresh water. Uranium values (as uranyl carbonate) are then contained in the rich eluate solution.

#### **Precipitation Circuit**

Sulfuric acid is then added to the rich eluate to bring the pH down to the range of 2-3 where the uranyl carbonate breaks down, liberating carbon dioxide and free uranyl ions. In the next stage, sodium hydroxide (caustic soda) is added to raise the pH to the range of 4 to 5. After this pH adjustment, hydrogen peroxide is added (0.36lb  $H_2O_2$ /lb  $U_3O_8$ ) through a batch process to form an insoluble uranyl peroxide (UO<sub>4</sub>) compound; this precipitation takes up to 8 hours. After precipitation, the pH is raised to approximately 7 and the uranium precipitate slurry is pumped to a 30ft diameter thickener.

The precipitation cycle procedures and methods to be employed for this project have been used extensively in ISR programs and in conventional uranium milling operations and is a highly accepted and successful method of processing uranium.

#### Product Filtering, Drying and Packaging

After precipitation, the uranium precipitate, or yellowcake, is removed for washing, filtering, drying and product packaging in a controlled area. The yellowcake from the thickener underflow is washed to remove excess chlorides and other soluble contaminants. The slurry is then dewatered in a filter press and the filter cake is transferred in an enclosed conveyor directly to the yellowcake dryer.

The yellowcake will be dried in a low temperature (<300°F) vacuum dryer; which is totally enclosed during the drying cycle. The off-gases generated during the drying cycle will be filtered and scrubbed to remove entrained particulates. The water sealed vacuum pump will also provide ventilation while the dryer is being loaded and unloaded into drums by operators. Compared to conventional high temperature drying by multi-hearth systems, this dryer has significantly lower airborne particulate emissions.

By operating at low temperatures (<300°F), no measurable quantities of insoluble uranium solids are produced, further reducing environmental and occupational risks. This drying technology requires a high purity feed stock because operating temperatures are not sufficient to volatilize contaminates. The dried yellowcake is packaged into 55gal drums for storage before transport by truck to a conversion facility.

#### **Radium Removal from Waste Water**

Wastewater discharged from processing operations may be treated to remove radionuclides before disposal. Conventional treatment for radium is traditionally done with barium chloride (BaCl<sub>2</sub>) treatment, resulting in the precipitation of a sludge that may be separated to decrease total volume for disposal. To achieve the separation of sludge from wastewater, a system of filtration tanks is employed with polymer addition, to aid in settling and filtering.

All treated and filtered water is then discharged via deep disposal well.

As one filtration tank reaches its sludge capacity, the tank will be disconnected from the system and allowed to further dewater by gravity. The remaining sludge can then be transported in the filter tank to a regulated disposal site.

The tanks are located on a curbed concrete pad to provide support and secondary containment. The concrete pad will be large enough to accommodate trucks to load/unload the filtration tanks. Due to the possibility of sustained below-freezing temperatures, the entire tank system is designed within a fully enclosed and heated building. SRK considers this processing facility design to be industry-standard.

#### 17.5.6 Predicted Mass Balance

Powertech developed an inclusive predicted mass balance (see process flow diagrams in Appendix B). Lyntek independently spot checked key points in the process for the Centennial project using data from the Design Criteria. The predicted mass balance results for the Centennial IX circuit, Elution and Precipitation stage and Drying process are shown in Table 17.8, 17.9 and 17.10 respectively. The assigned head grade from the well field of 60ppm is based on Powertech's proprietary experience at similar plants.

Table 17.8: Predicted Mass Balance for Centennial Project IX Circuit

Item	Units	North Central	Satellite South
Head grade from well field to IX	lb/h U <sub>3</sub> O <sub>8</sub>	84.0	84.0
IX feed flow rate	Gpm	2,800	2,800
Head grade from well field to IX	g/L	0.060	0.060
Barren resin grade	$lb/h U_3O_8$	1.4	1.4
Barren resin mass flow	lb/h total	664	664
U <sub>3</sub> O <sub>8</sub> on barren resin	lb/t	4.6	4.6
% Loading on barren resin		0.2%	0.2%
Loaded resin grade	$lb/h U_3O_8$	86.0	86.0
Loaded resin mass flow	lb/h total	748	748
U <sub>3</sub> O <sub>8</sub> on loaded resin	lb/t	253.5	253.5
% Loading on loaded resin		11.5%	11.5%
Barren solution grade	$lb/h U_3O_8$	2.8	2.8
Barren solution flow rate	gpm	2,800	2,800
Barren solution grade	g/L	0.002	0.002
Total Recovery in IX Columns		97%	97%

**Table 17.9: Predicted Mass Balance for Centennial Project Elution** 

Item	Units	Central North
Loaded resin grade	lb/h U <sub>3</sub> O <sub>8</sub>	86.0
Loaded resin mass flow	lb/h total	748
U <sub>3</sub> O <sub>8</sub> on loaded resin	lb/t	253.5
% Loading on loaded resin		11.5%
1st stage elution recovery		87%
Recovered U <sub>3</sub> O <sub>8</sub> in 1st stage	lb/h	74.8
U <sub>3</sub> O <sub>8</sub> remaining on resin	lb/h	11.2
2nd stage elution recovery		70%
Recovered U <sub>3</sub> O <sub>8</sub> in 2nd stage	lb/h	7.8
U <sub>3</sub> O <sub>8</sub> remaining on resin	lb/h	3.4
3rd stage elution recovery		40%
Recovered U <sub>3</sub> O <sub>8</sub> in 3rd stage	lb/h	1.3
U <sub>3</sub> O <sub>8</sub> remaining on resin	lb/h	2.0
% Loading on barren resin		0.1%
Barren resin grade	lb/h $\mathrm{U_3O_8}$	1.4
Barren resin mass flow	lb/h total	662
Total recovered U <sub>3</sub> O <sub>8</sub>	lb/h	84.0
<b>Total recovery in Elution</b>		98%

Table 17.10: Predicted Mass Balance for Centennial Project Precipitation and Drying

Item	Units	Central North
Feed head grade to precipitation	lb/h U <sub>3</sub> O <sub>8</sub>	84.0
Feed flow rate	gpm	7
Feed head grade to precipitation	g/L	23.624
Solid U <sub>3</sub> O <sub>8</sub> precipitate recovered	lb/h $\mathrm{U_{3}O_{8}}$	84.0
Slurry discharge flow rate	gpm	8
Total slurry mass flow	lb/h	4,020
Slurry % solids		2.1%
Thickener underflow	lb/h	870
Thickener underflow % solids		9.7%
Recovery in precipitation		100%
Feed flow to filter press	lb/h	870
Feed % solids		9.7%
Filter cake mass flow	lb/h	206
Filter cake % solids		40.8%
Dried yellowcake mass flow	lb/h	85
Dried yellowcake % solids		98.8%_
Daily yellowcake production	lb/day	2,016

#### 17.5.7 Predicted Water Balance

Uranium ISR is typically a water-intensive process; therefore, a significant amount of water is recycled through the system to reduce the water usage. The brine disposal system design is also dependent on the amount and quality of the wastewater produced. The wastewater disposal option investigated for the Centennial project was deep well disposal.

The Centennial project will have two sources of process water: local aquifer water and fresh water purchased locally from the North Weld County Water District (NWCWD). Water usage is grouped into the following categories:

- Production well field:
- Restoration well field:
- Pre-mining of areas which require water mounding;
- Hydraulic fencing of mounded areas;
- Central Processing Plant and Satellite Facility; and
- Drilling, road maintenance and other activities.

The production well field is estimated to operate at 0.5% to 1% bleed in order to maintain favorable hydraulic conditions; however, the disposal system has been designed to allow for a capacity for well field bleeds to operate at 3%. As Table 17.8 shows, a production flow rate of 2,800gpm (i.e., barren solution flow rate) is required to achieve the desired annual yellowcake production.

The water balance is divided into three stages; Stage 1 is production and restoration of mining units that do not require aquifer enhance, Stage 2 introduces the pre-mining of units requiring aquifer enhancement and Stage 3 is production and restoration of aquifer enhanced units after

pre-mining is complete. The water balance will also vary between these three stages due to multiple situations occurring simultaneously.

Table 17.11 summarizes the predicted water balance for the Centennial project during the mine life. The water balance is divided into three stages:

- Stage 1 production and restoration of mining units that do not require aquifer enhancement;
- Stage 2 pre-mining of units requiring aquifer enhancement; and
- Stage 3 production and restoration of aquifer enhanced units after pre-mining is complete.

The water balance will also vary between these three stages due to multiple situations occurring simultaneously.

**Table 17.11: Predicted Water Balance for Centennial Project** 

	Water	Balance (gpm)	
Stage	1	2	3
Production Wellfield			
Total CBT feed	28	28	500
CBT to hydraulic fencing outflow	-	-	472
CBT feed to production	28	28	28
Recycle	2772	2772	2772
feed to IX	2800	2800	2800
% bleed	1%	1%	1%
Restoration Wellfield			
Total CBT feed	150	500	395
CBT to hydraulic fencing outflow	-	-	245
CBT feed to restoration	150	500	150
Recycle	350	0	350
feed to IX	500	500	500
% bleed	30%	100%	30%
IX product split to pre-mining	-	100%	-
IX product split to pre-mining	-	500	-
CBT to pre-mining hydraulic fence	-	250	-
Ra Removal Tank System			
feed to Ra removal tanks	187	37	187
<b>CPP &amp; Site Facilities</b>			
local aquifer water feed	12	12	12
feed to brine accumulation pond	9	9	9
evaporation	1	1	1
septic system	2	2	2
Drilling, Roads, etc.			
local aquifer water feed	37	37	37
Total from local aquifer	49	49	49
Total from CBT	178	778	895
Total to Deep Disposal Well	187	37	187

# 17.5.8 Design and Selection of Major Equipment

Some major equipment was sized so that the selected unit was appropriate for its duty. These sizes were then reviewed against the Powertech equipment selection and quotes were used in the capital cost estimate.

#### 17.5.9 IX Vessels

The IX Vessels were sized using a fixed diameter of 12ft and a resin volume of 500ft<sup>3</sup> and the results are shown in Table 17.12. Quotes were obtained from manufacturers for 12ft-diameter x 8ft-height IX Vessels which were suitable for this duty and these quotes were used in the capital cost estimate.

**Table 17.12: IX Vessel sizing for Centennial** 

Item	Units	IX Vessels
Vessel height TT	ft	10
Vessel internal diameter	ft	12
Vessel volume	ft <sup>3</sup>	1131
Vessel volume	gallons	8,460
Resin in each vessel	ft <sup>3</sup>	500
Resin av. bulk density	lb/ft <sup>3</sup>	42
Number vessels		10
Resin bed height	ft	4.4
Est. % resin swelling	0/0	80%
Required Vessel Height	ft	8

#### 17.5.10 Yellowcake Thickener

A 30ft diameter thickener was selected for this Project, as additional storage capacity of yellowcake slurry was required by Powertech. This size thickener is more than adequate for this operation and is typical in industry for this size operation.

#### 17.5.11 Filter Press

The filter presses were sized based on the required yellowcake production in lb/day and the results are shown in Table 17.13. Quotes were obtained for 50ft<sup>3</sup> sized filter presses and these are included in the capital cost estimate.

**Table 17.13: Filter Press sizing for Centennial** 

Item	Units	Centennial
Daily U <sub>3</sub> O <sub>8</sub> production required	lb/day	2,000
$UO_4.2H_2O$	$U_3O_8$	1.20
Filter cake UO <sub>4</sub> .2H <sub>2</sub> O	lb UO <sub>4</sub> .2H <sub>2</sub> O	2,408
Discharge from Press	% solids	50%
Free H <sub>2</sub> O	lb H <sub>2</sub> O	2,408
Density of UO <sub>4</sub> .2H <sub>2</sub> O	g/cc	5.2
Density of UO <sub>4</sub> .2H <sub>2</sub> O	lb/ft <sup>3</sup>	324.63
Volume of UO <sub>4</sub> .2H <sub>2</sub> O	ft <sup>3</sup>	7.42
Volume free H <sub>2</sub> O	ft <sup>3</sup>	38.57
Total Discharge Volume	ft <sup>3</sup>	46

# 17.5.12 Yellowcake Dryer

The industry standard type of dryer for yellowcake produced in both ISR and modern conventional uranium recovery plants is a vacuum paddle dryer. This is an indirectly heated dryer consisting of a cylindrical shell with the axis horizontal and a heating jacket. A paddle system, based on a horizontal shaft, agitates the contents of the dryer. A vacuum is drawn on the dryer to cause the water in the product to evaporate at lower temperatures than atmospheric pressure. These dryers are widely used in the pharmaceutical industry.

In uranium production, these dryers have several advantages, primarily in control of the process and also in controlling yellowcake dust emissions. The vapor and air are drawn from the drying chamber then flow through a filter system, then into a condenser and liquid ring vacuum pump. Yellowcake dust that might pass through the filters will be collected in the condenser or seal water for the vacuum pump and then will return to the process.

These are batch dryers and typically take 16 hours to process a batch in uranium applications. A batch will be one day of production of yellowcake. The dryer volume chosen will be twice that of the batch of yellowcake slurry that will be fed to the dryer. For instance, production of 700,000lb/y of U<sub>3</sub>O<sub>8</sub> will require drying of approximately 2,310lb/d of uranium peroxide (UO<sub>4</sub>2H<sub>2</sub>O) product. At a typical feed slurry mix of 35% solids by weight, this will occupy 98 ft<sup>3</sup>. The vacuum paddle dryer volume required will therefore be 196 ft<sup>3</sup>. Vacuum paddle dryers are available in a wide range of sizes, with units that can produce 2,000,000lb/y of U<sub>3</sub>O<sub>8</sub> readily available.

# 17.5.13 Radium Filter Tank System

The design of the radium removal system assumes a feed rate of 250gpm of wastewater. Including the addition of barium chloride and flocculant, the total sludge removed is expected to be approximately 1676ft<sup>3</sup>/y. The sludge is classified as an 11e.(2) hazardous waste and two to three loaded filter tanks will be taken for disposal each year. After the sludge has been unloaded at a licensed disposal site, the filter tank will be returned to the mine site for further use.

# 17.5.14 Major Buildings

The following design assumptions were made for the CPP and satellite plant:

- ISR daily yield, 9t resin;
- Assume design to be a fully loaded 25t, tandem axle, dual wheel truck based on Powertech design;
- Expected project life span based on current reserve studies 6 years and 15 years;
- Design loads based on AASHTO design Tandem Load Vehicle with 25 kip load on each axle, which is conservative; and
- Soil conditions are unknown, but are likely clays and dense sand. The assumed sub-grade modulus, k = 250 psi/in (average value).

Based on Lyntek's design assumptions, the main floor slab in the Centennial Project's Central Processing Plant is appropriately designed at 12in thick with double steel reinforcing. This design is sufficient for the proposed activities of the building.

# 17.5.15 Product Handling and Storage

The yellowcake drying and packaging stations will be segregated within the processing plant for worker safety. Dust abatement and filtration equipment will be deployed in this area of the facility. Storage of yellowcake drums will be in a dedicated and secured storage room while they await transport.

### **17.5.16 Transport**

Following standard industry protocols, yellowcake will be transported in 55gal steel drums. The shipment method will be via specifically licensed trucking contractor. Approximately 240 shipments of 40 drums each are estimated from the Centennial Project of the life of the mine based upon the present resource estimate.

# 17.5.17 Mobile Equipment

Major required mobile equipment will include resin haul tractors and trailers to deliver loaded resin from the satellite facility to the central processing plant, pump hoists, cementers, forklifts, pickups, logging trucks, and generators. In addition, several pieces of heavy equipment will be on site for excavation of mud pits, road maintenance, and reclamation activities.

#### 17.5.18 Equipment Maintenance and Facilities

Dedicated maintenance facilities will be constructed along with the central processing plant. In addition to maintenance of mobile equipment, the most commonly overhauled equipment will be the submersible pumps utilized on the recovery wells.

# 17.5.19 Liquid Waste Disposal

Powertech retained Petrotek to prepare the preliminary conceptual design and cost estimate for a deep disposal well at the Centennial Project. It was estimated that an injection well depth of 11,000ft would be suitable for the disposal of wastewater produced during the life of mine. Powertech intends to construct two deep disposal wells at the Centennial Project.

Powertech is also investigating the use of land application of treated water as a method of disposal. For the purposes of this Preliminary Assessment, only deep well injection was considered in the economic analysis.

# 17.5.20 Solid Waste Disposal

Solid wastes at an ISR facility include, but are not limited to, spent resin, empty packaging, tank sediments and filtration products, motor vehicle maintenance waste, office waste, and clothing. All waste materials will be reviewed and entered into waste stream classifications on site.

Waste classified as non-contaminated (non-hazardous, non-radiological) will be disposed of in the nearest permitted sanitary waste disposal facility. Waste classified as hazardous (non-radiological) will be segregated and disposed of at the nearest permitting hazardous waste facility. Radiologically contaminated solid wastes, that cannot be decontaminated, are classified as 11e. (2) byproduct material. This waste will packaged and stored on site temporarily, and periodically shipped to a licensed 11e. (2) byproduct waste facility or a licensed mill tailings facility.

#### 17.6 Personnel

The present work force estimates for the Centennial Project during full operation of the Central Processing Facility, Satellite Facility, and all associated well fields is 53 full time staff. In general the work force can be segregated into the following groups: administration (7 staff), radiation safety (3 staff), geology (3 staff), construction/drilling (5 staff), and production (35 staff). Staff schedules will vary based upon duty; some will work a typical 8 hr day, 40 hrs per week, while others will work a shift schedule to cover 24hr operations of the facility. Additionally, a significant number of contracted persons are expected to work at the project on a full time basis to perform drilling and construction activities.

#### 17.7 Markets

The uranium commodity markets are volatile, and have ranged from a high of USD138/lb of  $U_3O_8$  in June of 2007, to a present day spot price of USD41.75/lb on July 19, 2010 (The Ux Consulting Company, LLC). Due to the increased focus on nuclear energy, and the potential for uranium supply issues related to expansion of the industry, long-term contract prices are higher than the spot price. Long-term contact prices as of July 2010 are at approximately USD60/lb  $U_3O_8$ , with each contract having some variance due to individual pricing terms and potential for adjustment over the sales period. Given the high variability of uranium sales price, and potential for large swings, the sales price is a concern of the economic analysis.

#### 17.8 Contracts

Powertech has no contracts presently in place for production from the Centennial project. This includes sales contracts, tolling agreements, or other financial arrangements with other parties associated with the purchase or price of final uranium product.

#### 17.9 Environmental Considerations

#### 17.9.1 Aquifer Restoration

After economic recovery in a well field has ceased, aquifer restoration will commence as soon as practical. Aquifer restoration will require the circulation of native groundwater and extraction of mobilized ions through reverse osmosis treatment. The intent of aquifer restoration is to return the groundwater quality parameters to that reported during the baseline studies.

#### 17.9.2 Reclamation

Following completion of economic recovery from a mine unit, aquifer restoration will commence as soon as operationally practical. The restoration of some mine units may be postponed in whole, or in part, so as to limit interference with adjacent mine units. Once aquifer restoration is completed, and the regulatory objectives have been met, pumps and injection lines will be removed from the wells. Wells will be abandoned with a bentonite or cement based grout following the requirements of the DRMS. Final requirements for reclamation will be dependent on the outcome of rule-making under House Bill 2000-116, as discussed in Section 2.5.

Simultaneous with well abandonment operations, pipelines will be removed from the mine unit, tested for radiological contamination, and segregated for appropriate disposal. Header houses will be removed to other mine units, or radiologically surveyed, demolished, and appropriately disposed of. Other facilities, including the process plant, offices, warehouses, laboratory, and

maintenance buildings will be radiologically surveyed, dismantled and/or demolished, and disposed of according to individual waste profiles.

Following well field abandonment and site dismantling and demolition, the site will be regraded to approximate the pre-existing topography. Topsoil stockpiled at the start of development will be placed across the site and disturbed areas will be re-seeded.

#### 17.9.3 Closure Costs

Total closure costs are based upon 2010 dollars and material volumes developed in conjunction with this Preliminary Assessment. Closure costs are included in the well field restoration costs, and are represented in the model as operating costs.

# 17.10 Taxes and Royalties

#### 17.10.1 Production Taxes

Production taxes in Colorado include property tax, sales and use tax and severance tax. SRK applied the property tax and severance tax estimates prepared by Lyntek in the Technical Economic Model described in Section 17.11.

Lyntek prepared the following property tax description for the Project. The Office of the Weld County Assessor provides a description of how property tax is calculated for business and industry in Colorado using an assessment rate of 29%. The general equation is:

Assessed Value = Assessment rate (29%) x Actual Value

Property Taxes = Assessed Value x Tax Rate.

In 2008, the average Tax Rate for Weld County was \$71.333/\$1000 (i.e., 7.13%).

According to the Colorado State Assessor Guidelines and Office of the Weld County Assessor, there are three approaches to calculating the Actual Value:

- Market Approach actual value of the subject property is based on an analysis of arms length sales of similar properties;
- Cost Approach actual value of the subject property is based on an estimate of the cost to replace the property with a substitute that is equivalent in function and utility. Accumulated depreciation is subtracted from the new replacement cost to arrive at the conclusion of value;
- Income Approach the annual net income of the subject property is capitalized to account for a typical investor's financial return on the investment.

The County Assessor will determine which approach is appropriate. For the purpose of this PA, although the regulatory language is not completely transparent, Lyntek recommends that the income approach be used because this method is common in determining value and the taxes are based upon real, financial figures that the mining company reports publicly and that are checked by audits. Based on the income approach, the total property tax per pound of U production is \$0.50.

SRK notes that purchases of equipment and supplies are subject to sales and use tax. The State imposes a tax ranging from 2.9% to over 8.0% depending on local options. Project economics presented in this report have sales and use tax included in the operating cost estimate.

Lyntek prepared the following description of applicable severance taxes for the Project:

"For taxable years commencing prior to July 1, 1999, the Colorado Severance Tax is defined as follows (Session Laws of Colorado, 1999):

#### **Colorado Severance Tax Rate**

Amount of Gross Income	Percentage Tax on Gross Income
First \$19,000,000	None
Amount exceeding \$19,000,000	2.25%

Lyntek further quotes:

'There shall be allowed, as a credit against the tax computed in accordance with subsection (1) of this section, an amount equal to all ad valorem taxes assessed during the taxable year in the case of accrual basis taxpayers or paid during the taxable year in the case of cash basis taxpayers on producing mines valued for assessment pursuant to 39-6-106. Such credit shall not exceed fifty percent of the tax computed in accordance with subsection (1) of this section.' "

Finally, Lyntek concludes:

Severance Tax = [(Gross Revenue - \$19,000,000) \* 2.25%] – Property Tax with a maximum of 50% of severance tax without deduction.

#### 17.10.2 Income Taxes

#### **Federal Income Tax**

In general, corporate Federal income tax is determined by computing and paying the higher of a regular tax or a tentative minimum tax (TMT). If the TMT exceeds the regular tax, the difference is the alternative minimum tax (AMT).

Regular tax is determined by subtracting all allowable operating expenses, overhead, depreciation, amortization, and depletion allowance from total current-year revenues to arrive at taxable income. Deductions for exploration and development are either expensed or amortized. The tax rate is determined from a progressive rate schedule outlined by the Internal Revenue Service.

The second Federal corporate tax, the AMT, is determined in three steps. First, regular taxable income is adjusted by recalculating certain regular tax deductions, based on AMT laws, to arrive at AMT income (AMTI). Secondly, the AMTI is then multiplied by 20% to determine the TMT. Finally, if the TMT exceeds the regular tax, the excess is the AMT amount, payable at year-end, in addition to the regular tax liability. The AMT tax paid can be used to offset regular tax payable in succeeding years in which the regular tax is greater than the TMT.

An estimate of federal income tax for Powertech is not included in the technical economic model.

