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URANIUM ONE INC.

TECHNICAL REPORT ON THE ZARECHNOYE URANIUM MINE, KAZAKHSTAN

NI 43-101 Report

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1 SUMMARY

EXECUTIVE SUMMARY

Roscoe Postle Associates Inc. (RPA) was retained by Uranium One Inc. (Uranium One) to prepare an independent Technical Report on the Zarechnoye Uranium Mine (the Mine) in south-central Kazakhstan. The Mine comprises the Zarechnoye Main mine (Zarechnoye Main) and the now inactive Zarechnoye South project (Zarechnoye South). The purpose of this report is to update the Mineral Resource and Mineral Reserve estimates at Zarechnoye Main and to support the public disclosure of information related to the Mine. This Technical Report conforms to National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101). RPA visited the Mine on October 20, 2011 and September 16-17, 2013.

Uranium One is a privately held Canadian based uranium producing company whose shares previously had a principal listing on the Toronto Stock Exchange (TSX:UUU) and a secondary listing on the Johannesburg Stock Exchange (JSE:UUU). Uranium One's shares were delisted from both exchanges following its going private transaction, which was completed on October 18, 2013. The company has producing operations and/or advanced development projects in Kazakhstan, USA, Australia, and Tanzania.

The Mine is 100% owned by JSC Zarechnoye (Zarechnoye), a joint venture among Uranium One (49.67%), JSC National Atomic Company Kazatomprom (Kazatomprom) (49.67%), and OJSC Karabaltinsky Mining Complex (Karabaltinsky, 0.66%), with Kazatomprom as the operator. Uranium One acquired its indirect 49.67% interest in the project from JSC Atomredmetzoloto (ARMZ), a Russian state owned uranium mining company, as of December 27, 2010.

The Mine is an in situ recovery (ISR) uranium project under two Subsoil Use Contracts (SUCs), with production at Zarechnoye Main and past exploration at Zarechnoye South. The non-contiguous Zarechnoye South property is adjacent to, and south of, the Zarechnoye Main mine. Uranium One reports that it has returned the Zarechnoye South SUC to the Government of Kazakhstan, because exploration work conducted at the project did not yield sufficient results to warrant development or further exploration of this deposit.

The Zarechnoye Mine consists of:

- An ISR operation producing uranium yellowcake from production wells pumping uranium bearing leach solutions from permeable uranium deposits;
- A processing plant with a design capacity to produce nominally 1,000 tpa uranium; and
- Infrastructure including office buildings, warehouse, and residences for mine and process plant personnel;

all of which are located at Zarechnoye Main.

Uranium mining and processing at the Mine is carried out by Kazatomprom, and exploration work (mostly drilling) is done by Volkov Geological and Mining Company (Volkovgeologia), the exploration affiliate of Kazatomprom.

CONCLUSIONS

Based on the site visit and review of the available data, RPA concludes that:

- The uranium mineralization is a sandstone-hosted, roll front type deposit.
- Uranium mineralization occurs in at least nineteen horizons, nine of which have been outlined by drilling with reported Mineral Resources. Four of the nine zones constitute approximately 91% of the reported Mineral Resources.
- The methodologies of lithological and radiometric logging procedures, and sampling and assaying during past drilling campaigns were in keeping with industry standards.
- The Zarechnoye Main deposit has favourable characteristics for uranium extraction as the uranium is hosted in zones of acceptable permeability with good solution mining conditions.
- In general, carbonate content of the mineralized and host rocks ranges from 0.4% to 1%. In places, however, it may be up to 12%.
- The mineralization is in several sub-horizons within impermeable layers that have appropriate groundwater levels. These allow greater than 20 m of head and greater than 6 MPa of injection pressure.
- The December 31, 2013 Mineral Resource estimates for the 100% interest in the Mine are:
 - o Measured Mineral Resources of 16.8 million tonnes grading 0.007% U (0.008% U_3O_8), containing approximately 1,148 tonnes U (2.94 M lb U_3O_8).
 - o Indicated Mineral Resources of 11.8 million tonnes grading 0.052% U (0.061% U_3O_8), containing approximately 6,068 tonnes U (15.53 M lb U_3O_8).

- o Inferred Mineral Resources of 9.4 million tonnes grading 0.048% U (0.056% U_3O_8), containing approximately 4,500 tonnes U (11.7 M lb U_3O_8).
- The December 31, 2013 Mineral Reserve estimates for the 100% interest in the Mine are:
 - o 33.6 million tonnes of Proven Mineral Reserves grading 0.003% U (0.003% U_3O_8) and containing 917 t of extractable U (2.38 M lb U_3O_8).
 - o 15.3 million tonnes of Probable Mineral Reserves grading 0.021% U (0.024% U_3O_8) and containing 3,152 t of extractable U (8.20 M lb U_3O_8).
- Based upon experience and a reconciliation between Mineral Resources and Mineral Reserves, the conversion of contained uranium from Mineral Resources to Mineral Reserves was estimated to be 65% and this factor has been applied in the estimation of Mineral Reserves.
- The extraction of the Mineral Reserves is estimated to be 80%.
- The Zarechnoye deposit is being successfully exploited using ISR techniques.
- The estimated operating cost for the Mine is US\$27.49 per pound U_3O_8 sold.
- The LOM plan includes the extraction of 4,069 tonnes U from the estimated Mineral Reserves. The remaining mine life as of December 31, 2013, and based on current Mineral Reserves, is slightly less than five years.
- The maximum annual production is estimated to be 960 tonnes U.
- The capital cost for the LOM is US\$122 million including plant construction, production well drilling and sustaining capital.

RECOMMENDATIONS

Based on our site visit and review of technical data, RPA recommends that Uranium One:

- Continue in-fill drilling on Zarechnoye Main deposit to allow for the further estimation of Indicated Mineral Resources.
- Obtain drill hole database including Quality Assurance/Quality Control (QA/QC) procedures and results for current and subsequent drill programs to facilitate compliance with industry best practices and NI 43-101 reporting.
- Continue to monitor the performance of the various operating cells to determine whether modifications to the anticipated wellfield recovery and production rates are warranted.
- Continue operations and seek methods to improve the operations through the reduction in the acid consumption and increasing production.
- Consider and evaluate alternatives to increase production such as increases in the processing plant capacity.

- Carry out drilling and evaluation to bring material from the Commonwealth of Independent States (CIS) C2 resource category into the Indicated Mineral Resource category so that this Mineral Resource can be converted to Mineral Reserves.
- Consider and implement procedures to obtain all of the exploration and technological estimation data on a timely basis to enable Uranium One to complete Mineral Resource and Mineral Reserve estimates independently of Zarechnoye.
- Continue the reconciliation procedures on a regular basis for block by block reconciliation of the production compared to the Mineral Reserve and Mineral Resource estimates.
- Direct more effort to the analysis of the physical and chemical data related to the wellfields, process solutions, and plant operations to assist in the evaluation of the operations and to possibly determine the cause of better or worse than planned operating results.

ECONOMIC ANALYSIS

Under NI 43-101 and Form 43-101F1, producing issuers may exclude the information required for Section 22 (Economic Analysis) for properties that are currently in production, unless the Technical Report includes a material expansion of current production. RPA notes that Uranium One is a producing issuer, the Mine is currently in production, and a material expansion is not being planned. RPA has performed an economic analysis of the Zarechnoye Mine as part of its estimate of Mineral Reserves using the estimates and assumptions presented in this report and concluded that the outcome is a positive cash flow.

TECHNICAL SUMMARY

PROPERTY DESCRIPTION AND LOCATION

The Mine is located in the southern part of the Syrdarya Basin in the Otrar District of the Shymkent Region of the South Kazakhstan Oblast, approximately 200 km west of Shymkent and 450 km southeast of Kyzylorda, Kazakhstan. The Mine comprises the Zarechnoye Main mine, which is in production, and the currently inactive, non-contiguous exploration-stage Zarechnoye South project directly to the south. Uranium One has surrendered the Zarechnoye South SUC to the Government of Kazakhstan. The Zarechnoye Main SUC covers a 38.0 km² irregular shaped parcel of land.

LAND TENURE

The Zarechnoye Main SUC grants to Zarechnoye the exclusive right to explore for uranium and carry out production mining at the Mine. On September 23, 2002, the Ministry of Energy and Mineral Resources of the Republic of Kazakhstan (MEMR) granted to Kazatomprom a SUC for the exploration and mining of uranium at the Zarechnoye Main deposit. The MEMR was dissolved in March 2010 and its responsibilities with respect to all matters relating to power generation, mining, and the nuclear industry were transferred to a new body, the Ministry of Industry and New Technologies (MINT). All references to the MEMR in this report include the MINT for all matters from and after March 2010.

On May 19, 2003, Kazatomprom transferred to JSC Zarechnoye its rights and obligations under the Zarechnoye Main SUC. Amendments were later made with respect to exploration and production requirements and deadlines. On July 30, 2008, it was amended to have an 18 year production period ending on September 23, 2024, and a modified production schedule.

Uranium One reports that Zarechnoye has all required permits to conduct the proposed work on the property.

RPA is not aware of any environmental liabilities on the property nor is RPA aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program at the Mine.

EXISTING INFRASTRUCTURE

Current infrastructure includes wellfields, pumping systems, offices, and a staff compound (accommodation, kitchen, social areas, stores, etc.). Local infrastructure is also available at nearby towns and villages.

HISTORY

Exploration began in the southern part of the Syrdarya Basin in the 1960s using a model established in neighbouring Uzbekistan. The model was based on the spatial relationship between uranium mineralization and the boundary between yellow oxidized sands and grey reduced sands. This work has subsequently been used to define the roll front type uranium deposition model currently in use worldwide.

In the 1980s, Volkovgeologia carried out reconnaissance drilling and discovered uranium mineralization at the Zarechnoye deposit. From 1984 to 1990, Volkovgeologia completed approximately 368,725 m of rotary and diamond drilling in 627 holes at the property. Based on drilling results, Volkovgeologia prepared a historical mineral resource estimate using the CIS classification system.

Pilot production at the Mine began in 2009 and production to June 2013 was 3,724 t of uranium.

Exploration at Zarechnoye South was carried out between 1989 and 2010 by Volkovgeologia, and further drilling was planned between 2010 and 2013. A mineral resource estimate was prepared and reported in a previous Technical Report by RPA, dated May 2, 2012, as current Mineral Resources at that time. Subsequently, based upon poor exploration results, Uranium One has written off the Zarechnoye South deposit and has surrendered the Zarechnoye South SUC to the Government of Kazakhstan.

GEOLOGY AND MINERALIZATION

The Zarechnoye deposit belongs to the group of Karaktauskovo uranium deposits within the Syrdarya Uranium Province, within the Syrdarya Basin, a major regional structure and one of the elements of the Karatau Artesian Basin.

Uranium mineralization occurs in Upper Cretaceous sedimentary rocks (continental platform sediments), which extend northward from the foothills of the Tien Shan Mountains for over 1,000 km and have average dips ranging from 2° to 5° to west-southwest. Uranium mineralization occurs close to the surface at the eastern margin of the basin, and at depths ranging from 250 m to more than 750 m near the centre of the basin.

Mineralization is hosted in Cretaceous and Paleogene sedimentary rocks composed of lacustrine-alluvial fine-grained sands to gravels, and 10% to 20% clays as narrow beds which have been subdivided into four horizons – Upper Santonian, Lower Campanian, Upper Campanian, and Maastrichtian. These units are 20 km to 25 km long, 50 m to 500 m wide, 0.5 m to 20 m thick with mineralized bands ranging in thickness from two metres to six metres.

Uranium mineralization at the Mine occurs in at least nine mineralized horizons, all of which are genetically, spatially, and morphologically related to a single source.

The Upper and Lower Campanian horizons host more than 61% of the uranium mineralization at the Mine. These zones comprise thick water-permeable, poorly consolidated sedimentary rocks and relatively low reducing layers with characteristic high filtration properties.

EXPLORATION STATUS

Exploration at the Mine consists of, primarily, geological mapping and drilling. RPA understands that indirect exploration techniques, such as surface geochemical sampling, radiometric prospecting, and airborne or ground geophysical surveys have not been carried out on the Zarechnoye area properties.

The majority of the drilling in the vicinity of the Zarechnoye Main deposit was planned and supervised by Volkovgeologia between 1989 and 1990. A total of 627 rotary and diamond drill holes were completed totalling 368,725 m in aggregate depth. The Zarechnoye Main property has been drilled with holes spaced 50 m to 100 m apart, along lines spaced 400 m apart. The central part of the deposit has been drilled with closer hole spacing (50 m) along lines 100 m apart.

At Zarechnoye South, a total of 547 exploration holes for more than 300,000 m length were planned between 2010 and 2013. Approximately 50% of those planned holes, 275 in total, were designed to intersect mineralization greater than 30 m thick. Other drilling was to include 24 hydrogeological holes, 138 test wells, 40 extraction wells, 92 injection wells, and six monitoring wells. A previous Technical Report by RPA, dated May 2, 2012, reported Mineral Resources for Zarechnoye South. Subsequently, based upon poor definition drilling results, Uranium One has written off the Zarechnoye South deposit and has surrendered the Zarechnoye South SUC to the Government of Kazakhstan.

MINERAL RESOURCES

Mineral resources for the Zarechnoye Main mine were estimated by Volkovgeologia in 2002 and again in 2010 using the CIS methodology and were reported as per the CIS resource classification system. RPA reviewed the drill density, geological information, and the

parameters and methodology of the Volkovgeologia estimate. In its 2010 Technical Report, RPA conducted a check of mineral resources in a selected part of the Zarechnoye Main mine by using the Contour Method to verify the mineral resources in the central part of the Zarechnoye Main mine. Uranium One subsequently conducted closely spaced production drilling (technological wells) in certain areas and re-estimated and re-classified the Zarechnoye Mineral Resources.

RPA further reviewed the work in 2012, expressed an opinion on its adequacy, and converted the latest CIS mineral resource estimates to equivalent categories as per the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) system. The undiluted Mineral Resources, effective to December 2011, were based on the 2010 data supplied by Volkovgeologia but also took into consideration the results of 2011 technological well drilling and production to September 30, 2011 from the operating wellfields.

For this report, the December 31, 2011 Mineral Resource estimates for the Zarechnoye Main mine have been depleted for production to December 31, 2013. Table 1-1 summarizes the current Mineral Resource estimate for Zarechnoye Main.

**TABLE 1-1 MINERAL RESOURCES AT ZARECHNOYE MAIN –
DECEMBER 31, 2013
Uranium One Inc. - Zarechnoye Uranium Mine**

Resource Category	Tonnage (Mt)	Grade (%U)	Contained U (t U)	Grade (%U₃O₈)	Contained U₃O₈ (Mlb U₃O₈)
Measured	16.8	0.007	1,148	0.008	2.94
Indicated	11.8	0.052	6,068	0.061	15.53
Measured & Indicated	28.5	0.025	7,216	0.030	18.47
Inferred	9.4	0.048	4,500	0.056	11.7

Notes:

1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources of the Zarechnoye Main mine are based on 0.08 m% (grade x thickness) per resource block cut-off and 0.01% U delineation cut-off.
3. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
4. Maximum thickness of barren material between mineralized layers included in a resource block is 5 m.
5. Minimum average grade of a block is 0.10% eU.
6. Numbers in columns and rows may not add correctly due to rounding.
7. Measured Mineral Resources are based on results of production drilling done in 2010 and 2011.

The Zarechnoye South Mineral Resources, included in the December 31, 2011 estimate, are no longer reported, because Uranium One has surrendered the Zarechnoye South SUC to the Government of Kazakhstan.

MINERAL RESERVES

Mineral Reserve estimates were based upon the ore under leach (technological blocks) being characterized as Proven Mineral Reserves and conversion of the remaining Measured and Indicated Mineral Resources to Probable Mineral Reserves. The Mineral Reserves are for the 100% interest in the Mine and do not reflect the reserves attributable to the individual joint venture partners.

The low grades in Table 1-2, especially of the Proven Mineral Reserves, reflect the deduction of uranium extracted to date.

TABLE 1-2 MINERAL RESERVE ESTIMATE – DECEMBER 31, 2013
Uranium One Inc. – Zarechnoye Uranium Mine

Category	Tonnes (Mt)	Grade (%U)	Recoverable U (tonnes)	Grade (%U ₃ O ₈)	Recoverable U ₃ O ₈ (M lb)
Proven	33.6	0.003	917	0.003	2.38
Probable	15.3	0.021	3,152	0.024	8.20
Proven & Probable	48.9	0.008	4,069	0.010	10.58

Notes:

1. CIM definitions were followed for Mineral Reserves.
2. Mineral Reserves are estimated at a cut-off grade of 0.01% U.
3. Mineral Reserves are estimated using an average long-term uranium price of US\$65 per pound U₃O₈.
4. A minimum mining thickness of four metres was used.
5. Bulk density is 1.64 t/m³ for Proven Mineral Reserves and 1.60 t/m³ for Probable Mineral Reserves.
6. Numbers in columns and rows may not add due to rounding.
7. Uranium quantities and grade are net of extraction.

Measured and Indicated Mineral Resources not under leach were converted to Probable Mineral Reserves including a 100% dilution at zero grade. Based upon a reconciliation between the mineral resources and the technological blocks, the factor for the conversion of contained uranium from Mineral Resources to Mineral Reserves was estimated to be 65%. The extraction of the uranium from the Mineral Reserves was estimated to be 80%.

MINING METHOD

The Zarechnoye Mineral Reserves are located in permeable sandstones approximately 550 m below surface. In light of the depth of the deposit, the sand host rock, and the low grades,

RPA is of the opinion that ISR mining is the appropriate method for the extraction of uranium from the deposit.

The uranium ISR operation uses a sulphuric acid leach. Sulphuric acid leaching solution is pumped into the mineralized zone through a network of injection wells (boreholes) and the resulting uranium bearing solution is extracted by production wells. The wells are an average of 550 m deep and are generally placed in a hexagonal pattern with a 40 m radius or in line patterns with wells 25 m to 40 m apart on lines that are 25 m to 50 m apart.

From the start of leaching in 2009 to December 31, 2013, the operation has extracted 4,145 t U for subsequent shipment as U_3O_8 in the form of yellowcake.

MINERAL PROCESSING

Pregnant (uranium-bearing) solutions pumped from the wellfield are processed into a yellowcake (U_3O_8) product at the processing plant located at the Mine. The processing plant is a conventional leach recovery plant using ion-exchange technology to recover uranium from the pregnant solution. The precipitate is filtered to produce a “yellowcake” product containing 20% to 25% moisture and 45% to 50% uranium. This product is then shipped off site for further processing.

The processing plant has been operating at a rate of approximately 2,900 m³/h through 2013 and the plant has a nominal production capacity of 1,000 t U per year. The 2013 average solution grade to the plant was 36.5 mg/L U.

PROJECT INFRASTRUCTURE

The Mine has a number of support facilities including:

- 500 kW back-up generator
- Connection to the grid
- Hot water heaters for plant heat supply
- Compressed air supply for airlifts
- Shops and supplies storage area
- Acid storage tanks
- Offices, change rooms, and dining room
- Fenced plant area with security at the gate
- Employee housing with a central hot water heating plant for heating needs

The staff accommodation consists of 21 multi-room houses with sufficient capacity for the crews, which work on a rotating basis.

Electrical power is supplied from the national power grid and emergency back-up is able to provide power for critical plant operations in the event of a failure of the grid power supply.

The site is accessed by a combination of hard surface roads and highways. The nearest rail access is at Timor approximately 90 km from the Mine. At Timor, Zarechnoye owns and operates a freight terminal for the movement of supplies and materials to the site and for the transportation of uranium from the site.

ENVIRONMENTAL, PERMITTING, AND SOCIAL CONSIDERATIONS

During the site visit, RPA noted that the Mine was well kept, clean, and with good housekeeping practices. Conventional health and safety programs exist with respect to acid management (a key health, safety, and environment program element) as well as other conventional health and safety elements.

Current Kazakhstan regulations regarding development are being followed. In view of the depth of the zones being mined and the relative isolation of the aquifer, there is no aquifer remediation planned as part of the closure. The environmental risk is currently perceived by RPA to be low.

The Mine is operating and management indicates that it has obtained the necessary permits for exploration and production operations currently being conducted.

Under the SUC, Zarechnoye is required to contribute to a reclamation fund each year. As of December 31, 2013, the Uranium One portion of the asset retirement obligations (on an undiscounted basis) has been estimated at US\$1.8 million for the successful decommissioning, reclamation, and long term care of the surface and wellfield facilities. The total asset retirement obligation is estimated to be US\$3.6 million.

CAPITAL AND OPERATING COST ESTIMATES

The capital expenditures are estimated to be \$122 million over the life of mine and are summarized in Table 1-3. The capital is based upon the estimates and budgets prepared by management.

