

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 re-categorization, 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 re-categorization 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 16.75ft³/t. The mathematical formula is abbreviated as follows:

$$(\text{Avg. GT} \times \text{Area in ft}^2 \times 20) / 16.75 \text{ft}^3/\text{t} = \text{lbs U}_3\text{O}_8$$

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 10,000ft². 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 10,000ft².

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 40,000ft². 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 40,000ft².

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 40,000ft² to 100,000ft² 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

Year	Tons	Average Grade (% U_3O_8)	Pounds (U_3O_8)
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 16.75ft³/t. The mathematical formula is abbreviated as follows:

$$(\text{Avg. GT} \times \text{Area in ft}^2 \times 20) / 16.75 \text{ft}^3/\text{t} = \text{lbs U}_3\text{O}_8$$

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)

Year	Tons	Average Grade (%eU ₃ O ₈)	Pounds (U ₃ O ₈)
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 ₃ O ₈)	Pounds (U ₃ O ₈)
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_3O_8 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 – 40,000ft².”

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 10,000ft² 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.

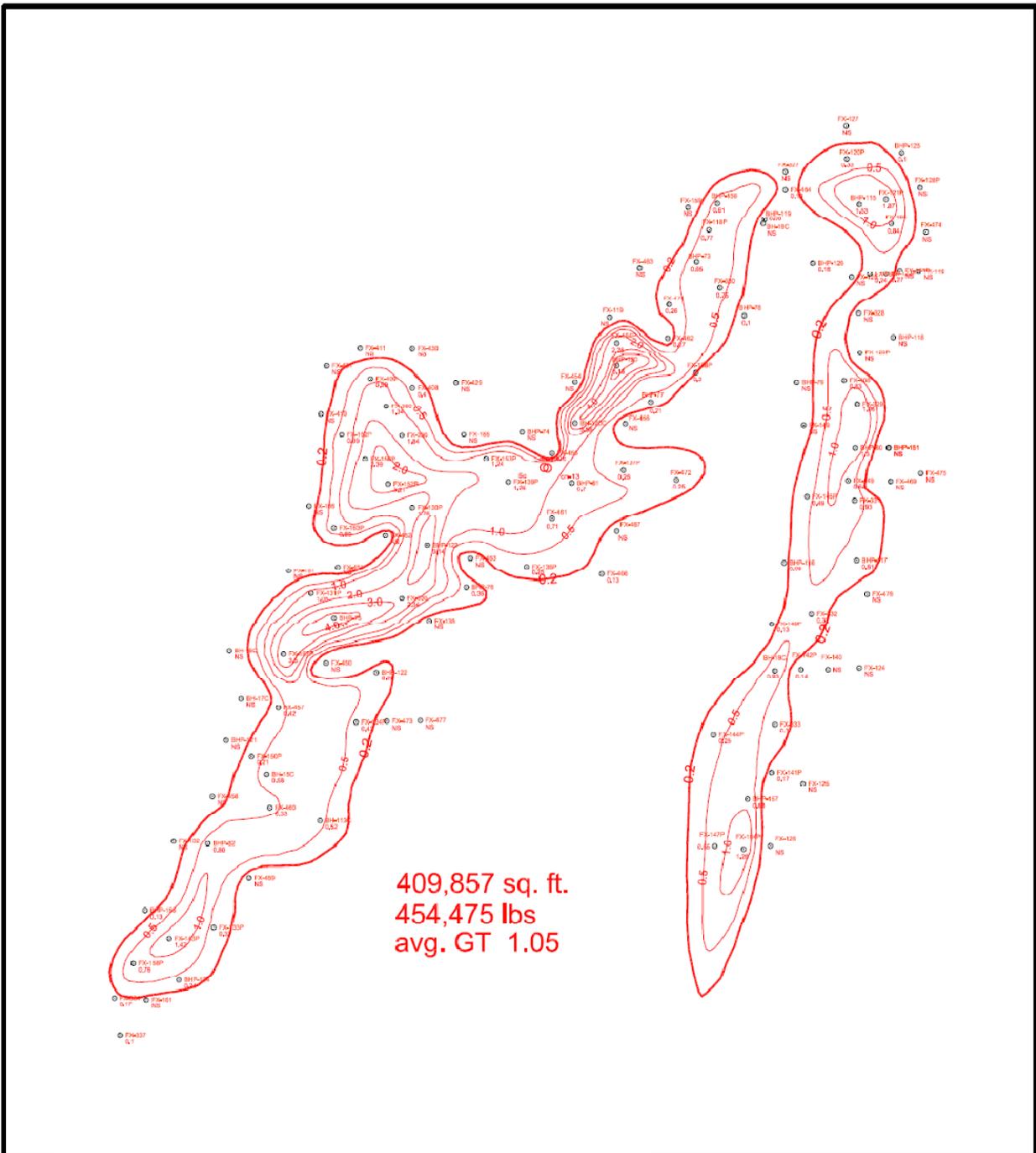
Recovery of mineral is projected at 75% from the ore deposit through to feed to the plant. This value is an estimate based on similar existing operations in Powertech's experience profile. Leaching studies have been conducted on the ore. Therefore, the overall yellowcake produced is estimated to be 9,523,000 lb. Considering the well field development and production schedule, the life of mine, at a production rate of 700,000lbs per year U₃O₈ 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 ₃ O ₈ lb	12,697,085
Estimated overall recovery		75%
Total reserves recovered	U ₃ O ₈ lb	9,522,813
Annual yellowcake production	U ₃ O ₈ 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 ₃ O ₈ lb/day	2,000



