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19 OCTOBER 2009 ASX ANNOUNCEMENT

250% INCREASE IN URANIUM RESOURCE INVENTORY AT RIO PUERCO DEPOSIT, NEW MEXICO USA

HIGHLIGHTS

- **Significant increase in uranium resource inventory at Rio Puerco from 4.6 million lbs to 11.4 million lbs at a grade of 0.09% eU_3O_8 (900 ppm eU_3O_8)**
- **Considerable upside to increase resources as the current JORC resource has been calculated on only one claim block - representing just 7% of Monaro's total land holding in the Rio Puerco area**
- **Potential for conventional or ISL mining**
- **An exploration target of between 1.3 and 2.6 million lbs identified on mine site claims**
- **Exploration potential of greater Rio Puerco area confirmed with multiple target options defined near mine site as well as regionally**
- **Exploration program to be re-focused as a result of positive data review**
- **Data validates the quality of the Rio Puerco asset**

Monaro Mining NL ("Monaro" and/or "The Company") is pleased to announce that the detailed, independent re-evaluation of the Rio Puerco mine data-set has resulted in a significant increase in the project's uranium resource inventory. This work, which was initiated to update the previous estimate (4.5 million pounds at 0.12% U_3O_8) to comply with current JORC requirements, has seen the uranium resource inventory increased some 250% to 11.4 million lbs.

Monaro Mining Chairman Mr Jim Malone said results of this work have dramatically exceeded the Company's already high expectations:

"The data validates our conviction as to the quality of the Rio Puerco asset which is located in the Grants Uranium District where approximately 340 million pounds of uranium has been produced. In our view, Rio Puerco is a serious deposit, located in one of the world's premier uranium belts with tremendous up-side. It is quite clear that we have barely scratched the surface in terms of defining the final size and tenor of the deposit within our claim block. The result also validates our view that the Company focus its attention on the US assets where it has the means to grow organically. Our task in the coming weeks will be to analyse the consultants report in detail and plan a strategy to take this deposit to the next level and ultimately to production".

The following table outlines resource estimates based on several differing eU_3O_8 cut-off grades.

Cut Off Grade % eU_3O_8	Tonnes U_3O_8 Ore	Average Grade % eU_3O_8	Tonnes U_3O_8	Lbs U_3O_8
0.03	5,994,968	0.09	5,154	11,362,640
0.05	3,584,925	0.12	4,214	9,290,481
0.10	1,298,081	0.27	3,464	5,778,493

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These resources, which are classified as “inferred” under the JORC code, were estimated using a block model and validated using the cross sectional method. Confirmatory drilling will now be required to validate the historical drilling, define the disequilibrium and assess the potential for other metals such as molybdenum and vanadium. The project is considered to hold potential for either conventional underground or in-situ leach (ISL) mining. The Company believes that confirmatory drilling has the potential to convert the resource into a “measured’ category relatively quickly.

A distinct advantage of the Rio Puerco project is that there is significant mining infrastructure already in place, including a 260 metre, 4 metre diameter concrete lined shaft and multiple drives. This work was completed by Kerr McGee in the 1970’s for the purposes of mine development and bulk metallurgical sampling and processing. This infrastructure will save the Company millions of dollars in mine development costs, should it be found that conventional mining is the preferred method of extraction.

As part of the re-evaluation study, the potential to increase the extent of uranium resources was also assessed as the host uranium formation extends across to other nearby claims held by the Company. Previous drilling by the Company and other published data, indicates that further work is warranted to test for potential extensions.

This independent re-evaluation of the resource was completed by Mr Jerome Randabel in collaboration with Dr Drazen Vuckovic, both of whom are practicing geologists. The following sections provide a more detailed review of the background and methodology used in the re-evaluation process.

1 Overview of Rio Puerco project

1.1 Location

The Rio Puerco deposit is located within Section 18, Township 12, Range 3 West, and Section 24, Township 12 North, Range 4 West Sandoval County, in the State of New Mexico, USA, approximately 60 km north-west of the city of Albuquerque. It lies at the eastern end of the Grants Uranium District (Figure 1).