TABLE 1-3 CAPITAL EXPENDITURE ESTIMATE
Uranium One Inc. – Zarechnoye Uranium Mine

		2014	2015	2016	2017	2018	Total
Wellfield Development	US\$ (M)	32.06	30.08	36.71	9.00		107.85
New Construction	US\$ (M)	0.30	0.13	-		-	0.43
Expansion/Upgrade	US\$ (M)	0.30	0.13	-		-	0.43
Sustaining Capital	US\$ (M)	3.58	3.67	4.43			11.68
Social	US\$ (M)	0.11	0.11	0.36	0.36	0.36	1.30
Total Capital Costs	US\$ (M)	36.35	34.13	41.50	9.36	0.36	121.69

The estimated operating costs are summarized in Table 1-4.

TABLE 1-4 LOM OPERATING COST ESTIMATES
Uranium One Inc. – Zarechnoye Uranium Mine

		2014	2015	2016	2017	2018	Total
Mining	US\$ (M)	26.17	26.21	26.15	18.30	10.98	107.81
Processing	US\$ (M)	4.65	4.71	4.65	3.26	1.95	19.23
Auxiliary	US\$ (M)	6.01	5.96	5.97	4.18	2.51	24.62
Administration	US\$ (M)	0.85	0.85	0.85	0.60	0.36	3.51
Contract Processing	US\$ (M)	7.10	7.12	7.11	4.98	2.99	29.31
Almaty Office	US\$ (M)	3.36	3.35	3.31	2.32	1.39	13.72
Selling Expenses	US\$ (M)	0.76	0.76	0.83	0.83	0.77	3.95
Subtotal	US\$ (M)	48.91	48.96	48.87	34.46	20.95	202.15
Social Cost	US\$ (M)	0.40	0.40	0.40	0.40	0.40	2.00
Training	US\$ (M)	0.62	0.60	0.66	0.30	0.12	2.30
Reclamation	US\$ (M)	0.62	0.60	0.66	0.30	0.12	2.30
Subtotal Other Costs	US\$ (M)	1.63	1.59	1.73	0.99	0.65	6.59
Total Operating Costs	US\$ (M)	50.54	50.56	50.60	35.45	21.60	208.75
MET		16.28	15.76	17.49	7.84	3.28	60.65
Total Operating Costs	US\$ (M)	66.82	66.32	68.09	43.29	24.88	269.39
Cost per lb U Produced	US\$	31.21	30.98	31.81	28.05	28.35	30.03
Cost per kg U Produced	US\$	68.82	68.30	70.13	61.84	62.51	66.21
Cost per lb U₃O₈ Produced	US\$	26.45	26.26	26.96	23.77	24.03	25.45

2 INTRODUCTION

Roscoe Postle Associates Inc. (RPA) was retained by Uranium One Inc. (Uranium One) to prepare an independent Technical Report on the Zarechnoye Uranium Mine (the Mine) in south-central Kazakhstan. The Mine comprises the Zarechnoye Main mine (Zarechnoye Main) and the now inactive Zarechnoye South project (Zarechnoye South). The purpose of this report is to update the Mineral Resource and Mineral Reserve estimates at Zarechnoye Main and to support the public disclosure of information related to the Mine. This Technical Report conforms to National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101).

Uranium One is a privately held Canadian based uranium producing company whose shares previously had a principal listing on the Toronto Stock Exchange (TSX:UUU) and a secondary listing on the Johannesburg Stock Exchange (JSE:UUU). Uranium One's shares were delisted from both exchanges following its going private transaction, which was completed on October 18, 2013. The company has producing operations and/or advanced development projects in Kazakhstan, USA, Australia, and Tanzania.

The Mine is 100% owned by JSC Zarechnoye (Zarechnoye), a joint venture among Uranium One (49.67%), JSC National Atomic Company Kazatomprom (Kazatomprom) (49.67%), and OJSC Karabaltinsky Mining Complex (Karabaltinsky, 0.66%), with Kazatomprom as the operator. Uranium One acquired its indirect 49.67% interest in the project from JSC Atomredmetzoloto (ARMZ), a Russian state owned uranium mining company, as of December 27, 2010.

The Mine is an in situ recovery (ISR) uranium project under two Subsoil Use Contracts (SUCs), with production at Zarechnoye Main and past exploration at Zarechnoye South. The non-contiguous Zarechnoye South property is adjacent to, and south of, the Zarechnoye Main mine. Uranium One reports that it has returned the Zarechnoye South SUC to the Government of Kazakhstan because exploration work conducted at the project did not yield sufficient results to warrant development or further exploration of this deposit.

The Mine consists of:

- An ISR operation producing uranium yellowcake from production wells pumping uranium bearing leach solutions from wellfields;
- A processing plant with a design capacity to produce nominally 1,000 tpa uranium; and
- Infrastructure including office buildings, warehouse, and residences for mine and process plant personnel;

all of which are located at Zarechnoye Main.

Uranium mining and processing at the Mine is carried out by Kazatomprom, and exploration work, mostly drilling, is done by Volkov Geological and Mining Company (Volkovgeologia), the exploration affiliate of Kazatomprom.

For this report, Messrs. Wayne V. Valliant, P. Geo., RPA Principal Geologist, and R. Dennis Bergen, P. Eng., RPA Associate Principal Mining Engineer, carried out the following tasks:

- A site visit to the Mine on October 20, 2011. Mr. Bergen also visited the site on September 16-17, 2013.
- Review of the historic diamond drilling database by Volkovgeologia, including drill sections.
- Review of geological interpretation and Mineral Resource estimation of mineralized zones of the Mine.
- Estimation of the Mineral Reserves.
- Preparation of an economic analysis of the Mine as part of the estimation of the Mineral Reserves.

Independent sampling of holes was not possible, because drill core from earlier drilling is not available, and the project is a current producer.

SOURCES OF INFORMATION

While at the site, RPA held discussions with several persons, as follows:

- Thys Heyns, Pr.Sci.Nat., Senior Vice-President, New Business and Technical Services, Uranium One.
- Igor Khabibov, Mine Manager, Zarechnoye Uranium Mine.
- Sergei Sedushev, Chief Geologist, Zarechnoye Uranium Mine.

- Aleksander Avdeev, Chief Engineer and First Deputy General Director, Zarechnoye Uranium Mine.
- Farhad Mambetov, Wellfield Manager, Zarechnoye Uranium Mine.
- Andrei Vilyaev, Assistant Manager, Uranium One, Almaty Office.

Mr. Valliant prepared Sections 6 through 12, and 14 and shares responsibility with Mr. Bergen for Sections 1 through 5, 25, 26, and 27 of the report. Mr. Bergen prepared Sections 13, 15 through 24, and with Mr. Valliant shares responsibility for Sections 1 through 5, 25, 26, and 27.

The documentation reviewed and other sources of information are listed at the end of this report in Section 27, References.

LIST OF ABBREVIATIONS

Units of measurement used in this report conform to the SI (metric) system. All currency in this report is US dollars (US\$) unless otherwise noted.

a	annum	kWh	kilowatt-hour
A	ampere	L	litre
bbl	barrels	lb	pound
btu	British thermal units	L/s	litres per second
°C	degree Celsius	m	metre
C\$	Canadian dollars	M	mega (million); molar
cal	calorie	m ²	square metre
cfm	cubic feet per minute	m ³	cubic metre
cm	centimetre	μ	micron
cm ²	square centimetre	MASL	metres above sea level
d	day	μg	microgram
dia	diameter	m ³ /h	cubic metres per hour
dmt	dry metric tonne	mi	mile
dwt	dead-weight ton	min	minute
eU	equivalent uranium	μm	micrometre
°F	degree Fahrenheit	mm	millimetre
ft	foot	MPa	megapascal
ft ²	square foot	mph	miles per hour
ft ³	cubic foot	MVA	megavolt-amperes
ft/s	foot per second	MW	megawatt
g	gram	MWh	megawatt-hour
G	giga (billion)	oz	Troy ounce (31.1035g)
Gal	Imperial gallon	oz/st, opt	ounce per short ton
g/L	gram per litre	ppb	part per billion
Gpm	Imperial gallons per minute	ppm	part per million
g/t	gram per tonne	psia	pound per square inch absolute
gr/ft ³	grain per cubic foot	psig	pound per square inch gauge
gr/m ³	grain per cubic metre	RL	relative elevation
ha	hectare	s	second
hp	horsepower	st	short ton
hr	hour	stpa	short ton per year
Hz	hertz	stpd	short ton per day
in.	inch	t	metric tonne
in ²	square inch	tpa	metric tonne per year
J	joule	tpd	metric tonne per day
k	kilo (thousand)	US\$	United States dollar
kcal	kilocalorie	USg	United States gallon
kg	kilogram	USgpm	US gallon per minute
km	kilometre	V	volt
km ²	square kilometre	W	watt
km/h	kilometre per hour	wmt	wet metric tonne
kPa	kilopascal	wt%	weight percent
kVA	kilovolt-amperes	yd ³	cubic yard
kW	kilowatt	yr	year

Contained uranium is expressed as pounds of U₃O₈ or tonnes of uranium (U) and grades are expressed as % U or % U₃O₈. To convert % U to % U₃O₈, % U is multiplied by a factor of

1.179, and to convert tonnes of U to pounds of U_3O_8 , multiply tonnes U by a factor of 2,599.78.

3 RELIANCE ON OTHER EXPERTS

This report has been prepared by RPA for Uranium One. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to RPA at the time of preparation of this report
- Assumptions, conditions, and qualifications as set forth in this report
- Data, reports, and other information supplied by Uranium One and other third party sources.

For the purpose of this report, RPA has relied on ownership information provided Uranium One. RPA has not researched property title or mineral rights for the Zarechnoye Mine and expresses no opinion as to the ownership status of the property.

RPA has relied on Uranium One for guidance on applicable taxes, royalties, and other government levies or interests, applicable to revenue or income from the Mine.

Except for the purposes legislated under provincial securities laws, any use of this report by any third party is at that party's sole risk.

4 PROPERTY DESCRIPTION AND LOCATION

The Mine is located in the southern part of the Syrdarya Basin in the Otrar District of the Shymkent Region of the South Kazakhstan Oblast, approximately 200 km west of Shymkent, and 450 km southeast of Kyzylorda, Kazakhstan, on the left bank of the Syrdarya River (Figure 4-1).

Uranium One acquired its indirect 49.67% interest in the Mine on December 27, 2010.

The Mine consists of two sites, the Zarechnoye Main mine, which is in production (mining), and the now inactive exploration stage Zarechnoye South project. The central part of the Zarechnoye South project is approximately 6.5 km south of Zarechnoye Main, but at their closest point, the SUC areas are separated by a 400 m wide gap. The outlines of the SUC areas are illustrated in Figure 4-2.



Figure 4-1

Legend:

- International Boundary
- ★ National Capital
- Oblast Capital
- Major City
- Railroad
- Road

0 200 400 Kilometres
0 200 400 Miles

Uranium One Inc.

Zarechnoye Uranium Mine
Kazakhstan
Location Map

June 2014

LAND TENURE

SUBSOIL USE CONTRACTS

The SUCs give Zarechnoye the exclusive right to explore for uranium at, and carry out production mining of uranium from, the Mine for the periods indicated, and to own the uranium so produced. Under the SUC, Zarechnoye is required to comply with a detailed exploration and production work program on an annual basis.

The term of an SUC may be extended by the mutual agreement of the parties, and upon such renewal, the terms and conditions of the agreement may be changed by written agreement between the parties. An SUC may not be assigned, nor may the subsoil use rights be pledged or otherwise encumbered without the prior consent of the Government of Kazakhstan. An SUC may be unilaterally terminated by the Ministry of Energy and Mineral Resources of the Republic of Kazakhstan (MEMR) if Zarechnoye defaults on any terms of the contract more than twice and fails to cure such defaults within the period set by the MEMR.

The MEMR was dissolved in March 2010 and its responsibilities with respect to all matters relating to power generation, mining, and the nuclear industry were transferred to a new body, the Ministry of Industry and New Technologies (MINT). All references to the MEMR in this report include the MINT for all matters from and after March 2010.

In addition, an SUC can be terminated for such things as a breach by the subsoil user of the Government's pre-emptive right or the failure of the subsoil user to obtain consent from the MINT for the disposal of subsoil use rights and associated rights. An SUC may also be amended and/or terminated unilaterally by the MINT if any actions of the subsoil user may result in a material negative impact on Kazakhstan's economic interests and/or potentially constitute a threat to national security.

The Government of Kazakhstan possesses certain statutory pre-emptive rights (i) to purchase and requisition uranium from subsoil users, including Zarechnoye, at prices not exceeding world market prices, (ii) to purchase subsoil use rights or equity interests in entities holding such rights if the same are put up for sale, and (iii) to terminate, in certain circumstances, the SUC.

The SUCs provide that, to the extent that there are any disputes that cannot be resolved through negotiations between Zarechnoye and the State, such disputes are to be submitted to the courts of Kazakhstan rather than to an independent international arbitration body.

ZARECHNOYE MAIN

On September 23, 2002, the MEMR granted to Kazatomprom a SUC (the Zarechnoye Main Contract) for the exploration and mining of uranium on the Zarechnoye Main deposit. On May 19, 2003, Kazatomprom transferred to Zarechnoye its rights and obligations under the Zarechnoye Main Contract. This contract was further amended on March 1, 2006, July 30, 2008, June 15, 2009 and March 1, 2012 to change the exploration and production requirements and deadlines. The Zarechnoye Main Contract was originally issued for 26 years including one year for exploration and 25 years for production upon fulfillment of the exploration. On July 30, 2008, however, it was amended to have an 18 year production period ending on September 23, 2024, and a modified production schedule.

The Zarechnoye Main SUC covers a 38.0 km² irregular shaped parcel of land. The geographic coordinates of the property are shown in Table 4-1.

TABLE 4-1 GEOGRAPHIC COORDINATES – ZARECHNOYE MAIN
Uranium One Inc. – Zarechnoye Uranium Mine

Point	Latitude	Longitude
1	42° 34' 33"	67° 31' 58"
2	42° 34' 51"	67° 32' 49"
3	42° 34' 14"	67° 34' 42"
4	42° 32' 46"	67° 36' 30"
5	42° 33' 12"	67° 37' 00"
6	42° 32' 02"	67° 37' 58"
7	42° 29' 32"	67° 35' 58"
8	42° 29' 20"	67° 33' 40"
9	42° 29' 50"	67° 32' 23"
10	42° 30' 41"	67° 35' 07"
11	42° 31' 47"	67° 34' 18"
12	42° 33' 20"	67° 34' 43"
13	42° 31' 59"	67° 33' 18"
14	42° 33' 25"	67° 33' 33"

Source: Zarechnoye Main SUC.

The Zarechnoye Main Contract includes provisions related to ownership of property and data, general rights and obligations, the work program, reporting and taxes, and duties to be paid. Some of the key terms of the Zarechnoye Main Contract are:

- All tangible and intangible assets acquired by the Contractor (i.e., Zarechnoye) for the mining of uranium at the Contract area remain the property of the Contractor.
- All assets as well as the mineral stock are the property of the Contractor and can be pledged for financing.
- Mineral resources produced by the Contractor belong to the Contractor.
- All geological and other subsurface data is to be given to the State for safe keeping and compilation.
- Upon termination of the agreement, the ownership of all geological data is passed to the State.

The Contractor is obliged to:

- Carry out work in accordance with the Zarechnoye Main Contract and legislation.
- Procure and use on a preferential basis Kazakh companies, organizations, and employees.
- Annually invest 0.1% of operating costs for occupational development of Kazakh personnel.
- Annually pay at least US\$50,000 for the social needs of the region.
- Make a further payment of approximately US\$3.28 million in the aggregate to the Government of Kazakhstan in reimbursement for the use of historical geological information. Approximately 1.5% of this amount was paid upon the signing of the agreement, with the payment of the balance to be determined upon the granting of an industrial production licence.
- Provide information on work programs to the Government of Kazakhstan.

Zarechnoye conducted pilot production at Zarechnoye Main and submitted an application to proceed to the commercial production stage. The management of the Mine is of the opinion that it holds all of the necessary permits for such operation.

The design capacity of the Mine is 2,000 tpa of uranium but the current installed capacity is 1,000 tpa uranium to match the Mine's permitted design capacity as specified by the

Zarechnoye Main SUC. Production from the Mine in 2012 was 942 t of uranium (Uranium One, 2013). There may be consequences and actions by MINT related to this shortfall and Zarechnoye must be prepared to respond to comments from MINT in a timely manner.

ZARECHNOYE SOUTH

On November 20, 2007, the MEMR (now MINT) granted to Kazatomprom an SUC for the exploration and mining of uranium on the Zarechnoye South property (Zarechnoye South Contract). On January 18, 2008, Kazatomprom transferred to Zarechnoye its rights and obligations under the Zarechnoye South Contract. This contract was further amended on February 27, 2009 and March 2, 2011, to change the exploration and production requirements. The Zarechnoye South Contract was issued for 31 years including six years for exploration and 25 years for production upon fulfillment of the exploration work requirements.

The Zarechnoye South project is located within a 103.6 km² parcel of land. The geographic coordinates of the property are shown in Table 4-2, and the outlines of the property are shown in Figure 4-2.

TABLE 4-2 GEOGRAPHIC COORDINATES – ZARECHNOYE SOUTH
Uranium One Inc. – Zarechnoye Uranium Mine

Point	Latitude	Longitude
1	42° 28' 44"	67° 29' 31"
2	42° 29' 25"	67° 32' 47"
3	42° 24' 27"	67° 36' 55"
4	42° 22' 20"	67° 36' 57"
5	42° 22' 15"	67° 29' 41"

Source: Zarechnoye South Contract, January 18, 2008.

In 2012, Uranium One determined that it would not be economical to mine the Zarechnoye South deposit due to the decrease in uranium prices, as well as a decrease in the Zarechnoye South resource base following recent exploration. As a result, Uranium One has returned the Zarechnoye South SUC to the Government of Kazakhstan

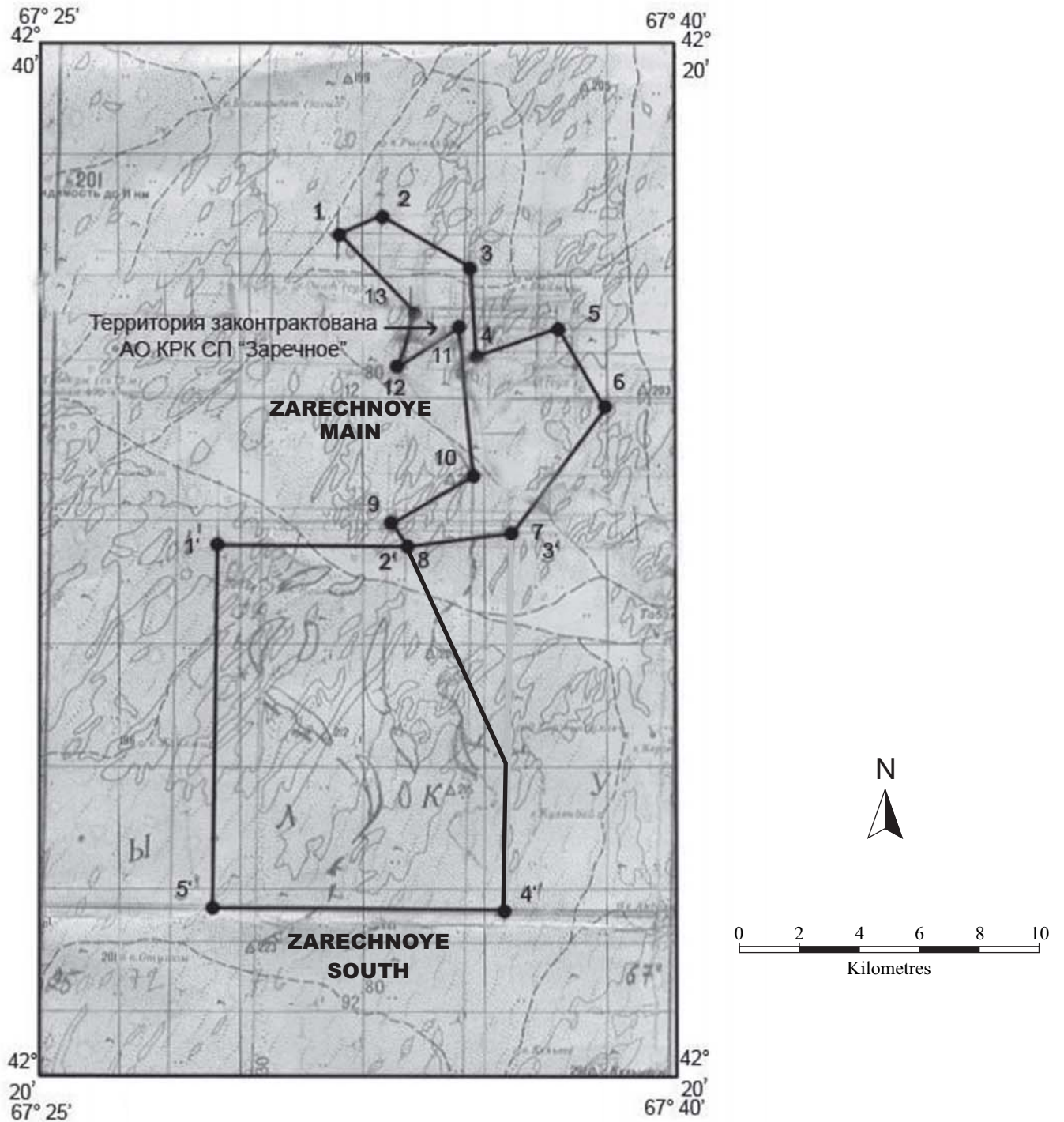


Figure 4-2

Uranium One Inc.