#### **State Income Tax**

The Colorado corporate income tax rate is 4.63% applied to net income. Colorado income is apportioned by a two or three factor formula. A deduction is allowed for depletion, but not for federal income taxes paid.

<sup>&</sup>quot;According to the Session Laws of Colorado, 1999:

An estimate of Colorado income tax for Powertech is not included in the technical economic model

# 17.10.3 Royalties

The project is subject to a 2% surface and a 5% mineral royalty. Each royalty is assessed on gross proceeds.

# 17.11 Technical Economics

All costs presented in this report were provided to SRK for review and evaluation. Powertech provided access to an internal engineering economic assessment and Lyntek's report titled "Preliminary Economic Assessment, Centennial ISR Project", with an effective date of March 1, 2010. To meet the needs of a Preliminary Assessment, costs must be presented at  $\pm 35$  to 40%. Powertech compiled a number of vendor quotes for capital expenditures, and therefore some costs provided are defined to a pre-feasibility level.

#### 17.11.1 Capital Costs

Life of Mine (LoM) capital costs excluding mine closure will total USD129.3million as summarized in Table 17.14. Pre-production capital costs are USD71.1million. Ongoing capital, totaling USD58.2million accounts for the remaining mine life. Capital cost estimates are in Q1 2010 US constant dollar terms.

Capital-related labor costs and owner costs were estimated separately and are therefore shown as specific line items. Replacement capital represents the provision for mobile equipment used throughout the Project.

Table 17.14: Capital Cost Summary (\$000s)

Description	•	Initial Cost	<b>Sustaining Cost</b>	LoM Cost
CPP/Gen Facilities		\$43,874	\$11,223	\$55,097
Well Fields		\$5,359	\$8,849	\$14,208
Capital Labor		\$852	\$823	\$1,675
G&A		\$9,142	\$4,463	\$13,605
Replacement Capital		\$0	\$12,568	\$12,568
s	subtotal	\$59,227	\$37,926	\$97,153
Contingency		\$11,845	\$7,585	\$19,547
Mine Closure		\$0	\$12,584	\$12,584
	Total	\$71,073	\$58,213	\$129,286

CPP (Central Processing Plant)) and generating capital details are shown in Table 17.15. Initial capital costs of USD43.9million are for the general construction and equipment to bring the project online. Sustaining costs of about USD11.2million are associated with well restoration and reclamation activities for the operation.

Table 17.15: CPP & Generation Facilities (\$000s)

Description		<b>Initial Cost</b>	<b>Sustaining Cost</b>	LoM Cost
CPP		\$21,625	\$0	\$21,625
Satellite Plant		\$0	\$7,195	\$7,195
Electrical Infra		\$1,047	\$0	\$1,047
Surface Impound		\$1,170	\$0	\$1,170
CPP/SF Pipelines		\$1,705	\$0	\$1,705
Deep Disposal Wells		\$4,329	\$0	\$4,329
H2O Supply		\$9,024	-\$580	\$8,445
Restoration Equip		\$0	\$4,608	\$4,608
Mobile Equipment		\$4,974	\$0	\$4,974
	Total	\$43,874	\$11,223	\$55,097

Capital costs associated with the well fields are shown in Table 17.16. Development is relatively uniform over the LoM with delineation drilling required only during the pre-production year.

Table 17.16: Well Field Capital (\$000s)

Description		Initial Cost	<b>Sustaining Cost</b>	LoM Cost
Delineation Drilling		\$934	\$0	\$934
Well Construction		\$3,062	\$6,124	\$9,185
Surface Construction		\$1,061	\$2,123	\$3,184
Pipelines		\$302	\$603	\$905
	Total	\$5,359	\$8,849	\$14,208

#### **Working Capital**

SRK estimates working capital as 20% of production costs.

#### 17.11.2 Operating Costs

LoM operating unit costs are estimated to total USD332.8million as shown in Table 17.17. This results in an operating unit cost estimate of USD34.95/lb  $U_3O_8$ . Operating costs account for USD279.6million (USD29.36/lb  $U_3O_8$ ) of the total. A contingency of 20% is applied to all operating costs.

Production taxes of USD53.2million (USD5.59/lb  $U_3O_8$ ) make up the difference. Cost estimates are in Q1 2010 US constant dollar terms.

**Table 17.17: LoM Operating Costs** 

Description		LoM Cost (\$000s)	Unit Cost (\$/lb U <sub>3</sub> O <sub>8</sub> )
Central Plant/Ponds		\$61,919	\$6.502
Satellite/Well Field		\$135,862	\$14.267
Restoration		\$9,404	\$0.988
Decommissioning		\$4,466	\$0.469
Site Management		\$21,339	\$2.241
Contingency		\$46,598	\$4.893
Production Taxes		\$53,231	\$5.590
	Total	\$332,819	\$34.950

Operating cost details are shown in Tables 17.18 to 17.22.

**Table 17.18: Central Plant and Ponds Operating Costs** 

Description	LoM Cost (\$000s)	Unit Cost (\$/lb U <sub>3</sub> O <sub>8</sub> )
Labor	\$18,180	\$1.909
Electricity	\$24,112	\$2.532
Chemical	\$5,755	\$0.604
Hardware Maintenance/Replacement	\$8,151	\$0.856
Laboratory	\$412	\$0.043
Materials/Consume	\$4,478	\$0.470
Byproduct Disposal	\$762	\$0.080
Monitoring	\$68	\$0.007_
·	<b>Total</b> \$61,919	\$6.502

**Table 17.19: Site/Well Field Operating Costs** 

		LoM Cost	Unit Cost
Description		(\$000s)	(\$/lb U <sub>3</sub> O <sub>8</sub> )
Delineation Drilling		\$2,493	\$0.262
Well Construction		\$47,335	\$4.971
Surface Construction		\$22,516	\$2.364
Pipelines		\$4,347	\$0.457
Development Labor		\$7,687	\$0.807
Operating Labor		\$11,706	\$1.229
Electricity		\$4,524	\$0.475
Chemical		\$23,147	\$2.431
Maintenance		\$1,924	\$0.202
Laboratory		\$0	\$0.000
Materials/Consume		\$44	\$0.005
Water Rights Usage		\$9,120	\$0.958
Byproduct Disposal		\$608	\$0.064
Monitoring		\$412	\$0.043
	Total	\$135,862	\$14.267

**Table 17.20: Restoration Operating Costs** 

Description		LoM Cost (\$000s)	Unit Cost (\$/lb U <sub>3</sub> O <sub>8</sub> )
Labor		\$616	\$0.065
Electricity		\$2,393	\$0.251
Chemical		\$158	\$0.017
Maintenance		\$5,904	\$0.620
Byproduct Disposal		\$263	\$0.028
Monitoring		\$70	\$0.007
	Total	\$9,404	\$0.988

**Table 17.21: Decommissioning Operating Costs** 

	LoM Cost	Unit Cost
Description	(\$000s)	(\$/lb U <sub>3</sub> O <sub>8</sub> )
Well Closure	\$4,466	\$0.469

**Table 17.22: Site Management Operating Costs** 

		LoM Cost	Unit Cost
Description		(\$000s)	(\$/lb U <sub>3</sub> O <sub>8</sub> )
Labor		\$14,311	\$1.503
U3O8 Transport Costs		\$1,428	\$0.150
Corporate Overhead		\$5,600	\$0.588
	Total	\$21,339	\$2.241

Production taxes, as described in Section 17-10 are shown in Table 17.23.

**Table 17.23: Production Taxes** 

		LoM Cost	Unit Cost
Description		(\$000s)	(\$/lb U <sub>3</sub> O <sub>8</sub> )
Severance Tax		\$4,928	\$0.518
Surface Royalty		\$12,380	\$1.300
Mineral Royalty		\$30,949	\$3.250
Property Tax		\$4,974	\$0.522
	Total	\$53,231	\$5.590

#### 17.11.3 Economic Analysis

The technical-economic results of this report are based upon work performed by Powertech's consultants and have been prepared on an annual basis. All costs are in Q1 2010 US constant dollars.

#### **Model Inputs**

The technical-economic model, shown in Exhibit 17.1, is presented on an unleveraged, pre-tax basis. Assumptions used are discussed in detail throughout this report and are summarized in Table 17.24.

**Table 17.24: Technical-Economic Model Parameters** 

Model Parameter	Technical Input
<b>General Assumptions</b>	
Pre-Production Period	1 Year
Mine Life	14 years
Operating Days per year	365 days/yr
Market	
Discount Rate	8%
U <sub>3</sub> O <sub>8</sub> Price	\$65.00/lb
Transportation to market	\$0.15/lb

A 12-month pre-production rate is used in the analysis implicitly assuming that permitting, detailed engineering, and due diligence/financing are well under way. The Project will have an estimated life of 14 years given the mineable resource described in this report.

Revenue from  $U_3O_8$  sales are based upon a market price of USD65.00/lb. Freight charges are assumed to be USD0.15/lb.

#### **Technical-Economic Results**

The base case economic analysis results, shown in Table 17.25, indicate a pre-tax NPV of USD51.8million at an 8% discount rate with an IRR of 18%.

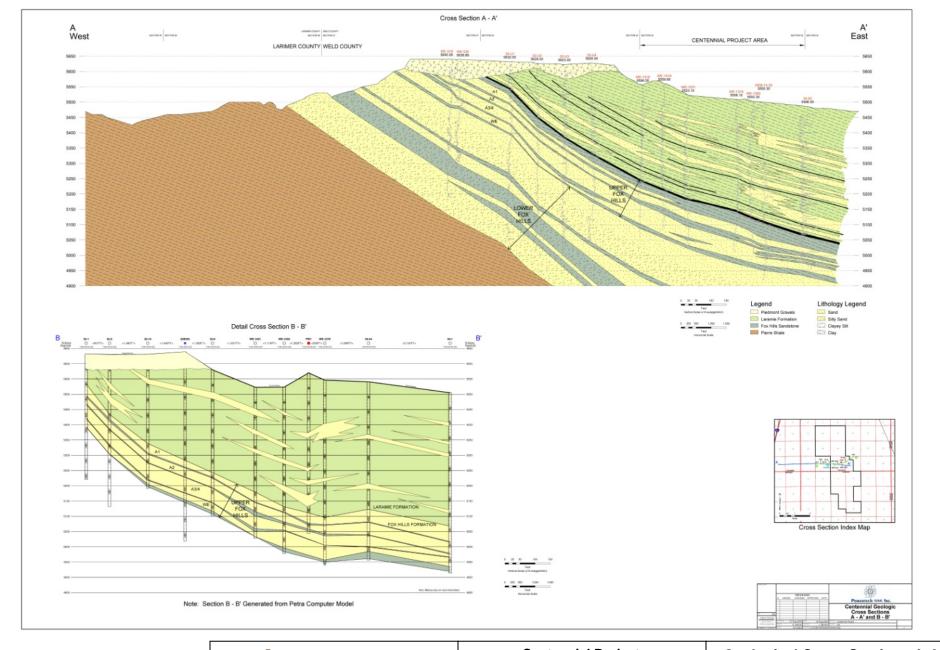
Table 17.25: Technical-Economic Results (\$000s)

		units	Value
Net Revenue			
U3O8 Price (\$/lb)		\$/lb-U3O8	\$65.00
Prod.		klbs	9,523
	<b>Gross Revenue</b>	\$000s	618,983
Transportation		\$000s	(1,428)
Severance Tax		\$000s	(4,928)
Surface Royalty		\$000s	(12,380)
Mineral Royalty		\$000s	(30,949)
Property Tax		\$000s	(4,974)
_	<b>Net Revenue</b>	\$000s	564,324
<b>Production Costs</b>			
Central Plant/Ponds		\$000s	61,919
Satellite/Well Field		\$000s	135,862
Restoration		\$000s	9,404
Decommissioning		\$000s	4,466
G&A Labor		\$000s	14,311
Corporate Overhead		\$000s	5,600
Contingency		\$000s	46,598
	<b>Production Costs</b>	\$000s	278,160
	Gross Margin	\$000s	286,164
Project Capital (Equity)		\$000s	(129,286)
Income Tax		\$000s	0
	Free Cash Flow	\$000s	156,878
	IRR	-	18%
	<b>Present Value</b>	-	51,774

## **Sensitivity**

**Table 17.26: Price Sensitivity of the Technical Economic Model** 

Item	Units				
U <sub>3</sub> O <sub>8</sub> Price	\$/lb	\$42	\$60	\$65	\$80
Free Cash Flow	\$000s	(38,916)	\$112,159	156,878	\$285,356
IRR	\$000s	-7%	13%	18%	32%
$PV_{8\%}$	\$000s	(56,334)	\$27,076	51,774	\$122,728





SRK Job No.: 194300.020

File Name: Figure\_17-1.docx

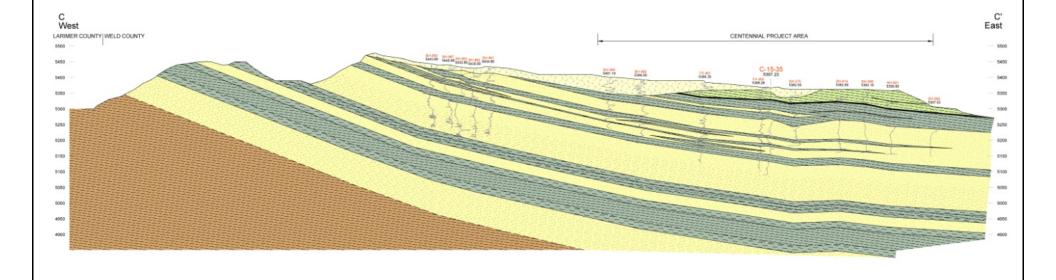
Centennial Project, Weld County, Colorado

Source: Powertech (USA), Inc.

# Geological Cross-Sections A-A' and B-B' (Centennial North)

Date: 20100412

Approved: VU





SRK Job No.: 194300.020

File Name: Figure\_17-2.docx

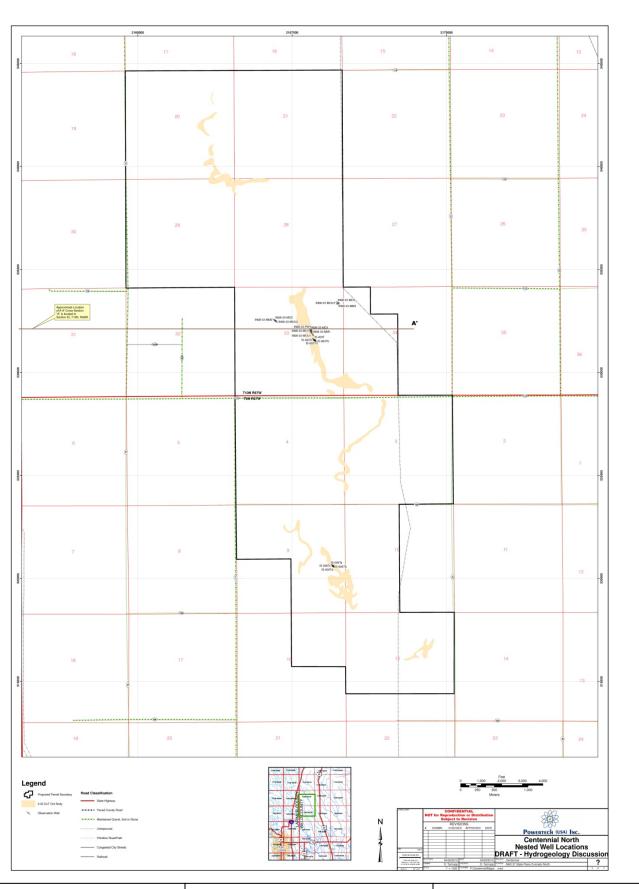
Centennial Project, **Weld County, Colorado** 

Source: Powertech (USA), Inc.

**Geological Cross-Section C-C'** (Centennial South)

Approved: VU

Date: 20100412





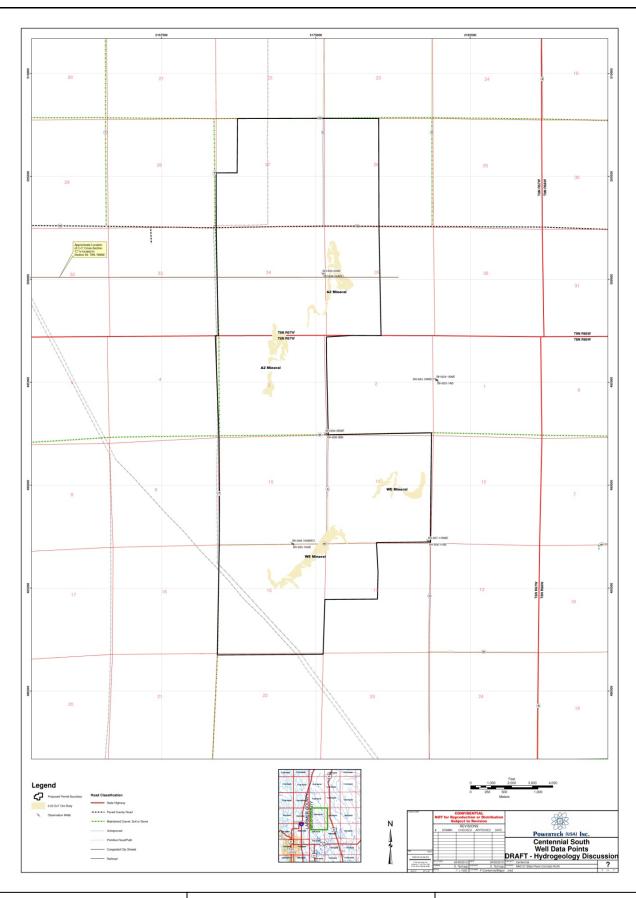
Centennial Project, Weld County, Colorado **Location of Wells with Measured Water Levels (Centennial North)** 

SRK Project No.: 194300.020

File Name: Figure\_17-3.docx

Source: Powertech (USA), Inc.

Date: 20100412 Approved: VU





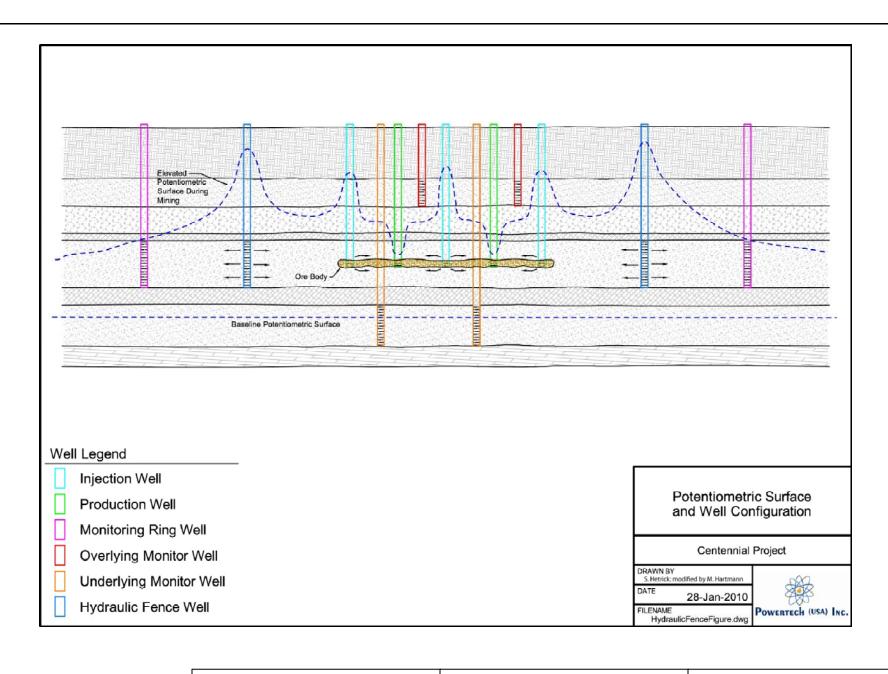
Centennial Project, Weld County, Colorado Location of Wells with Measured Water Levels (Centennial South)

SRK Project No.: 194300.020

File Name: Figure\_17-4.docx

Source: Powertech (USA), Inc.

Date: 20100412 Approved: VU Figure: 17-4





SRK Job No.: 194300.020

File Name: Figure\_17-5.docx

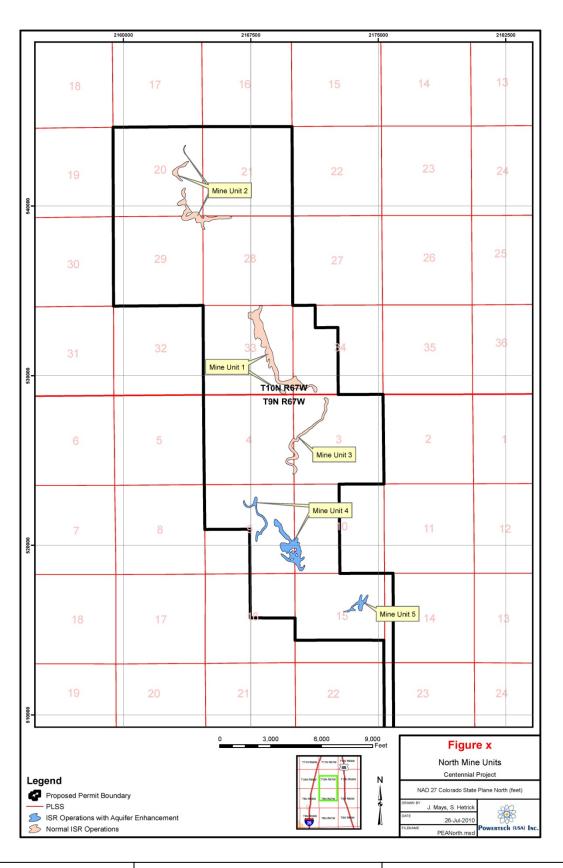
Centennial Project, Weld County, Colorado

Source: Powertech (USA), Inc.

Idealized Conceptual Diagram of Aquifer Enhancement through Freshwater Injection

Date: 20100412

Approved: VU





SRK Project No.: 194300.020

File Name: Figure\_17-6.docx

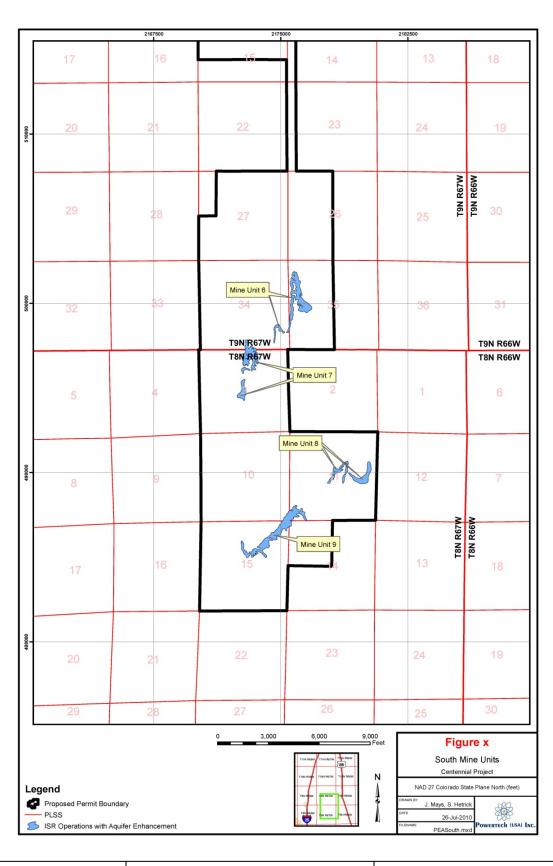
Centennial Project, Weld County, Colorado

Source: Powertech (USA), Inc.

# Centennial North Proposed Mine Units

Date: 20100726

Approved: VU





SRK Project No.: 194300.020

File Name: Figure\_17-7.docx

Centennial Project, **Weld County, Colorado** 

Source: Powertech (USA), Inc.