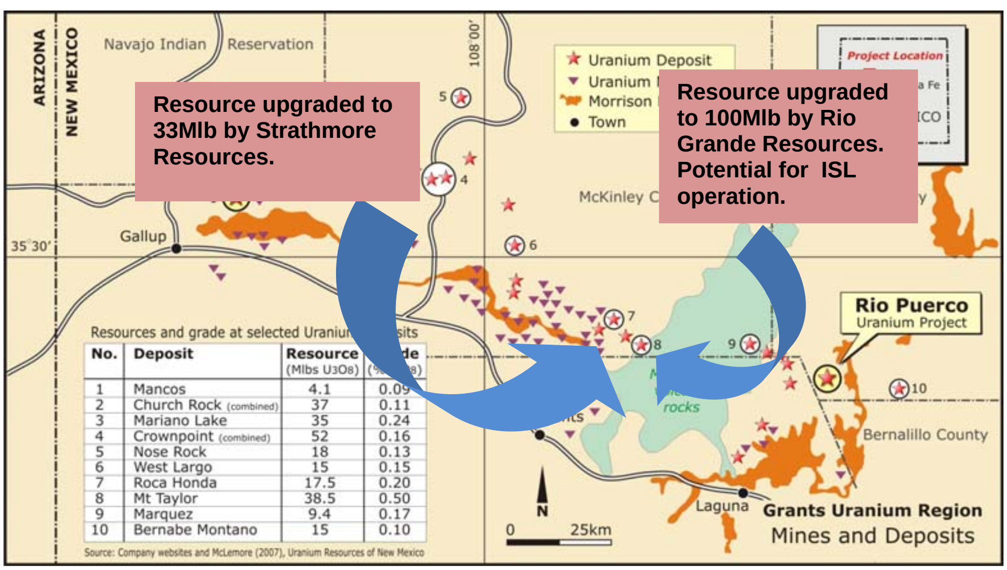

FIGURE 1: REGIONAL CONTEXT OF MONARO’S RIO PUERCO URANIUM DEPOSIT

1.2 Tenure and Regional Mineralisation

The Rio Puerco mine area (and the focus of the re-evaluation study), is secured by 32 claims over Sections 18 (Betty Claims) and Section 24 (Syncline Claims). The company also holds a number of claims to the east and west of the prospect, the positions of which are outlined in Figure 2.

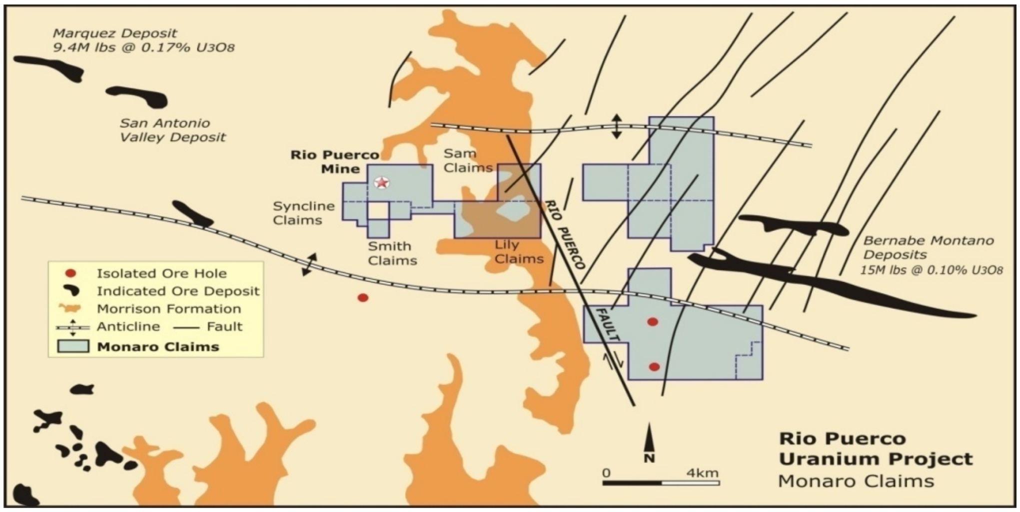

FIGURE 2: LOCATION OF MONAROS CLAIMS AT THE RIO PUERCO PROJECT

That the Company's Rio Puerco uranium project is located in one of the world's greatest uranium provinces is unquestioned. The Grants Mineral Belt, has produced approximately 340M lbs of uranium and is set to resume its mantle of a premier world producing region. The Company's deposit is located only 55 kms east of the Mt Taylor uranium deposit and 65 kms from the Roca Honda uranium deposit.