Zarechnoye Uranium Mine
Kazakhstan

Property Map

PERMITS

In addition to the Zarechnoye Main SUC, Zarechnoye operates the Mine pursuant to the following permits and licences:

- Mining claim #16-09-3/722 dated June 27, 2005, issued by the Kazgeoinform Data Centre of the MEMR.
- Land use permit #2013396 dated February 22, 2006, issued by the Otrar District Land Management Agency (South Kazakhstan Oblast, Republic of Kazakhstan).
- Special water use permits #0713, #0714 and #0715 dated March 18, 2005, issued by the South Kazakhstan Department for Conservation and Use of Mineral Resources of the Republic of Kazakhstan.

In 2004, the Yuzhkaznedra Mining Regulatory Agency approved the mining section of the detailed design documentation package for the Zarechnoye Mine developed for Zarechnoye by the Institute for High Technologies (Almaty) and Design Development Organization LLC (Stepnogorsk).

The following operating licences were received in 2006 and 2007:

- State licence GLA #0001409 dated January 19, 2007, for installation, construction, commissioning, operation, closure and decommissioning of nuclear facilities, issued by the Nuclear Energy Committee of the MEMR.
- State licence #001579, dated July 13, 2007, issued by the MEMR, for operation of power grids and substations.

Uranium One reports that Zarechnoye has all required permits to conduct the proposed work on the property.

ENVIRONMENTAL CONSIDERATIONS

Uranium One reports that environmental risk is currently perceived to be low. Due to the depths of the zones being mined and the relative isolation of the aquifers, no aquifer remediation is planned as part of closure. Surface disturbances will be reclaimed and process facilities removed.

Under the SUCs governing the Mine, Uranium One through its subsidiaries, is required to contribute to the decommissioning, reclamation, and long-term care of the surface and wellfield facilities based on its percentage of ownership. On a discounted basis, Uranium

One's asset retirement obligations are estimated to be approximately US\$1.8 million (Uranium One, 2014).

RPA is not aware of any environmental liabilities on the property nor is RPA aware of any other significant factors and risks that may affect access, title, or the right or ability to perform the proposed work program at the Mine.

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

ACCESS

Access to the Mine is by road. The closest airport with scheduled service is at Shymkent, approximately 200 km by road from the site. Shymkent is approximately 800 km from Almaty (the capital of South Kazakhstan). Access to the Mine is by a series of paved and partly paved secondary roads from Shymkent via the town of Tabakbulak.

CLIMATE

The climate in South Kazakhstan is continental and semi-arid, with a marked difference in seasonal temperature. The mean temperature during the winter months (December to March) in Almaty and the southern part of the country ranges from -35°C to -5°C. The mean temperature during the summer months (June to September) is 25°C and ranges from 20°C to 45°C. The average annual precipitation in Shymkent is 520 mm, most of it in the form of snow from October to March. At the Mine, the average annual precipitation does not exceed 200 mm. During the winter months, the depth of frozen ground ranges from 50 cm to 60 cm. Winds and dust storms are frequent, with wind speed of 30 m/s and higher.

Exploration and surface work on the properties can be carried out throughout the year. The climate does not unduly affect production, although during extreme cold, if the solutions are not continually pumped, there is the potential to freeze solution in the pipes and a loss of production may occur until the solution can be thawed.

INFRASTRUCTURE AND LOCAL RESOURCES

Current infrastructure includes wellfields, pumping systems, offices, and a staff compound (accommodation, kitchen, social areas, stores, etc.). Local infrastructure is also available at nearby towns and villages.

The accommodation facilities are relatively new and consist of 21 houses with multiple bedrooms for sleeping quarters. The houses are modern and appear to be in good condition. The housing area is approximately 500 m from the mine offices and plant site.

The plant site is fenced and gated with a manned security gate at the entrance. Within the fenced yard are all of the plant and service facilities, as well as the dry and offices. The kitchen and dining room are located in the main office complex. The crew includes men and women, most of whom work a 15-day rotation.

There are no large communities near the site and there are no other large industrial complexes in the area. Paved and gravel roads service the Mine area. The majority of supplies are transported to site via road by trucks from the rail head at the Timur railway station, which is approximately 90 km from the site.

Electric power is supplied by power lines, which are part of the South Kazakhstan power grid. Additional power is also available by on-site diesel generators. Some labour is available in the Mine area, but the majority of the workforce is brought in from larger centres.

Water, both industrial and potable, is drawn from wells. Water salinity is reported to range from 0.5 g/L to 3 g/L. The equipment for diamond drilling is owned and provided by Rusburmash-Kazakhstan LLP (Rusburmash), a joint venture between Russia and Kazakhstan based in Almaty.

PHYSIOGRAPHY

The area of the Mine is a peneplane with a shallow slope to the north. The area is approximately 200 MASL and is approximately 50% covered with sand areas and ridges. The sand ridges are five metres to ten metres high. There are no surface streams or water bodies on the site, but artesian flows from the Upper Senonian complex may be available as a source of water. Vegetation is limited to grass and the occasional low bushes.

The Mine is underlain by Cretaceous and younger rocks, and extensive overburden cover, which ranges from ten metres to 30 m thick. The overburden is unconsolidated and permeable. Occasional outcrops of Upper Eocene fossiliferous limestones occur near the Mine.

The land in the plains of southern Kazakhstan is used for agriculture by local villagers. However, since much of the land covered by the Mine is in high plateau terrains, the area is not suitable for agriculture.

The surface rights provided under the SUCs provide sufficient space for the planned exploration and production activities.

6 HISTORY

ZARECHNOYE MAIN

EXPLORATION HISTORY

Exploration began in the southern part of the Syrdarya Basin in the 1960s using a model established in neighbouring Uzbekistan. The model was based on the spatial relationship between uranium mineralization and the boundary between yellow oxidized sands and grey reduced sands. This work has subsequently been used to define the roll-front type uranium deposition model currently in use worldwide.

The work that was done on Zarechnoye is summarized in Table 6-1.

TABLE 6-1 SUMMARY OF HISTORICAL WORK AT ZARECHNOYE
Uranium One Inc. – Zarechnoye Uranium Mine

Period		Operator	Work	Results
From	To			
1974	1977	South Kazakhstan Hydrogeology Team	Exploration drilling in regional Upper Cretaceous rocks	Discovery of Jabakol occurrence
1977	1980	Volkovgeologia	Regional assessment and sampling	Improved understanding of mineralization and drill target generation
1984	1986	Volkovgeologia	Grid exploration drilling (368,725 m of rotary and diamond drilling in 627 holes)	Discovery of uranium mineralization at Zarechnoye
1988	1989	Volkovgeologia	Detailed exploration	Deposit definition and data gathering for later resource estimate

Source: Agnerian and Bergen, 2012

HISTORICAL MINERAL RESOURCE ESTIMATES

In 2002, Volkovgeologia prepared a mineral resource estimate using the Commonwealth of Independent States (CIS) classification system and reported prognosticated resources for the Zarechnoye area. RPA notes that the prognosticated resource category, which is used in the CIS, has no equivalent in the Canadian Institute of Mining, Metallurgy and Petroleum

(CIM) classification system, but is generally comparable to exploration data and is considered a conceptual or “order of magnitude” estimate for resources.

The resource estimate was updated in 2010 by Volkovgeologia using the CIS classification system. The results are shown in Table 6-2.

TABLE 6-2 MINERAL RESOURCES - VOLKOVGEOLOGIA 2010
Uranium One Inc. - Zarechnoye Uranium Mine

Category	Tonnage (Mt)	Grade (%U)	Contained Metal (t U)
B	0.6	0.06	384
C1	20.6	0.06	12,375
B+C1	21.2	0.06	12,759
C2	7.5	0.05	4,510

Source: Sedushev, 2011.

Notes:

1. Mineral resources based on 0.08 m% (grade x thickness) cut-off per hole and 0.10 m% per resource block.
2. Mineral resources that are not Mineral Reserves do not have demonstrated economic viability.
3. Mineral resources are based on the CIS system, which uses mineral resource classification categories other than the ones defined by the CIM. No qualified person has done sufficient work to classify the historical estimates as current Mineral Resources or Mineral Reserves under the CIM classifications, and neither RPA nor Uranium One is treating the historical estimates as current Mineral Resources or Mineral Reserves.
4. Numbers in columns may not add exactly due to rounding.

PAST PRODUCTION

Wellfields were established and a uranium recovery plant was constructed. Pilot production at the Mine began in 2009 and production to December 2013 was 4,145 t of uranium.

ZARECHNOYE SOUTH

Based on poor exploration results, Uranium One has written off the Zarechnoye South deposit and has returned the Zarechnoye South SUC to the Government of Kazakhstan. As a result, details related to the Zarechnoye South project are not provided here but can be found in Agnerian and Bergen, 2012.

7 GEOLOGICAL SETTING AND MINERALIZATION

REGIONAL GEOLOGY

The Zarechnoye deposit belongs to the group of Karaktauskovo uranium deposits within the Syrdarya Uranium Province, within the Syrdarya Basin, a major regional structure and one of the elements of the Karatau Artesian Basin (Figure 7-1). The eastern part of the basin is bounded by the Bairkum uplift and horst, the Karaktau Anticline. Uranium mineralization occurs in Upper Cretaceous sedimentary rocks (continental platform sediments), which extend northward from the foothills of the Tien Shan Mountains for over 1,000 km and have average dips ranging from 2° to 5° to west-southwest. Uranium mineralization occurs close to the surface at the eastern margin of the basin, and at depths ranging from 250 m to more than 750 m near the centre of the basin in the west as shown in Figure 7-2.

The Syrdarya Basin is underlain and flanked by folded sequence of early Proterozoic rocks, which are exposed at the southwest margins, where the Karaktau Mountains separate the Chu-Sarysu Basin from the parallel Syrdarya Basin. Platform sedimentary rocks are represented by continental sedimentary rocks up to 320 m thick and marine Paleogene sediments up to 200 m thick that are overlain by red-coloured sandy-clay Oligocene to Quaternary sediments (Figure 7-3). A number of faults, with offsets of a few tens of metres, are present in the general area of the Karaktau Anticline as well as the basin. This includes the northwest trending Karzhanbulak Fault within the area of the Zarechnoye property (Agnerian and Bergen, 2012).

The pre-Mesozoic rocks at the base of the stratigraphy are characterized by angular unconformity and have undergone hydrothermal alteration near faults (silicification, carbonatization, oxidation of iron minerals, etc.). Large felsic to mafic intrusive bodies and smaller mafic to ultramafic intrusive bodies, have been encountered at depth.

The Proterozoic to Lower Paleozoic geosynclinal formations comprise the basement rocks and are composed of dolomite limestones, dolomites, cherts, sandstones, conglomerates, thinly layered limestones, calcareous and chlorite shales, gravels, thinly layered coaly and clayey shales, argillites, and siltstones.

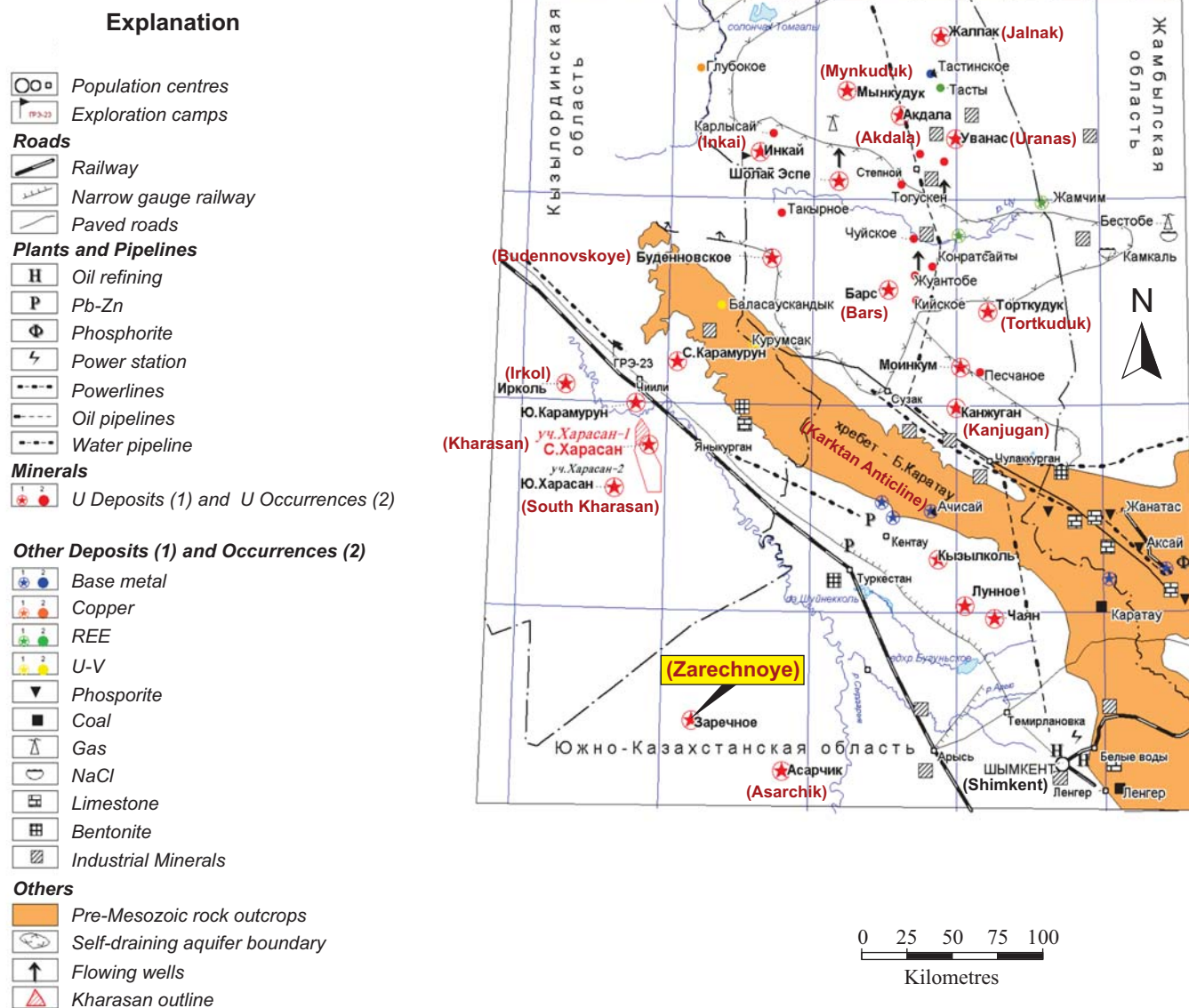


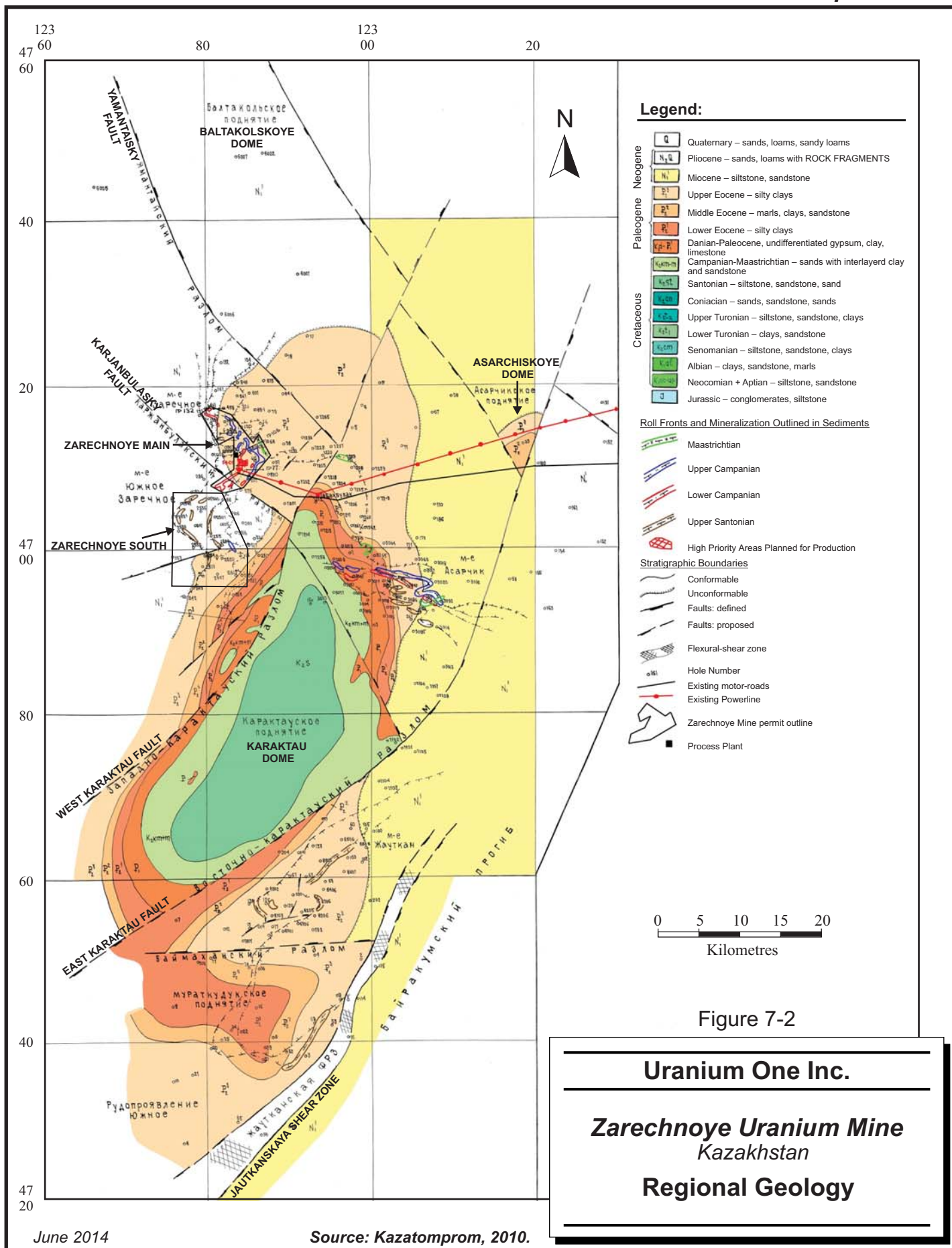
Figure 7-1

Uranium One Inc.

Zarechnoye Project Kazakhstan

Kazakhstan

Regional Geology of Southwest Kazakhstan



Major constituents of the area are lithified Mid- and Upper-Paleozoic formations which overlie the basement rocks and can form superimposed depressions in the lower stratigraphy. These lithified rocks consist of siltstones, sandstones, conglomerates, black limestones and dolomites, red-coloured sandstones, and argillites. Weakly lithified and unconsolidated Mesozoic-Cenozoic formations comprise the upper part of the stratigraphy.

Jurassic rocks overlie the Pre-Mesozoic basement rocks. They comprise clay, red, and grey sandstones, which may be up to 300 m thick, at depths of more than 750 m below the surface.

Upper Cretaceous rocks are located along the western flank of the Karatau Mountains at depths of 350 m to 750 m below surface. The Senonian, Turonian, Coniacian, Santonian, Campanian, and Maastrichtian formations comprise this package of rocks and consist of poorly consolidated lacustrine-alluvial sediments of Maastrichtian, Upper Campanian, and Upper Santonian age. Uranium mineralization is limited to the Campanian and Maastrichtian formations.

Overlying the Cretaceous rocks are Paleogene and Neogene rocks composed of poorly consolidated sands and conglomerates. These are, in turn, overlain by five metre to ten metre thick unconsolidated Quaternary sands and limestone.

LOCAL GEOLOGY

Since the Zarechnoye property covers a large area, much of the local geology is the same as described in the regional geology. The stratigraphic column of the Zarechnoye area is shown in Figure 7-3.