### **Centennial South Proposed Mine Units**

Figure: 17-7 Approved: VU Date: 20100726

## **Exhibit 17.1: Indicative Economics**

COMPANY Power Tech
BUSINESS UNIT Centennial

OPERATION 7	00k-lbs U	J <b>3O8/yr</b>														
	value /	units /	Total	I	PreProd 1	Production.	• •									
	factor	sensit.	or Avg.	-1	1	2	3	4	5	6	7	8	9	10	11	12
PRODUCTION SUMMAR	Y															
U3O8 Recovered	-	klbs	9,523	0	0	700	700	700	701	700	704	700	701	695	708	702
U3O8 Restoration	-	klbs	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U3O8 Produced		klbs	9,523	0	0	700	700	700	701	700	704	700	701	695	708	702
CASH FLOW SCHEDULE	1															
Estimate of Cash Flow																
Net Revenue																
U3O8 Price (\$/lb)	\$65.00	1.00	65			\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00	\$65.00
Prod.		klbs	9,523	0	0	700	700	700	701	700	704	700	701	695	708	702
Gross Revenue		\$000s	618,983	0	0	45,509	45,509	45,525	45,575	45,515	45,740	45,471	45,594	45,149	46,038	45,641
		\$/lb-U3O8	65.00													
Freight & Marketing																
Marketing	\$0.00	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U3O8 Transport (\$/lb)	\$0.15	\$000s	(1,428)	0	0	(105)	(105)	(105)	(105)	(105)	(106)	(105)	(105)	(104)	(106)	(105)
Insurance/other (\$/t-prod)	\$0.00	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transportation		\$000s	(1,428)	0	0	(105)	(105)	(105)	(105)	(105)	(106)	(105)	(105)	(104)	(106)	(105)
		\$/lb-U3O8	(\$0.15)	\$0.00	\$0.00	(\$0.15)	(\$0.15)	(\$0.15)	(\$0.15)	(\$0.15)	(\$0.15)	(\$0.15)	(\$0.15)	(\$0.15)	(\$0.15)	(\$0.15)
Severance, Royalty, Tax																
Severance Tax	2.3%	\$000s	(4,928)	0	0	(298)	(434)	(475)	(598)	(340)	(470)	(427)	(372)	(294)	(304)	(300)
Surface Royalty	2.0%	\$000s	(12,380)	0	0	(910)	(910)	(911)	(912)	(910)	(915)	(909)	(912)	(903)	(921)	(913)
Mineral Royalty	5.0%	\$000s	(30,949)	0	0	(2,275)	(2,275)	(2,276)	(2,279)	(2,276)	(2,287)	(2,274)	(2,280)	(2,257)	(2,302)	(2,282)
Property Tax	7.1%	\$000s	(4,974)	0	0	(660)	(162)	(122)	0	(256)	(132)	(169)	(227)	(530)	(714)	(332)
Other Tax	0.0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Severance, Royalty, Tax		\$000s	(53,231)	0	0	(4,144)	(3,782)	(3,784)	(3,788)	(3,783)	(3,803)	(3,779)	(3,790)	(3,985)	(4,241)	(3,827)
		\$/lb-U3O8	(\$5.59)	\$0.00	\$0.00	(\$5.92)	(\$5.40)	(\$5.40)	(\$5.40)	(\$5.40)	(\$5.40)	(\$5.40)	(\$5.40)	(\$5.74)	(\$5.99)	(\$5.45)
Net Revenue		\$000s	564,324	0	0	41,260	41,622	41,637	41,682	41,627	41,831	41,587	41,699	41,060	41,691	41,709
<b>D I d G</b> .		\$/lb-U3O8	59.26													
Production Costs																
Central Plant/Ponds	-	1.00	61,919	0	3	3,077	3,186	3,485	4,618	4,754	4,374	4,825	5,036	4,833	4,316	4,707
Satellite/Well Field	-	1.00	135,862	0	209	4,748	9,963	13,045	26,136	11,858	16,985	15,532	13,544	5,509	290	15,491
Restoration	-	1.00	9,404	0	0	3	232	656	658	659	660	658	656	659	661	657
Decommissioning	-	1.00	4,466	0	0	0	0	0	0	0	0	0	0	638	638	638
G&A Labor	-	1.00	14,311	0	697	947	947	947	947	947	947	947	947	947	947	947
Corporate Overhead	-	1.00	5,600	0	350	350	350	350	350	350	350	350	350	350	350	350
Contingency	-	1.00	46,598	0	252	1,846	2,957	3,718	6,563	3,735	4,684	4,483	4,128	2,608	1,462	4,579
Production Costs		\$000s	278,160	0	1,511	10,972	17,634	22,200	39,272	22,302	27,999	26,795	24,662	15,544	8,663	27,369
		\$/lb-U3O8	\$29.21	\$0.00	\$0.00	\$15.67	\$25.19	\$31.70	\$56.01	\$31.85	\$39.79	\$38.30	\$35.16	\$22.38	\$12.23	\$38.98
CASH COST		\$000s	332,819	0	1,511	15,221	21,521	26,089	43,165	26,190	31,908	30,679	28,557	19,632	13,010	31,301
		\$/lb-U3O8	\$34.95	\$0.00	\$0.00	\$21.74	\$30.74	\$37.25	\$61.56	\$37.40	\$45.34	\$43.85	\$40.71	\$28.26	\$18.37	\$44.58
MARGIN		US\$000	286,164	0	(1,511)	30,289	23,988	19,436	2,410	19,325	13,832	14,792	17,037	25,516	33,028	14,340

COMPANY Power Tech
BUSINESS UNIT Centennial

OPERATION 7	00k-lbs U	J3O8/yr														
	value /	units /	Total		PreProd	Production										
	factor	sensit.	or Avg.	-1	1	2	3	4	5	6	7	8	9	10	11	12
Cash Available for Debt Ser	wiee															
Operating Margin	vice	\$000s	286,164	0	(1,511)	30,289	23,988	19,436	2,410	19,325	13,832	14,792	17,037	25,516	33,028	14,340
Project Capital (Equity)	100%	\$000s \$000s	(129,286)	0	(71,073)	(11,131)	(8,597)	19,430	(9,794)	(1,160)	(3,925)	(1,160)	(1,160)	(1,160)	(1,160)	(1,160)
Income Tax	100 /0	\$000s	(123,200)	0	(71,073)	(11,131)	(8,397)	0	0	(1,100)	(3,923)	(1,100)	(1,100)	(1,100)	(1,100)	(1,100)
Working Capital		\$000s	0	0	(302)	(1,892)	(1,332)	(913)	(3,414)	3,394	(1,139)	241	427	1,824	1,376	(3,741)
F Avail. for Debt Service		\$000s	156,878	0	(72,886)	17,266	14,059	18,523	(10,798)	21,558	8,767	13,873	16,304	26,180	33,244	9,439
Loan Repayment		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest Expense		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Free Cash Flow		\$000s	156,878	0	(72,886)	17,266	14,059	18,523	(10,798)	21,558	8,767	13,873	16,304	26,180	33,244	9,439
			,	0	(72,886)	(55,620)	(41,561)	(23,038)	(33,836)	(12,278)	(3,511)	10,362	26,666	52,845	86,090	95,528
IRR		18%														
Present Value		8.0%	51,774	0	(67,487)	14,803	11,160	13,615	(7,349)	13,585	5,116	7,495	8,156	12,126	14,258	3,748
			-	0	(67,487)	(52,684)	(41,524)	(27,909)	(35,258)	(21,673)	(16,557)	(9,062)	(906)	11,220	25,478	29,226
DO VEGET A O LAN GOVERN	T T															
PROJECT LOAN SCHEDU	JLE	4000	0													
Loan Amount CF Available for Debt Sv		\$000s \$000s	163,972	0	(72,886)	17,266	14,059	18,523	(10,798)	21,558	8,767	13,873	16,304	26,180	33,244	9,439
Interest	c.	ŞUUUS	103,972	U	(72,000)	17,200	14,059	10,523	(10,798)	21,558	8,707	13,873	10,304	20,180	33,244	9,439
LIBOR		%		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Margin		%	_	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Interest		%	_	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Repayment Schedule		70		0.070	0.070	0.070	0.070	0.0 / 0	0.070	0.070	0.070	0.070	0.0 / 0	0.070	0.070	0.070
Opening Balance		\$000s	_	0	0	0	0	0	0	0	0	0	0	0	0	0
Scheduled Repayment		\$000s	0		0	0	0	0	0	0						
Closing Balance		\$000s	-	0	0	0	0	0	0	0	0	0	0	0	0	0
Interest Expense		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROJECT CAPITAL - See	tab for ca	nital cost d	letails.													
Capital Cost Summary		.pruir cost u														
CPP/Gen Facilities		\$000s	55,097	0	43,874	0	2,304	0	7,195	0	2,304	0	0	0	0	0
Well Fields		\$000s	14,208	0	5,359	5,900	2,950	0	0	0	0	0	0	0	0	0
Capital Labor		\$000s	1,675	0	852	563	260	0	0	0	0	0	0	0	0	0
G&A		\$000s	13,605	0	9,142	2,813	1,650	0	0	0	0	0	0	0	0	0
Mine Closure		\$000s	12,584	0	0	0	0	0	0	0	0	0	0	0	0	0
Replacement Capital		\$000s	12,568	0	0	0	0	0	967	967	967	967	967	967	967	967
subtotal		\$000s	109,739	0	59,227	9,276	7,164	0	8,162	967	3,271	967	967	967	967	967
Contingncy		\$000s	19,547	0	11,845	1,855	1,433	0	1,632	193	654	193	193	193	193	193
Total Capital	1.00	\$000s	129,286	0	71,073	11,131	8,597	0	9,794	1,160	3,925	1,160	1,160	1,160	1,160	1,160
Initial		\$000s	71,073													
Ongoing		\$000s	58,213													
Working Capital																
Beginning Balance		\$000s	_	0	0	302	2,194	3,527	4,440	7,854	4,460	5,600	5,359	4,932	3,109	1,733
Ending Balance		20.0%	_]	0	302	2,194	3,527	4,440	7,854	4,460	5,600	5,359	4,932	3,109	1,733	5,474
		= 3.0 , 3							.,							
Change		\$000s	0	0	(302)	(1,892)	(1,332)	(913)	(3,414)	3,394	(1,139)	241	427	1,824	1,376	(3,741)

	value /	units /	Total		PreProd	Production	l									
	factor	sensit.	or Avg.	-1	1	2	3	4	5	6	7	8	9	10	11	12
INCOME TAX																
Income Tax																
Net Revenue		\$000s	564,324	0	0	41,260	41,622	41,637	41,682	41,627	41,831	41,587	41,699	41,060	41,691	41,709
Operating Costs		\$000s	(278,160)	0	(1,511)	(10,972)	(17,634)	(22,200)	(39,272)	(22,302)	(27,999)	(26,795)	(24,662)	(15,544)	(8,663)	(27,369)
Operating Profit		\$000s	286,164	0	(1,511)	30,289	23,988	19,436	2,410	19,325	13,832	14,792	17,037	25,516	33,028	14,340
Interest Expense		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Depreciation		\$000s	(109,473)	0	(8,884)	(9,165)	(9,094)	(7,957)	(8,187)	(7,308)	(6,885)	(6,170)	(5,544)	(4,996)	(4,516)	(4,097)
Net Income		\$000s	176,691	0	(10,395)	21,124	14,894	11,479	(5,776)	12,016	6,946	8,622	11,494	20,521	28,512	10,243
		****	12.550	0	10.205	(10.205)	0	0	5.776	(5.77.6)	0	0	0	0	0	0
Loss Carry Forward		\$000s	13,559	0	10,395	(10,395)	0	0	5,776	(5,776)	0	8.622	0	0	0	0
Taxable Income		\$000s	190,250	0	0	10,728	14,894	11,479	0	6,240	6,946	8,622	11,494	20,521	28,512	10,243
Income Tax		0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Depreciation																
Additions		\$000s	129,286	0	71,073	11,131	8,597	0	9,794	1,160	3,925	1,160	1,160	1,160	1,160	1,160
			, , , ,		,	, -	- ,		. , .	,	- ,	,	,	,	,	,
Opening Balance		\$000s	-	0	71,073	73,319	72,751	63,657	65,494	58,467	55,084	49,359	44,349	39,965	36,130	32,774
Depreciation		12.5%	109,473	0	8,884	9,165	9,094	7,957	8,187	7,308	6,885	6,170	5,544	4,996	4,516	4,097
Closing Balance		\$000s	-	0	62,188	64,154	63,657	55,700	57,307	51,159	48,198	43,189	38,805	34,970	31,614	28,677
I C I																
Loss Carry Forward		****	20 521	0	10 205		0				0	0	0	0	0	
Additions		\$000s	29,731	0	10,395	0	0	0	5,776	0	0	0	0	0	0	0
Opening Balance		\$000s	_	0	10,395	10,395	0	0	5,776	5,776	0	0	0	0	0	0
Losses Used		\$000s	16,172	0	0	10,395	0	0	0	5,776	0	0	0	0	0	0
Closing Balance		\$000s	-10,172	0	10,395	0	0	0	5,776	0,770	0	0	0	0	0	0
					,0>0		· ·	v	-,,,,							v

COMPANY Power Tech BUSINESS UNIT Centennial OPERATION 700k-lbs U3O8/vr END value / units / Total 13 15 18 19 20 factor sensit. 14 16 21 or Avg PRODUCTION SUMMARY U3O8 Recovered 9,523 707 645 367 92 0 0 0 0 0 klbs U3O8 Restoration klbs 0 0 0 0 0 0 0 0 0 **U3O8 Produced** klbs 9,523 707 645 367 92 0 0 0 CASH FLOW SCHEDULE **Estimate of Cash Flow** Net Revenue U3O8 Price (\$/lb) \$65.00 1.00 65 \$65.00 \$65.00 \$65.00 \$65.00 9.523 klbs 707 645 367 92 0 23,839 **Gross Revenue** \$000s 618,983 45,979 41,938 5,960 0 \$/lb-U3O8 65.00 Freight & Marketing Marketing \$0.00 \$000s 0 0 0 0 0 0 0 0 0 U3O8 Transport (\$/lb) \$0.15 \$000s (1,428)(106)(97)(55)(14)0 0 0 0 0 \$0.00 0 0 0 0 Insurance/other (\$/t-prod) \$000s 0 0 0 0 Transportation (1,428)(106) (97) (55) (14) 0 0 \$000s 0 \$/lb-U3O8 (\$0.15)(\$0.15)(\$0.15)(\$0.15)(\$0.15)\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 Severance, Royalty, Tax Severance Tax (4,928)(258)(54)0 0 2.3% \$000s (304)0 0 0 0 Surface Royalty 2.0% \$000s (12,380)(920)(839)(477)(119)0 0 0 0 Mineral Royalty 5.0% (30,949)(2,299)(2,097)(1,192)(298)0 0 0 \$000s Property Tax 7.1% \$000s (4,974)(555)(636)(410)(69)0 0 0 Other Tax 0.0% 0 0 0 \$000s 0 0 0 Severance, Royalty, Tax (53,231)(4,077)(3,830)(2,133)(486)0 0 \$000s (\$5.59)(\$5.94)(\$5.82)(\$5.30)\$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$/lb-U3O8 (\$5.76)\$000s Net Revenue 564,324 41,795 38,012 21,651 5,460 0 0 0 0 0 59.26 \$/lb-U3O8 Operating costs @ EoL are closure-**Production Costs** related and included in Owner Capital. Central Plant/Ponds 1.00 61,919 4,665 4,279 3,359 2,401 1,854 1,073 1,089 602 0 1.00 Satellite/Well Field 135,862 6.864 1.130 (2.720)(2.721)(2.948)(6.245)37 1 0 1.00 9,404 914 710 378 0 Restoration 658 914 758 710 56 Decommissioning 1.00 4,466 638 638 638 638 638 638 4,563 4,513 0 G&A Labor 1.00 14,311 947 750 750 0 750 561 561 507 439 Corporate Overhead 1.00 5,600 350 350 350 350 150 150 150 150 150 Contingency 1.00 46,598 2.846 1.632 669 438 193 (623)1.345 1,152 30 **Production Costs** \$000s 278,160 16,969 9,692 3,961 2,615 \$29.21 \$23.99 \$15.02 \$28.52 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$/lb-U3O8 \$10.80 CASH COST \$000s 332,819 21,152 13,619 6,149 3,115 0 0 0 0 \$34.95 \$29.90 \$21.11 \$16.77 \$33.97 \$0.00 \$0.00 \$0.00 \$0.00 \$0.00 \$/lb-U3O8 MARGIN US\$000 286,164 24,827 28,319 17,690 2,845 0 0

## Indicative Financial Model COMPANY Power Tech

BUSINESS UNIT												
OPERATION 7							END					
OI ERATION /	value /	units /	Total				END					
	factor	sensit.	or Avg.	13	14	15	16	17	18	19	20	2
			v= == / <b>g</b> /									
Cash Available for Debt Ser	vice											
Operating Margin		\$000s	286,164	24,827	28,319	17,690	2,845	0	0	0	0	(
Project Capital (Equity)	100%	\$000s	(129,286)	(1,160)	(1,160)	(1,160)	(1,160)	(2,318)	3,736	(7,489)	(6,914)	(180
Income Tax		\$000s	0	0	0	0	0	0	0	0	0	0
Working Capital		\$000s	0	2,080	1,455	1,146	269	523	0	0	0	(
CF Avail. for Debt Service		\$000s	156,878	25,747	28,614	17,677	1,954	(1,795)	3,736	(7,489)	(6,914)	(180
Loan Repayment		\$000s	0	0	0	0	0	0	0	0	0	(
Interest Expense		\$000s	0	0	0	0	0	0	0	0	0	(
Free Cash Flow		\$000s	156,878	25,747	28,614	17,677	1,954	(1,795)	3,736	(7,489)	(6,914)	(180
				121,275	149,890	167,566	169,520	167,725	171,461	163,972	157,058	156,878
IRR		18%										
Present Value		8.0%	51,774	9,467	9,742	5,572	570	(485)	935	(1,735)	(1,483)	(36
			-	38,693	48,435	54,008	54,578	54,093	55,028	53,293	51,809	51,774
PROJECT LOAN SCHEDU	JLE											
Loan Amount		\$000s	0									
CF Available for Debt Sv	c.	\$000s	163,972	25,747	28,614	17,677	1,954	(1,795)	3,736	(7,489)	(6,914)	(180
<u>Interest</u>												
LIBOR		%	-	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.09
Margin		%	-	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.09
Interest		%	-	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Repayment Schedule												
Opening Balance		\$000s	-	0	0	0	0	0	0	0	0	0
Scheduled Repayment		\$000s	0									
Closing Balance		\$000s	-	0	0	0	0	0	0	0	0	0
Interest Expense		\$000s	0	0	0	0	0	0	0	0	0	0
PROJECT CAPITAL - See Capital Cost Summary	tab for ca	apital cost c	letails.									
CPP/Gen Facilities		<b>#000</b>	55,007	0	0	0	0	0	0	(500)	0	(
Well Fields		\$000s	55,097	0	0	0	0	0	0	(580)	0	(
		\$000s	14,208	0	0	0	0	0	0	0	0	(
Capital Labor G&A		\$000s	1,675 13,605	0	0	0	0	0	0	0	0	0
Mine Closure		\$000s \$000s		0	0	0	0	1,158	(3,736)	8,069	6,914	180
Replacement Capital		\$000s \$000s	12,584 12,568	967	967	967	967	967	(3,730)	0,009	0,914	100
subtotal		\$000s \$000s	109,739	967	967	967	967	2,125	(3,736)	7,489	6,914	180
Contingncy		\$000s \$000s	19,547	193	193	193	193	193	(3,730)	7, <b>469</b>	0,914	100
Total Capital	1.00	\$000s	129,286	1,160	1,160	1,160	1,160	2,318	(3,736)	7,489	6,914	180
Initial	1.00	\$000s \$000s	71,073	1,100	1,100	1,100	1,100	2,310	(3,730)	7,407	0,714	100
Ongoing		\$000s \$000s	58,213									
Working Capital												
Working Capital Beginning Balance		\$000s	-	5,474	3,394	1,938	792	523	0	0	0	
		\$000s <b>20.0%</b>	- 0	5,474 3,394 <b>2,080</b>	3,394 1,938 <b>1,455</b>	1,938 792 <b>1,146</b>	792 523 <b>269</b>	523 0 <b>523</b>	0	0	0	0

COMPANY Power Tech
BUSINESS UNIT Centennial

OPERATION 7	700k-lbs U	3O8/yr					END					
	value /	units /	Total									
	factor	sensit.	or Avg.	13	14	15	16	17	18	19	20	21
INCOME TAX												
Income Tax												
Net Revenue		\$000s	564,324	41,795	38,012	21,651	5,460	0	0	0	0	0
Operating Costs		\$000s	(278,160)	(16,969)	(9,692)	(3,961)	(2,615)	0	0	0	0	0
Operating Profit		\$000s	286,164	24,827	28,319	17,690	2,845	0	0	0	0	0
Interest Expense		\$000s	0	0	0	0	0	0	0	0	0	0
Depreciation		\$000s	(109,473)	(3,730)	(3,408)	(3,127)	(2,882)	(2,811)	(1,993)	(2,680)	(3,209)	(2,830)
Net Income		\$000s	176,691	21,097	24,911	14,563	(36)	(2,811)	(1,993)	(2,680)	(3,209)	(2,830)
Loss Carry Forward		\$000s	13,559	0	0	0	36	2,811	1,993	2,680	3,209	2,830
Taxable Income		\$000s	190,250	21,097	24,911	14,563	0	0	0	0	0	0
1 axabic mediic		φυσυς	170,230	21,077	24,711	14,505	Ü	U	Ü	Ü	v	U
Income Tax		0%	0	0	0	0	0	0	0	0	0	0
		0 /0	U	U	U	U	U	U	U	U	U	U
		0 / 0	U	<u> </u>	U	U	U	U	U	U	U	U
Depreciation								•	•	<u> </u>	<u> </u>	
<u>Depreciation</u> Additions		\$000s	129,286	1,160	1,160	1,160	1,160	2,318	(3,736)	7,489	6,914	180
								•	•	<u> </u>	<u> </u>	
Additions		\$000s		1,160	1,160	1,160	1,160	2,318	(3,736)	7,489	6,914	180
Additions Opening Balance		<b>\$000s</b> \$000s	129,286	<b>1,160</b> 29,837	<b>1,160</b> 27,268	<b>1,160</b> 25,019	<b>1,160</b> 23,052	<b>2,318</b> 22,489	( <b>3,736</b> ) 15,942	<b>7,489</b> 21,438	<b>6,914</b> 25,672	<b>180</b> 22,643
Additions  Opening Balance Depreciation Closing Balance		\$000s \$000s 12.5%	129,286	<b>1,160</b> 29,837 3,730	<b>1,160</b> 27,268 3,408	<b>1,160</b> 25,019 3,127	<b>1,160</b> 23,052 2,882	<b>2,318</b> 22,489 2,811	(3,736) 15,942 1,993	<b>7,489</b> 21,438 2,680	<b>6,914</b> 25,672 3,209	180 22,643 2,830
Additions  Opening Balance Depreciation		\$000s \$000s 12.5%	129,286	<b>1,160</b> 29,837 3,730	<b>1,160</b> 27,268 3,408	<b>1,160</b> 25,019 3,127	<b>1,160</b> 23,052 2,882	<b>2,318</b> 22,489 2,811	(3,736) 15,942 1,993	<b>7,489</b> 21,438 2,680	<b>6,914</b> 25,672 3,209	180 22,643 2,830
Additions  Opening Balance Depreciation Closing Balance  Loss Carry Forward		\$000s \$000s 12.5% \$000s	129,286 - 109,473	1,160 29,837 3,730 26,108	1,160 27,268 3,408 23,859	1,160 25,019 3,127 21,892	1,160 23,052 2,882 20,171	2,318 22,489 2,811 19,678	(3,736) 15,942 1,993 13,949	<b>7,489</b> 21,438 2,680 18,759	<b>6,914</b> 25,672 3,209 22,463	22,643 2,830 19,813
Additions  Opening Balance Depreciation Closing Balance  Loss Carry Forward		\$000s \$000s 12.5% \$000s	129,286 - 109,473	1,160 29,837 3,730 26,108	1,160 27,268 3,408 23,859	1,160 25,019 3,127 21,892	1,160 23,052 2,882 20,171	2,318 22,489 2,811 19,678	(3,736) 15,942 1,993 13,949	<b>7,489</b> 21,438 2,680 18,759	<b>6,914</b> 25,672 3,209 22,463	22,643 2,830 19,813
Additions  Opening Balance Depreciation Closing Balance  Loss Carry Forward Additions		\$000s \$000s 12.5% \$000s \$000s	129,286 - 109,473	1,160 29,837 3,730 26,108	1,160 27,268 3,408 23,859	1,160 25,019 3,127 21,892	1,160 23,052 2,882 20,171 36	2,318 22,489 2,811 19,678	(3,736) 15,942 1,993 13,949 1,993	7,489 21,438 2,680 18,759 2,680	6,914 25,672 3,209 22,463 3,209	22,643 2,830 19,813 2,830
Additions  Opening Balance Depreciation Closing Balance  Loss Carry Forward Additions  Opening Balance		\$000s \$000s 12.5% \$000s \$000s	129,286 - 109,473 - 29,731	1,160 29,837 3,730 26,108 0	1,160 27,268 3,408 23,859 0	1,160 25,019 3,127 21,892 0	1,160 23,052 2,882 20,171 36 36	2,318 22,489 2,811 19,678 2,811 2,847	(3,736) 15,942 1,993 13,949 1,993 4,840	7,489 21,438 2,680 18,759 2,680 7,520	6,914 25,672 3,209 22,463 3,209	22,643 2,830 19,813 2,830

COMPANY Power Tech
BUSINESS UNIT Centennial
ODER A TION TOOL How 12008 (cm.