The Mt Taylor uranium mine has produced approximately 8 Mlbs of U_3O_8 before it was shut down in the late 1980's. This deposit is now owned by Rio Grande Resources Corporation and a recent Company release indicates that this deposit now contains over 100 M lbs of U_3O_8 with an average grade of 0.15% to over 2.0%. The deposit is currently being evaluated for development as an in-situ leach operation. The Roca Honda deposit is owned by Strathmore Minerals Corporation and based on their published company information, contains approximately 33M lbs of U_3O_8 with grades varying from 0.17% to 0.23%

1.3 Mining and exploration history of the Rio Puerco project

Previous exploration reports indicate that the Rio Puerco deposit was discovered in 1968 on Section 24, when uranium mineralisation was intersected by drilling to a depth of 254.5m. Between 1970 and 1980, Kerr-McGee reportedly spent US$17.5million in proving up and developing a resource of approximately 7 million pounds U_3O_8 on land in and around the Rio Puerco mine. A total of 815 holes were drilled for 183,604m on Section 18 and 271 holes for 55,259m were drilled on Section 24 (Figure 3). These two sections contain the bulk of the Rio Puerco Resource which has been previously reported by Monaro to contain 1.93 million tonnes of ore with an average grade of 0.12% U_3O_8 (4.6million pounds contained U_3O_8).

In addition to its exploration and development work, Kerr-McGee sunk a 260m deep vertical production shaft including all surface infrastructure to support a total mine production phase. They also put in several kilometres of development drives to extract a 10,160 tonne bulk sample for milling and processing. The Rio Puerco mine was intended to be a room and pillar underground mine, but was never put into production as a result of declining uranium markets and a tailings wall failure at the processing plant in which the bulk sample had been processed.

In 2007, Uranium King Limited conducted a short drilling program over the Lilly claims, where 4 drill holes were completed as part of an exploration programme which targeted a number of radiometric anomalies. No significant mineralisation was intersected, although one hole did provide indications of uranium mineralisation.