Jurassic	Cretaceous										Quaternary	System		Lithology	Thickness, m	Description										
	Lower					Upper						Neogene	Stratigraphic Unit													
													Stratigraphic Sub-unit				Index									
																		Paleogene								
Neocomian, Aptian	K _{1nc-op}	Albanian		~310	Brown and brownish-red siltstones interlayered with sandstone, clay lenses							Q ₁ III	N ₂ ¹		0-170	Pale yellow-brown carbonate-clay siltstone and sandstone										
																	Senomanian	K _{2cm}		~160	Clays, sandstone, siltstone interlayered with thin conglomerate					
																						Lower Turonian	K _{2t1}		~110	Grey sandstone interlayered with clay and siltstone
Coniacian	K _{2cn}		~80	Pinkish-red quartz sands interlayered with siltstone and sandstone																						
					Santonian	K _{2st}		120	Red-colored siltstone, sandstone, sands																	
Campanian	K _{2km-m}		90	Siltstone interlayered with sandstone and sand. Sands interlayered with clay, siltstone, sandstone																						
					Maastrichtian	K _{2m}		60	Sands interlayered with siltstone and clay sandstone																	
Paleocene	P ₂₃		50-330	Greenish-grey, montmorillonite clays																						
					Eocene	P ₂₂		50-80	Marls, clays, grey sandstone																	
										Middle	P ₂₁		0-20	Grey, blocky clay												
															Lower	P ₂₀		30-40	Saccharoidal gypsum, red- and grey-coloured clays							
Oligocene	K _{2o}		10-16	White limestone with thin clay and marl interlayers																						
					Miocene	N ₂ ¹		0-170	Pale yellow-brown carbonate-clay siltstone and sandstone																	
Pliocene	N ₂ ³ Q ₁		10-200	Pale yellow, feldspar-quartz sands interlayered with clay, siltstone, sandstone, gravel																						
					Quaternary	Q ₁ III		0-30	Sands, loams, sandy loams interlayered with clay																	

Figure 7-3

Zarechnoye Uranium Mine Kazakhstan

Zarechnoye Area Stratigraphic Column

PROPERTY GEOLOGY

Rocks underlying the Zarechnoye deposit are primarily sedimentary. Mineralization is hosted in Cretaceous and Paleogene sedimentary rocks composed of lacustrine-alluvial fine-grained sands to gravels, and 10% to 20% clays as narrow beds which have been subdivided into four horizons – Upper Santonian, Lower Campanian, Upper Campanian, and Maastrichtian.

These units are 20 km to 25 km long, 50 m to 500 m wide, 0.5 m to 20 m thick with mineralized bands ranging in thickness from two metres to six metres. In planar view, the mineralized units appear sinuous and often overlap each other. Deposition was controlled by the zone of formation oxidation (ZFO) boundary and often dependent upon the thickness and frequency of internal impermeable confining layers which complicated resulting stratigraphy. The upper limb of a roll is influenced and complicated by the step-wise “sliding” of the geochemical boundary and results in an extension of this upper limb. As a rule, this is observed where horizons have considerable thickness and several confining lenses are present. Deposit stratigraphy is characterized by multistage bodies and extended limbs which consist of a number of mineralized lenses. Mineralized lenses are frequently found between the extended limbs as well.

The Upper and Lower Campanian horizons comprise thick water-permeable, poorly consolidated sedimentary rocks and relatively low reducing layers with characteristic high filtration properties. These horizons host more than 60% of the uranium mineralization at the Mine.

STRUCTURAL GEOLOGY

The Mine is located within the Syrdarya Basin situated on the western flank of the northeast-southwest trending Karaktau Anticline, which is an active dome that is rising at the rate of one centimetre per year. The Syrdarya Basin covers an area of 20 km by 25 km, extending northwesterly along the western flank of the Karaktau Range.

The Karaktau Anticline bounds the Syrdarya Basin to the southwest and is, in places, oriented perpendicular to the strike of the basin structures. This dome structure impeded the transport of material and formation waters and contributed to the formation of the Cretaceous rocks in the region. It also acted as a structural control to mineralization.

The tectonic structures of the region are dominated by a number of north-south, east-west, and northeast trending faults. The largest northeast trending fault is the Karjanbulasky Fault, which cuts across the Karaktau Anticline, with an offset in the order of 50 m. Other regional faults in the general area are the northwest trending Yamantaisky Fault and northeast trending West Karaktau Fault (Figure 7-1).

A cross section showing structural control of uranium mineralization is illustrated in Figure 7-4.

HYDROGEOLOGY

The Zarechnoye uranium field is situated within the Prikaratau artesian basin within the larger Syrdarya Basin. Groundwater within the Mesozoic to Cenozoic sediments stemming from the Tien Shan Mountains in the south flows through the pore space, fractures, and karst features of the surrounding sediments.

The southeast to northwest flow of oxygen-rich regional groundwater into the Zarechnoye area result in a north-south mineralized trend which contain a broad spectrum of metals. These include elevated concentrations of vanadium, rhenium, scandium, and yttrium. Oxygen-poor groundwaters are associated with the northwest flanks of the mineralized bodies.

Groundwater in the area, in grey-coloured unaltered epigenetic formations, is characterized by the presence of reducing geochemical barriers, responsible for accumulation of rare and trace elements passing through the roll fronts. The deposits were formed as a result of carbon dioxide migration from the pre-Mesozoic horizons via faults into the host formations.

The Upper Santonian to Maastrichtian horizons form a single aquifer with some intermittent impermeable layers separating them. The aquifer made up of these two horizons is between 300 m to 400 m thick. Permeability, as expressed by their filtration coefficients, was measured to be in a range of 2.9 m/day to 7.2 m/day with the piezometric surface oriented south-southeast to north-northwest.

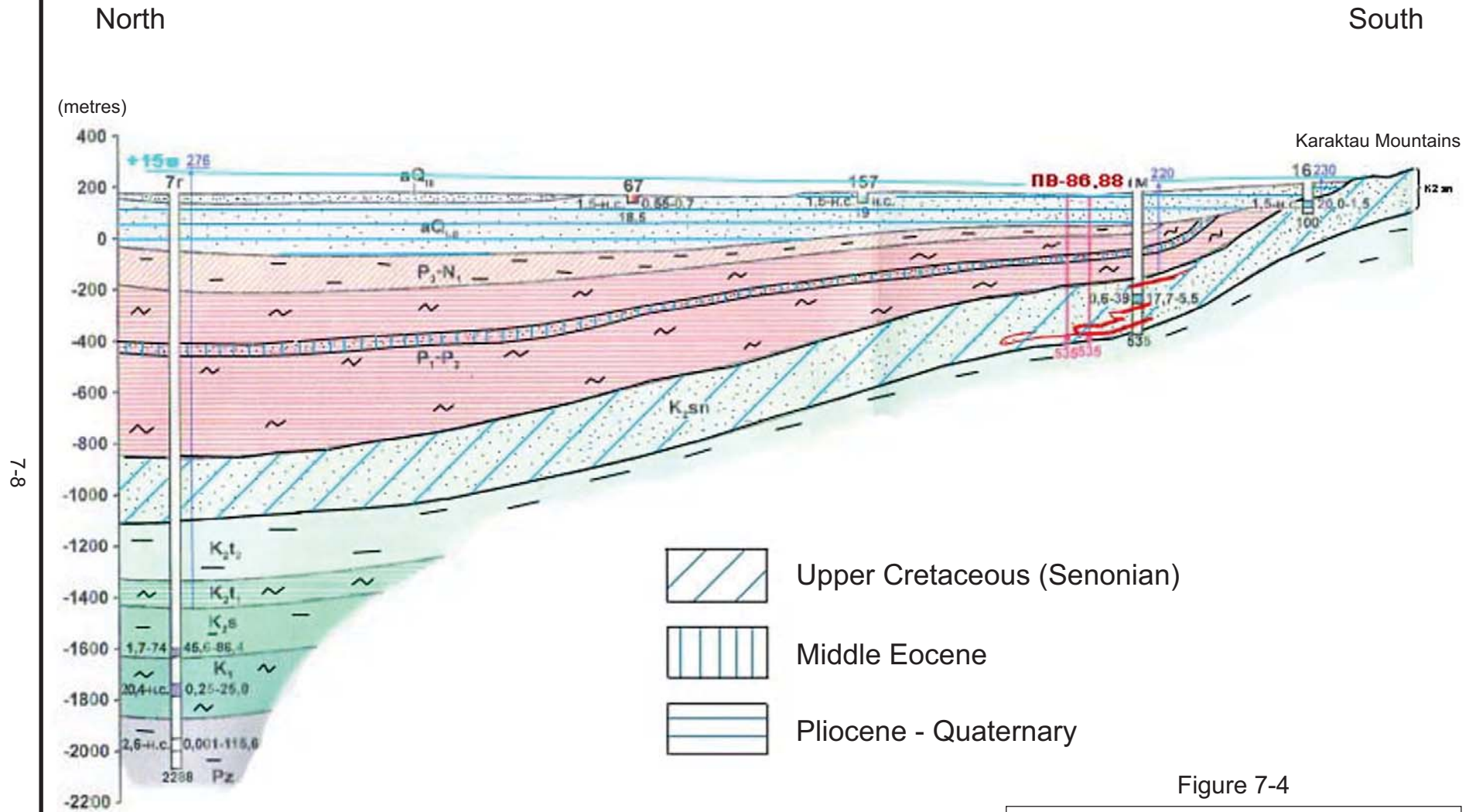


Figure 7-4

Uranium One Inc.
Zarechnoye Uranium Mine
Kazakhstan
Regional Cross Section Showing
Structural Control of
Uranium Mineralization

The aquifer is recharged in the Karaktau Mountains. The subsurface water has 0.5 g/L to 3 g/L dissolved solids (sulphate, chloride and sodium content), which increases to 13 g/L in the Middle Pliocene sediments. The dissolved solids in the host mineralized layers of the Upper Cretaceous sediments, however, is in the order of 0.5 g/L.

The groundwater features an absence of dissolved oxygen, low negative values for reduction/oxidation potential, the presence of hydrogen sulphide, and near-neutral (trending to alkaline) conditions. Dissolved mineral concentrations in the aquifers are typically:

- 2.5×10^{-4} g/L uranium
- 8.2×10^{-10} g/L radium
- 1×10^{-5} g/L molybdenum
- 1.4×10^{-4} g/L zinc
- 1.8×10^{-7} to 2.0×10^{-7} g/L rhenium

MINERALIZATION

Uranium mineralization at the Mine occurs in at least nine horizons which are genetically, spatially, and morphologically related to a single source. All mineralized horizons are hosted within predominantly light grey sands with thin layers of grey and dark grey siltstones and clays, with the exception of Horizon 1, which is composed of oligomictic sands.

The mineralized horizons are summarized in Table 7-1 and shown in Figures 7-5 to 7-7. Four of the horizons, 2, 3, 5, and 8, constitute approximately 91% of the reported Mineral Resources.

The general trend of the mineralized units is northeastward in the southern part of the property, and northwestward in the northern part of the property. The thickness of the individual mineralized units ranges from 0.5 m to 20 m, and the uranium mineralization consists primarily of coffinite. Coffinite and pitchblende are the most common of the more than 150 known uranium-bearing minerals.

TABLE 7-1 MINERALIZED ZONES OF THE ZARECHNOYE MINE
Uranium One Inc. - Zarechnoye Uranium Mine

Horizon/ Deposit Number	Location Within Mineralized Area	Host of Mineralization (Zone)	Strike Length (m)	Width (m)	Thickness (m)	Depth Range (m)		Grade Range (% U)			% of Reported Resources
						From	To	From	To	Average	
1	West	Fine-grained Santonian sands mixed with polymictic material and organic matter	750	350	2.5	650	680	0.018	0.417	0.038	4.0
2	South	Fine-grained Upper Santonian and Lower Campanian sands with minor organic matter	5,800	1,200	Up to 4.5	540	650	0.029	0.095	n/a	16.0
3	West	Lower Campanian fine-grained sands with minor organic matter and carbonate (0.14% to 0.42%)	400 to 1,300	80 to 200	Up to 4.5	630	740	0.039	0.081	n/a	13.5
4	Central	Lower Campanian fine-grained sands with minor organic matter	450	400	n/a	630	740	0.011	0.177	n/a	0.6
5	Central	Lower Campanian fine-grained sands with minor organic matter and carbonate (0.16% to 0.85%)	120 to 4,200	50 to 200	Up to 20.0	490	550	0.030	0.085	n/a	30.0
6	Centr I (750 m east of Horizon 5)	Lower Campanian fine-grained sands with minor organic matter and carbonate (average 0.42%)	650	150	7.0	430	460	0.010	0.084	n/a	1.1
7	Southwest	Lower, Middle, and Upper Campanian fine-grained sands with minor organic and carbonate matter	800 to 1,000	50 to 116	3.0	490	570	0.03	0.475	0.054	1.7

TABLE 7-1 MINERALIZED ZONES OF THE ZARECHNOYE MINE (CONT'D)
Uranium One Inc. - Zarechnoye Uranium Mine

Horizon/ Deposit Number	Location Within Mineralized Area	Host of Mineralization (Zone)	Strike Length (m)	Width (m)	Thickness (m)	Depth Range (m)		Grade Range (% U)			% of Reported Resources
						From	To	From	To	Average	
8	North	Upper Maastrichtian fine-grained sands with minor organic matter and carbonate (from 0% to 1.0%, locally to 12%)	380 to 2,700	50 to 400	10.0	360	590	0.011	1.090	n/a	31.3
9	West	Upper Campanian and Maastrichtian fine-grained with minor organic and carbonate matter.	3,000	70	n/a	330	405	n/a	n/a	0.060	3.5

Source: Agnerian and Bergen, 2012

Notes: The four main zones are highlighted.

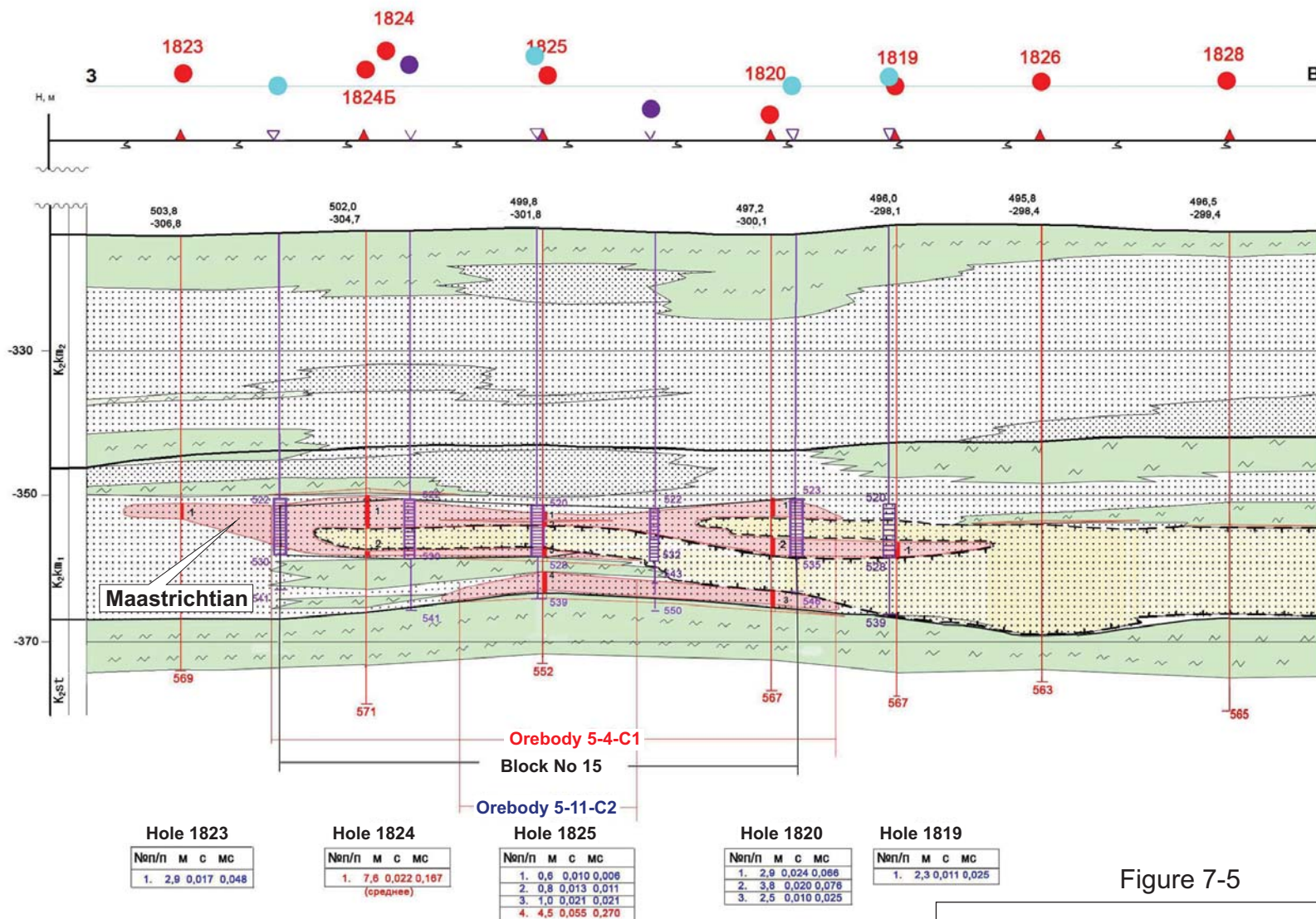


Figure 7-5

Uranium One Inc.

Zarechnoye Uranium Mine
Kazakhstan

Cross Section 100-1



Cross Section 105-B

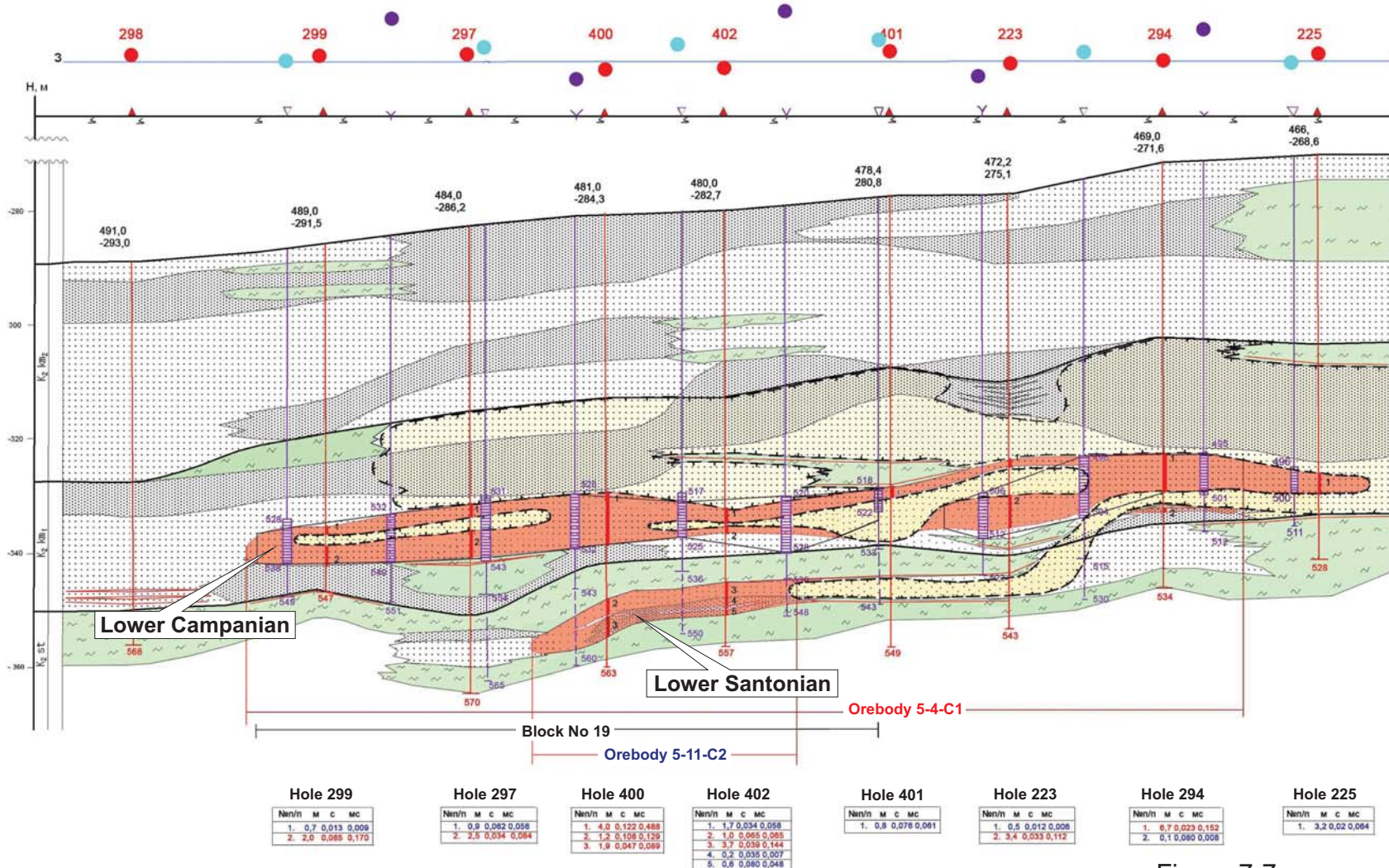


Figure 7-7

Uranium One Inc.