OPERATION 700k-	bs U3O8/yr																		END
va	lue / units /	Total		PreProd	Production.	••													
fact	or sensit.	or Avg.	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
PRODUCTION SUMMARY																			
<u>U308</u>																			
U3O8 Recovered	- klbs	9,523	0	0	700	700	700	701	700	704	700	701	695	708	702	707	645	367	92
U3O8 Restoration	- klbs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total U3O8	- klbs	9,523	0	0	700	700	700	701	700	704	700	701	695	708	702	707	645	367	92
OPERATING COST																			
Central Plant/Ponds	- \$000s	61,919	0	3	3,077	3,186	3,485	4,618	4,754	4,374	4,825	5,036	4,833	4,316	4,707	4,665	4,279	3,359	2,401
Satellite/Well Field	- \$000s	135,862	0	209	4,748	9,963	13,045	26,136	11,858	16,985	15,532	13,544	5,509	290	15,491	6,864	1,130	(2,720)	(2,721
Restoration	- \$000s	9,404	0	0	3	232	656	658	659	660	658	656	659	661	657	658	914	914	758
Decommissioning	- \$000s	4,466	0	0	0	0	0	0	0	0	0	0	638	638	638	638	638	638	638
Site Management	- \$000s	21,339	0	1,047	1,402	1,402	1,402	1,402	1,402	1,403	1,402	1,402	1,401	1,403	1,402	1,403	1,197	1,155	1,114
Contingency	- \$000s	46,598	0	252	1,846	2,957	3,718	6,563	3,735	4,684	4,483	4,128	2,608	1,462	4,579	2,846	1,632	669	438
Production Taxes	- \$000s - \$000s	53,231 332,819	0	0 1.511	4,144 15,221	3,782 <b>21,521</b>	3,784 <b>26,089</b>	3,788 <b>43,165</b>	3,783 <b>26,190</b>	3,803 <b>31,908</b>	3,779 <b>30,679</b>	3,790 <b>28,557</b>	3,985 <b>19.632</b>	4,241 13,010	3,827	4,077 <b>21,152</b>	3,830 <b>13,619</b>	2,133 <b>6.149</b>	486 <b>3.115</b>
Mine Opex	- <b>\$000s</b> \$/lb-U3O8	\$34.950	U	1,511	15,221	21,521	20,089	43,105	20,190	31,908	30,079	20,557	19,032	13,010	31,301	21,152	13,019	0,149	3,113
	\$/10-0308	\$34.930																	
Central Plant/Ponds																			
Labor	\$000s	18,180	0	0	1,176	1,176	1,176	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,122
Electricity	\$000s	24,112	0	0	460	567	866	1,943	2,082	1,695	2,154	2,361	2,172	1,627	2,032	1,979	1,720	1,371	1,084
Chemical	\$000s	5,755	0	1	422	423	423	424	423	425	423	424	420	428	424	427	390	220	55
Hardware Maint/Repl	\$000s	8,151	0	0	600	600	600	600	599	602	599	600	595	606	601	605	552	314	78
Laboratory	\$000s	412	0	0	30	30	30	30	30	30	30	30	30	31	30	30	27	17	8
Materials/Consume	\$000s	4,478	0	0	329	329	329	330	329	331	329	330	327	333	330	333	303	172	43
Byproduct Disposal	\$000s	762	0	0	56	56	56	56	56	56	56	56	56	57	56	57	52	29	7
Monitoring	\$000s	68	0	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Total Central Plant/Ponds	\$000s	66,536	0	3	3,077	3,186	3,485	4,618	4,754	4,374	4,825	5,036	4,833	4,316	4,707	4,665	4,279	3,359	2,401
	\$/lb-U3O8	\$6.987																	
Satellite Well/Field																			
Delineation Drilling	\$000s	2,493	0	0	513	375	208	0	754	266	0	134	0	244	0	0	0	0	0
Well Construction	\$000s	47,335	0	0	920	3,375	3,429	4,399	3,064	8,769	7,416	4,035	2,670	2,511	3,448	2,309	990	0	0
Surface Construction	\$000s	22,516	0	0	265	973	1,112	1,921	2,148	3,702	2,931	2,135	1,563	1,602	2,142	1,415	607	0	0
Pipelines	\$000s	4,347	0	0	113	413	416	507	250	439	403	498	336	167	382	296	127	0	0
Development Labor	\$000s	7,687	0	0	127	430	690	690	690	690	609	609	609	609	541	541	284	284	284
Operating Labor	\$000s	11,706	0	0	622	622	622	676	730	892	892	892	892	892	838	838	838	838	622
Electricity	\$000s	4,524	0	0	293	293	293	293	293	306	306	306	306	306	306	306	306	306	306
Chemical	\$000s	23,147	0	0	1,702	1,702	1,702	1,705	1,702	1,711	1,701	1,705	1,688	1,721	1,707	1,720	1,568	891	222
Maintenance	\$000s	1,924	0	0	148	148	148	148	148	148	148	148	148	148	148	148	148	0	0
Laboratory	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Materials/Consume	\$000s	44	0	0	0	0	0	0	0	6	6	6	6	6	6	6	0	0	0
Water Rights Usage	\$000s	9,120	0	0	0	1,577	4,370	15,742	2,024	0	1,064	3,021	(2,765)	(7,971)	5,919	(770)	(3,791)	(5,092)	(4,209
Byproduct Disposal	\$000s	608	0	0	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Monitoring	\$000s	412	0	209	4	14	15	15	15	15	15	15	15	14	13	13	13	13	13
Total Satellite/Well Field	\$000s	126,708	0	209	4,748	9,963	13,045	26,136	11,858	16,985	15,532	13,544	5,509	290	15,491	6,864	1,130	(2,720)	(2,721)
	\$/lb-U3O8	\$13.306																	

COMPANY Power Tech
BUSINESS UNIT Centennial

OPERATION	700k-lbs U3	O8/yr																		END
	value /	units /	Total		PreProd															
	factor	sensit.	or Avg.	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Restoration																				
Labor		\$000s	616	0	0	0	0	0	0	0	0	0	0	0	0	0	0	257	257	102
Electricity		\$000s	2,393	0	0	0	0	184	184	184	184	184	184	184	184	184	184	184	184	184
Chemical		\$000s	158	0	0	3	11	11	11	11	11	11	11	11	11	10	10	10	10	10
Maintenance		\$000s	5,904	0	0	0	219	437	437	437	437	437	437	437	437	437	437	437	437	437
Laboratory		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Materials/Consume		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Byproduct Disposal		\$000s	263	0	0	0	0	20	20	20	20	20	20	20	20	20	20	20	20	20
Monitoring		\$000s	70	0	0	0	2	3	5	6	7	5	3	6	8	5	6	5	5	5
Total Restoration		\$000s	11,258	0	0	3	232	656	658	659	660	658	656	659	661	657	658	914	914	758
	\$	5/lb-U3O8	\$1.182																	
<b>Decommissioning</b>																				
Stability Monitoring		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Well Closure		\$000s	4,466	0	0	0	0	0	0	0	0	0	0	638	638	638	638	638	638	638
Mob/Site Prep		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Byproduct Disposal		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Equip Sold/Recycle		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtitle D Landfill		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trtmt/Backfill/Reclaim		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		\$000s	14,818	0	0	0	0	0	0	0	0	0	0	638	638	638	638	638	638	638
	\$	\$/lb-U3O8	\$1.56																	
Site Management																				
Labor		\$000s	14,311	0	697	947	947	947	947	947	947	947	947	947	947	947	947	750	750	750
U3O8 Transport Costs	\$0.15	\$000s	1,428	0	0	105	105	105	105	105	106	105	105	104	106	105	106	97	55	14
Corporate Overhead	,	\$000s	5,600	0	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350
Total		\$000s	24,157	0	1,047	1,402	1,402	1,402	1,402	1,402	1,403	1,402	1,402	1,401	1,403	1,402	1,403	1,197	1,155	1,114
	\$	5/lb-U3O8	\$2.54			,		,							,	,				•
<b>Contingency</b>																				
Central Plant/Ponds	20%	\$000s	13,307	0	1	615	637	697	924	951	875	965	1,007	967	863	941	933	856	672	480
Satellite/Well Field	20%	\$000s	25,342	0	42	950	1,993	2,609	5,227	2,372	3,397	3,106	2,709	1,102	58	3,098	1,373	226	(544)	(544)
Restoration	20%	\$000s	2,252	0	0	1	46	131	132	132	132	132	131	132	132	131	132	183	183	152
Decommissioning	20%	\$000s	2,964	0	0	0	0	0	0	0	0	0	0	128	128	128	128	128	128	128
Site Management	20%	\$000s	4,831	0	209	280	280	280	280	280	281	280	280	280	281	280	281	239	231	223
Total		\$000s	48,695	0	252	1,846	2,957	3,718	6,563	3,735	4,684	4,483	4,128	2,608	1,462	4,579	2,846	1,632	669	438
	\$	5/lb-U3O8	\$5.11			,	, .	-, -	-,	-,	,	,	, -	,	, .	, ,	,	,		
Production Taxes			·																	
Gross Revenues		\$000s	618,983	0	0	45,509	45,509	45,525	45,575	45,515	45,740	45,471	45,594	45,149	46,038	45,641	45,979	41,938	23,839	5,960
OpEx (ex Tax)		\$000s	292,173	0	1,511	11,077	17,739	22,306	39,377	22,407	28,105	26,900	24,767	15,648	8,769	27,474	17,075	9,789	4,016	2,629
Assets		\$000s	116,701	0	71,073	11,131	8,597	0	9,794	1,160	3,925	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160
Assets ex Mobile Equip		\$000s \$000s	111,727	0	66,099	11,131	8,597	0	9,794	1,160	3,925	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160
Cummulative Assets		\$000s \$000s	111,727	0	66,099	77,229	85,826	85,826		96,780	100,705	101,865	103,025	104,186	105,346	106,506	107,666	108,826	109,986	,
			100.704						95,620							-				111,146
Depreciation		\$000s	108,794	0	0	2,531	19,931	17,327	14,528	10,725	11,256	10,412	9,867	3,881	2,770	2,103	2,061	1,402	0	0
		****	= 000			0.50	0.27	0.20	0.00	0.43	0.22	0.28	0.38	0.50	0.50	0.50	0.50	0.50	0.50	
Severance Tax - Gross	2.25%	\$000s	7,808	0	0	596	596	597	598	597	602	596	598	588	608	599	607	516	109	0
Severance Tax - Credit		\$000s	2,880	0	0	298	162	122	0	256	132	169	227	294	304	300	304	258	54	0
Severance Tax - Net	2.25%	\$000s	4,928	0	0	298	434	475	598	340	470	427	372	294	304	300	304	258	54	0
Surface Royalty	2.0%	\$000s	12,380	0	0	910	910	911	912	910	915	909	912	903	921	913	920	839	477	119
Minerals Royalty	5.0%	\$000s	30,949	0	0	2,275	2,275	2,276	2,279	2,276	2,287	2,274	2,280	2,257	2,302	2,282	2,299	2,097	1,192	298
Property Tax	7.1%	\$000s	4,974	0	0	660	162	122	0	256	132	169	227	530	714	332	555	636	410	69
Other Tax	0.0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		\$000s	53,231	0	0	4,144	3,782	3,784	3,788	3,783	3,803	3,779	3,790	3,985	4,241	3,827	4,077	3,830	2,133	486
	\$	5/lb-U3O8	\$5.59																	

OPERATION 700k-lbs	U3O6/y1																		END
value		Total		PreProd	Production.														
factor	sensit.	or Avg.	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Labor																			
Central Plant/Ponds	\$000s	20,688	0	0	1,176	1,176	1,176	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,122
Sat/Well Field Operations	\$000s	12,105	0	0	622	622	622	676	730	892	892	892	892	892	838	838	838	838	622
Sat/Well Field Development	\$000s	9,362	0	852	690	690	690	690	690	690	609	609	609	609	541	541	284	284	284
Restoration/Decommissioning	\$000s	832	0	0	0	0	0	0	0	0	0	0	0	0	0	0	257	257	102
Site Management	\$000s	16,379	0	697	947	947	947	947	947	947	947	947	947	947	947	947	750	750	750
Total Labor	\$000s	59,366	0	1,549	3,435	3,435	3,435	3,543	3,597	3,759	3,678	3,678	3,678	3,678	3,556	3,556	3,359	3,359	2,880
	\$/lb-U3O8	\$6.234																	
Central Plant/Ponds Labor																			
Production Supr	men		0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Operations Supr	men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operations Leader	men		0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Operator	men		0.0	0.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	2.0
Operators - Day	men		0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Dryer Operator	men		0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Chemist/Lab Supr	men		0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lab Tech	men		0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Maintenance Supr	men		0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
General Maint Tech	men		0.0	0.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Mechanic	men		0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Electrical/Instrument	men		0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Subtotal CPP Labor	men		0.0	0.0	19.0	19.0	19.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	18.0
Satellite/Well Field Labor - Operati	ons																		
Operations Supr	men		0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Engineer	men		0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Operations Leader	men		0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Operator	men		0.0	0.0	4.0	4.0	4.0	5.0	6.0	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	8.0	6.0
Sampling Tech	men		0.0	0.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1.0
Subtotal Satellite Labor	men		0.0	0.0	10.0	10.0	10.0	11.0	12.0	15.0	15.0	15.0	15.0	15.0	14.0	14.0	14.0	14.0	10.0
Satellite/Well Field Labor - Develop	oment (Capital)																		
Sr Geologist	men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Geologist	men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Drafting Tech	men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Construct Supr	men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drilling Foreman	men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0
Drilling Leadman	men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drilling Technician	men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Logging Technician	men		0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0
Drilling Supr	men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WF Construct Foreman	men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0
Gen Construct Tech	men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electrical/Instrument	men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operator	men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0
Construct Engineer	men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sampling Tech	men		0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Satellite Labor	men		0.0	12.0	9.0	9.0	9.0	9.0	9.0	9.0	8.0	8.0	8.0	8.0	7.0	7.0	3.0	3.0	3.0
Restoration Labor																			
Drilling Foreman	men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.5
Technician	men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0	0.0
Operator	men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0
Subtotal Salary	men		0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	2

OPERATION	700k-lbs U	308/yr																		END
	value /	units /	Total	]	PreProd P	roduction.	• •													
	factor	sensit.	or Avg.	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Site Management Labor																				
Mine Mgr		men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
HR Mgr		men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Office Mgr		men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Accountant		men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
IT Specialist		men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Purchasing Specialist		men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0
HR Specialist		men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Receptionist		men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0
Cleaning		men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Land/Public Rel		men		0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0
Radiation Safety Officer		men		0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Radiation Safety Tech		men		0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Safety Tech		men		0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Environ Leadman		men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Environ Tech		men		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Site Mgmt La	hor	men		0.0	7.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	7.0	7.0	7.0
Total Labor		men		0.0	19.0	48.0	48.0	48.0	50.0	51.0	54.0	53.0	53.0	53.0	53.0	51.0	51.0	48.0	48.0	39.5
Personnel Cost - CCP																				
Operations Supr	\$135,000	\$000s	2,126	0	0	135	135	135	135	135	135	135	135	135	135	135	135	135	135	135
Operations Supr		\$000s	2,120	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operations Leader	\$81,000	\$000s	1,377	0	0	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
•		\$000s		0	0	162	162		216	216	216	216				216		216		108
Operators Day	\$54,000		3,132	0	0	102	102	162 108	108	108	108	108	216	216 108	216 108	108	216 108	108	216 108	
Operators - Day	\$54,000	\$000s \$000s	1,944 1,782	0	0	108	108	108	108	108	108	108	108 108	108	108	108	108	108	108	108
Dryer Operators	\$54,000			0	0			95								95				108
Chemist/Lab Supr	\$95,000	\$000s	1,710	0	0	95	95		95	95	95	95	95	95	95	95 94	95	95	95 94	95
Lab Techs	\$47,000	\$000s	1,645	•	0	94	94	94	94	94	94	94	94	94	94		94	94		94
Maintenance Supr	\$61,000	\$000s	976	0	0	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
General Maint Techs	\$41,000	\$000s	2,173	0	0	123	123	123	123	123	123	123	123	123	123	123	123	123	123	123
Mechanics	\$61,000	\$000s	1,159	0	0	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61
Electrical/Instrument	\$74,000	\$000s	2,664	0	0	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
Subtotal CCP		\$000s	20,688	0	U	1,176	1,176	1,176	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,230	1,122
Personnel Cost - Satellite	do 7 000	****	1.406			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Operations Supr		\$000s	1,496	0	0	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95
Engineer	\$81,000	\$000s	1,276	0	0	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
Operations Leader	\$68,000	\$000s	1,071	0	0	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
Operators	\$54,000	\$000s	5,940	0	0	216	216	216	270	324	486	486	486	486	486	432	432	432	432	324
Sampling Tech	\$54,000	\$000s	2,322	0	0	162	162	162	162	162	162	162	162	162	162	162	162	162	162	54
Subtotal Satellite		\$000s	12,105	0	0	622	622	622	676	730	892	892	892	892	892	838	838	838	838	622
C -4 - H24 - /W - H F2 - L I I - L	DI	· · · · · · / C · · · · · · ·	1)																	
Satellite/Well Field Labor				0	125	135	125	125	125	125	135	125	125	135	125	125	125	125	135	125
Sr Geologist		\$000s	2,160		135		135	135	135	135		135	135		135	135	135	135		135
Geologist		\$000s	1,520	0	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95
Drafting Tech		\$000s	864	0	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
Construct Supr		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drilling Foreman		\$000s	1,235	0	95	95	95	95	95	95	95	95	95	95	95	95	95	0	0	0
Drilling Leadman		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drilling Technician	\$54,000	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Logging Technician	\$54,000	\$000s	1,404	0	108	108	108	108	108	108	108	108	108	108	108	108	108	0	0	0
Drilling Supr	\$68,000	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WF Construct Foreman	\$68,000	\$000s	748	0	68	68	68	68	68	68	68	68	68	68	68	0	0	0	0	0
Gen Construct Tech	\$41,000	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Electrical/Instrument	\$81,000	\$000s	567	0	81	81	81	81	81	81	81	0	0	0	0	0	0	0	0	0

COMPANY Power Tech
BUSINESS UNIT Centennial

BUSINESS UNIT																				END
OPERATION			m . 1		D D 1 T															END
	value / factor	units / sensit.	Total or Avg.	-1	PreProd I	roduction. 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Operator	\$54,000	\$000s	702	0	54	54	54	54	54	54	54	54	54	54	54	54	54	0	0	0
Construct Engineer	\$81,000	\$000s	702	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sampling Tech	\$54,000	\$000s	162	0	162	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Satellite Labor	φυ 1,000	\$000s	9,362	0.0	852.0	690.0	690.0	690.0	690.0	690.0	690.0	609.0	609.0	609.0	609.0	541.0	541.0	284.0	284.0	284.0
Personnel Cost - Restoration	on	4	- ,																	
Drilling Foreman		\$000s	238	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95	95	48
Technicians	\$54,000	\$000s	216	0	0	0	0	0	0	0	0	0	0	0	0	0	0	108	108	0
Operators	\$54,000	\$000s	378	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54	54
Subtotal Restoration		\$000s	832	0	0	0	0	0	0	0	0	0	0	0	0	0	0	257	257	102
Site Management Labor																				
Mine Mgr		\$000s	4,060	0	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203	203
HR Mgr	\$108,000	\$000s	1,836	0	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
Office Mgr		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Accountant		\$000s	1,836	0	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108	108
IT Specialist	\$81,000	\$000s	1,296	0	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81
Purchasing Specialist	\$68,000	\$000s	884	0	68	68	68	68	68	68	68	68	68	68	68	68	68	0	0	0
HR Specialist	\$61,000	\$000s	522	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Receptionist	\$41,000	\$000s	533	0	41	41	41	41	41	41	41	41	41	41	41	41	41	0	0	0
Cleaning		\$000s	1 144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Land/Public Rel	\$88,000	\$000s \$000s	1,144	0	88 0	88 135	88 135	88 135	88 135	88 135	88 135	88 135	88 135	88 135	88 135	88 135	88 135	135	0 135	0 135
Radiation Safety Officer		\$000s	2,565	0	0	68	68	68				68	68	68	68	68		68		68
Radiation Safety Tech Safety Tech	\$68,000 \$47,000	\$000s	1,224 893	0	0	47	47	47	68 47	68 47	68 47	47	47	47	47	47	68 47	47	68 47	47
Environ Leadman	\$68,000	\$000s	093	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Environ Tech	\$54,000	\$000s	108	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Site Mgmt Lal		\$000s	16,379	0	697	947	947	947	947	947	947	947	947	947	947	947	947	750	750	750
Electricity																				
Central Plant/Ponds		\$000s	26,221	0	0	460	567	866	1,943	2,082	1,695	2,154	2,361	2,172	1,627	2,032	1,979	1,720	1,371	1,084
Satellite/Well Field		\$000s	4,524	0	0	293	293	293	293	293	306	306	306	306	306	306	306	306	306	306
Restoration/Decommission	oning	\$000s	2,853	0	0	0	0	184	184	184	184	184	184	184	184	184	184	184	184	184
Site Management		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		\$000s	33,598	0	0	753	861	1,344	2,421	2,559	2,184	2,644	2,851	2,662	2,117	2,521	2,468	2,209	1,861	1,573
		\$/lb-U3O	8 \$3.528																	
Central Plant/Ponds		4000	7.205		0.0	2010	2010	2010	2010	2010	2010	2010	2010	2010	2010	2010	2010	204.0	2010	2010
CPP Bldg Main Site		\$000s \$000s	7,296	0.0	0.0 0.0	384.0 35.6	384.0 35.6	384.0 35.6	384.0 35.6	384.0 35.6	384.0	384.0	384.0 35.6	384.0	384.0	384.0	384.0 35.6	384.0 35.6	384.0	384.0
		\$000s	676	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.6 0.0	35.6 0.0	0.0	35.6 0.0	35.6 0.0	35.6 0.0	0.0	0.0	35.6 0.0	35.6 0.0
Water Supply Water Schedule		\$000S	18,249	0.0	0.0	39.9	147.6	446.7	1,523.9	1,662.2	1,275.0	1,734.6	1,941.7	1,752.3	1,207.2	1,612.1	1,559.1	1,300.1	951.8	664.0
subtotal		\$000s	26,221	0.0	0.0	460	567	866	1,943	2,082	1,695	2,154	2,361	2,172	1,627	2,032	1,979	1,720	1,371	1,084
Satellite/Well Field		φσσσσ	20,221	Ū	· ·	.00		000	2,5 .0	2,002	2,050	2,20.	2,001	-,	1,027	_,00_	2,,,,,	1,720	1,0.1	2,001
ProductionWells		ea.			0	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224
Injection Wells		ea.			0	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365
Header Houses		ea.			0.0	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
Wells	\$1,200	\$000s	4,032	0.0	0.0	268.8	268.8	268.8	268.8	268.8	268.8	268.8	268.8	268.8	268.8	268.8	268.8	268.8	268.8	268.8
Header House	\$2,100	\$000s	353	0.0	0.0	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
O2/CO2 pumps	\$1,000	\$000s	15	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Satellite Plant		\$000s	124	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4
subtotal		\$000s	4,524	0	0	293	293	293	293	293	306	306	306	306	306	306	306	306	306	306
Restoration/Decommission	<u>iing</u>																			
Treatment		\$000s	140	0.0	0.0	0.0	0.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Water Supply		\$000s	202	0.0	0.0	0.0	0.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Wellfield		\$000s	543	0.0	0.0	0.0	0.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0