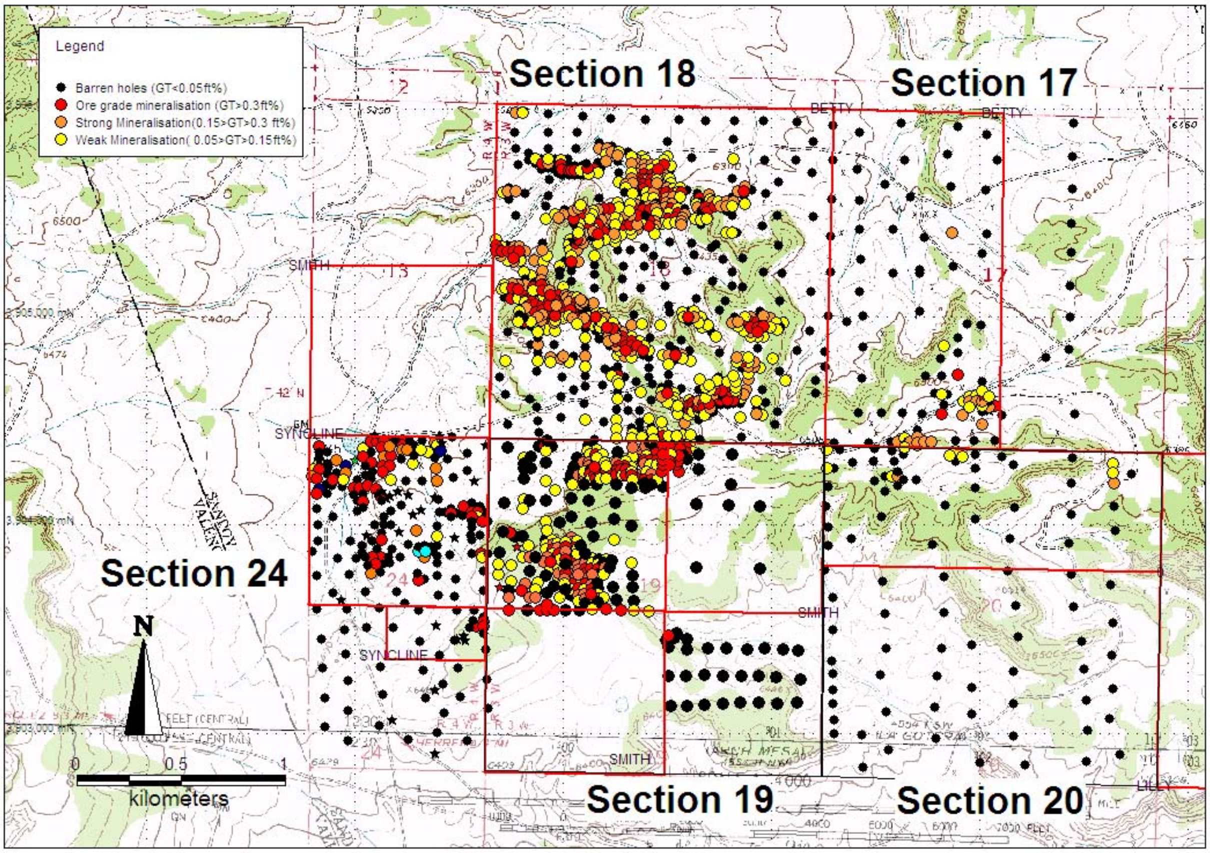

FIGURE 3: HISTORICAL DRILLING CARRIED OUT BY KERR MCGEE OVER SECTIONS 18 AND 24 AND ADJACENT CLAIMS.

1.4 Rio Puerco geology

The Rio Puerco deposit occurs in the Grants Uranium District at the southeast edge of the San Juan Basin. The surface geology is dominated by the Upper Cretaceous Mancos Shale, which is flat-lying and deeply dissected. The Mancos Shale consists of a series of shale and sandstone beds.

Underlying the Mancos Shale is the Lower-Upper Cretaceous Dakota Sandstone and the Upper Jurassic Morrison Formation, which actually outcrop outside of Sections 18 and 24. In descending order, the Morrison Formation comprises of:

- The Jackpile Sandstone Member
- The Brushy Basin (mudstone) Member with lenses of sandstone
- The Westwater Canyon Member comprising the ‘A’, ‘B’, ‘C’ and ‘D’ sandstone horizons and interbedded with variable thickness hale beds

From the downhole wireline logs it appears that most of the uranium mineralisation occurs within the Westwater Canyon Member near or at the contact between sandstone and shale units. Aerial photo interpretation indicates that the structure around the project area is generally flat-lying or gently warped along E-W and N-S oriented fold axes. The folds are tighter locally and deflect into major N-S striking faults (e.g. Rio Puerco Fault).

Although geological sections confirm the generally flat structure, there are indications of swelling or pinching of strata along strike, a characteristic of fluvial deposits and most obviously within the Westwater Canyon Member. Such zones may have represented palaeochannels or barriers to the flow of groundwater and appear to have been targeted by previous drilling.

1.5 Mineralisation Models

Mineralisation at Rio Puerco is postulated to be of the Peneconcordant sandstone hosted type, characteristic of the Grants Uranium District. These deposits are irregular in shape, are roughly tabular and usually elongated. They range from a few metres in width and length to several tens to hundreds of metres long and occur within humate rich sandstone. The uranium is sourced from nearby volcanics as well as from the devitrification of tuff deposited within the sandstones. The uranium is concentrated within humic acid percolating through the aquifer from the surface, to be eventually trapped by changes in lithofacies or structures and converted to humate during diagenesis and changes in groundwater salinity.

1.6 Ore Mineralisation

The dominant ore mineral is reported to be Coffinite which is associated with the humate found within the sandstone layers. Uraninite and uranium-organic complexes associated with the humate is not uncommon. The humate is also enriched in a number of other metals including vanadium, selenium and molybdenum. However, none of these elements appear to have received any attention by past explorers.

1.7 Mineralisation Controls

The ore deposits are in general lenticular, tabular masses of interstitial humate and uranium minerals that are roughly parallel to the bedding and generally elongated in the direction of sediment transport of the host rock. Although two general types of deposits are recognized in the area, the Rio Puerco Deposit is believed to be a primary deposit.

2 Background information for resource estimation and geological modelling

2.1 Data

The data used for the resource estimate consisted of the historical maps, downhole gamma-ray data converted to percent equivalent U_3O_8 (eU_3O_8), geological logs and drillhole survey data (See Annexure 1 for an explanation of eU_3O_8). Of the reported 832 drill holes into the project area, data for only 764 drill holes was available for assessment.

2.2 Sampling and Assays

The digitised gamma data was recorded in counts per second as was the industry standard practice at the time. The data was then converted to equivalent U_3O_8 by applying the K-factor, the “dead time correction” as well as a borehole size constant. The resultant K factor is a calibration constant for the crystal in the gamma tool and is unique for each tool and crystal. The dead time correction is usually in microseconds, and accounts for the rare times that the crystal is saturated by radiation and does not record. Usually this occurs at grades above 2%. In this instance, the disequilibrium, mud/water factor of 1 as well as a drillhole size correction of 1.11 was applied to the data.