409,857 sq. ft.
454,475 lbs
avg. GT 1.05



Map Location



Figure 10
GT Contour Map
Section 11 Resource Area
409,857 sq. ft. - 454,475 lbs.

Centennial Project
Colorado

DRAWN BY	RC
DATE	22-Feb-2010
FILENAME	PD's & dwg's for permit



POWERTECH (USA) INC.



Centennial Project,
Weld County, Colorado

Typical Centennial GT Contour
Map

SRK Project No.: 194300.020

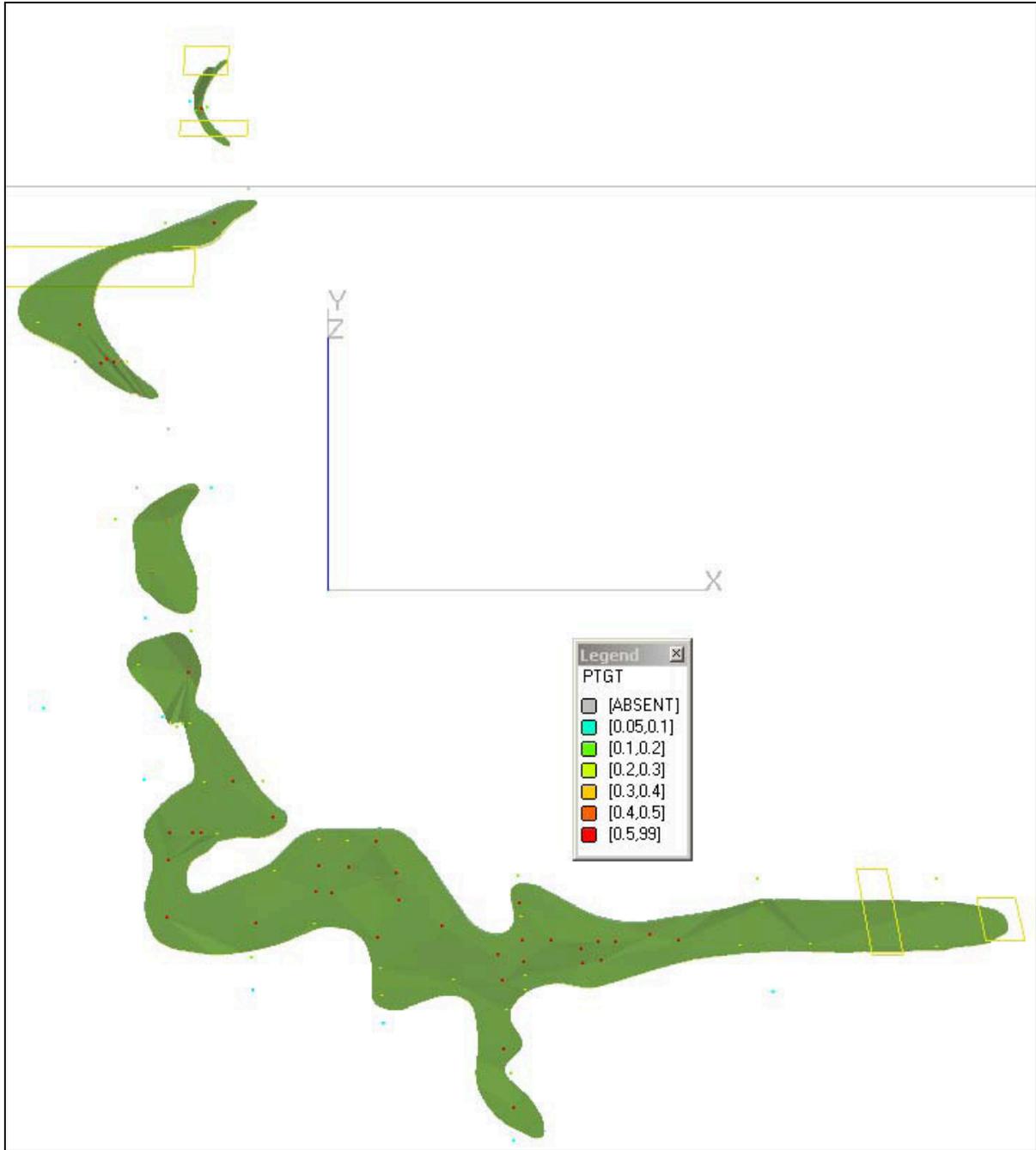
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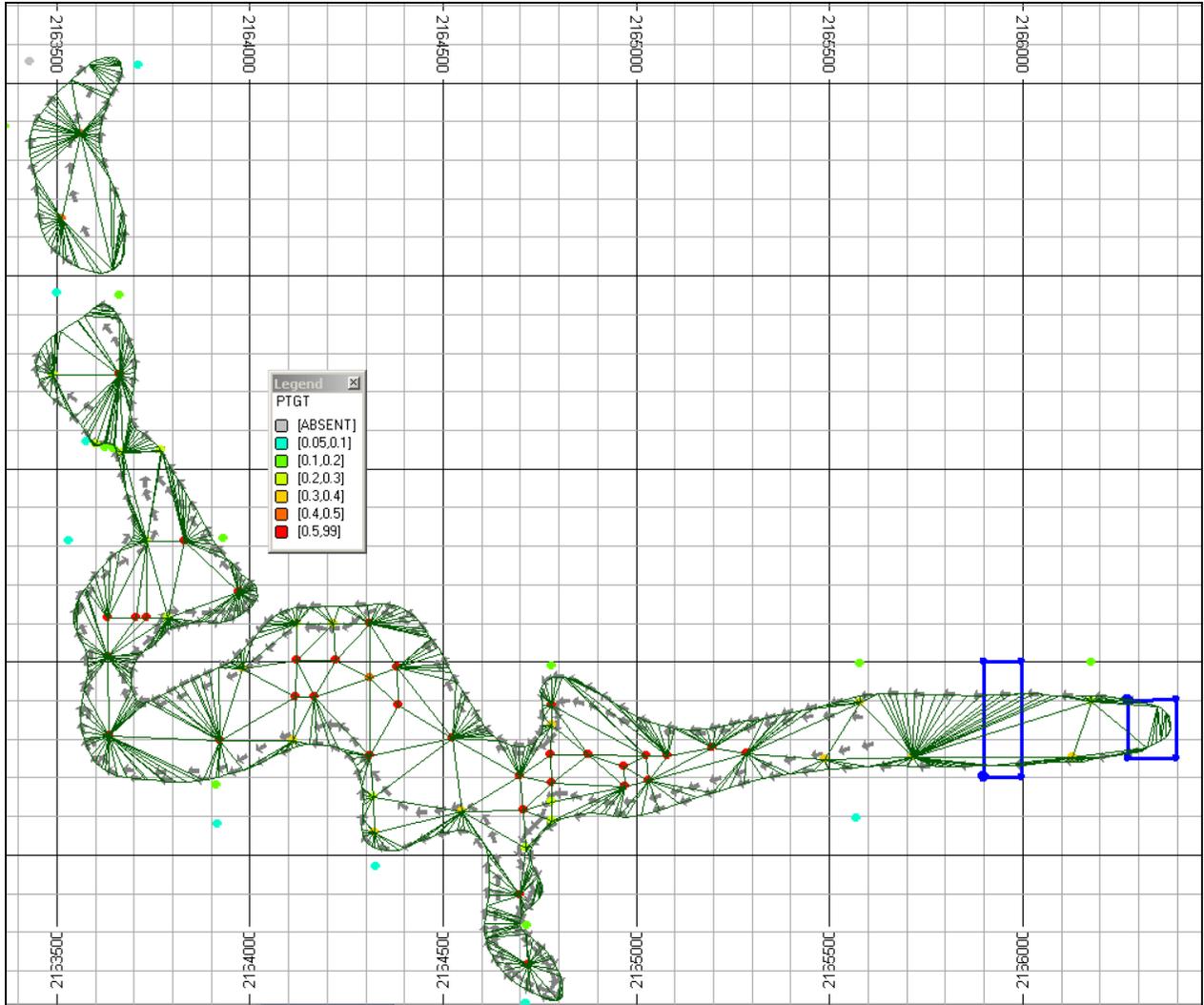
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Approved: AM