OPERATION 7	700k-lbs U	3O8/yr																		END
	value /	units /	Total		PreProd	Production														
	factor	sensit.	or Avg.	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Header House		\$000s	729	0.0	0.0	0.0	0.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0	47.0
Deep Well Injection		\$000s	1,240	0.0	0.0	0.0	0.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0
subtotal		\$000s	2,853	0	0	0	0	184	184	184	184	184	184	184	184	184	184	184	184	184
Chemical																				
Central Plant/Ponds		\$000s	5,755	0	1	422	423	423	424	423	425	423	424	420	428	424	427	390	220	55
Satellite/Well Field		\$000s	23,147	0	0	1,702	1,702	1,702	1,705	1,702	1,711	1,701	1,705	1,688	1,721	1,707	1,720	1,568	891	222
Restoration/Decommission	oning	\$000s	179	0	0	3	11	11	11	11	11	11	11	11	11	10	10	10	10	10
Site Management		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		\$000s	29,081	0	1	2,128	2,137	2,137	2,140	2,137	2,148	2,135	2,141	2,119	2,160	2,142	2,158	1,968	1,122	287
Central Plant/Ponds		\$/lb-U3O8	\$3.054		0	1	422	423	423	424	423	425	423	424	420	428	424	427	390	220
H2O2 - 50% sol	\$0.30	\$000s	733	0.0	0.0	53.9	53.9	53.9	54.0	53.9	54.2	53.8	54.0	53.5	54.5	54.0	54.4	49.7	28.2	7.1
H2SO4 - 98%	\$0.30	\$000s \$000s	907	0.0	0.0	66.7	66.7	66.7	66.8	66.7	67.0	66.6	66.8	66.1	67.4	66.9	67.4	61.4	34.9	8.7
NaOH - 50% sol	\$0.14	\$000s \$000s	893	0.0	0.0	65.7	65.7	65.7	65.8	65.7	66.0	65.6	65.8	65.1	66.4	65.9	66.3	60.5	34.9	8.6
	\$0.13	\$000s \$000s		0.0	0.0	172.9	172.9	173.0	173.2	172.9	173.8	172.8	173.2	171.5	174.9	173.4	174.7	159.3	90.6	
NaCl - food grade gran Na2CO3	\$0.09	\$000s \$000s	2,352 838	0.0	0.0	61.6	61.6	61.6	61.7	61.6	61.9	61.5	61.7	61.1	62.3	61.8	62.2	56.8	32.3	22.6 8.1
BaCl2 - dry powder	\$0.14	\$000s \$000s	24	0.0	0.0	0.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	0.0	0.0
Flocculant	\$1.00	\$000s \$000s	24	0.0	0.4	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.4	0.4	0.4	0.4	0.0	0.0
subtotal	\$1.00	\$000s	5,755	0.0	1	422	423	423	424	423	425	423	424	420	428	424	427	390	220	55
Satellite/Well Field		<b>\$000S</b>	3,733	U	1	422	423	423	424	423	423	423	424	420	420	424	427	390	220	33
02	\$1,100	\$000s	18,318	0.0	0.0	1,347.0	1,347.0	1,347.0	1,349.0	1,347.0	1,354.0	1,346.0	1,349.0	1,336.0	1,362.0	1,351.0	1,361.0	1,241.0	705.0	176.0
CO2	\$1,160	\$000s	4,829	0.0	0.0	355.0	355.0	355.0	356.0	355.0	357.0	355.0	356.0	352.0	359.0	356.0	359.0	327.0	186.0	46.0
subtotal	ψ1,100	\$000s	23,147	0.0	0.0	1,702	1,702	1,702	1,705	1,702	1,711	1,701	1,705	1,688	1,721	1,707	1,720	1,568	891	222
Restoration/Decommission	ino	φοσοσ	23,147	v	v	1,702	1,702	1,702	1,700	1,702	1,711	1,701	1,700	1,000	1,721	1,707	1,720	1,200	0,1	
H2O2 - 50% sol	\$0.30	\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H2SO4 - 98%	\$0.14	\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NaOH - 50% sol	\$0.15	\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NaCl - food grade gran	\$0.09	\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Na2CO3	\$0.14	\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BaC12 - dry powder	\$0.67	\$000s	151	0.0	0.0	2.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3
Flocculant	\$1.00	\$000s	28	0.0	0.0	1.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	1.1	1.1	1.1	1.1	1.1
subtotal		\$000s	179	0	0	3	11	11	11	11	11	11	11	11	11	10	10	10	10	10
Hardware Maint/Replace																				
Central Plant/Ponds		\$000s	8,151	0	0	600	600	600	600	599	602	599	600	595	606	601	605	552	314	78
Satellite/Well Field		\$000s	1,924	0	0	148	148	148	148	148	148	148	148	148	148	148	148	148	0	0
Restoration/Decommission	oning	\$000s	6,998	0	0	0	219	437	437	437	437	437	437	437	437	437	437	437	437	437
Site Management		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		\$000s	17,074	0	0	748	966	1,185	1,186	1,185	1,188	1,184	1,186	1,180	1,192	1,186	1,191	1,138	751	516
		\$/lb-U3O8	\$1.793																	
Central Plant/Ponds					production of	•														
CPP	3%	\$000s	2,811	0.0	0.0	206.7	206.7	206.7	206.9	206.7	207.7	206.5	207.0	205.0	209.0	207.2	208.8	190.4	108.2	27.1
Main Site Facilities		\$000s	5,205	0.0	0.0	382.8	382.8	382.8	383.2	382.7	384.6	382.3	383.4	379.6	387.1	383.8	386.6	352.6	200.5	50.1
Land App		\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deep Disposal Well		\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Water Supply		\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evaporation Pond		\$000s	136	0.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	9.9	10.1	10.0	10.1	9.2	5.2	1.3
subtotal		\$000s	8,151	0	0	600	600	600	600	599	602	599	600	595	606	601	605	552	314	78
Satellite/Well Field																				
ProductionWells		ea.	3,360		0	224	224	224	224	224	224	224	224	224	224	224	224	224	224	224
Injection Wells		ea.	5,475		0	365	365	365	365	365	365	365	365	365	365	365	365	365	365	365
Header Houses		ea.	168		0.0	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
Sat Plant Maint	incl CCP	\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

COMPANY Power Tech
BUSINESS UNIT Centennial
OPERATION 7001: Be 1208/m

OPERATION	700k-lbs U3	3O8/vr																		END
	value /	units /	Total		PreProd	Production	-													
	factor	sensit.	or Avg.	-1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Well Field	\$100	\$000s	766	0.0	0.0	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	58.9	0.0	0.0
Pump Replace	\$1,200	\$000s	349	0.0	0.0	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9	0.0	0.0
General Maint	\$32,000	\$000s	416	0.0	0.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	0.0	0.0
Header House	\$2,700	\$000s	393	0.0	0.0	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	0.0	0.0
subtotal		\$000s	1,924	0	0	148	148	148	148	148	148	148	148	148	148	148	148	148	0	0
Restoration/Decommission	ing						219	438	438	438	438	438	438	438	438	438	438	438	438	438
WF Treatment	\$82,000	\$000s	1,312	0.0	0.0	0.0	41.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0	82.0
H2O Pump Replace	\$0	\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Well Maint	\$300	\$000s	2,827	0.0	0.0	0.0	88.4	176.7	176.7	176.7	176.7	176.7	176.7	176.7	176.7	176.7	176.7	176.7	176.7	176.7
Submers Pump Replace	\$27,000	\$000s	432	0.0	0.0	0.0	13.5	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0
WF Piping Maint	\$50,000	\$000s	800	0.0	0.0	0.0	25.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Header House	\$5,300	\$000s	950	0.0	0.0	0.0	29.7	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4	59.4
Deep Well Inject Treat	\$33,300	\$000s	533	0.0	0.0	0.0	16.7	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3
Deep Well Inject Maint	\$9,000	\$000s	144	0.0	0.0	0.0	4.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
subtotal		\$000s	6,998	0	0	0	219	437	437	437	437	437	437	437	437	437	437	437	437	437
Materials/Consumables																				
Central Plant/Ponds		\$000s	4,478	0	0	329	329	329	330	329	331	329	330	327	333	330	333	303	172	43
Satellite/Well field		\$000s	44	0	0	0	0	0	0	0	6	6	6	6	6	6	6	0	0	0
Restoration/Decommission	oning	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site Management		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		\$000s	4,522	0	0	329	329	329	330	329	337	335	336	333	339	336	339	303	172	43
G IN IN		\$/lb-U3O8	\$0.475																	
Central Plant/Ponds		****			production o	•														
Resin Replacement		\$000s	544	0.0	0.0	40.0	40.0	40.0	40.0	40.0	40.2	40.0	40.1	39.7	40.5	40.1	40.4	36.8	20.9	5.2
RO Membrane		\$000s	41 272	0.0	0.0	3.0 20.0	3.0	3.0	3.0	3.0 20.0	3.0 20.1	3.0 20.0	3.0 20.0	3.0	3.0 20.2	3.0	3.0	2.8 18.4	1.6 10.5	0.4
Expendible Supplies		\$000s					20.0	20.0	20.0					19.8		20.1	20.2			2.6
Office Supplies, Ink Office Copier, Plotter		\$000s \$000s	489 571	0.0	0.0	36.0 42.0	36.0 42.0	36.0 42.0	36.0 42.0	36.0 42.0	36.2 42.2	36.0 41.9	36.1 42.1	35.7 41.7	36.4 42.5	36.1 42.1	36.4 42.4	33.2 38.7	18.9 22.0	4.7 5.5
Office Misc Expend		\$000s \$000s	68	0.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.1	5.0	5.0	4.6	2.6	0.7
Telephone, Internet		\$000s \$000s	82	0.0	0.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.1	6.0	6.1	5.5	3.1	0.7
Shipping		\$000s \$000s	41	0.0	0.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.8	1.6	0.8
Maint Misc Expend		\$000s	272	0.0	0.0	20.0	20.0	20.0	20.0	20.0	20.1	20.0	20.0	19.8	20.2	20.1	20.2	18.4	10.5	2.6
Maint Trash		\$000s	33	0.0	0.0	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.2	1.3	0.3
Gasoline		\$000s	704	0.0	0.0	51.8	51.8	51.8	51.8	51.7	52.0	51.7	51.8	51.3	52.3	51.9	52.3	47.7	27.1	6.8
Diesel		\$000s	1,305	0.0	0.0	96.0	96.0	96.0	96.1	96.0	96.5	95.9	96.1	95.2	97.1	96.2	97.0	88.4	50.3	12.6
Propane		\$000s	16	0.0	0.0	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	0.6	0.2
Oil, Grease		\$000s	41	0.0	0.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.8	1.6	0.4
subtotal		\$000s	4,478	0	0	329	329	329	330	329	331	329	330	327	333	330	333	303	172	43
Satellite/Well Field			,																	
Resin Hauling		\$000s	44	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	6.3	6.3	6.3	6.3	6.3	6.3	0.0	0.0	0.0
subtotal		\$000s	44	0	0	0	0	0	0	0	6	6	6	6	6	6	6	0	0	0
Byproduct Disposal																				
Central Plant/Ponds		\$000s	762	0	0	56	56	56	56	56	56	56	56	56	57	56	57	52	29	7
Satellite/Well field		\$000s	713	0	0	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Restoration		\$000s	314	0	0	0	0	20	20	20	20	20	20	20	20	20	20	20	20	20
Decommission		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		\$000s	1,789	0	0	97	97	117	117	117	117	117	117	116	117	117	117	112	90	68
		\$/lb-U3O8	\$0.188																	

COMPANY Power Tech
BUSINESS UNIT Centennial

OPERATION	700k-lbs U3	O8/yr																		END
	value /	units /	Total		PreProd P															
	factor	sensit.	or Avg.	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Central Plant/Ponds					production de															
Maint Waste		\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sludge		\$000s	395	0.0	0.0	29.0	29.0	29.0	29.0	29.0	29.2	29.0	29.1	28.8	29.3	29.1	29.3	26.7	15.2	3.8
PPE		\$000s	184	0.0	0.0	13.5	13.5	13.5	13.5	13.5	13.6	13.5	13.5	13.4	13.7	13.5	13.6	12.4	7.1	1.8
Decon Waste		\$000s	184	0.0	0.0	13.5	13.5	13.5	13.5	13.5	13.6	13.5	13.5	13.4	13.7	13.5	13.6	12.4	7.1	1.8
subtotal		\$000s	762	0	0	56	56	56	56	56	56	56	56	56	57	56	57	52	29	7
Satellite/Well Field		****																		
Sat Maint Waste		\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat PPE		\$000s	119	0.0	0.0	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Sat Decon Waste		\$000s	119	0.0	0.0	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
WF Maint Waste WF PPE		\$000s \$000s	238 119	0.0	0.0 0.0	13.5	13.5 6.8	13.5 6.8	13.5 6.8	13.5 6.8	13.5 6.8	13.5 6.8	13.5 6.8	13.5	13.5 6.8	13.5 6.8	13.5 6.8	13.5	13.5 6.8	13.5
		\$000s \$000s	119	0.0	0.0	6.8								6.8			6.8	6.8		6.8
WF Decon Waste subtotal		\$000s	713	0.0	0.0	6.8 <b>41</b>	6.8	6.8	6.8 <b>41</b>	6.8	6.8 <b>41</b>	6.8 <b>41</b>	6.8 <b>41</b>	6.8 <b>41</b>	6.8	6.8 <b>41</b>	41	6.8 41	6.8 41	6.8
Restoration		φυυυs	/13	U	U	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
RO Waste, IX Waste		\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WF Waste		\$000s	105	0.0	0.0	0.0	0.0	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
PPE		\$000s	105	0.0	0.0	0.0	0.0	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Decon Waste		\$000s	105	0.0	0.0	0.0	0.0	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
subtotal		\$000s	314	0.0	0.0	0.0	0.0	20	20	20	20	20	20	20	20	20	20	20	20	20
Monitoring		φσσσσ	51.																	
Central Plant/Ponds		\$000s	68	0	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Satellite/Well field		\$000s	452	0	209	4	14	15	15	15	15	15	15	15	14	13	13	13	13	13
Restoration		\$000s	83	0	0	0	2	3	5	6	7	5	3	6	8	5	6	5	5	5
Decommission		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		\$000s	604	0	211	9	21	22	24	25	26	24	23	25	25	23	24	23	22	22
	\$	6/lb-U3O8	\$0.063																	
Central Plant/Ponds					quantities mo	ved forward	l 1 year fron	n monitoring	g worksheet											
Met Station		\$000s	38	0.0	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Water Quality		\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Radon		\$000s	30	0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
subtotal		\$000s	68	0	2	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Satellite/Well Field					quantities mo	ved forward	l 1 year fron	n monitoring	g worksheet											
Baseline		\$000s	196	0.0	195.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Production A		\$000s	19	0.0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	0.2	0.2	0.2	0.2	0.2	0.2
Production B		\$000s	207	0.0	11.4	1.1	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4	11.4
End Prod - Start Restore		\$000s	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compliance		\$000s	12	0.0	0.0	0.2	0.2	0.5	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.7	0.7	0.5	0.5
Radon		\$000s	19	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
subtotal		\$000s	452	0	209	4	14	15	15	15	15	15	15	15	14	13	13	13	13	13
Restoration		****																		
Restoration A		\$000s	25	0.0	0.0	0.0	0.9	1.8	1.8	1.8	1.8	0.4	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Restoration B		\$000s	8	0.0	0.0	0.0	0.0	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Stability A		\$000s	23	0.0	0.0	0.0	0.0	0.0	2.0	1.6	2.6	1.9	0.0	2.4	3.2	1.1	2.3	0.8	0.8	0.8
Stability B		\$000s	9	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.7	0.7	0.0	0.0	1.1	0.7	0.7	0.9	0.9	0.9
Radon subtotal		\$000s \$000s	18 <b>83</b>	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0 7	1.0	1.0 3	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Subtotai		φυυυs	83	U	U	U	4	3	3	U	,	3	3	U	o	5	U	5	3	3

COMPANY Power Tech
BUSINESS UNIT Centennial

OPERATION 700k-lbs U3O8/vr

value / units / Total 18 19 20 21 factor sensit. or Avg. 17 PRODUCTION SUMMARY U308 9,523 0 0 0 U3O8 Recovered klbs 0 0 U3O8 Restoration klbs 0 0 0 0 klbs 9,523 Total U3O8 0 Operating costs @ EoL are closure-OPERATING COST related and included in Owner Capital. \$000s 602 0 Central Plant/Ponds 61,919 1,854 1,073 1,089 \$000s 0 Satellite/Well Field 135,862 (2,948)(6,245)37 1 Restoration \$000s 9,404 710 710 378 56 0 Decommissioning \$000s 4,466 638 638 4,563 4,513 0 \$000s 21,339 150 Site Management 711 711 657 589 \$000s 46,598 1,152 Contingency 193 (623)1,345 30 53,231 Production Taxes \$000s 0 1,158 (3,736) 332,819 8,069 6,914 180 Mine Opex - \$000s \$/lb-U3O8 \$34.950 Central Plant/Ponds Labor \$000s 18,180 1.004 653 669 183 0 24,112 \$000s 420 420 420 0 Electricity 850 \$000s 0 0 Chemical 5,755 0 0 0 Hardware Maint/Repl \$000s 8,151 0 0 \$000s 412 0 0 0 Laboratory 0 0 Materials/Consume \$000s 4,478 0 0 0 0 0 Byproduct Disposal \$000s 0 0 762 0 0 0 Monitoring \$000s 68 0 0 Total Central Plant/Ponds \$000s 66,536 1,854 1.073 1.089 602 0 \$/lb-U3O8 \$6.987 Satellite Well/Field Delineation Drilling \$000s 2,493 0 0 0 0 0 47,335 Well Construction \$000s 0 0 0 0 0 Surface Construction \$000s 22,516 0 0 0 0 0 Pipelines \$000s 4,347 0 0 0 0 0 \$000s 7,687 0 0 0 0 Development Labor Operating Labor \$000s 11,706 399 0 0 4,524 Electricity \$000s 0 0 0 0 0 \$000s 23,147 0 0 0 0 Chemical 0 \$000s 1,924 Maintenance 0 0 0 0 0 Laboratory \$000s 0 0 0 Materials/Consume \$000s 44 0 0 0 0 9,120 (3,401)0 Water Rights Usage \$000s (6,299)0 Byproduct Disposal \$000s 608 41 41 24 0 0 \$000s Monitoring 412 13 13 13 0 Total Satellite/Well Field \$000s 126,708 (2,948)(6,245)37 0 \$/lb-U3O8 \$13.306

	value /	units /	Total					
	factor	sensit.	or Avg.	17	18	19	20	2
Restoration								
Labor		\$000s	616	54	54	54	54	(
Electricity		\$000s	2,393	184	184	92	0	(
Chemical		\$000s	158	10	10	0	0	(
Maintenance		\$000s	5,904	437	437	219	0	(
Laboratory		\$000s	0	0	0	0	0	(
Materials/Consume		\$000s	0	0	0	0	0	(
Byproduct Disposal		\$000s	263	20	20	10	0	(
Monitoring		\$000s	70	4	4	3	2	(
<b>Total Restoration</b>		\$000s	11,258	710	710	378	56	
	:	\$/lb-U3O8	\$1.182					
Decommissioning								
Stability Monitoring		\$000s	0	0	0	0	0	
Well Closure		\$000s	4,466	638	638	1,025	1,025	
Mob/Site Prep		\$000s	0	0	0	50	0	
Byproduct Disposal		\$000s	0	0	0	0	0	
Equip Sold/Recycle		\$000s	0	0	0	105	105	
Subtitle D Landfill		\$000s	0	0	0	2,756	2,756	
Trtmt/Backfill/Reclaim		\$000s	0	0	0	628	628	
Total		\$000s	14,818	638	638	4,563	4,513	
	:	\$/lb-U3O8	\$1.56					
Site Management								
Labor		\$000s	14,311	561	561	507	439	
U3O8 Transport Costs	\$0.15	\$000s	1,428	0	0	0	0	
Corporate Overhead		\$000s	5,600	150	150	150	150	15
Total		\$000s	24,157	711	711	657	589	15
	;	\$/Ib-U3O8	\$2.54					
<u>Contingency</u>								
Central Plant/Ponds	20%	\$000s	13,307	371	215	218	120	
Satellite/Well Field	20%	\$000s	25,342	(590)	(1,249)	7	0	
Restoration	20%	\$000s	2,252	142	142	76	11	
Decommissioning	20%	\$000s	2,964	128	128	913	903	
Site Management	20%	\$000s	4,831	142	142	131	118	3
Total		\$000s	48,695	193	(623)	1,345	1,152	3
	:	\$/lb-U3O8	\$5.11			ŕ		
Production Taxes								
Gross Revenues		\$000s	618,983	0	0	0	0	
OpEx (ex Tax)		\$000s	292,173	1,158	(3,736)	8,069	6,914	18
Assets		\$000s	116,701	1,160	0	(580)	0	
Assets ex Mobile Equip		\$000s	111,727	1,160	0	(580)	0	
Cummulative Assets		\$000s	ŕ	112,307	112,307	111,727	111,727	111,72
Depreciation		\$000s	108,794	0	0	0	0	,-
_ ·F···		7000						
Severance Tax - Gross	2.25%	\$000s	7,808	0	0	0	0	
Severance Tax - Credit	2.2370	\$000s	2,880	0	0	0	0	
Severance Tax - Net	2.25%	\$000s	4,928	0	0	0	0	
Surface Royalty	2.0%	\$000s	12,380	0	0	0	0	
Minerals Royalty	5.0%	\$000s	30,949	0	0	0	0	
Property Tax	7.1%	\$000s	4,974	0	0	0	0	
Other Tax	0.0%	\$000s	0	0	0	0	0	
Total	0.070	\$000s	53,231	0	0	0	0	