Zarechnoye Uranium Mine
Kazakhstan

Cross Section 106

Hole Types and Numbers

236 Exploration, test and hydrogeological holes

Projected

Extraction wells

Injection wells

Monitor wells

In mineralized horizon

In underlying horizon

In overlying horizon

Mineralization characteristics by hole

1.00 0.024 thickness (m)
0.024 0.024 grade (%) - metre-percent (m%)

Resource Block Outlines and Numbers



a) C1 category (economic) resource blocks

b) B category (economic) resource blocks

B) C2 category (economic) resource blocks

Production Blocks

Блок 5-1-C1
S = 30,4
m = 3,62
C = 0,059
mC = 0,214
P = 104

Production block
Block area, thou. m²
Mineralized thickness, m
Grade, %
Metre-percent, m%
Tonnage, t

Boundaries and Lines

11P 88 Exploration line number

Roll front

Major Pipelines

Existing

Leach solution injection
Production solution extraction
Acid line

Projected

Leach solution injection
Production solution extraction
Acid line

Other

Combined leach solution preparation/distribution and production solution collection facility
Leach solution distribution facility
Combined leach solution distribution and production solution collection facility
Production solution collection facility

Sand settler

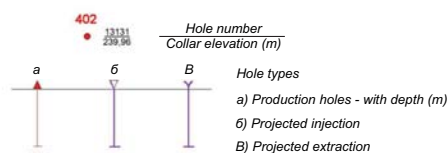
Cable powerline

Active production blocks

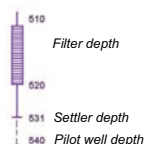
Projected blocks

SECTIONS - LEGEND

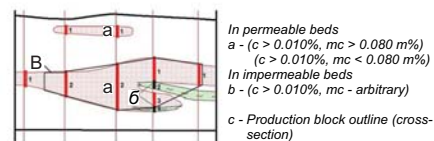
Boreholes



Projected Filters



Orebody Outline Using Uranium Cut-off grade



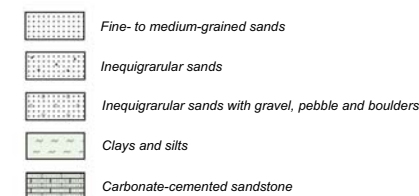
Resource block outline for development

5-4-C1 5-11-C2

Projected site boundary and block number

Block No. 14

Lithotypes



Roll Front

a)- Oxidized rocks
b)- Unoxidized rocks

Mineralized Interval Parameters

m - mineralized width, m

c - grade %

mc - metre-percent m%

Nb	m	c	mc
1	6.20	0.144	0.8928
2	2.30	0.018	0.0368
3	0.90	0.025	0.0225

Mineralized intervals by hole:

In permeable beds
- red: economic (c > 0.010%, mc > 0.080 m%)
- blue: non-economic (c > 0.010%, mc < 0.080 m%)
In impermeable beds
- black (c > 0.010%, mc - arbitrary)

Figure 7-8

Uranium One Inc.

Zarechnoye Uranium Mine
Kazakhstan

Explanation for
Figures 7-5, 7-6 and 7-7

The characteristic features of uranium mineralization at the Mine are reported as follows:

- Mineralized horizons typically occur as lenses and, to a lesser extent, rolls.
- Uranium occurs with an uneven grain size distribution, typically coarse- to medium-grained with possible significant fines content.
- Acid resistant minerals predominate in the mineralized sands (averaging 98.5%). Quartz is the major mineral constituent (up to 62%), with feldspar (up to 17%), fragments of siliceous rocks (up to 18%), micas and “phytoleims” (organic content). Clay minerals, including montmorillonite, kaolinite and mica, occur within the matrix. Accessory minerals include ilmenite, pyrite, calcite, siderite, tourmaline, garnet, apatite, and rutile.
- Coffinite and pitchblende are the uranium minerals, which occur as cement and as matrix material between larger grains.
- The chemical composition of the mineralized horizons is typically silicate material: 81% SiO₂ to 85% SiO₂, 7% Al₂O₃ to 10% Al₂O₃, 1.9% Fe₂O₃ to 2.4% Fe₂O₃, 2.3% K₂O to 2.7% K₂O, and 0.5% Na₂O to 1.0% Na₂O.
- The carbonate content is typically less than 1% CaCO₃. In places, however, carbonate content may be up to 12%.

8 DEPOSIT TYPES

Sandstone-hosted uranium deposits are characteristically sedimentary formations of clastic-detrital origin, containing fluvial reducing environments. Impermeable shale/mudstone units act as barriers to the percolating fluids, and are interbedded in the stratigraphic sequence, are often occur above and below the mineralized sandstones. The uranium, likely derived from nearby igneous rocks, is precipitated out of solution under reducing conditions caused by a variety of reducing agents in the sandstone, such as carbonaceous material, sulphide minerals (mainly pyrite), or hydrocarbons. These deposits are usually tabular in shape and may occur in continental sandstones, deltaic, or shallow marine environments, and are of three types:

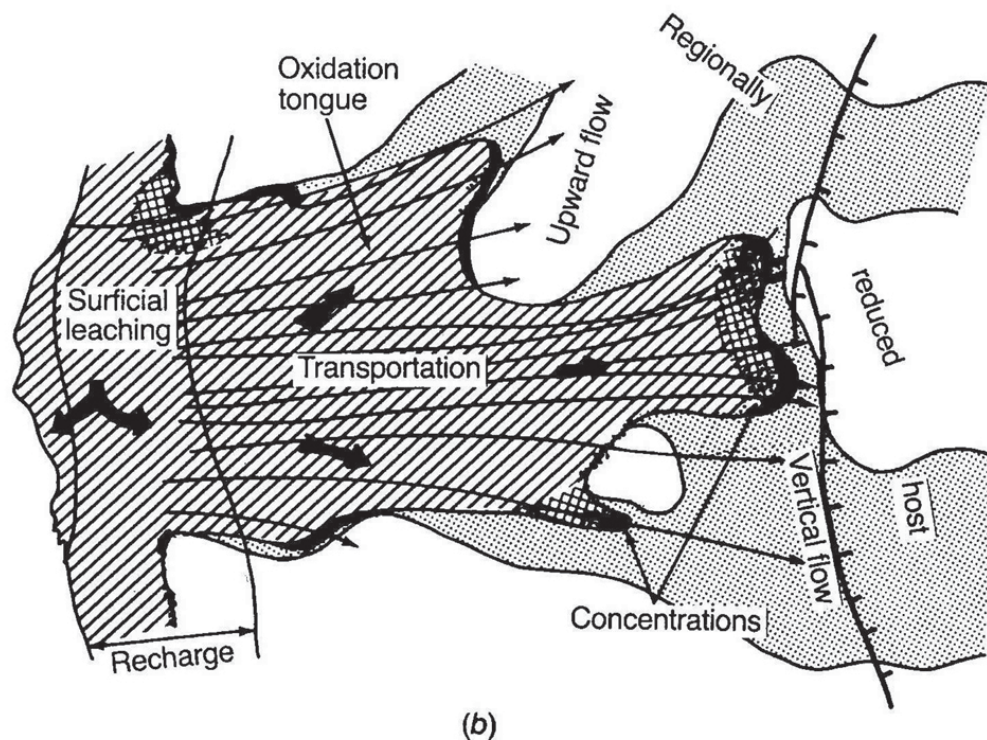
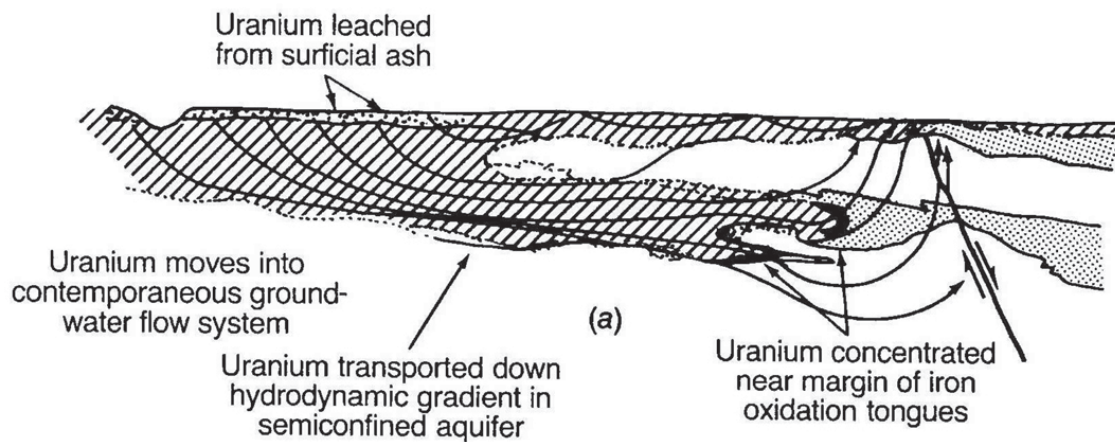
- Tabular deposits: irregular elongate bodies deposited parallel to the depositional trend, often associated with organic carbon.
- Tectonic/lithological deposits adjacent to permeable fault zones.
- Roll front deposits: arcuate (“C” shaped) bodies of mineralization that crosscut sandstone bedding.

The Zarechnoye deposits in Kazakhstan are considered similar to roll front deposits, as in the Powder River Basin of Wyoming in the United States.

The geology and genesis of roll front uranium deposits have been studied since the 1960s. These deposits are typically found in Cenozoic intermontaine basins where uranium occurs in the form of mineralized roll fronts emplaced at the redox interface in continental sandstones containing detrital carbonaceous material. Typically, roll front-type uranium deposits have, in the direction of the flow of mineralizing solutions, a barren (oxidized) interior zone surrounded by a (reduced) mineralized zone. Between the barren zone and the mineralized zone is an altered zone. The overall shape of the roll front is like a crescent with extended tails at each end, which also outlines the barren interior zone, and uranium is deposited at the interface between the oxidized zone and the reduced zone. Groundwater flow direction is usually a good guide in detecting roll front-type deposits in sandstones. The sandstone behind the front is altered but essentially barren.

An ideal roll front model of uranium mineralization includes an oxidized interior, with mineralization occurring at the oxidation/reduction interface, along the “tails”, or limbs, and in the nose of the roll, i.e., near the contact with the regionally reduced host (Figures 8-1 and 8-2, and Guilbert and Park, 1986). The clay minerals within the sandstone sequence of the host rocks also show zoning, with montmorillonite at the top, clinoptilolite in the middle, and analcite at the bottom of the sequence as evidence of progressive diagenetic zeolitization of the sandstones. Furthermore, there may be several generations of roll front-type uranium mineralization in a sandstone sequence, provided that the geochemical regime prevails for each unit (de Voto, 1978).

The most favourable host rocks are friable fine- to coarse-grained arkosic sandstones containing pyrite and carbonaceous material. Interbedded mudstone, claystones and siltstones are often present; sand and silt channels with cross-bedding are also common. Below the water table, unaltered sandstones are light grey to greenish grey, with abundant pyrite and carbonaceous material, while the altered sandstones are reddish or greenish yellow coloured, with no pyrite and little carbonaceous material. Alteration that marks the roll front penetrates the sandstone down dip. The fronts vary widely in size and shape and commonly have lateral variations of several miles and thickness of several feet. Within any one formation, there may be many individual beds that contain roll fronts.



-  Dispersed mineralization
-  Concentrated mineralization
-  Schematic flow lines

Scale: variable

Figure 8-1

Uranium One Inc.

Zarechnoye Uranium Mine
Kazakhstan

**Cross Section and Plan View of
Roll-Front Type Uranium Deposit**

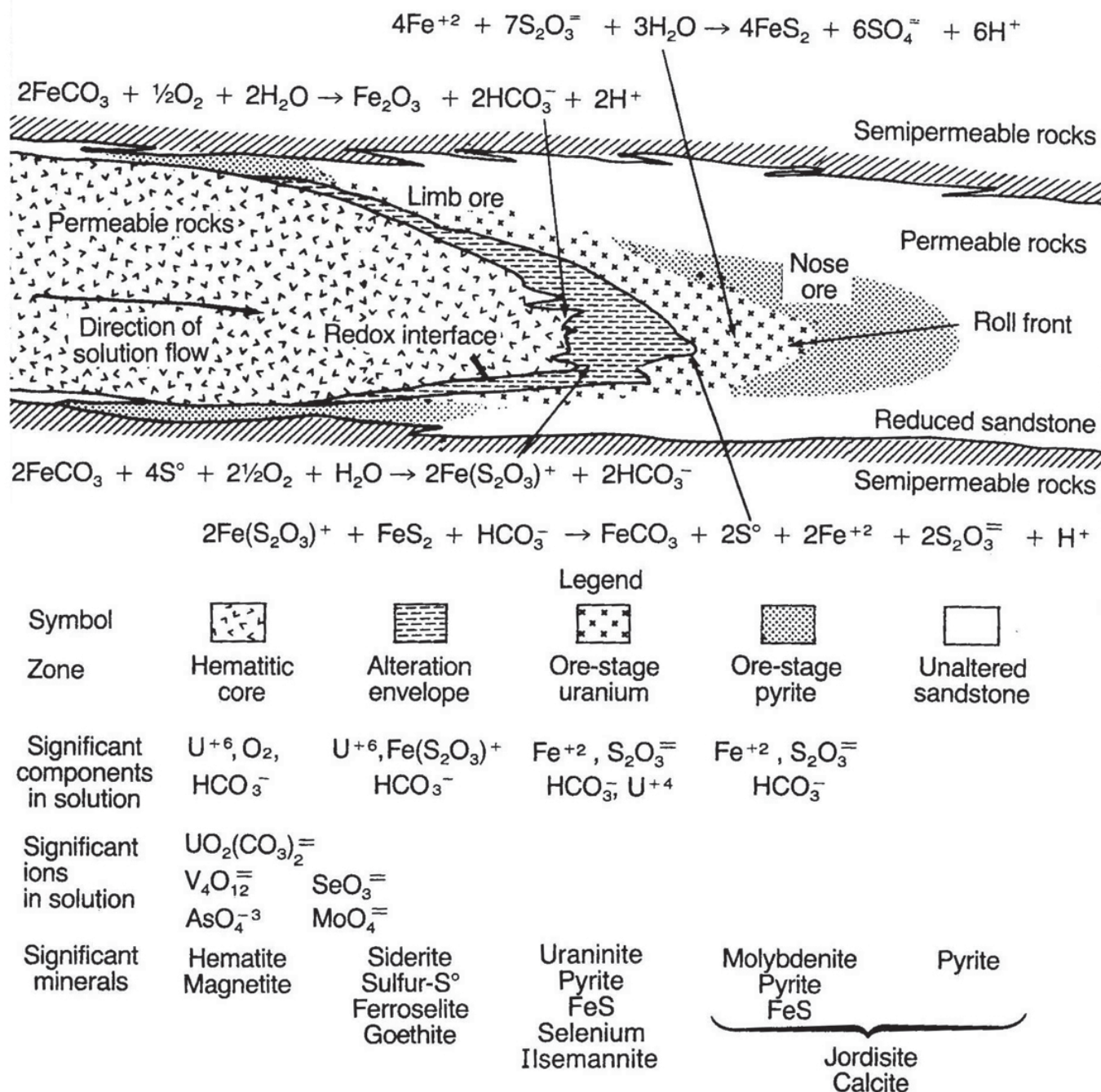


Figure 8-2

Uranium One Inc.

Zarechnoye Uranium Mine

Kazakhstan

Chemical Processes During the
Formation of Roll-Front Type
Uranium Deposit

9 EXPLORATION

Exploration on the Zarechnoye properties, primarily geological mapping and drilling, is discussed in Section 10, Drilling. RPA understands that indirect exploration techniques, such as surface geochemical sampling, radiometric prospecting, and airborne or ground geophysical surveys have not been carried out on the Zarechnoye area properties.

EXPLORATION POTENTIAL

Exploration potential in the vicinity of the Mine is entirely based on drilling and the accompanying geophysical and hydrological studies. As such, these are discussed in Section 10, Drilling.

10 DRILLING

The majority of the drilling in the area was carried out by Volkovgeologia from 1984 to 1986. A total of 627 rotary and diamond drill holes were completed for an aggregate length of 368,725 m. The Zarechnoye Main property was drilled with holes spaced 50 m to 100 m apart, along lines spaced 400 m apart. The central part of the deposit was drilled with closer hole spacing (50 m) along lines 100 m apart.

The drill hole locations for the Zarechnoye deposit are shown in Figure 10-1. No exploration drilling is currently being carried out at the Mine.

The drilling contractor was Rusburmash, a joint venture between Russia and Kazakhstan based in Almaty. Rotary mud drilling was supplemented by core drilling in the mineralized zones utilizing the same drill rigs, with the geophysical (downhole probe) readings used to refine the accuracy of the physical position of the samples. The core size was similar to NQ-size core (47.6 mm diameter) and drill chips were also retrieved. Core recovery had to be at least 70%, otherwise the hole was re-drilled. Boreholes were typically 550 m to 750 m deep, with the lower 200 m to 300 m hosting the potential mineralization.

Mineralized zones are generally horizontal and drill holes mostly vertical. In RPA's opinion, the mineralized widths encountered in the drill holes are reasonably representative of the true widths of the mineralization.

The methodology employed in CIS countries for the exploration of roll front type uranium deposits consists of diamond drilling along widely spaced lines. These lines are generally about one kilometre apart with holes drilled at 200 m to 400 m intervals. Line and drill hole spacings are progressively reduced if significant mineralization is encountered. The borehole collar positions were surveyed, and the holes were surveyed down the hole along their entire length (in 20 m intervals) to determine their orientation.

The procedures used during the diamond drilling programs as drafted by Volkovgeologia technical personnel are as follows:

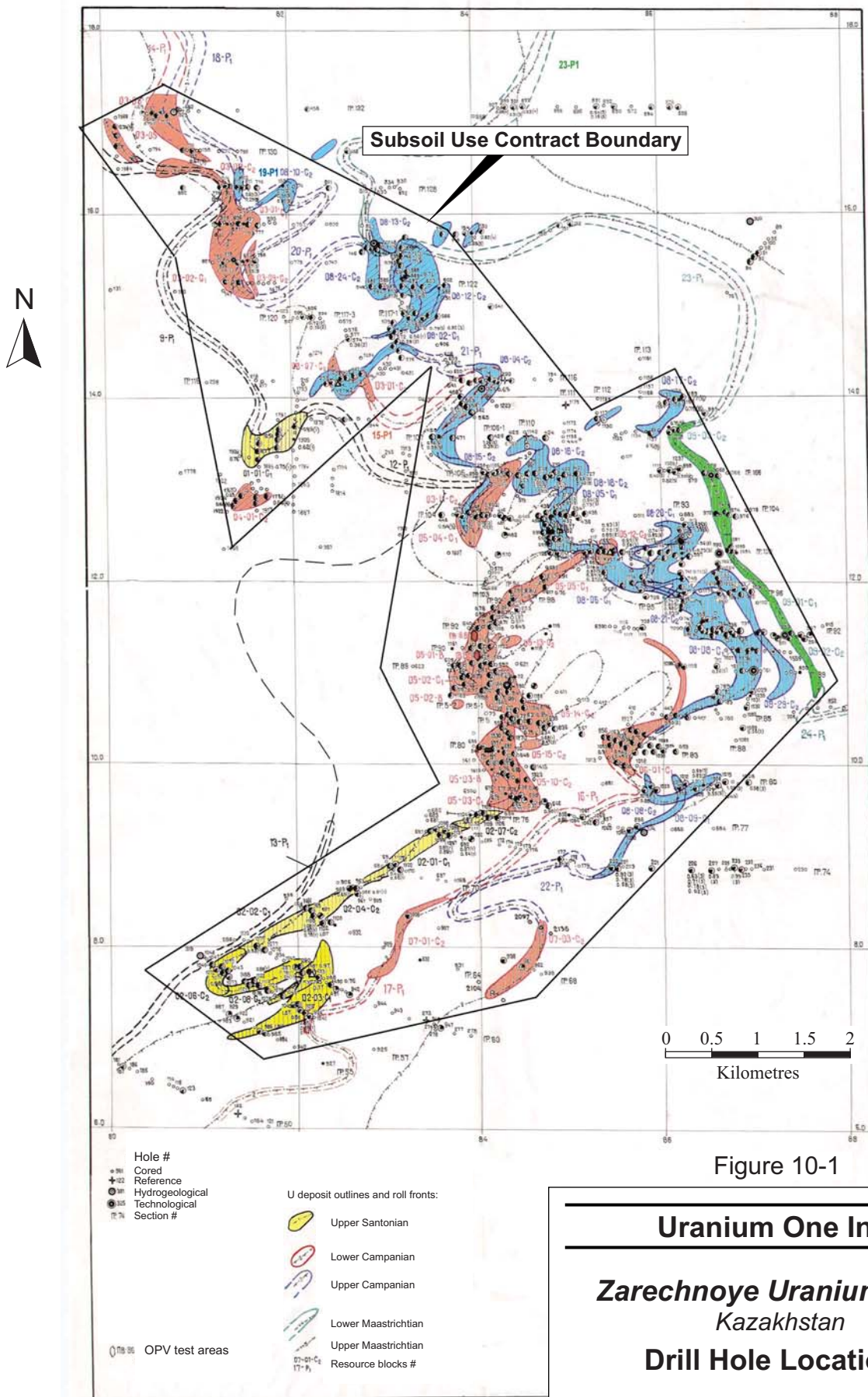
- The collar locations of all drill holes were marked on 1:50,000 regional scale maps as well as 1:25,000, 1:10,000 and 1:5,000 scale maps, based on a local grid by Volkovgeologia crews.
- A survey instrument is used to provide control information on the directional deviation (both azimuth and inclination) of each hole. Detailed information on hole deviations is not available. RPA, however, understands that hole deviations were minimal (Kalmaganbetov, 2010).
- Lithological logging was done by Volkovgeologia geologists, depicting all downhole data including gamma, neutron, and resistivity logs, as well as calculation of equivalent uranium values. All information was recorded on analog handwritten logs. The lithological logs denote:
 - o Lithological contacts
 - o Descriptive geology
 - o Intensity of various alteration types
- Preliminary radiometric logging was done on the core at ten centimetre intervals by holding a long scintillometer on the core until the count rate is stabilized. To avoid mass effects from adjacent samples, the scintillometer was shielded by inserting it in a short steel tube (usually a discarded drill bit) and then holding it on the core.
- Caliper logging was done to demonstrate the stability of hole diameters prior to downhole radiometric logging. It was also used in calibrating the downhole radiometric results.
- Down-the-hole geophysical logging, including resistivity, self-potential, and radioactivity (gamma logging), was done through the mud, i.e., without casing or plastic pipe, at ten centimetre intervals. Gamma logging was done in accordance with the procedures as set out in the 1987 Russian Manual for Uranium Exploration (the 1987 Manual), which includes determination of the equivalent uranium content (eU) based on the radiometric response of the material by using a scintillometer in the downhole probe.