Each log shows that the gamma tools were calibrated, and tested after every run using a standard gamma source mounted on a jig, which at the same time indicated that the tool was functioning correctly. It is assumed that the tools were properly calibrated.

The downhole logs did not have a recorded K factor and as a result, had to be derived from data available from published reports and handwritten notes left on the logs. The K-factors thus used for this assessment are tabled below.

Hole_ID Range	K-Factor
0-760	0.000332
761-815	0.00001

There were no chemical assays available to validate the gamma data, but published data from nearby deposits such as Roca Honda was used to give a degree of comfort to the range of uranium values obtained from the gamma ray logs.

2.3 Drill hole Information

795 drillholes equivalent to 185,529 drilled metres was used in assessment. Drillholes were generally found to be located on a grid with N-S lines approximately 30m apart and drillhole spacing on each line at 25m to 160m, depending upon the tenor of the mineralisation. Six drill holes were cored but the majority were drilled using the rotary mud method.

2.4 Downhole survey

All drill holes were drilled vertically and exhibited very little drift.

2.5 Downhole geology

Downhole geology was interpreted from the resistivity and self potential curves of the wireline logs, and consisted of picking the top and base of each formation, as well as the sand units within the Westwater Canyon member.

2.6 Uranium equilibrium

The ratio of uranium to its daughter elements is believed to be in equilibrium, due to the primary nature of the ore and its age. It should be noted that it takes 1 million years for Uranium 238 to reach equilibrium. As there are no chemical assays available, this could not be verified. Published reports however indicate that other nearby uranium deposits has been found to be in equilibrium.

3 Resource estimation methodology and parameters used

3.1 Bulk density

Since the bulk density data is not available, a generic average density of 2.35T/m^3 for sandstone was used.

3.2 Cut-off grade

Three cut-off grades were used for the purposes of resource estimation. A cut-off grade of 0.03% eU_3O_8 was used as this could be applicable to an in-situ-leach (ISL) mining scenario. A cut-off grade of 0.05% eU_3O_8 was also used as it allows direct comparison with the most recent resource estimates. Finally, a higher cut off grade of 0.1% eU_3O_8 was also used to highlight a potential high grade mining scenario.

3.3 Cross-sectional geological interpretation

A series of cross sections were constructed running approximately N-S perpendicular to the perceived trend of the ore body (Figure 4) as well as several along E-W lines. The sections show the surface geology, and downhole geology, where available. An envelope of 15m was selected for each cross-section and drillholes that were off the section line were projected onto the plane of the section.