OPERATION 700k-lbs							
value		Total		10	10	20	•
Labor factor	sensit.	or Avg.	17	18	19	20	2
Central Plant/Ponds	\$000s	20,688	1,004	653	669	183	0
Sat/Well Field Operations	\$000s \$000s	12,105	399	033	009	0	(
Sat/Well Field Development	\$000s	9,362	0	0	0	0	(
Restoration/Decommissioning	\$000s \$000s	832	54	54	54	54	(
Site Management	\$000s \$000s	16,379	561	561	507	439	0
Total Labor	\$000s	59,366	2,018	1,268	1,230	676	0
Total Labor	\$/lb-U3O8	\$6.234	2,010	1,200	1,230	070	U
Central Plant/Ponds Labor	\$/10-0300	ψ0.23+					
Production Supr	men		0.8	0.0	0.0	0.0	0.0
Operations Supr	men		0.0	0.0	0.0	0.0	0.0
Operations Leader	men		1.0	0.5	0.5	0.0	0.0
Operator	men		1.0	0.0	2.0	0.0	0.0
Operators - Day	men		2.0	2.0	2.0	0.0	0.0
Dryer Operator	men		2.0	0.0	1.0	0.0	0.0
Chemist/Lab Supr	men		1.0	1.0	0.5	0.5	0.0
Lab Tech	men		2.0	1.0	2.0	0.0	0.0
Maintenance Supr	men		0.5	0.5	0.0	0.0	0.0
General Maint Tech	men		3.0	3.0	2.0	0.0	0.0
Mechanic			1.0	1.0	1.0	1.0	0.0
Electrical/Instrument	men		2.0	2.0	1.0	1.0	
Subtotal CPP Labor	men men		16.3	11.0	12.0	2.5	0.0
			10.3	11.0	12.0	2.5	0.0
Satellite/Well Field Labor - Operati			0.0	0.0	0.0	0.0	0.0
Operations Supr	men		0.8	0.0	0.0	0.0	0.0
Engineer	men		0.8	0.0	0.0	0.0	0.0
Operations Leader	men		0.8	0.0	0.0	0.0	0.0
Operator	men		4.0	0.0	0.0	0.0	0.0
Sampling Tech	men		0.0	0.0	0.0	0.0	0.0
Subtotal Satellite Labor	men		6.3	0.0	0.0	0.0	0.0
Satellite/Well Field Labor - Develor	ment (Capital)						
Sr Geologist	men		0.0	0.0	0.0	0.0	0.0
Geologist	men		0.0	0.0	0.0	0.0	0.0
Drafting Tech	men		0.0	0.0	0.0	0.0	0.0
Construct Supr	men		0.0	0.0	0.0	0.0	0.0
Drilling Foreman	men		0.0	0.0	0.0	0.0	0.0
Drilling Leadman	men		0.0	0.0	0.0	0.0	0.0
Drilling Technician	men		0.0	0.0	0.0	0.0	0.0
Logging Technician	men		0.0	0.0	0.0	0.0	0.0
Drilling Supr	men		0.0	0.0	0.0	0.0	0.0
WF Construct Foreman	men		0.0	0.0	0.0	0.0	0.0
Gen Construct Tech	men		0.0	0.0	0.0	0.0	0.0
Electrical/Instrument	men		0.0	0.0	0.0	0.0	0.0
Operator	men		0.0	0.0	0.0	0.0	0.0
Construct Engineer	men		0.0	0.0	0.0	0.0	0.0
Sampling Tech	men		0.0	0.0	0.0	0.0	0.0
Subtotal Satellite Labor	men	+	0.0	0.0	0.0	0.0	0.0
Restoration Labor	men		0.0	0.0	0.0	0.0	<b>0.</b> 0
Drilling Foreman	men		0.0	0.0	0.0	0.0	0.0
Technician	men		0.0	0.0	0.0	0.0	0.0
i cenneran	111011		0.0				
Operator	men		1.0	1.0	1.0	1.0	0.0

OPERATION		306/yr	m : -1					
	value /	units /	Total	15	10	10	20	24
Sita Managament I al	factor	sensit.	or Avg.	17	18	19	20	21
Site Management Labor				1.0	1.0	1.0	1.0	0.0
Mine Mgr		men			1.0	1.0	1.0	0.0
HR Mgr		men		1.0	0.0	0.0	0.0	0.0
Office Mgr		men		0.0	0.0	0.0	0.0	0.0
Accountant		men		0.0	1.0			0.0
IT Specialist		men		0.0	0.0	0.0	0.0	0.0
Purchasing Specialist		men		0.0	0.0	0.0	0.0	0.0
HR Specialist		men		0.0	0.0	0.0	0.0	0.0
Receptionist		men		0.0	0.0	0.0	0.0	0.0
Cleaning		men		0.0	0.0	0.0	0.0	0.0
Land/Public Rel		men		0.0	0.0	0.0	0.0	0.0
Radiation Safety Officer		men		1.0	1.0	1.0	1.0	0.0
Radiation Safety Tech		men		1.0	1.0	1.0	1.0	0.0
Safety Tech		men		1.0	1.0	1.0	1.0	0.0
Environ Leadman		men		0.0	0.0	0.0	0.0	0.0
Environ Tech		men		0.0	0.0	1.0	1.0	0.0
Subtotal Site Mgmt La	bor	men		5.0	5.0	5.0	4.0	0.0
Total Labor		men		28.5	17.0	18.0	7.5	0.0
Personnel Cost - CCP	<b>\$127.000</b>	4000	2.125	101				
Operations Supr		\$000s	2,126	101	0	0	0	0
Operations Supr		\$000s	0	0	0	0	0	0
Operations Leader	\$81,000	\$000s	1,377	81	41	41	0	0
Operators	\$54,000	\$000s	3,132	54	0	108	0	0
Operators - Day	\$54,000	\$000s	1,944	108	108	108	0	0
Dryer Operators	\$54,000	\$000s	1,782	108	0	54	0	0
Chemist/Lab Supr	\$95,000	\$000s	1,710	95	95	48	48	0
Lab Techs	\$47,000	\$000s	1,645	94	47	94	0	0
Maintenance Supr	\$61,000	\$000s	976	31	31	0	0	0
General Maint Techs	\$41,000	\$000s	2,173	123	123	82	0	0
Mechanics	\$61,000	\$000s	1,159	61	61	61	61	0
Electrical/Instrument	\$74,000	\$000s	2,664	148	148	74	74	0
Subtotal CCP		\$000s	20,688	1,004	653	669	183	0
Personnel Cost - Satellite								
Operations Supr	\$95,000	\$000s	1,496	71	0	0	0	0
Engineer	\$81,000	\$000s	1,276	61	0	0	0	0
Operations Leader	\$68,000	\$000s	1,071	51	0	0	0	0
Operators	\$54,000	\$000s	5,940	216	0	0	0	0
Sampling Tech	\$54,000	\$000s	2,322	0	0	0	0	0
Subtotal Satellite		\$000s	12,105	399	0	0	0	0
Satellite/Well Field Labor	- Developm	ent (Capital	)					
Sr Geologist		\$000s	2,160	0	0	0	0	0
Geologist	\$95,000	\$000s	1,520	0	0	0	0	0
Drafting Tech	\$54,000	\$000s	864	0	0	0	0	0
Construct Supr		\$000s	0	0	0	0	0	0
Drilling Foreman	\$95,000	\$000s	1,235	0	0	0	0	0
Drilling Leadman	\$81,000	\$000s	1,233	0	0	0	0	0
Drilling Technician	\$54,000	\$000s \$000s	0	0	0	0	0	0
•	\$54,000	\$000s	1,404	0	0	0	0	0
Logging Technician			1,404	0	0	0	0	0
Drilling Supr WF Construct Foreman	\$68,000	\$000s	748	0	0	0	0	0
Gen Construct Tech	\$68,000	\$000s	0	0	0	0	0	0
	\$41,000	\$000s	567	0	0	0	0	0
Electrical/Instrument	\$81,000	\$000s	30/	U	U	U	U	U

COMPANY Power Tech
BUSINESS UNIT Centennial

OPERATION	700k-lbs U	308/yr						
	value /	units /	Total					
	factor	sensit.	or Avg.	17	18	19	20	2
Operator	\$54,000	\$000s	702	0	0	0	0	(
Construct Engineer	\$81,000	\$000s	0	0	0	0	0	(
Sampling Tech	\$54,000	\$000s	162	0	0	0	0	(
Subtotal Satellite Labor		\$000s	9,362	0.0	0.0	0.0	0.0	0.0
Personnel Cost - Restorati								
Drilling Foreman	\$95,000	\$000s	238	0	0	0	0	(
Technicians	\$54,000	\$000s	216	0	0	0	0	(
Operators	\$54,000	\$000s	378	54	54	54	54	- 1
Subtotal Restoration		\$000s	832	54	54	54	54	
Site Management Labor	¢202.000	0000	4.060	202	202	202	202	
U	\$203,000	\$000s	4,060	203 108	203	203	203	(
HR Mgr	\$108,000	\$000s	1,836		0	0	0	
Office Mgr	\$95,000	\$000s	1 026	0	0	0	0	
Accountant		\$000s	1,836	0	108	0	0	
IT Specialist	\$81,000	\$000s	1,296	0	0	0	0	
Purchasing Specialist	\$68,000	\$000s	884	0	0	0	0	
HR Specialist	\$61,000	\$000s	0	0	0	0	0	
Receptionist	\$41,000	\$000s	533	0	0	0	0	
Cleaning	\$27,000	\$000s	0	0	0	0	0	
Land/Public Rel	\$88,000	\$000s	1,144	0	0	0	0	
Radiation Safety Officer		\$000s	2,565	135	135	135	135	
Radiation Safety Tech	\$68,000	\$000s	1,224	68	68	68	0	
Safety Tech	\$47,000	\$000s	893	47	47	47	47	1
Environ Leadman	\$68,000	\$000s	0	0	0	0	0	
Environ Tech	\$54,000	\$000s	108	0	0	54	54	
Subtotal Site Mgmt La	bor	\$000s	16,379	561	561	507	439	
Electricity		4000	26.224	0.50	120	420	120	
Central Plant/Ponds		\$000s	26,221	850	420	420	420	1
Satellite/Well Field		\$000s	4,524	0	0	0	0	(
Restoration/Decommiss	ioning	\$000s	2,853	184	184	92	0	
Site Management		\$000s	0	0	0	0	0	
Total		\$000s	33,598	1,035	604	512	420	(
Courte al Diamet/Dougle		\$/lb-U3O8	\$3.528					
Central Plant/Ponds		\$000s	7,296	384.0	384.0	384.0	384.0	0.
CPP Bldg Main Site		\$000s \$000s	676	35.6	35.6	35.6	35.6	0.
Water Supply		\$000s	10.240	0.0	0.0	0.0	0.0	0.
Water Schedule subtotal		\$000s	18,249 <b>26,221</b>	430.9 <b>850</b>	0.0 <b>420</b>	0.0 <b>420</b>	0.0 <b>420</b>	0.
Satellite/Well Field		<b>JUUUS</b>	20,221	030	420	420	420	
ProductionWells		ea.						
Injection Wells		ea.						
Header Houses	<b>#1.200</b>	ea.	4.000	0.0	0.0	0.0	0.0	
Wells	\$1,200	\$000s	4,032	0.0	0.0	0.0	0.0	0.
Header House	\$2,100	\$000s	353	0.0	0.0	0.0	0.0	0.
O2/CO2 pumps	\$1,000	\$000s	15	0.0	0.0	0.0	0.0	0.
Satellite Plant		\$000s	124	0.0	0.0	0.0	0.0	0.
subtotal		\$000s	4,524	0	0	0	0	1
Restoration/Decommission	nıng	4000						_
		\$000s	140	9.0	9.0	4.5	0.0	0.0
Treatment			-					
Water Supply Wellfield		\$000s \$000s \$000s	202 543	13.0 35.0	13.0 35.0	6.5 17.5	0.0	0.0

OPERATION								
	value /	units /	Total					
	factor	sensit.	or Avg.	17	18	19	20	21
Header House		\$000s	729	47.0	47.0	23.5	0.0	0.0
Deep Well Injection		\$000s	1,240	80.0	80.0	40.0	0.0	0.0
subtotal		\$000s	2,853	184	184	92	0	0
Chemical		4000					0	
Central Plant/Ponds		\$000s	5,755	0	0	0	0	0
Satellite/Well Field		\$000s	23,147	0	0	0	0	0
Restoration/Decommission	oning	\$000s	179	10	10	0	0	0
Site Management		\$000s	0	0	0	0	0	0
Total		\$000s	29,081	10	10	0	0	0
Central Plant/Ponds		\$/lb-U3O8	\$3.054	0	0	0	0	
	\$0.30	\$000s	722			0.0		0.0
H2O2 - 50% sol			733	0.0	0.0		0.0	
H2SO4 - 98%	\$0.14	\$000s	907	0.0	0.0	0.0	0.0	0.0
NaOH - 50% sol	\$0.15	\$000s	893	0.0	0.0	0.0	0.0	0.0
NaCl - food grade gran	\$0.09	\$000s	2,352	0.0	0.0	0.0	0.0	0.0
Na2CO3	\$0.14	\$000s	838	0.0	0.0	0.0	0.0	0.0
BaCl2 - dry powder	\$0.67	\$000s	24	0.0	0.0	0.0	0.0	0.0
Flocculant subtotal	\$1.00	\$000s	-	0.0	0.0	0.0	0.0	0.0
		\$000s	5,755	U	U	U	U	U
atellite/Well Field	¢1 100	<b>#</b> 000	10.210	0.0	0.0	0.0	0.0	0.0
O2	\$1,100	\$000s	18,318	0.0	0.0	0.0	0.0	0.0
CO2	\$1,160	\$000s	4,829	0.0	0.0	0.0	0.0	0.0
subtotal		\$000s	23,147	U	U	U	U	0
estoration/Decommission		¢000-	0	0.0	0.0	0.0	0.0	0.0
H2O2 - 50% sol	\$0.30	\$000s	0	0.0	0.0	0.0	0.0	0.0
H2SO4 - 98%	\$0.14	\$000s	0	0.0	0.0	0.0	0.0	0.0
NaOH - 50% sol	\$0.15	\$000s	0	0.0	0.0	0.0	0.0	0.0
NaCl - food grade gran	\$0.09	\$000s	0	0.0	0.0	0.0	0.0	0.0
Na2CO3	\$0.14	\$000s	0	0.0	0.0	0.0	0.0	0.0
BaCl2 - dry powder	\$0.67	\$000s	151	9.3	9.3	0.0	0.0	0.0
Flocculant	\$1.00	\$000s	28	1.1	1.1	0.0	0.0	0.0
subtotal		\$000s	179	10	10	0	0	0
Iardware Maint/Replace		4000	0.454				0	
Central Plant/Ponds		\$000s	8,151	0	0	0	0	0
Satellite/Well Field		\$000s	1,924	0	0	0	0	0
Restoration/Decommission	oning	\$000s	6,998	437	437	219	0	0
Site Management		\$000s	17.074	0	0	0	0	0
Total		\$000s	17,074	437	437	219	U	U
Central Plant/Ponds		\$/lb-U3O8	\$1.793					
	20/	<b>#</b> 000	2.011	0.0	0.0	0.0	0.0	0.0
CPP	3%	\$000s	2,811	0.0	0.0	0.0	0.0	0.0
Main Site Facilities		\$000s	5,205	0.0	0.0	0.0	0.0	0.0
Land App		\$000s	0	0.0	0.0	0.0	0.0	0.0
Deep Disposal Well		\$000s	0	0.0	0.0	0.0	0.0	0.0
Water Supply		\$000s	0	0.0	0.0	0.0	0.0	0.0
Evaporation Pond		\$000s	136	0.0	0.0	0.0	0.0	0.0
subtotal		\$000s	8,151	0	0	0	0	0
			2 2 5 2					
ProductionWells		ea.	3,360					
ProductionWells Injection Wells		ea.	5,475					
	incl CCP		· ·	0.0	0.0	0.0	0.0	0.0

OPERATION			m					
	value /		Total	17	10	10	20	21
W/-11 F2-14	factor	sensit.	or Avg.	17	0.0	0.0	0.0	21
Well Field	\$100	\$000s \$000s	766 349	0.0	0.0	0.0	0.0	0.0
Pump Replace General Maint	\$1,200 \$32,000	\$000s \$000s	416	0.0	0.0	0.0	0.0	0.0
Header House	\$2,700	\$000s \$000s	393	0.0	0.0	0.0	0.0	0.0
subtotal	\$2,700	\$000s	1,924	0.0	0.0	0.0	0.0	0.0
Restoration/Decommission	ina.	φυυυs	1,924	438	438	219	0	0
WF Treatment	\$82,000	\$000s	1,312	82.0	82.0	41.0	0.0	0.0
H2O Pump Replace	\$02,000	\$000s \$000s	0	0.0	0.0	0.0	0.0	0.0
Well Maint	\$300	\$000s \$000s	2,827	176.7	176.7	88.4	0.0	0.0
Submers Pump Replace	\$27,000	\$000s \$000s	432	27.0	27.0	13.5	0.0	0.0
WF Piping Maint		\$000s \$000s	800	50.0	50.0	25.0	0.0	0.0
Header House	\$50,000	\$000s \$000s	950	50.0 59.4	59.4	25.0	0.0	0.0
	\$5,300		533					
Deep Well Inject Treat	\$33,300	\$000s		33.3	33.3	16.7	0.0	0.0
Deep Well Inject Maint	\$9,000	\$000s	144	9.0	9.0	4.5	0.0	0.0
subtotal		\$000s	6,998	437	437	219	0	0
Materials/Consumables		4000	4.470	0	0	0	0	0
Central Plant/Ponds		\$000s	4,478	0	0	0	0	0
Satellite/Well field		\$000s	44	0	0	0	0	0
Restoration/Decommissi	oning	\$000s	0	0	0	0	0	0
Site Management		\$000s	0	0	0	0	0	0
Total		\$000s	4,522	0	0	0	0	0
G . I.D/D I		\$/lb-U3O8	\$0.475					
Central Plant/Ponds		***						
Resin Replacement		\$000s	544	0.0	0.0	0.0	0.0	0.0
RO Membrane		\$000s	41	0.0	0.0	0.0	0.0	0.0
Expendible Supplies		\$000s	272	0.0	0.0	0.0	0.0	0.0
Office Supplies, Ink		\$000s	489	0.0	0.0	0.0	0.0	0.0
Office Copier, Plotter		\$000s	571	0.0	0.0	0.0	0.0	0.0
Office Misc Expend		\$000s	68	0.0	0.0	0.0	0.0	0.0
Telephone, Internet		\$000s	82	0.0	0.0	0.0	0.0	0.0
Shipping		\$000s	41	0.0	0.0	0.0	0.0	0.0
Maint Misc Expend		\$000s	272	0.0	0.0	0.0	0.0	0.0
Maint Trash		\$000s	33	0.0	0.0	0.0	0.0	0.0
Gasoline		\$000s	704	0.0	0.0	0.0	0.0	0.0
Diesel		\$000s	1,305	0.0	0.0	0.0	0.0	0.0
Propane		\$000s	16	0.0	0.0	0.0	0.0	0.0
Oil, Grease		\$000s	41	0.0	0.0	0.0	0.0	0.0
subtotal		\$000s	4,478	0	0	0	0	0
Satellite/Well Field								
Resin Hauling		\$000s	44	0.0	0.0	0.0	0.0	0.0
subtotal		\$000s	44	0	0	0	0	0
Byproduct Disposal								
Central Plant/Ponds		\$000s	762	0	0	0	0	0
Satellite/Well field		\$000s	713	41	41	24	0	0
Restoration		\$000s	314	20	20	10	0	0
Decommission		\$000s	0	0	0	0	0	0
Total		\$000s	1,789	61	61	34	0	0
		\$/lb-U3O8	\$0.188					

		Total					
			17	18	19	20	21
Tuctor	SCHSIL	or rive.	1,	10		20	
	\$000s	0	0.0	0.0	0.0	0.0	0.0
		-					0.0
							0.0
					0.0		0.0
		762	0	0	0	0	0
	\$000s	0	0.0	0.0	0.0	0.0	0.0
	\$000s	119	6.8	6.8	4.1	0.0	0.0
	\$000s	119	6.8	6.8	4.1	0.0	0.0
	\$000s	238	13.5	13.5	8.1	0.0	0.0
	\$000s	119	6.8	6.8	4.1	0.0	0.0
	\$000s	119	6.8	6.8	4.1	0.0	0.0
	\$000s	713	41	41	24	0	0
	\$000s	0	0.0	0.0	0.0	0.0	0.0
	\$000s	105	6.8	6.8	3.4	0.0	0.0
	\$000s	105	6.8	6.8	3.4	0.0	0.0
	\$000s	105	6.8	6.8	3.4	0.0	0.0
	\$000s	314	20	20	10	0	0
	\$000s	68	0	0	0	0	0
	\$000s	452	13	13	13	1	0
	\$000s	83	4	4	3	2	0
	\$000s	0	0	0	0	0	0
	\$000s	604	17	17	16	3	0
9	\$/lb-U3O8	\$0.063					
		1	monitoring ste	opped in yr	16 of monito	ring worksl	neet
	\$000s	38	0.0	0.0	0.0	0.0	0.0
	\$000s	0	0.0	0.0	0.0	0.0	0.0
	\$000s	30	0.0	0.0	0.0	0.0	0.0
	\$000s	68	0	0	0	0	0
	\$000s	196	0.0	0.0	0.0	0.0	0.0
	\$000s	19	0.2	0.2	0.2	0.0	0.0
	\$000s	207	11.4	11.4	11.4	0.0	0.0
	\$000s	0	0.0	0.0	0.0	0.0	0.0
	\$000s	12	0.5	0.5	0.5	0.5	0.0
	\$000s	19	1.0	1.0	1.0	1.0	0.0
	\$000s	452	13	13	13	1	0
	\$000s	25	0.9	0.9	0.9	0.0	0.0
	\$000s	8	0.5	0.5	0.5	0.0	0.0
	\$000s	23	0.8	0.8	0.8	0.8	0.0
		0	0.9	0.9	0.0	0.0	0.0
	\$000s	9	0.9	0.7	0.0	0.0	0.0
	\$000s \$000s	18	1.0	1.0	1.0	1.0	0.0
	value / factor	Sensit.	value / factor         units / sensit.         Total or Avg.           \$000s         0           \$000s         395           \$000s         184           \$000s         184           \$000s         762           \$000s         0           \$000s         119           \$000s         119           \$000s         238           \$000s         119           \$000s         119           \$000s         119           \$000s         105           \$000s         68           \$000s         68           \$000s         604           \$/Ib-U3O8         \$0.063           \$000s         3           \$000s         3           \$000s         68           \$000s         0           \$000s         0	value / sensit.         Total or Avg.         17           \$000s         0         0.0           \$000s         395         0.0           \$000s         184         0.0           \$000s         184         0.0           \$000s         762         0           \$000s         0         0.0           \$000s         119         6.8           \$000s         105         6.8           \$000s         105         6.8           \$000s         105         6.8           \$000s         105         6.8           \$000s         452         13           \$000s         83         4           \$000s         83         4           \$000s         83         4           \$000s         30         0.0           \$000s         30         0.0           \$000s         30         0.0           \$000s </td <td>value / sensit.         units / or Avg.         17         18           \$000s         0         0.0         0.0           \$000s         395         0.0         0.0           \$000s         184         0.0         0.0           \$000s         184         0.0         0.0           \$000s         0         0         0.0           \$000s         0         0.0         0.0           \$000s         119         6.8         6.8           \$000s         105         6.8         6.8           \$000s         0         0.0         0.0           \$000s         105         6.8         6.8           \$000s         105         6.8         6.8           \$000s         452         13         13           \$000s         83         4         4           \$000s         0&lt;</td> <td>  Value   Units   Factor   Sensit.   Or Avg.   17</td> <td>  Value</td>	value / sensit.         units / or Avg.         17         18           \$000s         0         0.0         0.0           \$000s         395         0.0         0.0           \$000s         184         0.0         0.0           \$000s         184         0.0         0.0           \$000s         0         0         0.0           \$000s         0         0.0         0.0           \$000s         119         6.8         6.8           \$000s         105         6.8         6.8           \$000s         0         0.0         0.0           \$000s         105         6.8         6.8           \$000s         105         6.8         6.8           \$000s         452         13         13           \$000s         83         4         4           \$000s         0<	Value   Units   Factor   Sensit.   Or Avg.   17	Value