No core sampling was done in the upper parts of the drill holes; coring typically began at approximately ten metres above the potential mineralized zone. The entire mineralized interval (two metres to ten metres) was sampled for chemical testing and mineralogical studies. Mineralized drill core intervals were split in two; one half was sent for chemical assays in Almaty, and the remaining half was further split in two, with one quarter core sent for determination of carbonate content and granulometric studies. The remaining core was shipped to a location near Stepnogorsk, in northern Kazakhstan, where all drill core from other uranium mining operations is discarded.

Historically, very little core was collected, principally only to calibrate the geophysical response, i.e., grade, lithologies, and permeability are determined from quantitative interpretation. The lack of available reference core precludes the execution of a quality

assurance/quality control (QA/QC) program and, as such, the historical drilling cannot be independently verified.

During the 2010 and 2011 site visits, RPA examined selected cross sections of the Zarechnoye deposit and reviewed a single drill log to determine the type of information being recorded. Based on graphic data of selected cross sections and exploration data from other ISR projects in South Kazakhstan, such as the Inkai, Karatau, and Akbastau projects, RPA is of the opinion that the lithological logging procedures by Volkovgeologia are comparable to Western industry standards.



Uranium One Inc.

Zarechnoye Uranium Mine
Kazakhstan

Drill Hole Locations

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

Exploration at the Zarechnoye deposit, as well as at other uranium deposits around the world, including the CIS and western countries, is primarily based upon downhole radiometric probe results. Historically, very little core has been collected, principally only to adjust the downhole geophysical probe results, i.e., grade and lithologies are determined from gamma ray logging quantitative interpretation. Gamma logging, following the procedures set out in the 1987 Manual, is used to determine the uranium content of the mineralized rock. At the Zarechnoye deposit, downhole geophysical readings are taken every 10 cm, including count rate, expressed as mR/hr for the radiometric response by the scintillometer in the probe includes resistivity, self-potential, and radium (%).

Historical and recent exploration drilling has been undertaken using the same procedures. Essentially, all holes are logged with electrical logs, including gamma counts, caliper readings, deviation, and self-potential measurements. Drill holes are cored through the mineralized zones, which are then sampled for chemical assays in addition to the downhole geophysical logging. Sampling procedures are as follows:

- The core was visually inspected and logged at the exploration camp, as discussed in Section 10, Drilling. Upon completion of the drilling, the hole was logged by a downhole probe instrument, recording radiometric, electrical (self-potential), resistivity, and hole deviation data.
- All field data were sent to the Volkovgeologia offices in Almaty for geological interpretation and calculation of the eU content of mineralized intervals. The scintillometer in the downhole probe was calibrated every month internally by Volkovgeologia.
- Mineralized zones with core recovery greater than 70% and radioactivity greater than 40 mR/hr were split in half. The sample intervals varied in length from 10 cm to 50 cm depending on lithology and mineralogy, but in general averaged 25 cm.
- One half of the core was sent to the Volkovgeologia laboratories in Almaty for the determination of uranium content by wet chemical method. The remaining half was further split in two; one quarter was sent to the Volkovgeologia laboratories in Almaty for determination of the carbonate content and granulometric tests. The remaining quarter core was stored at the site, at least until the results were available and the possibility of error was removed, but then was discarded by shipping to Stepnogorsk,

in northern Kazakhstan, where similar material from other uranium operations in Kazakhstan are also sent for disposal.

SAMPLE PREPARATION

The sample preparation and analyses were performed by Volkovgeologia using procedures, including QA/QC, approved by the Kazakhstan Scientific Council on Analytical Methods (NSAM). The general procedures for the determination of equivalent uranium content and check assays are as follows:

- Where core samples were available, they were logged and tested by scintillometer to determine the gamma ray logging correction factor prior to laboratory chemical measurements.
- Regular check assays were reported to be carried out on all core samples for comparisons of uranium determinations estimated from radiometric probe results. Results, however, are not available at this time. These check analyses were undertaken to assess accuracy and reliability for QA/QC purposes and to calculate gamma ray logging correction factors. External chemical analytical checks were undertaken by All-Russian Research Institute of Mineral Resources (VIMS), Moscow, and Nevskoye PGO laboratories (Nevskoye), St. Petersburg, Russia, to determine the relative discrepancy between the analytical methods.
- The silt and clay content was determined from size analysis. Permeability coefficients were determined by quantitative interpretation of electric logs on the basis of the pilot hydrogeological surveys.
- The "Filtration Ratio" was calculated from the resistivity readings. It is a theoretical value calculated by statistical field data (including granulometric data) collected from North and South Kharasan wells.

The sample preparation procedures for the determination of the uranium, radium, selenium, and other elements in the split drill core weighing approximately seven kilograms were as follows:

- Crushing, grinding, and sieving the sample to pass one millimetre sieve.
- Subdividing it into four quarters of approximately 200 g each.
- Sending a 200 g to 400 g aliquot to a radiometric laboratory for uranium, radium, and selenium determination.
- Keeping a 200 g duplicate sample.
- Storing the remaining 1,400 g to 1,600 g sample.

ANALYSIS

Standard analysis of the split core at Volkovgeologia laboratories included:

- Determination of uranium and radium content.
- Grain size composition.
- Carbonate content. The purpose of these tests was to determine the leachability of the core with at least 70% core recovery.
- Spectral analysis of 28 and 42 elements to determine the lithological and geochemical characteristics of the rocks.
- Mineralogical and petrographic analyses including:
 - o Determination of acid-base balance of the rocks.
 - o Determination of the chemical composition of the rocks.
 - o X-ray analysis to determine the uranium, radium, selenium, and clay mineral content of the rocks.
 - o Chemical analysis to determine the carbonate, organic matter, various valences of iron, sulphur, and silicate content of the rocks.
 - o Preliminary acid leach tests to determine the extraction characteristics of uranium.
- Determination of water content and bulk density.

Determination of the uranium and radium content of the mineralized intersection was the main process during the downhole probing of the drill holes. The process included calculating the eU content of the rocks at ten centimetre increments, as described in Section 10, Drilling. The eU content was classified into four groups: 0.01% eU, 0.01% eU to 0.05% eU, 0.05% eU to 0.1% eU, and >0.1% eU.

In general, the sensor unit of the probe includes a 30 mm by 70 mm crystal in a 54 mm or 60 mm diameter tube (type KSP) to detect gamma radiation down the hole.

The gamma calibration process was detailed and exhaustive. Each portion of the six sectors into which the uranium roll front was divided was assigned a specific chemical gamma correction factor based on statistical analysis of:

- Chemical assay data.
- Humidity and weight of the sampled material. Based on 345 determinations of humidity content, Volkovgeologia applied a humidity factor of 0.84 to the initial eU content of the mineralized intersections. In terms of volume and weight, Volkovgeologia noted that the specific gravity of mineralized rocks in the Zarechnoye area may be as much as 2 g/cm³, and applied a factor to the initial eU content of the mineralized intersections.
- Radioactive disequilibrium factor.

Based on the above results, RPA concludes that the basic analyses were performed with reasonable accuracy and can be utilized in the estimation of Mineral Resources with a gamma ray logging correction factor. RPA considers the samples to be representative of the mineralization at the Zarechnoye Main deposit. RPA is also of the opinion that the procedures used by Volkovgeologia for sample preparation, analysis, and custody of samples for the Zarechnoye exploration work are acceptable and in keeping with the industry standards. A brief description of the radiometric response in drill holes is discussed below.

SECURITY

In terms of security of samples, RPA understands that there has been little contact with non-authorized people, since the drill sites and Mine itself are relatively remote from any towns and the field data have been sent to Almaty at regular intervals of one to two weeks.

RADIOMETRIC DISEQUILIBRIUM

Heavy, long-lived radioactive elements, such as U^{238} decay naturally, producing a series of daughter products, and end up as a stable element, such as lead (Pb^{206}). Since the members of the decay series are different chemical elements, they may be selectively separated from the original element (parent isotope) by geochemical processes. Radioactive equilibrium is attained when all the daughter products disintegrate at the same rate as they are produced by the parent isotopes and all nuclides remain together. In nature, however, this almost never occurs, as explained below.

Radioactive disequilibrium happens if one or more of the daughter products, or the parent isotope, is completely or partially absent. The various disequilibrium states may be caused by the following:

- Radon, the gaseous member of the uranium series, is easily separated from the rest of the elements in the decay series. Since some of the elements which emit radioactivity are produced after the occurrence of radon, a disequilibrium results which will negatively bias the inferred quantity of the parent U^{238} .
- Recent deposition of parent material either by initial deposition or by remobilization, i.e., little or no daughter products. This will also cause an underestimation of the quantity of the parent material.

- Estimation of parent material based on measurements on remobilized daughter products, with little or no parent material present. This will result in an overestimation of the parent material.

It is important to note that sometimes disequilibrium may be masked by higher emissions of gamma rays from the daughter products of the thorium series, especially Th²⁰⁸.

RPA's review of available drill hole data does not indicate that there is radioactive disequilibrium in the Zarechnoye mineralization. Consequently, RPA concludes that the reported uranium grades are reliable and acceptable for resource estimation.

RPA is also of the opinion that the procedures used by Volkovgeologia for downhole radiometric logging and sampling at the Mine are adequate and in keeping with the industry standards.

12 DATA VERIFICATION

DATA VERIFICATION BY VOLKOVGEOLOGIA

The verification of field work was done by Volkovgeologia's geologist at the company's head office in Almaty following NSAM-approved procedures. A rigorous check assay program was conducted that compared uranium determinations derived from radiometric probe results to the actual chemical analysis. These comparisons allow the assessment of radiometric probe results for accuracy and reliability and inform the calculation of gamma ray logging correction factors. External chemical checks were done at three Russian laboratories to determine the relative discrepancy between analytical methods. The laboratories were Nevskoye in St. Petersburg, and Central Analytical Laboratory (TSAL) and VIMS laboratory in Moscow.

The results of these studies showed that, with the exception of one drill program carried out between 1984 and 1985, the reported values reported were within the allowable limits of concentration as set out in by the Republic of Kazakhstan's State Committee on Mineral Resources (SCMR). The check assay results indicated that:

- In general, the 8,793 radiometric probe results (% eU values) were comparable to chemical assays (% U) for most of the classes of uranium concentrations. The overall difference was a +5.4% bias on the eU values, mostly for the uranium grades in the range from 0.003% eU to greater than 0.1% eU, which was the range of concentrations for the majority of the uranium grades for the Zarechnoye deposit. RPA, however, did not consider this a major concern.
- For the 2,325 external check assays carried out at TSAL and Nevskoye laboratories, the TSAL assays were slightly higher than the Nevskoye assays.
- Both the % eU and chemical (% U) values estimated by VIMS were slightly higher than those estimated by TSAL.

Based on the QA/QC results of work done by Volkovgeologia, RPA considered the Zarechnoye assay database to be acceptable for resource estimation.

DATA VERIFICATION BY RPA

During its 2012 site visit, RPA reviewed the main mineralized intersections in the drill hole database and examined representative core samples at the Zarechnoye site. Independent

samples were not collected since the Mine was in production and the associated production reconciliations verified the presence of uranium mineralization.

In 2010 RPA reviewed geological cross-sections and plan maps used in the 2002 mineral resource estimate. A single drill log was also inspected to determine which data were being recorded. The guidelines and protocols used on the site were those previously established by the Ministry of Geology of the former USSR and maintained by the SMCR.

Based on its observations during the site visits and its previous experience with data collection in the USSR and CIS countries, RPA concluded that the data collected at the Zarechnoye site was adequate for use in the estimation of Mineral Resources.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

The Zarechnoye processing plant is situated within the Mine site, and has been in operation since 2009. As of June 2013, the wellfield was operating 212 of 523 extraction wells and 716 of a total 1,464 injection wells. The June 2013 pumping rate was 3,062 m³/h extracted with an average grade of 36.5 mg/L U. Acid consumption for June 2013 was 175 kg acid per kilogram of uranium, with 28 kg/kg for acidification and 147 kg/kg for leaching. The project to date acid consumption was 168 kg acid per kilogram of uranium, with 55 kg/kg for acidification and 113 kg/kg for leaching.

The total production from the Mine since the start of production to the end of 2013 is 4,145 t uranium and the project to date extraction of uranium under leach is 62.7%. The wellfield and process plant operations are discussed in more detail in Section 17. The operations have demonstrated the ability to extract and recover uranium from the Mineral Reserves.

METALLURGICAL TESTWORK

Metallurgical testwork was reported in 2003 by Sedushev and included tests on diamond drill core and pilot leach tests completed in the field. The test details are summarized in this section.

METALLURGICAL TESTS ON DRILL CORE

Volkovgeologia carried out metallurgical testwork on drill core with three types of uranium mineralization on behalf of Kazatomprom. Results are summarized in Table 13-1. The liquid to solid ratio (L:S) is the weight of leach solutions (taken as one tonne per m³) divided by the ore (rock) tonnage. This is a measure of the number of leach cycles that a given tonnage of rock will be subjected to over the course of the mining.

TABLE 13-1 METALLURGICAL TESTS ON DRILL CORE
Uranium One Inc. – Zarechnoye Uranium Mine

Ore Sample	Number of Determinations	Grade in Ore Range/Average (% eU)	Grade in Solution (mg/L)	Recovery (%)	L:S Range/average	Acid Consumption	
						Kg per kg of rock mass	Kg per kg of ore
1	9	<u>0.025 to 0.086</u> 0.041	<u>51 to 145</u> 97	80	<u>1.3 to 1.6</u> 4.1	<u>2 to 47</u> 12	<u>9 to 96</u> 28
1	11	<u>0.019 to 0.094</u> 0.039	<u>18 to 184</u> 42	80	<u>3.2 to 13.8</u> 8.3	<u>2.7 to 34</u> 16	<u>15 to 112</u> 59
2	3	<u>0.011 to 0.023</u> 0.017	<u>21 to 66</u> 41	80	<u>3.4 to 3.6</u> 3.5	<u>2 to 15</u> 9	<u>26 to 120</u> 63
2	3	<u>0.013 to 0.035</u> 0.023	<u>22 to 47</u> 33	80	<u>3.6 to 7.8</u> 5.1	<u>14 to 18</u> 15	<u>61 to 117</u> 88
3	1	0.047	30	80	13.6	13.6	269
Average per section	3/14	0.037	58	80	6	14	60

Source: Sedushev, 2003.

Note: The acid concentration in the leach tests ranged from 10 g/L H₂SO₄ to 15 g/L H₂SO₄.
L:S is ratio of leach solution to sample weight

The tests indicated that the mineralization was susceptible to leaching with sulphuric acid.

Volkovgeologia carried out further metallurgical testwork on the ore types to evaluate alternative leaching agents. Results are summarized in Table 13-2.

TABLE 13-2 METALLURGICAL TESTS ON DIFFERENT LEACH AGENTS
Uranium One Inc. – Zarechnoye Uranium Mine

Ore Sample	Number of Determinations	U in Ore (%)	U in Solution (mg/L)	Recovery (%)	L:S	Acid Consumption (kg of acid)		
						Per kg of ore (g)	Per kg of U	Oxidant (per kg of U)
Leaching with 10 g/ L H ₂ SO ₄ to 15 g/ L H ₂ SO ₄ without oxidant								
1	30	0.036	48	99	7.4	9.9	28	
1	67	0.034	24	83	13.0	22.0	129	
2	27	0.019	62	99	4.7	7.2	36	
2	12	0.031	29	95	12.0	19.0	67	
3	2	0.053	68	99.5	14.6	64.0	124	
3	6	0.0104	54	86	19.0	33.0	62	
Leaching with 10 g/ L H ₂ SO ₄ to 15 g/ L H ₂ SO ₄ with oxidant								
1	9	0.015	34	97	4.8	10.0	64.0	66.0
1	21	0.048	38	94	10.0	17.0	64.0	43.6
2	4	0.080	275	100	4.4	11.5	18.5	
2	5	0.060	34	90	12.0	24.0	52.0	32.5

Ore Sample	Number of Determinations	U in Ore (%)	U in Solution (mg/L)	Recovery (%)	L:S	Acid Consumption (kg of acid)		
						Per kg of ore (g)	Per kg of U	Oxidant (per kg of U)
3	1	0.070	86	99	9.0	34.0	44.0	23.0
Leaching with potassium carbonate and sodium bicarbonate (KCO₃, 9.5 g/L NaCO₃ and 2.5 g/L NaHCO₃)								
1	7	0.025	36	90	4.4	57.0	210	78.0
2	7	0.023	32	93	7.0	77.0	451	129.0
Leaching with ammonium bicarbonate and sodium peroxide (9.2 g/L NH₄CO₃, 2 g/L H₂O₂)								
1	7	0.084	32	87	21.0	13.0	24.0	
1	1	0.054	23	77	15.5	14.0	39.0	
2	4	0.023	10	52	11.0	17.0	163.0	32.0
3	3	0.045		86	9.0	13.0	37.0	45.0

Source: Sedushev, 2003

The tests demonstrated that the mineralization could be leached with different leaching agents, but that sulphuric acid provided higher pregnant solution grades and higher recovery. The sample head grades for the sulphuric acid tests averaged only 0.04% U, which is lower than the average reserve grade. Pregnant solution grades averaged 68 mg/L U, but there was one high value at 275 mg/L U over the range of head grades. The pregnant solution grades show a weak trend of increasing with increasing head grades.

PILOT LEACH TESTS

On site pilot scale leach tests were carried out on fine- to medium-grained mineralized sands from the Maastrichtian, Campanian, and Santonian horizons. The tests were undertaken at three locations: PV-86, PV-88, and PV-82. The leaching solution used was sulphuric acid at a strength of 10 g/L. The results are summarized in Table 13-3.