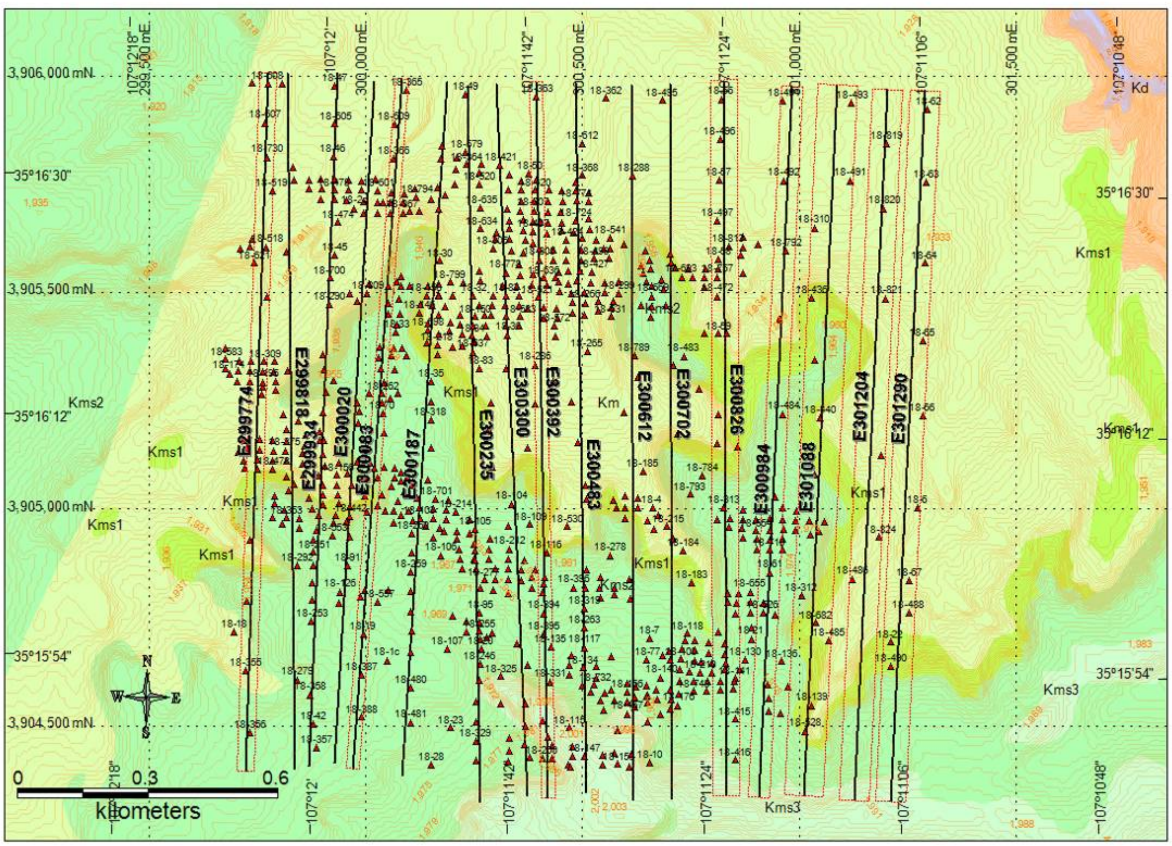

FIGURE 4: LOCATIONS OF CROSS-SECTIONS

3.4 Database

A drill hole database base was created using MS Access which was linked dynamically with Surpac Vision software. The database was interrogated to extract geological data which was then used to generate digital terrane models of the various lithzones, and extract the assay data for each lithzone.

3.5 Geological control and domaining and statistics

A series of digital terrane models (DTMs) were created from the top and base of each lithzone, from data extracted from the access database. These were used to assign geological codes to the block model using the assign value function. Furthermore, an envelope of 0.02%eU_3O_8 was selected to define the ore body in each lithzone. Data was then composited within these layers. Three main zones of mineralisation with specific trends were well defined by the drilling. The data shows that the grade has a skewed distribution, with more low grades than high grades, as well as showing the preferred distribution of grades within each lithzone.

3.6 Block modelling

The preferred and industry standard method of orebody modeling is done using a block model. A block model is a three dimensional database, consisting of blocks of a certain size, from which the volume of an orebody can be determined. A number of attributes are created for each block. The size is used to represent the minimum mining unit which in this case, is a block that has dimensions of 15m x 15m x 1m.