COMPANY
BUSINESS UNIT
OPERATION 700k-lbs U3O8/yr

OPERATION																			
	value /	units /	Total			Production.			_		_			40					
CAPITAL SUMMARY	factor	sensit.	or Avg.	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<u>U308</u>		1.11	0.522	0	0	700	700	700	701	700	704	700	701	605	700	700	707	645	267
U3O8 Recovered	-	klbs	9,523	0	0	700	700	700	701	700	704	700	701	695	708	702	707	645	367
U3O8 Restoration	-	klbs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total U3O8	-	klbs	9,523	0	0	700	700	700	701	700	704	700	701	695	708	702	707	645	367
CAPITAL COST																			
CPP/Gen Facilities	-	\$000s	55,097	0	43,874	0	2,304	0	7,195	0	2,304	0	0	0	0	0	0	0	0
Well Fields	-	\$000s	14,208	0	5,359	5,900	2,950	0	0	0	0	0	0	0	0	0	0	0	0
Capital Labor	-	\$000s	1,675	0	852	563	260	0	0	0	0	0	0	0	0	0	0	0	0
G&A		\$000s	13,605	0	9,142	2,813	1,650	0	0	0	0	0	0	0	0	0	0	0	0
Replacement Capital	-	\$000s	12,568	0	0	0	0	0	967	967	967	967	967	967	967	967	967	967	967
Contingency	20%	\$000s	19,547	0	11,845	1,855	1,433	0	1,632	193	654	193	193	193	193	193	193	193	193
	-	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total CAPITAL COST	-	\$000s	116,701	0	71,073	11,131	8,597	0	9,794	1,160	3,925	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160
		\$/lb-U3O8	\$12.255		70,904	11,131	8,597	0	9,794	1,160	3,925	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160
CPP/Gen Facilities																			
CPP		\$000s	21,625	0	21,625	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Satellite Plant		\$000s	7,195	0	0	0	0	0	7,195	0	0	0	0	0	0	0	0	0	0
Electrical Infra		\$000s	1,047	0	1,047	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Surface Impound		\$000s	1,170	0	1,170	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPP/SF Pipelines		\$000s	1,705	0	1,705	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deep Disposal Wells		\$000s	4,329	0	4,329	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H2O Supply		\$000s	8,445	0	9,024	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Restoration Equip		\$000s	4,608	0	0	0	2,304	0	0	0	2,304	0	0	0	0	0	0	0	0
Maintenance Equipment		\$000s	4,974	0	4,974	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total CPP/Gen Facilities		\$000s	55,097	0	43,874	0	2,304	0	7,195	0	2,304	0	0	0	0	0	0	0	0
		\$/lb-U3O8	\$5.786	_	,	-	_,		.,	-	_,,	-	_	_	_				
CPP																			
Building/Foundations		\$000s	6,202	0	6,202	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Roads/Site Grading		\$000s	695	0	695	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Process Equip		\$000s	14,728	0	14,728	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EPCM	0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contingency	0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total CPP		\$000s	21,625	0	21,625	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Satellite Plant																			
Building/Sitework		\$000s	2,246	0	0	0	0	0	2,246	0	0	0	0	0	0	0	0	0	0
Process Equip		\$000s	4,601	0	0	0	0	0	4,601	0	0	0	0	0	0	0	0	0	0
Power		\$000s	348	0	0	0	0	0	348	0	0	0	0	0	0	0	0	0	0
EPCM	0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contingonory	0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contingency						0	0	0	7,195	0	0	0	0	0	0		0	0	0
Total Satellite Plant		\$000s	7,195	0	0	U	U	U	7,195	U				U	U	0	U	U	U
		\$000s	7,195	0	0	U	U	U	7,195	U	v	Ū	Ū	v	U	0	U	U	U
Total Satellite Plant		<b>\$000s</b> \$000s	<b>7,195</b>	0	1,047	0	0	0	7,195	0	0	0	0	0	0	0	0	0	0
Total Satellite Plant <u>Electrical Infra</u>	0%		,	-	-	-	v	-	,	-	-	-	-	Ü	-	ŭ	Ū	-	
Total Satellite Plant <u>Electrical Infra</u> Power	0% 0%	\$000s	1,047	0	1,047	0	0	0	0	0	0	0	0	0	0	0	0	0	0

OLEKATION	value /	units /	Total		PreProd Pro	duction.													
	factor	sensit.	or Avg.	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Surface Impound		200000	v= , g-																
DDW Ponds		\$000s	5,191	0	5,191	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non DDW Pond deduct		\$000s	(5,191)	0	(5,191)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non DDW Filter Tank		\$000s	1,170	0	1,170	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EPCM	0%	\$000s	1,170	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contingency	0%	\$000s	ő	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Surface Impound	070	\$000s	1,170	0	1,170	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPP/SF Pipelines		φοσου	2,270	Ü	2,270	Ü	ŭ	Ü	v	Ü	Ü	Ü	Ü	v	v	ŭ	v	ŭ	Ü
Pipelines		\$000s	1,705	0	1,705	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EPCM	0%	\$000s	1,703	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contingency	0%	\$000s	ő	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total CPP/SF Pipelines	070	\$000s	1,705	0	1,705	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deep Disposal Wells		φοσου	2,7.00	Ü	2,7.00	Ü	ŭ	Ü	v	Ü	Ü	Ü	Ü	v	v	ŭ	v	ŭ	Ü
Wells		\$000s	3,600	0	3,600	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pump Facilities		\$000s	729	0	729	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EPCM	0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contingency	0%	\$000s	ő	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Deep Disposal Wells		\$000s	4,329	0	4,329	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H2O Supply		4	-,		-,			-		-				-		-	-	-	
Siting/Water Rights		\$000s	0	0	580	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drilling/Casing		\$000s	7,539	0	7,539	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Meter set fee		\$000s	19	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pipelines		\$000s	432	0	432	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other		\$000s	455	0	455	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EPCM	0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contingency	0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total H2O Supply		\$000s	8,445	0	9,024	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Restoration Equip		•	´		,														
Process Equip		\$000s	4,608	0	0	0	2,304	0	0	0	2,304	0	0	0	0	0	0	0	0
EPCM	0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contingency	0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Restoration Equip		\$000s	4,608	0	0	0	2,304	0	0	0	2,304	0	0	0	0	0	0	0	0
Maintenance Equipment			´				,				ŕ								
Vehicle Hydraulic Lifts	4 ea	\$000s	82	0	82	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lube Equipment	1 ea	\$000s	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Air Compressor system	1 ea	\$000s	17	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tools	1 1s	\$000s	30	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EPCM	0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contingency	0%	\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Maintenance Equip	ment	\$000s	140	0	140	0	0	0	0	0	0	0	0	0	0	0	0	0	0

OPERATION	•	•																	
	value /	units /	Total	-1	PreProd I	Production. 2	3	4	5		7	0	9	10	11	12	12	14	11
	factor	sensit.	or Avg.	-1	1		3	4	3	6		8	9	10	11	12	13	14	15
Mobile Equipment																			
Resin Haul Tractor	1 ea	\$000s	124	0	124	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Resin Trailer	2 ea	\$000s	176	0	176	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MIT Units	2 ea	\$000s	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Smeal	6 ea	\$000s	600	0	600	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Truck	3 ea	\$000s	180	0	180	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hose Reel	6 ea	\$000s	120	0	120	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cementer	8 ea	\$000s	320	0	320	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forklift Cat TL943	2 ea	\$000s	196	0	196	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Warehouse Forklift	2 ea	\$000s	76	0	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dozer D6K XL	1 ea	\$000s	204	0	204	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Motor Grader 140M	1 ea	\$000s	352	0	352	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Backhoe/Loader 450E	2 ea	\$000s	350	0	350	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bulk Cement Tank	1 ea	\$000s	50	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pickup truck - 1/2 ton	20 ea	\$000s	585	0	585	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Expedition 4WD	1 ea	\$000s	40	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tour Van - 4WD	1 ea	\$000s	40	0	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ambulance	1 ea	\$000s	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Truck - Fire sup	1 ea	\$000s	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mobile Air Compressor	1 ea	\$000s	50	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Logging Trucks	4 ea	\$000s	800	0	800	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Backup Gen(100kw)	2 ea	\$000s	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Backup Gen (30kw)	10 ea	\$000s	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fusion Equipment	2 ea	\$000s	71	0	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EPCM	0%	\$000s	Ö	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contingency	0%	\$000s	Ö	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Maintenance Equip		\$000s	4,834	0	4,834	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Well Fields																			
Delineation Drilling	Diehl-Hill	\$000s	934	0	934	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Well Construction	Diehl-Hill	\$000s	9,185	0	3,062	4,082	2,041	0	0	0	0	0	0	0	0	0	0	0	0
Surface Construction	Diehl-Hill	\$000s	3,184	0	1,061	1,415	708	0	0	0	0	0	0	0	0	0	0	0	0
Pipelines	Diehl-Hill	\$000s	905	0	302	402	201	0	0	0	0	0	0	0	0	0	0	0	0
Total Well Fields	3	\$000s	14,208	0	5,359	5,900	2,950	0	0	0	0	0	0	0	0	0	0	0	0
		\$/lb-U3O8	\$1.492																
G&A																			
		¢000-		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G&A Permitting		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U		\$000s	0																
Land & Min Acquire		\$000s	13,605	0	9,142	2,813	1,650	0	0	0	0	0	0	0	0	0	0	0	0
Total G&A	L	<b>\$000s</b> \$/lb-U3O8	13,605 \$1.429	0	9,142	2,813	1,650	0	0	0	0	0	0	0	0	0	0	0	0
		ψ.10 · 00 · 00	ψ1.π27																
Replacement Capital																			
		\$000s	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CCP			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		\$000s	U																
CCP		\$000s \$000s	12,568	0	0	0	0	0	967	967	967	967	967	967	967	967	967	967	967
CCP Sat Plant/WF	l .		12,568 12,568		0	0	0 <b>0</b>	0	967 <b>967</b>										

Value   Valu	OPERATION 700k-lbs U3O8/yr				END					
CAPITAL SUMMARY		value /	units /	Total						
U308		factor	sensit.	or Avg.	16	17	18	19	20	21
U308 Restovaridin	CAPITAL SUMMARY			<u> </u>						
U308 Restoration	<u>U3O8</u>									
Total U308	U3O8 Recovered	-	klbs	9,523	92	0	0	0	0	0
CAPITAL COST	U3O8 Restoration	-	klbs	0	0	0	0	0	0	0
CPP/Gen Facilities   S000s   S5,097   0   0   0   (580)   0   0   0	Total U3O8	-	klbs	9,523	92	0	0	0	0	0
CPP/Gen Facilities   S000s   S5,097   0   0   0   (580)   0   0   0										
Well Fields	CAPITAL COST									
Capital Labor   S000s   1,675   0   0   0   0   0   0   0   0   0	CPP/Gen Facilities	-	\$000s	55,097	0	0	0	(580)	0	0
Replacement Capital	Well Fields	-	\$000s	14,208	0	0	0	0	0	0
Replacement Capital	Capital Labor	-	\$000s	1,675	0	0	0	0	0	0
Contingency	G&A	-	\$000s	13,605	0	0	0	0	0	0
Source	Replacement Capital	-	\$000s	12,568	967	967	0	0	0	0
Total CAPITAL COST	Contingency	20%	\$000s	19,547	193	193	0	0	0	0
CPP/Gen Facilities		-	\$000s	0	0	0		0	0	0
CPP/Gen Facilities	Total CAPITAL COST	-	\$000s	116,701	1,160	1,160	0	(580)	0	0
CPP			\$/lb-U3O8	\$12.255	1,160	1,160	0	(695)	0	0
CPP										
Satellite Plant										
Electrical Infra	***			,						
Surface Impound   \$000s   1,170   0   0   0   0   0   0   0   0   0										
CPP/SF Pipelines										
Deep Disposal Wells								-		
H2O Supply	•		\$000s	1,705						
Restoration Equip			\$000s	4,329			0			
Maintenance Equipment   \$000s   4,974   0   0   0   0   0   0   0   0   0			\$000s	,				(580)		
Total CPP/Gen Facilities	Restoration Equip		\$000s	,	-	-	0	-		
Stib-U308   \$5.786			\$000s	4,974	0			0	0	
CPP         Building/Foundations         \$000s         6,202         0 <th< td=""><td>Total CPP/Gen Facilities</td><td></td><td>\$000s</td><td></td><td>0</td><td>0</td><td>0</td><td>(580)</td><td>0</td><td>0</td></th<>	Total CPP/Gen Facilities		\$000s		0	0	0	(580)	0	0
Building/Foundations			\$/lb-U3O8	\$5.786						
Roads/Site Grading         \$000s         695         0 <td><u>CPP</u></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	<u>CPP</u>									
Process Equip         \$000s         14,728         0	Building/Foundations		\$000s	6,202				0		
EPCM         0%         \$000s         0	Roads/Site Grading		\$000s	695	0		0	0	0	0
Contingency         0%         \$000s         0	Process Equip		\$000s	14,728	0	0	0	0	0	0
Total CPP         \$000s         21,625         0         0         0         0         0           Satellite Plant           Building/Sitework         \$000s         2,246         0	EPCM	0%	\$000s	0	0	0	0	0	0	0
Satellite Plant           Building/Sitework         \$000s         2,246         0         0         0         0         0         0           Process Equip         \$000s         4,601         0		0%								
Building/Sitework         \$000s         2,246         0 <td></td> <td></td> <td>\$000s</td> <td>21,625</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td>			\$000s	21,625	0	0	0	0	0	0
Process Equip         \$000s         4,601         0										
Power         \$000s         348         0 <th< td=""><td>Building/Sitework</td><td></td><td>\$000s</td><td>2,246</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></th<>	Building/Sitework		\$000s	2,246	0	0	0	0	0	0
EPCM         0%         \$000s         0	Process Equip		\$000s	4,601	0	0	0	0	0	0
Contingency         0%         \$000s         0	Power		\$000s	348	0	0	0	0	0	0
Total Satellite Plant         \$000s         7,195         0         0         0         0         0         0           Electrical Infra           Power         \$000s         1,047         0         0         0         0         0         0         0           EPCM         0%         \$000s         0         0         0         0         0         0         0         0           Contingency         0%         \$000s         0         0         0         0         0         0         0	EPCM	0%	\$000s	0	0	0	0	0	0	0
Electrical Infra           Power         \$000s         1,047         0		0%		-						
Power         \$000s         1,047         0         0         0         0         0         0           EPCM         0%         \$000s         0         0         0         0         0         0         0         0           Contingency         0%         \$000s         0         0         0         0         0         0         0			\$000s	7,195	0	0	0	0	0	0
EPCM         0%         \$000s         0         0         0         0         0         0           Contingency         0%         \$000s         0         0         0         0         0         0         0	Electrical Infra									
Contingency 0% \$000s 0 0 0 0 0 0	Power		\$000s	1,047	0	0	0	0	0	0
11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	EPCM	0%	\$000s	0	0	0	0	0	0	0
Total Electrical Infra \$000s 1,047 0 0 0 0 0		0%	\$000s	V						
	Total Electrical Infra		\$000s	1,047	0	0	0	0	0	0

OPERATION 700k-lbs U3O8/yr				END					
	value /	units /	Total						
	factor	sensit.	or Avg.	16	17	18	19	20	21
Surface Impound									
DDW Ponds		\$000s	5,191	0	0	0	0	0	0
Non DDW Pond deduct		\$000s	(5,191)	0	0	0	0	0	0
Non DDW Filter Tank		\$000s	1,170	0	0	0	0	0	0
EPCM	0%	\$000s	0	0	0	0	0	0	0
Contingency	0%	\$000s	0	0	0	0	0	0	0
<b>Total Surface Impound</b>		\$000s	1,170	0	0	0	0	0	0
CPP/SF Pipelines									
Pipelines		\$000s	1,705	0	0	0	0	0	0
EPCM	0%	\$000s	0	0	0	0	0	0	0
Contingency	0%	\$000s	0	0	0	0	0	0	0
Total CPP/SF Pipelines		\$000s	1,705	0	0	0	0	0	0
Deep Disposal Wells									
Wells		\$000s	3,600	0	0	0	0	0	0
Pump Facilities		\$000s	729	0	0	0	0	0	0
EPCM	0%	\$000s	0	0	0	0	0	0	0
Contingency	0%	\$000s	0	0	0	0	0	0	0
<b>Total Deep Disposal Wells</b>	S	\$000s	4,329	0	0	0	0	0	0
H2O Supply									
Siting/Water Rights		\$000s	0	0	0	0	(580)	0	0
Drilling/Casing		\$000s	7,539	0	0	0	0	0	0
Meter set fee		\$000s	19	0	0	0	0	0	0
Pipelines		\$000s	432	0	0	0	0	0	0
Other		\$000s	455	0	0	0	0	0	0
EPCM	0%	\$000s	0	0	0	0	0	0	0
Contingency	0%	\$000s	0	0	0	0	0	0	0
Total H2O Supply		\$000s	8,445	0	0	0	(580)	0	0
Restoration Equip									
Process Equip		\$000s	4,608	0	0	0	0	0	0
EPCM	0%	\$000s	0	0	0	0	0	0	0
Contingency	0%	\$000s	0	0	0	0	0	0	0
Total Restoration Equip		\$000s	4,608	0	0	0	0	0	0
Maintenance Equipment									
Vehicle Hydraulic Lifts	4 ea	\$000s	82	0	0	0	0	0	0
Lube Equipment	1 ea	\$000s	11	0	0	0	0	0	0
Air Compressor system	1 ea	\$000s	17	0	0	0	0	0	0
Tools	1 1s	\$000s	30	0	0	0	0	0	0
Other		\$000s	0	0	0	0	0	0	0
EPCM	0%	\$000s	0	0	0	0	0	0	0
Contingency	0%	\$000s	0	0	0	0	0	0	0
Total Maintenance Equip	ment	\$000s	140	0	0	0	0	0	0

#### **Indicative Financial Model**

COMPANY Power Tech
BUSINESS UNIT Centennial

value / units / Total	OPERATION				END					
Resin Trailer	OTERATION			Total	END					
Resin Haul Tractor					16	17	18	19	20	21
Resin Haul Tractor	Mobile Fauinment									
Resin Trailer		1 00	\$0000	124	0	0	0	0	0	0
MIT Units										
Smeal							-	-		
Water Truck         3 ea         \$000s         150         0										
Hose Reel										
Cementer							-			
Forklift Cat TI.943										
Warehouse Forklift										
Dozer D6K XL							-			
Motor Grader 140M										
Backhoe/Loader 450E										
Bulk Cement Tank					-	-	-	-	-	
Pickup truck - 1/2 ton   20 ea   \$000s   585   0   0   0   0   0   0   0   0						-	-	-		
Expedition 4WD										
Tour Van - 4WD										
Ambulance	•			-			-			
Water Truck - Fire sup				-						
Mobile Air Compressor							-			
Logging Trucks	1									
Backup Gen(100kw)	-					-	-	-		
Backup Gen (30kw)   10 ea \$000s   100   0   0   0   0   0   0   0   0										
Fusion Equipment					-	-	-	-	-	-
Other							-			
EPCM		2 ea								
Contingency				-						
Total Maintenance Equipment   \$000s				-						
Well Fields   Delineation Drilling   Diehl-Hill   \$000s   934   0   0   0   0   0   0   0   0   0			•	-			-	-		
Delineation Drilling   Diehl-Hill   \$000s   934   0   0   0   0   0   0   0   0   0	Total Maintenance Equip	ment	\$000s	4,834	0	0	0	0	0	0
Well Construction   Diehl-Hill   \$000s   9,185   0   0   0   0   0   0   0   0     Surface Construction   Diehl-Hill   \$000s   3,184   0   0   0   0   0   0   0   0     Pipelines   Diehl-Hill   \$000s   905   0   0   0   0   0   0   0     Total Well Fields   \$000s   14,208   0   0   0   0   0   0   0     \$\sqrt{\text{J}\text{b-U3O8}} \text{\$	Well Fields									
Surface Construction   Diehl-Hill   \$000s   3,184   0   0   0   0   0   0   0   0     Pipelines   Diehl-Hill   \$000s   905   0   0   0   0   0   0   0     Total Well Fields   \$000s   14,208   0   0   0   0   0   0     \$\sqrt{\text{S/Ib-U308}}  \$\sqrt{\text{S1.492}}  \text{VIII.}   \text{VIII.}	Delineation Drilling	Diehl-Hill	\$000s	934	0	0	0	0	0	0
Pipelines   Diehl-Hill   \$000s   905   0   0   0   0   0   0   0   0   0	Well Construction	Diehl-Hill	\$000s	9,185	0	0	0	0	0	0
Total Well Fields	Surface Construction	Diehl-Hill	\$000s	3,184	0	0	0	0	0	0
S/lb-U3O8   \$1.492	Pipelines	Diehl-Hill	\$000s	905	0	0	0	0	0	0
G&A           G&A         \$000s         0	Total Well Fields		\$000s	14,208	0	0	0	0	0	0
G&A         \$000s         0 </td <td></td> <td></td> <td>\$/lb-U3O8</td> <td>\$1.492</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			\$/lb-U3O8	\$1.492						
G&A         \$000s         0 </td <td>~ · ·</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	~ · ·									
Permitting			***							
Land & Min Acquire   \$000s   13,605   0   0   0   0   0   0   0   0   0										
Total G&A   \$000s   13,605   0   0   0   0   0   0   0   0   0	<u> </u>									
S/Ib-U3O8   S1.429     S1.429     St.429     St.429   St.429     St.429     St.429     St.429     St.429     St.429   S			•							
Replacement Capital           CCP         \$000s         0	Total G&A				0	0	0	0	0	0
CCP         \$000s         0 </td <td></td> <td></td> <td>\$/lb-U3O8</td> <td>\$1.429</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			\$/lb-U3O8	\$1.429						
Sat Plant/WF         \$000s         0	Replacement Capital									
Mobile Equipment         \$000s         12,568         967         967         0         0         0         0           Total Replacement Capital         \$000s         12,568         967         967         0         0         0         0	CCP		\$000s	0	0	0	0	0	0	0
Total Replacement Capital \$000s 12,568 967 967 0 0 0 0	Sat Plant/WF		\$000s	0	0	0	0	0	0	0
	Mobile Equipment		\$000s	12,568	967	967	0	0	0	0
\$/Ib-U3O8 \$1.320	<b>Total Replacement Capital</b>		\$000s	12,568	967	967	0	0	0	0
			\$/lb-U3O8	\$1.320						

# 18 Interpretation and Conclusions (Item 21)

SRK concludes the Centennial Project is a sufficiently drill-defined sandstone-hosted roll front uranium deposit to support the approximately 12.7Mlb of in-situ uranium resource stated by Powertech and audited by SRK. Historical and current drilling information support the resource estimation defining several deposits of uranium mineralization on private surface and mineral lands at the Centennial Project. Continued work is justified by Powertech towards the goal of defining the potential for ISR uranium recovery and production operations. Most of the basic information necessary to evaluate the conceptual development of the resources by ISR methods has been addressed at a scoping study level to determine the project's potential economic viability. SRK recommends that Powertech's 2010 aquifer testing program be completed, and the data be evaluated to better define the hydrogeologic characteristics, to progress the evaluation of the Centennial Project for ISR development.

Powertech's plan is to fully permit the Centennial Project for operations and upon receiving all permits to proceed, delineate the initial well fields, conduct detailed hydrogeologic studies of the initial well fields and aquifer enhancement in the Southern project area, and construct the processing facilities. Upon review of the detailed site-specific well field data, including additional resource definition and hydrogeologic data, Powertech plans to design, construct, and operate their production well fields. SRK recommends that Powertech continue the ongoing process of project permitting and hydrogeologic data collection, advancing towards project development and production.

Powertech technical and management staff have prior pertinent experience with ISR uranium mine development and operations. Therefore, Powertech developed much of the preliminary well field design and cost estimates in-house, with vendor quotes as support in many instances. Lyntek provided independent preliminary engineering design support for the surface uranium recovery and processing facilities, and is a major contributor to the estimate of project costs and tax estimates for Centennial. SRK prepared a preliminary economic analysis for the Project.