TABLE 13-3 PILOT FIELD TESTS – ZARECHNOYE MINERALIZATION
Uranium One Inc. – Zarechnoye Uranium Mine

Description Unit		Test Site PV-86		Test Site PV-88		Test Site PV-82
		Full Wellfield	Central Cell	U Analyses	Sc Analyses	U Analyses
Test duration	day	1,037		503		
Well spacing	m	25		30		10.5
Sand thickness	m	26.7		29.7		28.0
Effective thickness	m	17.3	18.1	13.0		10.0
Rock mass	tonnes	260,192	107,152	47,840		992
Volume of solution being pumped through rock	m ³	<u>548,100</u>	<u>205,875</u>	<u>111,316</u>	<u>627,700</u>	1,964

Description Unit		Test Site PV-86		Test Site PV-88		Test Site PV-82
		Full Wellfield	Central Cell	U Analyses	Sc Analyses	U Analyses
mass (extraction/injection)		505,360	244,177	120,441	90,500	
Liquid/solution (extraction/injection)		2.1/1.9	1.9/2.2	2.3/2.5		1.98
Minimum ore grade	% eU	0.010	0.010	0.001%	1.6 g/t	0.012
Maximum ore grade	% eU	0.094	0.094	0.057%	11 g/t	0.069
Water temp. within mineralized interval	°C	33 to 40	33 to 40	33 to 40	33 to 40	33 to 40
Average concentration in solution	mg/L	82.8	80.0	48.5	0.23	73.0
Mineral Resources	t U	63	27	10	0.059	0.171
Coefficient of resource	%	72	61	54.2	25	85
H ₂ SO ₄ consumption per kg of uranium	kg	143	218.5	283		98
H ₂ SO ₄ consumption per kg of min. rock	kg	24.5	28.8	31.9		14.3
Mined mass	t U	45.4	16.5	5.4	0.0147	0.145
Mined area	x000 m ²	9.4	3.7	2.3		0.066

Source: Sedushev, 2003.

Notes:

1. Leaching Agent: H₂SO₄.
2. Leaching Agent Concentration: 10 g/L.

The bench and pilot scale testing completed confirmed that uranium mineralization at Zarechnoye was susceptible to sulphuric acid leaching. The potential for the recovery of other elements, such as vanadium, rhenium, scandium, and yttrium, was identified.

In RPA's opinion, the testing demonstrated that the Zarechnoye deposit could be recovered by ISR using sulphuric acid as the leaching agent.

WELLFIELD PERFORMANCE

To the end of June 2013, there were 1,987 wells (combined injection and production) in 49 technological blocks in operation at Zarechnoye Main. Key data for the technological (production) blocks are shown in Table 13-4. Some of these wells have been in production for almost seven years. The target Liquid to Solid (L:S) ratio is three (3.0) and the SUC specifies 90% extraction for each well.

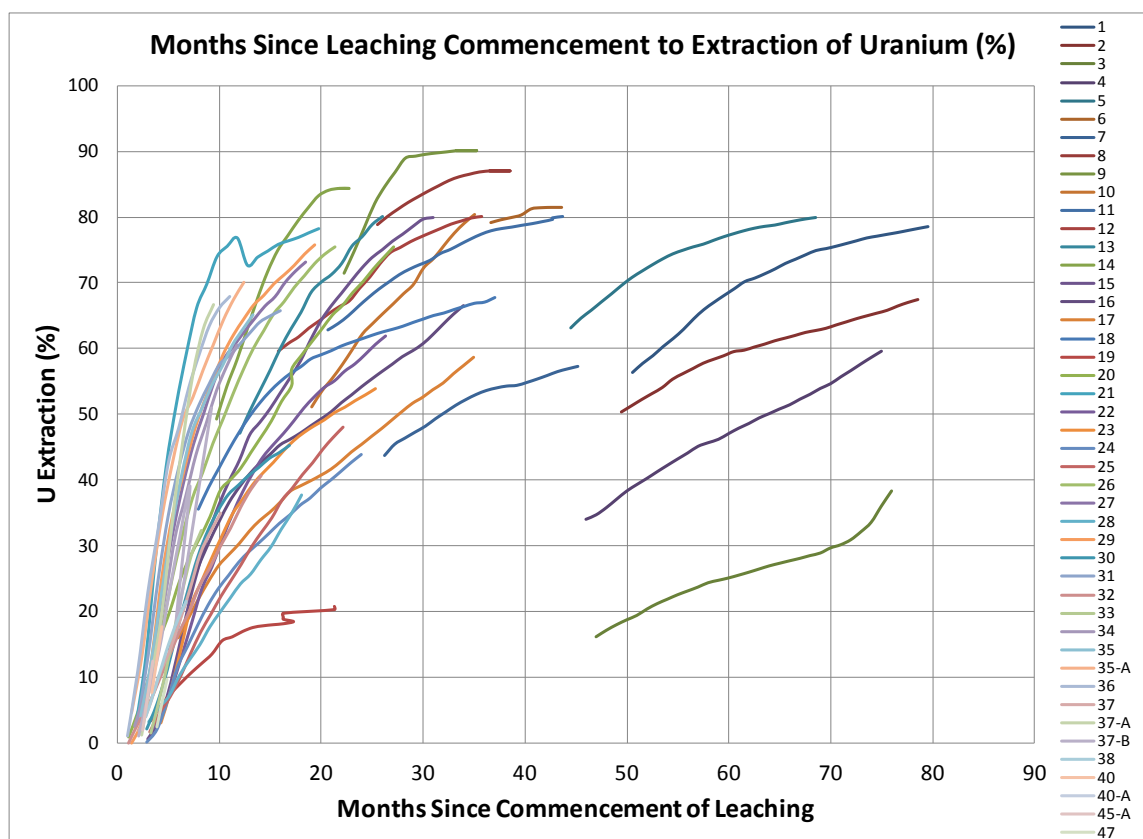
TABLE 13-4 TECHNOLOGICAL BLOCK DATA TO JUNE 2013
Uranium One Inc. – Zarechnoye Uranium Mine

Block	Months	Tonnes Ore (000s)	Tonnes U	Grade (%)	Tonnes U Extracted	Extraction	L:S
1	79.5	1,806	450.0	0.025	353.3	78.5	4.48
2	78.5	738	268.7	0.036	181.2	67.4	4.87
3	76.0	1,747	243.5	0.014	93.4	38.4	1.72
4	75.0	713	67.8	0.010	40.4	59.6	1.88
5	68.5	1,231	214.1	0.017	171.3	80.0	4.39
6	43.6	456	58.0	0.013	47.2	81.5	3.19
7	45.2	814	255.0	0.031	146.2	57.3	6.19
8	36.5	1,082	199.9	0.018	174.0	87.1	3.73
9	33.3	819	86.4	0.011	77.8	90.0	2.45
10	35.1	672	118.0	0.018	94.8	80.4	3.60
11	43.7	1,551	289.0	0.019	231.2	80.0	3.24
12	35.8	2,151	327.9	0.015	262.6	80.1	2.78
13	26.0	561	92.3	0.016	73.9	80.0	3.33
14	21.7	466	96.6	0.021	81.5	84.3	3.30
15	31.0	790	85.5	0.011	68.3	79.9	3.35
16	34.0	755	167.4	0.022	111.5	66.6	3.73
17	35.0	568	162.4	0.029	95.4	58.7	4.36
18	37.0	552	209.6	0.038	141.9	67.7	5.29
19	21.3	379	81.0	0.021	16.8	20.7	2.22
20	27.1	734	60.3	0.008	45.5	75.4	2.56
21	19.8	450	78.4	0.017	61.3	78.2	2.96
21-A	15.0	372	108.4	0.029	47.6	43.9	3.40
22	26.3	1,028	128.8	0.013	79.8	61.9	2.20
23	25.3	915	111.8	0.012	60.2	53.9	2.38
24	23.9	950	204.1	0.021	89.5	43.8	2.28
25	22.2	794	201.8	0.025	96.9	48.0	3.26
26	21.4	746	110.0	0.015	83.0	75.5	2.83
27	18.5	288	42.3	0.015	30.9	73.1	4.05
28	18.1	65	9.4	0.014	3.5	37.7	3.21
29	19.4	480	78.2	0.016	59.2	75.8	3.35
30	16.9	542	132.1	0.024	59.8	45.3	2.52
31	16.0	558	99.3	0.018	65.3	65.7	2.77
32	14.1	477	76.4	0.016	31.1	40.7	2.19
35	13.3	602	90.6	0.015	59.0	65.1	1.85
35A	12.4	450	87.2	0.019	61.1	70.0	2.66
34	11.7	460	57.7	0.013	34.9	60.5	2.16
36	11.0	446	80.4	0.018	54.5	67.8	2.60
37	10.1	495	94.1	0.019	32.9	35.0	1.64
37-A	9.4	581	124.9	0.021	83.2	66.6	1.75
37-B	9.2	381	132.8	0.035	67.7	51.0	1.78
33	8.3	467	41.4	0.009	13.4	32.4	1.27
14-A	8.0	125	10.6	0.008	8.5	80.2	1.86

Block	Months	Tonnes Ore (000s)	Tonnes U	Grade (%)	Tonnes U Extracted	Extraction	L:S
38	6.8	414	76.1	0.018	16.4	21.6	1.34
40	4.4	372	31.4	0.008	5.6	17.7	0.96
40-A	2.0	677	46.7	0.007			0.28
45-A	3.5	636	56.3	0.009	7.0	12.4	0.60
47	4.9	398	38.1	0.010	3.7	9.7	0.84
54	0.5	455	38.6	0.008			0.09
45	0.1	362	22.7	0.006	0	0	
Total		33,571	5,944	0.018	3,724	62.7	

RPA plotted the percentage of uranium reserves extracted from each technological block (from January 2011 to June 2013) against time. RPA used the number of months since leaching commenced on the lower axis so that only wells that started since January 2011 will have values that initiate at the origin of the plot. The results are shown in Figure 13-1.

FIGURE 13-1 URANIUM EXTRACTION FROM TECHNOLOGICAL BLOCKS OVER TIME



RPA notes that a technological block that starts with poor results in the first six to 12 months is never able to overcome its initial poor performance and achieve the 90% extraction mandated by the SUC. Significant breaks in the lines indicate a change in the technological block reserve, generally the addition of an extension to a block. In its previous report, RPA expressed the opinion that the average extraction would be approximately 80% (Agnerian and Bergen, 2012). From its review of the updated data RPA maintains the opinion that the average extraction will be 80%.

The L:S ratios for the current leaching blocks for the period of January 2011 to June 2013 are shown in Figure 13-2. RPA notes that a number of factors impact the stated extraction including the:

- Calculation of the block tonnage and grade
- Screen placement
- Ore characteristics
- Ore host characteristics

FIGURE 13-2 L:S RATIO VERSUS URANIUM EXTRACTION

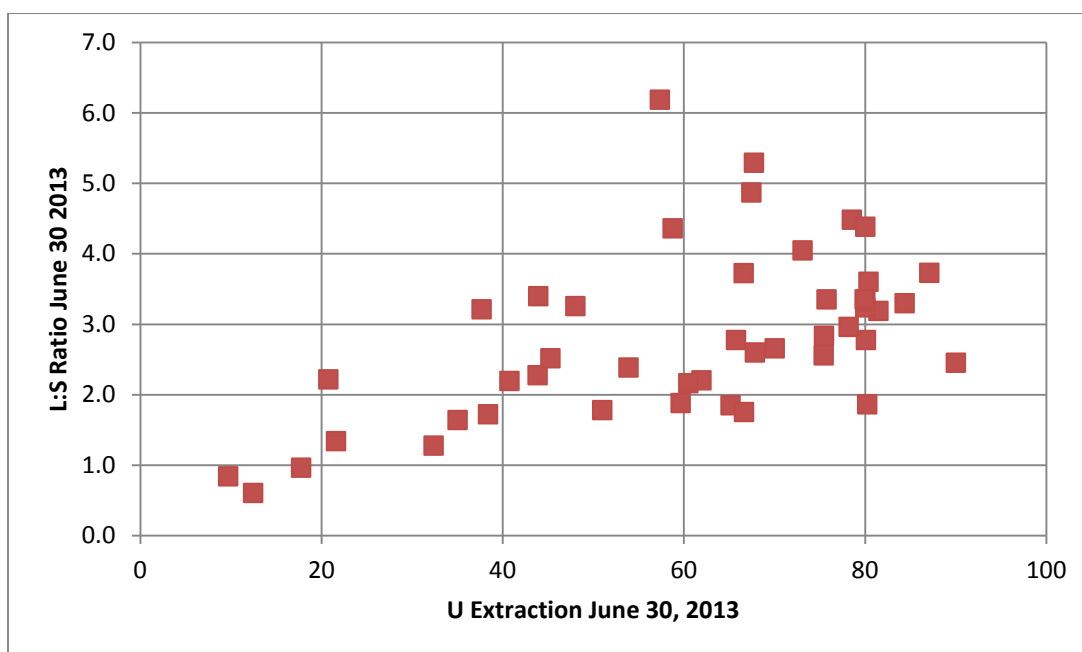
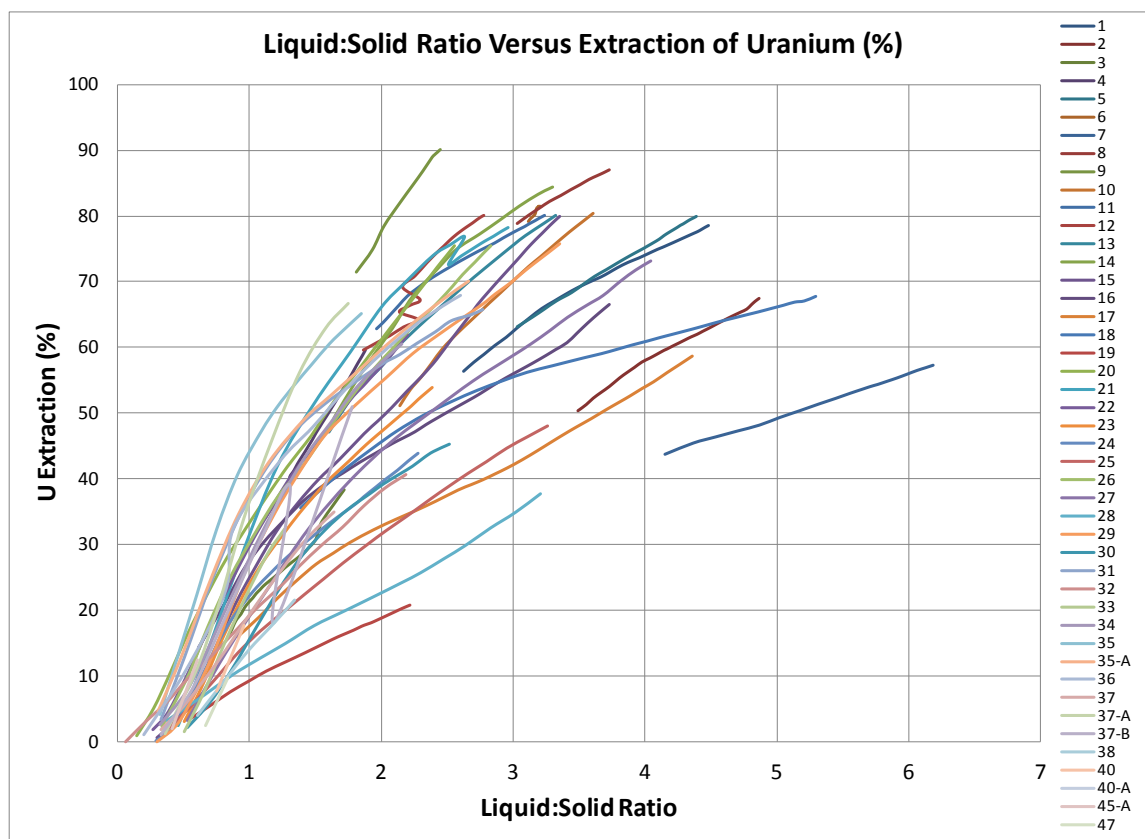


Figure 13-3 shows a comparison of the L:S ratio and the uranium extraction on a block by block basis for the period ended June 30, 2013. From the trend displayed by the data, RPA is of the opinion that the L:S ratio required to achieve the 80% extraction will be approximately four.

FIGURE 13-3 L:S RATIO VERSUS URANIUM EXTRACTION



RPA notes that there is a comprehensive set of data reports related to the wellfield operations, process solution chemistry, and process plant operation which is collected and reported on a monthly basis. RPA is of the opinion that additional analysis of such data may indicate the potential causes for better or worse than expected performance and may provide better tracking of the wellfield performance.

RPA recommends that additional analysis of the physical and chemical data related to the well fields, process solutions, and plant operations be done on an ongoing basis to assist in the evaluation of the operations and to possibly determine the cause of better or worse than planned operating results.

14 MINERAL RESOURCE ESTIMATE

SUMMARY

Mineral resources for the Mine were originally estimated by Volkovgeologia in 2002 and again in 2010 using the CIS methodology and the mineral resources were reported as per the CIS classification system. RPA reviewed drill density, geological information, and the parameters and methodology of the Volkovgeologia estimates and issued Technical Reports in 2010 and 2012. In each review, RPA conducted a check of mineral resources in a selected part of the Zarechnoye deposit by using the contour method to verify the mineral resources in the central part of the Zarechnoye deposit. Uranium One subsequently conducted closely spaced production drilling, i.e., technological wells, in certain areas and re-estimated and re-classified the Zarechnoye mineral resources. Selected areas were converted to Mineral Reserves based on criteria described in Section 15 of this report.

For this report, Mineral Resources were estimated as at June 30, 2013. RPA reviewed the technological drilling, re-classified the Mineral Resources as per CIM definitions, and subsequently adjusted the Mineral Resources based on depletion due to production from December 31, 2011 to June 30, 2013. The Mineral Resources were then updated by depletion due to production to December 31, 2013. Table 14-1 summarizes the Mineral Resources for the Mine effective December 31, 2013. The Qualified Person for the current Mineral Resource estimate is Wayne Valliant, P. Geo., RPA Principal Geologist.

TABLE 14-1 MINERAL RESOURCES AT ZARECHNOYE MAIN – DECEMBER 31, 2013

Uranium One Inc. - Zarechnoye Uranium Mine

Resource Category	Tonnage (Mt)	Grade (%U)	Contained U (t U)	Grade (%U₃O₈)	Contained U₃O₈ (Mlb U₃O₈)
Measured	16.8	0.007	1,148	0.008	2.94
Indicated	11.8	0.052	6,068	0.061	15.53
Measured & Indicated	28.5	0.025	7,216	0.030	18.47
Inferred	9.4	0.048	4,500	0.056	11.7

Notes:

1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources of the Zarechnoye deposit are based on 0.08 m% (grade x thickness) per resource block cut-off and 0.01% U delineation cut-off.

3. Mineral Resources are inclusive of Mineral Reserves.
4. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
5. Maximum thickness of barren material between mineralized layers included in a resource block is 5 m.
6. Minimum average grade of a block is 0.10% eU.
7. Columns and rows may not add correctly due to rounding.
8. The estimates of Measured Mineral Resources are based on results of technological drilling completed in 2010 and 2011.

The previous, December 31, 2011, Mineral Resource estimate included Mineral Resources for Zarechnoye South. Subsequently, based upon poor definition drilling results, Uranium One has written off the Zarechnoye South deposit and has surrendered the Zarechnoye South SUC to the Government of Kazakhstan. As a result, the Zarechnoye South Mineral Resources are not included in this estimate.

RPA COMMENTS ON CIS RESOURCE CLASSIFICATION

The system for classifying mineral resources in the CIS countries was developed in 1981 in the former Soviet Union. Mineral concentrations were divided into seven categories in three major groups based on the levels of exploration work conducted. The density of the exploration grid and the continuity of the mineralization determined the resource category of each block. Factors that influence resource block classification are deposit complexity, i.e., variability in size, shape, thickness, and grade.

A list of CIS resource classifications and categories and how they relate to current CIM resource classifications is shown in Table 14-2. RPA notes that the CIS system refers to “reserves” which are the equivalent of Mineral Resources under CIM Classification. To avoid confusion, RPA has changed the designation of “reserves” in the CIS system to “resources” (lower case) to better compare to “Mineral Resources” (upper case) as defined by CIM.

TABLE 14-2 CIS CLASSIFICATION OF MINERAL RESOURCES
Uranium One Inc. – Zarechnoye Uranium Mine

CIS Classification	CIS Categories	Comparable CIM Classification
Explored resources	A and B	Measured Resources
Explored resources	C1	Indicated/Measured Resources
Evaluated resources	C2	Inferred/Indicated Resources
Prognosticated resources	P1, P2, and P3	Exploration Data

RPA also notes that prognosticated resources (P1, P2, and P3) are not recognized as Mineral Resources under the CIM Classification system. These are considered to be

equivalent to exploration data and estimations of resources are considered to be conceptual or “order of magnitude” in terms of estimation accuracy.