Figure: 15-1





Centennial Project,
Weld County, Colorado

North Diehl Digital Terrain Model
Dynamic Anisotropy

SRK Project No.: 194300.020

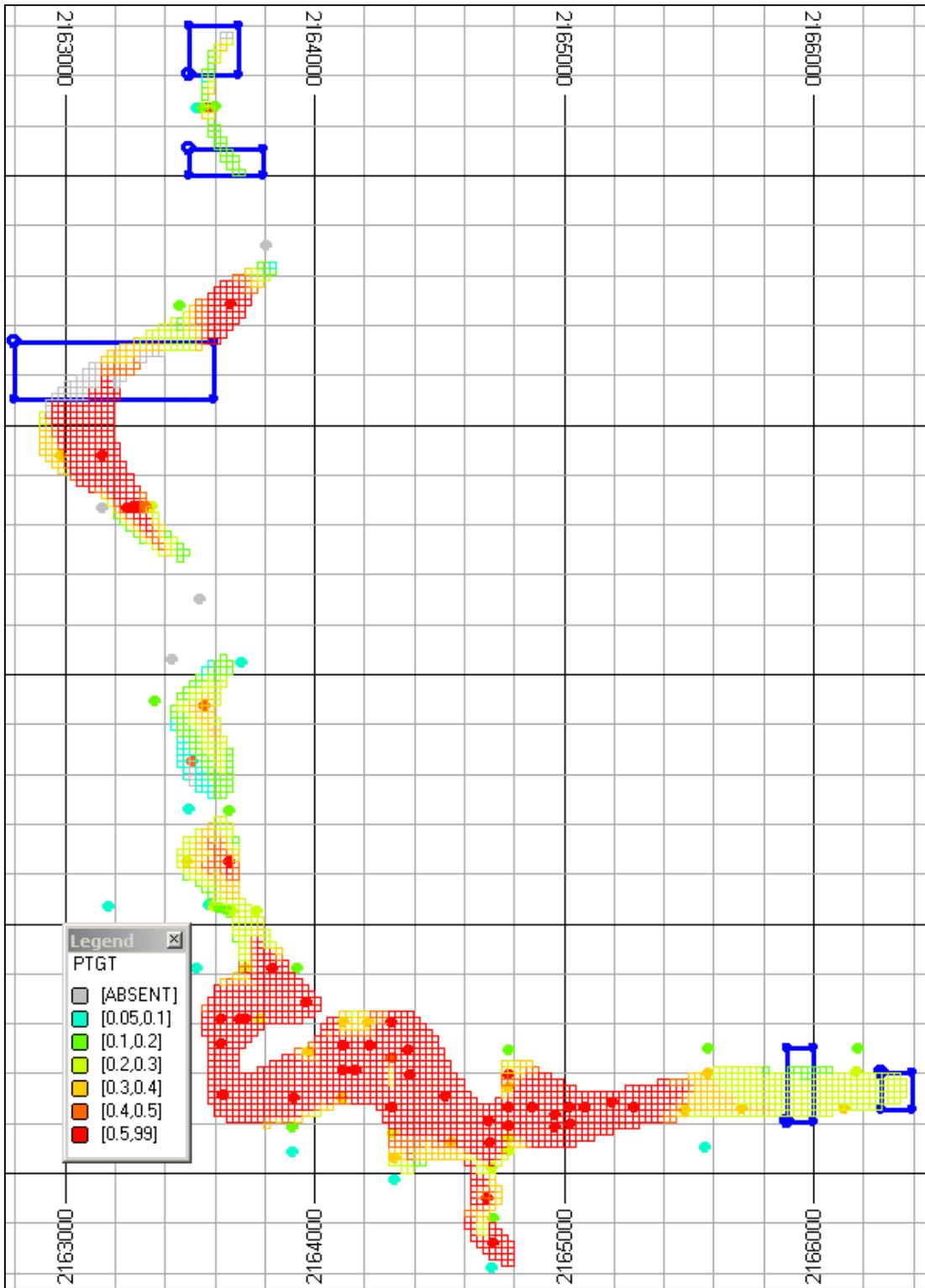
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Figure: 15-4



Centennial Project,
Weld County, Colorado

North Diehl Block Model

SRK Project No.: 194300.020

Source: Powertech (USA), Inc.

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Date: 20100503

Approved: AM

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