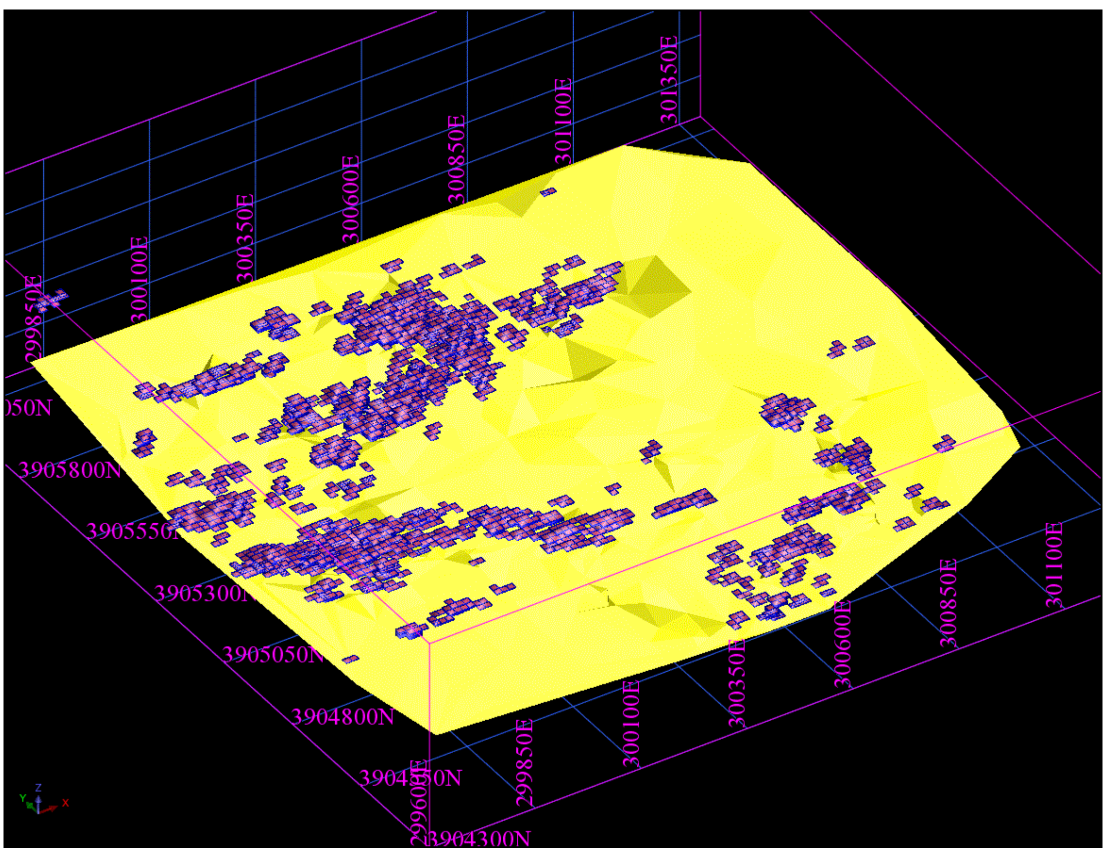

FIGURE 5: RIO PUERCO BLOCK MODEL USING A 0.05% eU_3O_8 CUT-OFF GRADE

3.7 Data assignation

The preferred method of assigning data to each block in the block model was by using the inverse distance squared method for each of the domains along their preferred orientation.

3.8 Validation

The resource estimate subject to this current work was validated in the first instance by comparing it with the historical estimate. This clearly shows that there is a substantial difference between the two estimates. However, it is considered that the difference is due mainly to a different set of assumptions used in both calculations.

The previous work was an economic evaluation of the resource determined by using a grade cut-off to be 0.05% at 6 feet (1.83m) whereas in the current evaluation, the minimum thickness was selected at 0.5m within a very low grade envelope, thus including material that was possibly considered sub economic in 1976. The aim of the resource estimation of 1976 appears to be mining driven, where as the current study is an assessment of the entire resource. Further work such as optimisation of the resource using mining software and applying economic and mining factors are now required to determine how much of the resource can be converted into a reserve.

The resource was also validated by using a standard cross-sectional methodology. A composite grade at a cut-off of 0.05% eU_3O_8 at a minimum thickness of 0.5m was extracted from the database for each lithzone. Where there were more than one intercept per zone, these were further composited such that there was only one intercept per hole per zone. A polygon for each cluster of drill holes was digitised and the area calculated. Application of the weighted average grade, thickness and a bulk density of 2.35 produced a result comparable very closely to the block modelling result.

3.9 Resource Definition

Based on the block modeling methodology described in Section 3.6, a resource estimate was calculated for several grade cut-off values. The results are tabled below:

Cut Off Grade **% eU_3O_8**	**Tonnes** **U_3O_8 Ore**	**Average Grade** **% eU_3O_8**	**Tonnes** **U_3O_8**	**Lbs** **U_3O_8**
0.03	5,994,968	0.09	5,154	11,362,640
0.05	3,584,925	0.12	4,214	9,290,481
0.10	1,298,081	0.27	3,464	5,778,493

It should be noted that the above estimates are derived from drill hole data available for Section 18 only. The evaluation did not cover any other section (particularly sections 24, 17,19 and 20 – see Figure 3) as no primary information for any of the drill holes located in these sections were available. However, given the information available and the geological continuity with section 18, previously quoted resources in these sections can be considered as exploration targets – see Section 4.2 below.

4 Follow-up work programme

4.1 Resource and confirmatory drilling

In order to advance the definition of the deposit and upgrade the JORC category to a higher level, a drilling program focused predominantly within Section 18 (See Figure 3) has been recommended. The objectives of the program have been defined as follows:

- Completion of a series of diamond drill holes next to recorded high, medium and low grade holes. The results from this drilling will aid in better determining the grade distribution as well as testing for variance in disequilibrium with grade

- A series of percussion or mud rotary drill holes have been recommended for selected locations to "twin" existing holes and confirm the grade using downhole gamma ray, and gamma-ray spectrometery

- A number of drill holes have been recommended to close off mineralisation

- Obtain samples for metallurgical purposes even though the bulk sample was processed with satisfactory recoveries in the 90+% range

4.2 Mine site potential

The potential for adding further to resources within Section 18 and Section 24 is limited, as previous drilling by Kerr McGee appears to have covered all potential extensions to the mineralisation, although some lines terminate in low grade material and mineralisation has not necessarily been closed off.