The base case economic analysis results indicate a pre-tax NPV of USD 51.8million at an 8% discount rate with an IRR of 18%. The economics are based on a USD65/lb U<sub>3</sub>O<sub>8</sub> long-term uranium price and a design production rate of 700,000lbs U<sub>3</sub>O<sub>8</sub>/yr. Operating costs are estimated at USD34.95/lb-U<sub>3</sub>O<sub>8</sub>. Total capital costs are estimated at USD129.3million comprised of initial capital costs of USD71.1million, and ongoing capital costs over the LoM of USD58.2million.

This Preliminary Assessment was conducted as a study of the potential ISR mineability of the project, utilizing industry standard criteria for Scoping Level studies, which is normally at  $\pm 35$  to 40% on costing estimates. In many cases, the cost estimates provided by Powertech are defined to a pre-feasibility level, with vendor quote backup; as a result, contingency costs for the base case are set at 20%.

This Preliminary Assessment includes Inferred resources that have not been sufficiently drilled to have economic considerations at a pre-feasibility level applied to them. Until well field delineation drilling is completed, there is no certainty these Inferred resources will be economically producible; and therefore, there is no definitive certainty that this Preliminary Assessment will be realized.

As with a pre-development mining property, there are risks and opportunity attached to the project that need further assessment as the project moves forward. SRK deems those risks, on the whole, as identifiable and manageable.

The results of this Preliminary Assessment indicate that ISR development of the Centennial project, through a combination of a central processing facility with satellite well fields, offers the potential for positive economics based upon the information available at this time.

## **18.1 Project Opportunity**

#### 18.1.1 Resources

The resources stated are for the defined areas of historical drilling which have been confirmed by Powertech's drilling. The Centennial Project land position has had sufficient drilling to define the mineralization, such that exploration upside on the present property position is considered by SRK to be minimal. SRK did not examine the exploration potential in the immediate region to know if there is upside potential for adding satellite uranium deposits on adjacent or nearby properties.

#### 18.1.2 Infrastructure

Infrastructure for Centennial is excellent, in that power, water, manpower, and available accommodations for a work-force are available in the immediate region, and rail access is located nearby. Available infrastructure is a definite positive for the project, and is not considered a project risk. Upon project completion, the central processing facility at the Centennial Project will be able to receive shipments from not only the satellite facility in Centennial South, but also other satellite facilities owned by Powertech or third party producers.

# 18.2 Project Risks

#### 18.2.1 Social/Political

As with a uranium project in the USA, there will undoubtedly be some social/political/environmental opposition to development of the project. The project has already drawn some attention from environmental groups, local property owners and the Denver and Fort Collins media (primarily daily newspapers). This risk will require management by Powertech, particularly as the permitting process for mine development enters the public comment stage. With no current or previous ISR uranium operations in the State of Colorado, Powertech's proposed operation will be a first, likely drawing added attention. This manageable risk will require attention to public relations by Powertech.

## 18.2.2 Environmental and Permitting

The Centennial project is the first uranium ISR facility that will submit permit applications for development in the State of Colorado. As such, there is inherent risk in a new permitting process, regulatory unfamiliarity with ISR methods, and an untested review period. The State of Colorado, Department of Natural Resources, is currently formulating the rules for the ISR permitting process, and it is therefore uncertain as to the timing of the permitting process.

The amount of time required for regulatory review of all permits associated with the commissioning of an ISR facility is highly variable and directly effects the viability of a project. The assumption presented in this Preliminary Assessment is that Powertech will have all permits

necessary to begin construction of the facility in late 2012. However, the timeframe for obtaining the necessary licenses, permits, and approvals could be extended due to regulatory requirements.

Both deep well injection and land application of treated wastewater from a uranium ISR processing facility have not been previously permitted in the State of Colorado. Powertech is presently pursuing both options, however the timeframe to obtain permits for either method is unknown; therefore, Powertech will actively pursue both options within the permitting process. It is possible that a combination of both styles of wastewater disposal could be utilized to speed restoration and increase the economic viability of the project.

#### 18.2.3 Project Timing

As a whole, the timing risks are less technical and more likely permitting delays due to opposition to development. These risks are largely up-front risks that have an effect on the timing for initiation of operations. The majority of project capital is not at risk until after the permits for construction and well-field development are in place, at which time the risks are operational.

#### 18.2.4 Resources and Reserves

Mineable reserves can only be defined after field pilot tests or mining operations have been undertaken. Resource estimates were utilized within this Preliminary Assessment. These resources have been coupled with a small number of laboratory leach studies that indicate 75% recoverability of the resource. There is no assurance that this level of recovery will be achieved by the project based on current information.

Powertech is planning to mine (by ISR methods) to the 0.2GT cut-off; however, Powertech has not yet demonstrated that ISR production will be economic at this relatively low cut-off. As demonstrated by Powertech, total project resources are sensitive to the cut-off, as a 0.5GT cut-off results in a loss of 3.9Mlbs  $U_3O_8$  relative to the 0.2 GT cut-off.

SRK also cautions that the resource is planned for ISR mining and recovery of uranium; however, a significant portion (74%) of the resource in the southern portion of the Centennial project (approximately 1/3 of the total project resources) is at or above the water table. This portion of the resource is presently considered as having the potential for economic extraction by ISR technology, because Powertech plans to inject water to locally raise the water table for this mineralization to allow for total saturation and thus permit ISR recovery of uranium. Demonstration that raising the water table can be adequately accomplished will not be done until injections permits are in hand; therefore, that portion of the resource above the water table is at risk of being considered potentially recoverable until that information is in hand.

#### 18.2.5 Hydrogeology

The primary hydrogeologic concern for the development of a uranium ISR project is orebody transmissivity (or hydraulic conductivity). Both have been characterized at a preliminary level, based upon localized aquifer testing and spot coring for geotechnical parameters. The results of these activities are considered by SRK to be marginal for ISR development without aquifer enhancement. Powertech plans to conduct more definitive aquifer testing during 2010 with the goal of reducing this current risk through acquisition of robust data. Hydrogeologic project risks are generally associated with lateral heterogeneity of the host aquifer and physical plugging of pore spaces due to geochemical reactions within the formation. Changes in orebody transmissivity that are lower than previously observed parameters to date, may increase the

length of time required for resource recovery, and potentially have a negative effect on the economics of the project.

Successful ISR conditions require hydraulic as well as aquifer containment; the deposits must be below the water table. The proposed ISR well field development plan calls for the need to augment (raise) the groundwater table to fully saturate those portion of the project areas where about 30% to 40% of the total project resource base is located at or above the water table. This is compounded by the relatively shallow depth of the mineralization is some areas. The challenge will be to elevate the water table by fresh-water injection to saturate the mineralization sufficiently to allow ISR recovery, maximizing hydraulic head and minimizing well field drawdown.

## 18.2.6 Uranium Recovery and Processing

The greatest risk in the development of an ISR project is the lack of pilot-scale field-testing and site-specific assessment of percent recovery and rate of recovery, and average uranium concentration in the process solution composite. The lack of data from field application present risks associated with the production, and thus the financial results presented in the Assessment. The validity of the economic analysis is heavily dependent on the performance of the ISR well field and the ability of the operation to extract uranium from the host unit at a rate similar to those utilized in the economic analysis. Potential problems are several and include: a reduction in hydraulic conductivity due to mineral precipitation, or spatial variability; unforeseen uranium grade variability; discontinuity of confining geology; all of which have further effects on resource recovery and required infrastructure to maintain project economics.

Process risks include process selection, design, and construction on a commercial scale based upon limited laboratory studies specific to the project site. Uranium concentrations in the PC may be significantly higher or lower than presented in this Assessment. In addition, the PC may carry undesirable impurities which may reduce uranium production, or create the need for secondary circuits on the process facility. Centennial uranium mineralization does not contain identified impurities that will potentially need to be addressed in the processing facility.

## **18.2.7 Commodity Price Fluctuation**

The current spot price for uranium is USD41.50/lb  $U_3O_8$  and long-term contract price is approximately USD60.00/lb. Uranium prices have fluctuated greatly in the past five years from lows of near USD9.00/lb to over USD135.00/lb. Long-term market trends analyzing supply and demand indicate increases in future demand.

Commodity prices used for this study are based on industry averages for similar studies, and should be further examined by purchase of, or the initiation of an independent market analysis for uranium commodity price forecasts.

### 18.2.8 Radiological Waste and Contamination

Radiologically contaminated solid wastes, that cannot be decontaminated, will be classified a 11e. (2) byproduct material, and will need to be disposed of in a licensed radiological waste facility. It is estimated that the Centennial project will generate at least 6,746ft<sup>3</sup> of 11e. (2) material per year. The long-term availability of radiological waste disposal facilities cannot be predicted. In addition, the availability of, and demand for, these facilities cannot be predicted and may lead to an increase in disposal prices.

The environmental radiological impact of the Centennial project will be assessed within the Supplemental Environmental Impact Statement prepared by the NRC as part of the Source Material License Application. It is anticipated that operations will not contribute to the dosage of the general public and the risk of radiological exposure is minimal to none.

#### 18.2.9 Transport

Transportation of IX resin or yellowcake by Powertech could result in an accident and product spillage. If such an event were to occur, all spilled materials would be collected, and contaminated materials would be removed from the site and processed at a uranium processing mill as alternate feed, or disposed of at a licensed radiological waste facility as 11e.(2) byproduct material.

Risk of release during shipment cannot be eliminated, however; proper mitigation through institution of shipping and spill response procedures can reduce the overall impact of such an event.

### 18.2.10 Occupational Health and Safety

All site operations will be completed under the appropriate guidelines and procedures. Powertech will have at least one Certified Health Physicist, as well as several radiological technicians on site to deal with radiological emergencies. Proper administrative and engineering controls will be in place prior to commencement of facility operations, and all activities shall proceed in a manner that maintains radiological exposure as low as reasonably achievable (ALARA).

## 18.2.11 Summary Conclusion of Project Risks

In summary, SRK considers there are three types of project risk associated with the planned development of Centennial as a uranium ISR well field and recovery operation: social-political risk, environmental-permitting risk, and technical risk risks associated with the hydrogeological aspects of the project. Powertech plans to mitigate risks as the project proceeds through permitting, construction and development. Identified operational risks related to hydraulic conductivity, and the ability to elevate the water table will not be fully understood until adequate pump testing is completed later this year and hydrogeological modeling has been reviewed. Other operational risks, including mining to a 0.2GT cut-off and the ability to satisfactorily raise the water table in an operation model may not be fully understood until the initial production well filed is in operation. SRK's opinion is that there are significant risks for Centennial; however, most of those risks can be assessed and/or mitigated prior to commitment of initial capital for well field and process plant construction.

# 19 Recommendations (Item 22)

Industry Standards for projects with a positive Scoping Study, would be to recommend proceeding to a pre-feasibility level study. For ISR, this would normally involve a pilot-scale recovery facility with construction and operation of test injection and recovery well field. This would be operated for a period of time sufficient to develop a recovery curve to accurately predict extraction rate and ultimate total recoverable uranium. For uranium projects, the option of permitting a pilot facility is expected to require a significant amount of permitting work as well as a significant time delay. Powertech's plan is to permit for operations, and upon permit approval, develop detail recovery information in the first operational mine unit. Recommendations for going forward are therefore presented as the costs to achieve initial production.

- Complete hydrogeological pump tests to further define hydraulic conductivity and therefore applicable ISR pumping rates;
- Complete hydrogeological modeling to include chemical and physical effects of injection of purchased water for water injection to elevate water table, and ISR production rates on water table draw-down;
- Complete all activities required to obtained all necessary licenses and permits required to operate an in situ uranium mine in the State of Colorado;
- Complete the construction of electronic drillhole databases to support mine planning activities;
- Conduct definition drilling for the initial well-field;
- Complete analysis and permit selected waste-water disposal method (land application or deep-well disposal);
- Finalize facility and mine unit designs and construction drawings; and
- Identify procurement process for long lead items, and perform cost benefit analysis for alternative equipment or materials.

A Phase I program would take the project through the permitting stage and initial construction of well field equipment and the Central Processing Plant at Centennial. A preliminary budget of USD71.1million is anticipated over a one-year period, equivalent to initial project capital costs. A Phase II program and budget will be the annual capital and operating costs required to operate the project for the life-of-mine, net of annual revenue, which is variable from year to year – the project as envisioned will be self-funding in Year 1.

# 20 References (Item 23)

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# 21 Glossary

#### 21.1 Mineral Resources and Reserves

#### 21.1.1 Mineral Resources

The mineral resources and mineral reserves have been classified according to the "CIM Standards on Mineral Resources and Reserves: Definitions and Guidelines" (December 2005). Accordingly, Resources are classified as Measured, Indicated or Inferred and "Reserves" are classified as Proven, and Probable based on the Measured and Indicated Resources as defined below

A Mineral Resource is a concentration or occurrence of natural, solid, inorganic or fossilized organic material in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.

An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes.

An 'Indicated Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes that are spaced closely enough for geological and grade continuity to be reasonably assumed.

A 'Measured Mineral Resource' is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drillholes that are spaced closely enough to confirm both geological and grade continuity.

#### 21.1.2 Mineral Reserves

A Mineral Reserve is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined.

A 'Probable Mineral Reserve' is the economically mineable part of an Indicated, and in some circumstances a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified.

A 'Proven Mineral Reserve' is the economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.

# 21.2 Glossary

The following abbreviations are typical mining terms that may be used in this report.

Term	Definition
Assay:	The chemical analysis of mineral samples to determine the metal content.
Capital Expenditure:	All other expenditures not classified as operating costs.
Composite:	Combining more than one sample result to give an average result over a larger distance.
Concentrate:	A metal-rich product resulting from a mineral enrichment process such as gravity concentration or
	flotation, in which most of the desired mineral has been separated from the waste material in the ore.
Crushing:	Initial process of reducing ore particle size to render it more amenable for further processing.
Cut-off Grade (CoG):	The grade of mineralized rock, which determines as to whether or not it is economic to recover its
	gold content by further concentration.
Dip:	Angle of inclination of a geological feature/rock from the horizontal.
Fault:	The surface of a fracture along which movement has occurred.
Footwall:	The underlying side of an orebody or stope.
Gangue:	Non-valuable components of the ore.
Grade:	The measure of concentration of a target metal within mineralized rock.
Hangingwall:	The overlying side of an orebody or slope.
Hydrocyclone:	A process whereby material is graded according to size by exploiting centrifugal forces of particulate
	materials.
Igneous:	Primary crystalline rock formed by the solidification of magma.
Kriging:	An interpolation method of assigning values from samples to blocks that minimizes the estimation
	error.
Level:	Horizontal tunnel the primary purpose is the transportation of personnel and materials.
Lithological:	Geological description pertaining to different rock types.
LoM Plans:	Life-of-Mine plans.
Milling:	A general term used to describe the process in which the ore is crushed and ground and subjected to
	physical or chemical treatment to extract the valuable metals to a concentrate or finished product.
Mineral/Mining Lease:	A lease area for which mineral rights are held.
Mining Assets:	The Material Properties and Significant Exploration Properties.
Ongoing Capital:	Capital estimates of a routine nature, which is necessary for sustaining operations.
Ore Reserve:	See Mineral Reserve.
RoM:	Run-of-Mine.
Sedimentary:	Pertaining to rocks formed by the accumulation of sediments, formed by the erosion of other rocks.
Stratigraphy:	The study of stratified rocks in terms of time and space.
Strike:	Direction of line formed by the intersection of strata surfaces with the horizontal plane, always
	perpendicular to the dip direction.
Total Expenditure:	All expenditures including those of an operating and capital nature.
Variogram:	A statistical representation of the characteristics (usually grade).

#### 21.3 Abbreviations

The Imperial system (American system) has been used throughout this report unless otherwise stated. All currency is in U.S. dollars. Market prices are reported in USD per pound of U<sub>3</sub>O<sub>8</sub>. Tons are short tons of 2,000lbs. The following abbreviations are used in this report.

Abbreviation	Unit or Term
AEC/DOE	Atomic Energy Commission/Department of Energy
CBT	Colorado-Big Thompson
CDPHE	Colorado Department of Public Health and Environment
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
	centimeter
cm cm <sup>2</sup>	
	square centimeter
cm <sup>3</sup>	cubic centimeter
COC	Chain of Custody
CPP	Central Processing Plant
CPS	Counts per second
CS	Composite solutions
DEF	Disequilibrium Factor
°F	degree (degrees) Fahrenheit
DRMS	Colorado Division of Reclamation, Mining and Safety
DWR	Colorado Division of Water Resources
ELI	Energy Laboratories, Inc.
EPA	U.S. Environmental Protection Agency
$\mathrm{eU_3O_8}$	Equivalent triuranium octoxide
ft	foot (feet)
$\mathfrak{k}^2$	square foot (feet)
$\mathrm{ft}^3$	cubic foot (feet)
gal	gallon
_	gallons per minute
gpm GT	Grade-thickness product
ICP	
	Inductively coupled plasma
ICPMS	Inductively coupled argon plasma/mass spectrometer
in IDD	inch
IRR	Internal Rate of Return
ISR	In situ recovery
IX	Ion exchange
kg	kilograms
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
kWh/t	kilowatt-hour per short ton
L	liter
L/s	liters per second
lb	pound
LoM	Life of Mine
m	meter
$m^2$	square meter
mD	Milli-darcy
MeV	Million electron volt or 1.602 x 10 <sup>-13</sup> Joules
mg/L	milligrams/liter
MIT	Mechanical integrity test
mL	milliliter
mm	millimeter
$mm^2$	square millimeter
$mm^3$	cubic millimeter
NELAP	National Environmental Laboratory Accreditation Program
NI 43-101	Canadian National Instrument 43-101
NOI	Notice of Intent
NPV	Net present value
NRC	U.S. Nuclear Regulatory Commission
OSC	Ontario Securities Commission
Obc	Ontario Securities Commission

Abbreviation	Unit or Term
%	percent
ppb	parts per billion
ppm	parts per million
PC	production composite (composite leach solutions from ISR well field)
PFN	Prompt Fission Neutron
PGT	Princeton Gamma Tech
psi	Pounds per square inch
PV	Pore volume
QA/QC	Quality Assurance/Quality Control
QP	Qualified Person
RME	Rocky Mountain Energy Company
RO	Reverse Osmosis
RoM	Run-of-Mine
S	second
SF	Satellite Facility
SG	specific gravity
TDS	Total dissolved Solids
$U_3O_8$	Triuranium octoxide
UIC	Underground Injection Control
USD	US Dollar
XRF	X-Ray Fluorescence

Appendix A

Certificate of Author



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# CERTIFICATE of AUTHOR Allan V. Moran

Principal Geologist SRK Consulting (U.S.) Inc.

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- I, Allan V. Moran, a Registered Geologist and a Certified Professional Geologist, do hereby certify that:
- 1. I am currently employed as a consulting geologist to the mining and mineral exploration industry, as Principal Geologist with SRK Consulting (U.S.) Inc, with an office address of 3275 W. Ina Rd., Tucson, Arizona, USA, 85741.
- 2. I graduated with a Bachelors of Science Degree in Geological Engineering from the Colorado School of Mines, Golden, Colorado, USA; May 1970.
- 3. I am a Registered Geologist in the State of Oregon, USA, # G-313, and have been since 1978. I am a Certified Professional Geologist through membership in the American Institute of Professional Geologists, CPG 09565, and have been since 1995.
- 4. I have been employed as a geologist in the mining and mineral exploration business, continuously, for the past 38 years, since my graduation from university.
- 5. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101. The Technical Report is based upon my personal review of the information provided by the issuer. My relevant experience for the purpose of the Technical Report is:
  - Vice President and U.S. Exploration Manager for Independence Mining Company, Reno, Nevada, 1990-1993;
  - Manager, Exploration North America for Cameco Gold Inc., 1998-2002;
  - Exploration Geologist for Freeport McMoRan Gold, 1980-1990;
  - Uranium exploration experience, as an exploration geologist, from 1975 to 1980 with Kerr McGee Resources, and Freeport Exploration; and as a geologist consultant from 2006 to 2010 with SRK Consulting (U.S.) Inc.
  - Experience in the above positions working with and reviewing resource estimation methodologies, in concert with resource estimation geologists and engineers.
  - As a consultant, I completed several NI 43-101 Technical reports, 2003-2010.

- 6. I am responsible for the content, compilation, and editing of all sections of the technical report titled "NI 43-101 Preliminary Assessment, Powertech Uranium Corp., Centennial Uranium Project, Weld County, Colorado, USA", and dated August 6, 2010 (the "Technical Report") relating to Powertech Uranium Corp.'s Centennial ISR Uranium Project. I have personally visited the Project in the field during on December 08, 2009.
- 7. I have not had prior involvement with the property that is the subject of the Technical Report.
- 8. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
- 9. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, for which the omission to disclose would make the Technical Report misleading.
- 10. I am independent of the issuer applying all of the tests in Item 1.4 of National Instrument 43-101.
- 11. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- 12. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible to the public, of the Technical Report.

Allan V. Moran	
Printed name of Co-Author	
("Signed")	("Sealed")

Dated in Tucson, Arizona, August 6, 2010.



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# CERTIFICATE of AUTHOR Frank A. Daviess

Principal Resource Geologist SRK Consulting (U.S.) Inc.

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## I, Frank A Daviess, do hereby certify that:

- 1. I am currently employed as a consulting resource geologist to the mining and mineral exploration industry and I am currently under contract as an associate Principle Resource Geologist with SRK Consulting (U.S.) Inc, with an office address of 7175 W. Jefferson Avenue, Suite 3000 Lakewood, Colorado, U.S. 80235.
- 2. I graduated from the University Of Colorado, Boulder, Colorado, USA with a B.A. in Geology in 1971 and a M.A. in Natural Resource Economics and Statistics in 1975
- 3. I am a Member of the Australasian Institute of Mining and Metallurgy (Registration No. 226303).
- 4. I am a Registered Member of the Society for Mining, Metallurgy and Exploration, Inc. (Registration No. 0742250).
- 5. I have been employed as a geologist in the mining and mineral exploration business, continuously, for the past 31 years, since my graduation from university.
- 6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with professional associations (as defined in NI 43-101) and past relevant work experience I fulfill all the requirements to be a "qualified person" for the purposes of NI 43-101. I have authored sections of the Technical Report. The Technical Report is based upon my personal review of the information provided by the issuer. My relevant experience for the purpose of input to the Technical Report is:
  - Specialization in the estimation, assessment and evaluation of mineral resources including uranium since 1975.
  - Specialization in uranium resource estimation experience as an Ore Reserve Analyst, US Department of Energy, Resource Division, Grand Junction, CO, 1975-1978
- 7. I am responsible for the Mineral Resource and Mineral Reserve Estimates section of the technical report titled "NI 43-101 Preliminary Assessment, Powertech Uranium Corp., Centennial Uranium Project, Weld County, Colorado, USA", and dated August 6, 2010 (the "Technical Report") relating to Powertech Uranium Corp.'s Centennial ISR Uranium Project. I have not visited the Project site.
- 8. I have not had prior involvement with the property that is the subject of the Technical Report.

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- 9. As of the date of this certificate, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.
- 10. I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, for which the omission to disclose would make the Technical Report misleading.
- 11. I am independent of the issuer applying all of the tests in Item 1.4 of National Instrument 43-101.
- 12. I have read National Instrument 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- 13. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible to the public, of the Technical Report.

	Dated in Denver, Colorado, August 6, 2010
Signature of Co-Author	
Frank Daviess Principal Resource Geolo	gist
("Signed")	("Sealed")

NI 43-101 Preliminary Assessment, Powertech Uranium Corp., Centennial Uranium Project, Weld County, Colorado, USA., effective June 2, 2010.

Prepared by SRK Consulting (U.S.) Inc.

Dated this 6 August 2010, in Tucson, Arizona

This signerality year scanned for the exclusive

approval; any other use is not authorized

Allan V. Moran Principal Geologist

SRK Consulting (U.S.) Inc