The Rio Puerco ore body has however extensions into adjacent sections 17, 19, and 20 (see Figure 3), with a number of historical drill holes apparently striking ore grade mineralisation. Whilst summary results of drilling have been reported, drill logs to support the data have yet to be found. As a consequence previous reporting of resources within these areas can only be considered as exploration targets.

It is considered that these nearby exploration targets can in total, range from 400,000 tonnes to 800,000 tonnes with grades varying between 0.05% to 0.20% U_3O_8. This is equivalent to approximately 1.3 to 2.6 million lbs of U_3O_8. It should be noted that in this case, the potential quantity and grade is conceptual in nature, and that there is insufficient exploration data to define a mineral resource and that it is uncertain if further exploration will result in the determination of a mineral resource. A drilling program to test the extensions of mineralisation in the adjacent claims has been formulated.

4.3 Regional potential

The Company holds a substantial number of claims in the vicinity of the Rio Puerco deposit which covers a significant part of the NW-SE mineralised trend of the Grants Uranium District. To the east of Rio Puerco, and located on Indian lands is the Bernabe-Montano deposit which reportedly contains a resource of between 10 to 20Mlbs of contained U_3O_8. It is believed that extensions westward towards Rio Puerco (and located within the Company's claims) may exist. There is however, virtually no data available.

A limited drilling program by the Company within the Lilly claims in 2007 demonstrated that the host rocks were oxidised and altered. In addition, minor uranium mineralisation was also encountered.

A regional drilling program has been recommended using percussion or mud rotary drilling techniques and downhole wireline geophysics.

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4.4 Other recommendations

In addition to the above specific recommendations, a number of other tasks have been recommended, viz:

- Surrounding water wells to be tested for tracer mineralisation
- Undertake field spectroscopy studies of all available and future core samples to identify alteration haloes around the ore bodies
- Conduct soil and vegetation sampling and analysis for traces of various metals which may assist in the delineating of vectors to mineralisation

COMPETENT PERSON

The information in this release that relates to mineral resources is based on information compiled by Mr Jerome Randabel, a Member of the Australasian Institute of Mining and Metallurgy. Mr Randabel is a contractor to Monaro Mining and has sufficient experience which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the December 2004 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code). Mr Randabel consents to the inclusion of this information in the form and context in which it appears in this report.

The information in this release that relates to general mineral exploration is based on information compiled by Mr Mart Rampe, a Member of the Australasian Institute of Mining and Metallurgy. Mr Rampe is a director of Monaro Mining and has sufficient experience which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the December 2004 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code). Mr Rampe consents to the inclusion of this information in the form and context in which it appears in this report.

FURTHER INFORMATION

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ABOUT MONARO MINING NL – "BUILDING A SERIOUS URANIUM COMPANY"

Monaro Mining NL is an Australian-based international exploration and pre-development company focusing on uranium. Its major assets include tenements in the USA, Central Asian Kyrgyz Republic and Australia. Monaro's objective is to be a producer in the medium term through the development of its advanced projects in the USA. Monaro shares are listed on the Australian Securities Exchange and the Frankfurt Stock Exchange and Monaro ADSs are eligible for OTC trading in the USA.

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Annexure 1

All results pertaining to mineral resources in this report are derived from downhole gamma ray logging. Consequently, issues pertaining to possible disequilibrium and uranium mobility should be taken into account, when assessing these results. Uranium results are reported as parts per million (ppm) equivalent eU_3O_8 (eU_3O_8) grades, as derived from the historic down-hole gamma ray logging. Equivalent U_3O_8 may be affected by local disequilibrium caused by the mobility of uranium. As indicated in the main body of this report, a disequilibrium factor has been applied to eU_3O_8 results. Whilst local variations between chemical assay derived U_3O_8 and gamma logging derived eU_3O_8 may exist, it is considered that eU_3O_8 value provides a representative estimate of the U_3O_8 grade within the prospect.

The gamma tool measures the total gamma ray flux in the drill hole. Readings are averaged over 2 or 5 centimetre intervals and the reading and depth recorded on a portable computer. The gamma ray readings are then converted to equivalent U_3O_8 readings by using the calibration factors. These factors also take into account differences in hole size and water content.
The gamma radiation used to calculate the equivalent U_3O_8 is predominately from the daughter products in the uranium decay chain. When a deposit is in equilibrium, the measurement of the gamma radiation from the daughter products is representative of the uranium present. It takes approximately 2.4M years for the uranium decay series to reach equilibrium.