ESTIMATION PARAMETERS

According to Sedushev (2003), the following parameters for estimation of mineral resources at the Mine were approved by Kazatomprom and used for estimation:

- Cut-off grade used for establishing mineralization widths is 0.01% eU.
- Minimum total grade x thickness (GT) per hole used within the outline of the mineralized body or block is 0.08 m%.
- Minimum average GT value used to outline a resource block is 0.10 m%.
- Maximum thickness of separate/individual waste (barren/uneconomic) layers included in the resource estimation is 1.0 m (C1 blocks only).
- Total thickness of barren layers included in one resource block is less than 6.0 m in C1 blocks and no limit on C2 blocks.
- Minimum aerial mineralization to waste ratio (ratio between the number of positive holes to the total number of holes within the mineralized resource block outline) is 0.75.
- Maximum size of a C1 block is 40,000 m².
- Minimum size of an isolated block is 40,000 m² for C1 blocks and 300,000 m² for C2 blocks.
- 2% maximum average CaCO₃ for the block.
- The silt and clay content (<0.05 mm particle size) within the mineralized horizons is not to exceed 30%.
- Minimum permeability of the mineralized horizon is 1.0 m/d (filtration factor/co-efficient (Kf)).
- Block delineation is controlled by permeable and impermeable strata.
- Density of mineralized intercepts is 1.6 t/m³

Resource blocks with the permeable strata were included in the low-grade uneconomic resources and were delineated using the criteria detailed above, a minimum for 0.2 m% (with no limitations placed on the average grade-thickness per block), and a maximum thickness

of six metres for barren interbeds. Uranium resources in clay and rocks containing >30% fine silt-clay material were included in the statistics based on a cut-off grade of 0.035% U and 0.035 m%.

MODELLING

The mineral resource estimate is based on a polygonal model using exclusively drill hole assay data, i.e., eU values calculated from downhole radiometric probe data. The method is standard and certified for uranium fields of the region. The estimate was done by Volkovgeologia and is approved by the SCMR, a body of the MEMR (Sedushev, 2003).

The Zarechnoye deposit was modelled by taking into consideration similar structural and tectonic characteristics, lithological and facies types, and hydrogeological and geotechnical features. The resource was estimated considering the following criteria:

- Uniform structural and morphological features.
- Delineation of areas of mineralization into horizons and parts of the roll front.
- Proximity of lithological filtration properties of mineralized rocks included in the block.

Drill hole density influenced model interpretation as outlined in Table 14-3. One quarter of the distance between drill holes was used to extrapolate along the flanks of the mineralized bodies and one half of the distance between drill holes was used to extrapolate between a mineralized drill hole and an unmineralized drill hole. The mineralized bodies were subdivided into fronts, limbs, and outliers. Some of the criteria were occasionally relaxed to make geological correlation possible.

TABLE 14-3 CIS CATEGORIZATION BASED ON DRILL HOLE DENSITY
Uranium One Inc. – Zarechnoye Uranium Mine

CIS Category	Line Spacing (m)	Drill Hole Spacing (m)
C1	200	50
C2	400	50 to 200
P1	800	100 to 200

On sections, the lower and upper block boundaries were based on the assay cut-off grade. The delineation of mineralization and C1 and C2 resource blocks was carried out on plans at

a scale of 1:2,000 (and 1:10,000 for P1 blocks). The sections for the production zones have scales 1:1,000 (horizontal) and 1:200 (vertical).

In 2012, RPA audited Volkovgeologia's estimate of resources using the same Contour Method it employed in 2010, which is well suited for estimating tonnage and average grade of mineralized bodies with planar geometries.

GRADE AND THICKNESS CALCULATION

The grade and thickness of the mineralized horizon was determined from gamma ray logging quantitative interpretation, in accordance with the "Instruction on gamma ray logging for uranium prospecting and exploration" as issued in the 1987 Manual. The gamma ray data was interpreted using the following basic correction coefficients:

- Correction for the radioactive equilibrium between U and Ra was 0.78.
- Drilling mud (correction factor varies between 0.80 to 0.93 depending on hole diameter and drilling mud density).
- Moisture content of the horizon (taken as 14% for permeable rocks derived from laboratory testing of core samples).

The above calculation produced a radium content, which was then utilized along with geological considerations to identify potential resource blocks. The uranium content (or grade) was then calculated with a block cut-off grade of 0.06% eU to 0.10% eU.

RESOURCE ESTIMATION METHODOLOGY

The resource estimate of the uranium mineralization was undertaken using geological blocks. The metal content (P) of a block was determined by

$$P = S \times K_p \times \rho$$

Where:

P	Uranium metal (t)
S	Mineralized area (in a horizontal projection) (000 m ²)
K _p	Uranium potential factor (Number of positive boreholes in block / Number of negative boreholes in block)
ρ	Areal productivity (kg/m ²) expressed as: ρ = d x mc x 10
where	d density (t/m ³)

m	block [arithmetic] average thickness (m)
c	block [weighted] average uranium content (%)

BLOCK PARAMETER CALCULATIONS

The following parameters were permuted for each block:

M_{bl} - Total thickness of permeable sediments

M – Average block thickness

C – Volume of block

θ_p - Mass of block

V_{bl} – Volume to be treated by solution

BLOCK DELINEATION

Resource block delineation was based on the following parameters:

- Exploration drill hole grid density.
- Continuity of the mineralization between contiguous intersections and the oxidation roll front.
- Contiguous hydrogeology (permeable and impermeable horizons).
- Consistent granulometry and carbonate content of the mineralized and adjacent non-mineralized rocks.
- Homogeneity of structural and morphological features is the main consideration in block delineation.

RPA notes that the grade cut-off used is considered low by Western standards, but the mineralized interval also has to meet cut-offs based on permeability and GT parameters. RPA is of the opinion that the methodology is appropriate for the estimation of resources and reserves. RPA is also of the opinion that the uneconomic resources should not be reported under CIM definitions.

RPA further notes that the bulk density used for mineralized rock (1.6 t/m^3) is similar to that used in other uranium deposits of South Kazakhstan.

RPA CHECK OF THE MINERAL RESOURCES

In an earlier Technical Report (Agnerian et al., 2010), RPA carried out a check on the mineral resources estimated by Volkovgeologia. This included an estimate of the resources of the central part of the Zarechnoye property by the Contour Method, which is well suited for estimating tonnage and average grade of mineralized bodies with planar geometry, where two dimensions of the mineralized body are much greater than the third dimension.

The area selected for the resource audit carried out for RPA's 2012 Technical Report represented approximately 12% of the total Zarechnoye resources reported by Volkovgeologia in 2002. The RPA estimate of tonnage was higher than the Volkovgeologia estimate, and the RPA estimate of average grade was lower than the Volkovgeologia estimate for the selected area. Nevertheless, RPA considered these differences to be of no major concern and concluded that the Volkovgeologia resources based on CIS methodology were reliable for conversion to CIM Mineral Resources. RPA was also of the opinion that the difference in the resources for the selected area may indicate a positive bias for the overall resources of the Zarechnoye deposit.

As part of its 2012 Technical Report, RPA validated the B, C1, and C2 mineral resource categories as per the CIS system and concluded that resources outlined therein could be converted to Measured, Indicated, and Inferred Resources as per the CIM classification system. The Measured Resources were based on closely spaced production drilling and undiluted mineral resource estimates provided by Volkovgeologia.

MINERAL RESOURCE REPORTING

For this report, RPA prepared the Mineral Resource estimate as at June 30, 2013, which was subsequently updated based on depletion due to production from June 30 to December 31, 2013.

For the June 30, 2013 Mineral Resource estimate, RPA reviewed the technological drilling, re-classified the Mineral Resources as per CIM definitions, and subsequently adjusted the Mineral Resources based on depletion due to production from December 31, 2011 to June 30, 2013. Table 14-4 summarizes the Mineral Resources for the Mine, effective June 30, 2013.

TABLE 14-4 MINERAL RESOURCES AT ZARECHNOYE MAIN - JUNE 30, 2013
Uranium One Inc. - Zarechnoye Uranium Mine

Resource Category	Tonnage (Mt)	Grade (%U)	Contained U (t U)	Grade (%U₃O₈)	Contained U₃O₈ (Mlb U₃O₈)
Measured	16.8	0.008	1,289	0.009	3.35
Indicated	11.8	0.057	6,699	0.067	17.42
Measured & Indicated	28.5	0.028	7,988	0.033	20.77
Inferred	9.4	0.048	4,500	0.056	11.7

Notes:

1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources of the Zarechnoye deposit are based on 0.08 m% (grade x thickness) per resource block cut-off and 0.01% U delineation cut-off.
3. Mineral Resources are inclusive of Mineral Reserves.
4. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
5. Maximum thickness of barren material between mineralized layers included in a resource block is 5 m.
6. Minimum average grade of a block is 0.10% eU.
7. Columns and rows may not add correctly due to rounding.
8. Estimate of Measured Mineral Resources are based on results of technological drilling done in 2010 and 2011.

Subsequent to the preparation of the June 30, 2013 Mineral Resource estimate, Uranium One requested that RPA update the Mineral Resource estimate to December 31, 2013 based on depletion due to production to the end of 2013.

Depletion for the period June 30, 2013 to December 31, 2013 is based upon Uranium One reported production of 113 tonnes U from Proven Mineral Reserves plus 328 tonnes U from Probable Mineral Reserves. These production values correspond to a 141 tonne U reduction in Measured Mineral Resources (production divided by the estimated 80% extraction) and a 630 tonne U reduction in the Indicated Mineral Resources accounting for 35% non-conversion of Indicated Mineral Resources and 80% extraction of the Mineral Resource.

The Mineral Resources as at December 31, 2013 are summarized in Table 14-5.

TABLE 14-5 MINERAL RESOURCES AT ZARECHNOYE MAIN – DECEMBER 31, 2013

Uranium One Inc. - Zarechnoye Uranium Mine

Resource Category	Tonnage (Mt)	Grade (%U)	Contained U (t U)	Grade (%U₃O₈)	Contained U₃O₈ (Mlb U₃O₈)
Measured	16.8	0.007	1,148	0.008	2.94
Indicated	11.8	0.052	6,068	0.061	15.53
Measured & Indicated	28.5	0.025	7,216	0.030	18.47
Inferred	9.4	0.048	4,500	0.056	11.7

Notes:

1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources of the Zarechnoye deposit are based on 0.08 m% (grade x thickness) per resource block cut-off and 0.01% U delineation cut-off.
3. Mineral Resources are inclusive of Mineral Reserves.
4. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
5. Maximum thickness of barren material between mineralized layers included in a resource block is 5 m.
6. Minimum average grade of a block is 0.10% eU.
7. Columns and rows may not add correctly due to rounding.
8. Estimate of Measured Mineral Resources are based on results of technological drilling done in 2010 and 2011.

15 MINERAL RESERVE ESTIMATE

SUMMARY

For the purpose of this report, the Mineral Reserves were estimated as at June 30, 2013 using the June 30, 2013 Mineral Resource estimates less project to date (PTD) production of 3,724 t U extracted from the subsoil. The ore under leach was included in Proven Mineral Reserves and the remaining Measured and Indicated Mineral Resources were converted to Probable Mineral Reserves. The Mineral Reserves were then updated by depletion of production to December 31, 2013. The current Mineral Reserve estimate is shown in Table 15-1.

The Mineral Reserve estimates are for the 100% joint venture interest and do not reflect the reserves attributable to the individual joint venture partners. The low grades, especially of the Proven Mineral Reserves, reflect the deduction of uranium extracted to date.

TABLE 15-1 MINERAL RESERVE ESTIMATE – DECEMBER 31, 2013
Uranium One Inc. – Zarechnoye Uranium Mine

Category	Tonnes (Mt)	Grade (%U)	Recoverable U (tonnes)	Grade (%U ₃ O ₈)	Recoverable U ₃ O ₈ (M lb)
Proven	33.6	0.003	917	0.003	2.4
Probable	15.3	0.021	3,152	0.024	8.2
Proven & Probable	48.9	0.008	4,069	0.010	10.6

Notes:

1. CIM definitions were followed for Mineral Reserves.
2. Mineral Reserves are estimated at a cut-off grade of 0.01% U.
3. Mineral Reserves are estimated using an average long-term uranium price of US\$65 per pound U₃O₈.
4. A minimum mining thickness of four metres was used.
5. Bulk density is 1.64 t/m³ for Proven Mineral Reserves and 1.60 t/m³ for Probable Mineral Reserves.
6. Columns and rows may not add due to rounding.
7. Uranium quantities and grade are net of extraction

CUT-OFF GRADE

RPA has generated a breakeven cut-off grade estimate for the Mineral Reserves based upon the operating costs projected by Uranium One in its budget for 2013 to 2015. The approach was to determine the processing costs per cubic metre of process flow and the average L:S ratio considered necessary for extraction of the uranium. The liquid to solid ratio (L:S) is the weight of leach solutions (taken as one tonne per m³) divided by the ore (rock) tonnage. This

is a measure of the number of leach cycles that a given tonnage of rock will be subjected to over the course of the mining.

From the review of the technological block operations, the L:S ratio for the planned extraction was estimated to be four as discussed in Section 13. RPA has used an L:S ratio of four as the basis for the cut-off grade calculation as shown in Table 15-2.

RPA is of the opinion that a breakeven cut-off grade of 0.01% U exceeds the calculated cut-off grade and is suitable for the Mine and that with a four metre minimum thickness, the minimum grade times thickness is 0.04 m% U.

The full cost breakeven cut-off grade for the solution is estimated to be 14 mg/L U.

TABLE 15-2 CUT-OFF GRADE CALCULATIONS
Uranium One Inc. – Zarechnoye Uranium Mine

Area	Unit	2013	2014	2015
Total Expenses before Taxes	US\$(M)	62.77	63.93	64.70
Flow m ³ /h	m ³ /h	3,000	3,000	3,000
Cost per m ³ of solution	US\$	2.39	2.43	2.46
U ₃ O ₈ Price	US\$/lb	65.00	65.00	65.00
U price \$/kg	US\$/kgU	168.99	168.99	168.99
Solution cut-off grade	g/t	14.1	14.4	14.6
Extraction	%	80%	80%	80%
Dilution		100%	100%	100%
Block grade cut off (kg of U)				
L:S ratio = 4	kg U/m ³	0.141	0.144	0.146
L:S ratio = 5	kg U/m ³	0.177	0.180	0.182
L:S ratio = 6	kg U/m ³	0.212	0.216	0.219
Bulk Density	kg/m ³	1,600	1,600	1,600
L:S = 4	%U	0.009%	0.009%	0.009%
L:S = 5	%U	0.011%	0.011%	0.011%
L:S = 6	%U	0.013%	0.013%	0.014%

An incremental cut-off grade estimate was calculated and is shown in Table 15-3. The incremental cut-off grade for the solution is estimated to be 7 mg/L U.

TABLE 15-3 INCREMENTAL CUT-OFF GRADE CALCULATIONS
Uranium One Inc. – Zarechnoye Uranium Mine

Area		2013	2014	2015
Total Expenses before Taxes	US\$(M)	31.39	31.96	32.35
Flow m ³ /h	m ³ /h	3,000	3,000	3,000
Cost per m ³ of solution	US\$	1.19	1.22	1.23
U ₃ O ₈ Price	US\$/lb	65.00	65.00	65.00
U price \$/kg	US\$/kgU	168.99	168.99	168.99
Solution cut-off grade	g/t	7.1	7.2	7.3
Extraction	%	80%	80%	80%
Dilution	%	100%	100%	100%
Block grade cut off (kg of U)				
L:S ratio = 4	kg U/m ³	0.071	0.072	0.073
L:S ratio = 5	kg U/m ³	0.088	0.090	0.091
L:S ratio = 6	kg U/m ³	0.106	0.108	0.109
Bulk Density	kg/m ³	1,600	1,600	1,600
L:S = 4	%U	0.004%	0.004%	0.005%
L:S = 5	%U	0.006%	0.006%	0.006%
L:S = 6	%U	0.007%	0.007%	0.007%

DILUTION

In the technological blocks, the dilution is included in the calculation of tonnage and average grade of a block as the volume is based upon the effective thickness of the production zone. Table 15-4 summarizes the ore thickness, effective thickness, and the calculated dilution for a number of resource blocks and corresponding technological blocks. Metal content (tonnes U) and grade are calculated based upon the ore thickness, yet the leaching involves the effective thickness.

From the resource blocks the estimated dilution is 125%. For the resource blocks beyond the technological blocks that are converted to Mineral Reserves, it is necessary to add dilution. RPA has assigned a 100% dilution factor to the Mineral Resources in the conversion to Mineral Reserves.

The technological block dilution has in fact been 174% for the technological blocks and 125% for the resource blocks as shown in Table 15-4. The 174% dilution is included in the Mineral Reserve estimate for the technological blocks.

TABLE 15-4 DILUTION ESTIMATES
Uranium One Inc. – Zarechnoye Uranium Mine

Block #	Resource Block			Technological Block		
	Ore Thickness (m)	Effective Thickness (m)	Dilution (%)	Ore Thickness (m)	Effective Thickness (m)	Dilution (%)
0501 B C1	4.2	8.4	101%	3.9	9.4	144%
0502 B C1	5.7	12.8	126%	3.8	9.5	153%
0503 B C1	5.9	11.4	93%	4.1	12.1	197%
0504C1	5.3	14.0	163%	3.8	10.7	185%
0505C1	5.6	11.6	106%	3.4	11.9	253%
0507C1	3.6	8.3	130%	2.1	7.1	245%
0508C1	4.9	10.9	124%	4.0	9.6	139%
0509C1	4.5	11.1	149%	3.7	9.8	168%
0510C2	3.3	8.7	162%	2.9	10.9	277%
0515C2	5.4	10.2	87%	2.8	9.9	259%
0805C1	4.5	15.1	237%	3.8	11.1	191%
0806C1	5.1	14.6	185%	4.3	9.7	126%
0807C1	4.6	13.9	205%	3.5	9.7	175%
0808C1	5.4	11.8	118%	3.8	8.8	134%
0816C2	2.6	19.9	672%	3.3	8.5	156%
0818C2	4.0	17.6	336%	3.0	7.3	141%
0820C2	2.7	7.7	189%	2.8	8.3	193%
0821C2	2.9	18.9	546%	-	-	-
0829C2	3.1	10.7	243%	3.0	6.2	107%
Total/Average	4.8	10.8	125%	3.7	10.2	174%

In the ISR fields, the dilution represents a cost in that additional material must be acidified and will contribute to acid consumption and time to attain the desired L:S ratio for the extraction of the uranium. The dilution is applied to the Mineral Resource tonnage at zero grade.

ORE LOSS

In its previous estimates of the Mineral Reserves, RPA had assigned no loss of uranium in the conversion from Mineral Resources to Mineral Reserves. A review of the conversion

completed by Zarechnoye indicates the conversion of CIS category B, C1, and C2 resources to be 65% when compared to the technological block reserves as shown in Table 15-5.

TABLE 15-5 RESOURCE CONVERSION OF CIS B, C1, C2 TO TECHNOLOGICAL BLOCKS

Uranium One Inc. – Zarechnoye Uranium Mine

Block #	Resource Block			Technological Block			Conversion
	Ore thickness (m)	U grade (% U)	U t	Ore thickness (m)	U grade (% U)	U t	
0501 B C1	4.18	0.056	277	3.86	0.080	255	92%
0502 B C1	5.68	0.046	326	3.76	0.046	214	66%
0503 B C1	5.91	0.060	662	4.07	0.059	489	74%
0504C1	5.30	0.066	1,280	3.76	0.069	803	63%
0505C1	5.63	0.061	603	3.37	0.057	420	70%
0507C1	3.62	0.048	100	2.06	0.045	58	58%
0508C1	4.88	0.085	1,675	4.01	0.056	1,017	61%
0509C1	4.46	0.056	306	3.66	0.035	86	28%
0510C2	3.34	0.074	168	2.89	0.069	118	70%
0515C2	5.43	0.030	62	2.76	0.033	60	97%
0805C1	4.49	0.052	927	3.81	0.052	757	82%
0806C1	5.12	0.039	508	4.27	0.047	490	97%
0807C1	4.56	0.039	511	3.53	0.038	164	32%
0808C1	5.44	0.060	980	3.76	0.050	603	61%
0816C2	2.57	0.042	64	3.32	0.040	42	66%
0818C2	4.03	0.037	47	3.03	0.039	9	20%
0820C2	2.65	0.052	135	2.83	0.058	76	56%
0821C2	2.93	0.037	39	-	-	-	0%
0829C2	3.12	0.035	89	3.00	0.011	3	3%
Total/Average	4.85	0.057	8,759	3.73	0.054	5,664	65%

For the conversion of Mineral Resources beyond the technological blocks, RPA has assigned a 65% conversion of Mineral Resources to Mineral Reserves (35% loss in uranium in the conversion).

EXTRACTION

The SUC for the Mine requires the extraction of 90% of the uranium in the Mineral Reserves. RPA notes that as of the date of the site visit, there is one technological block (out of 49) that has attained 90% extraction. A further eight of the technological blocks in operation have exceeded 80% extraction as of June 30, 2013. However, as shown in Figure 13-1, there are

a number of blocks that are demonstrating slow extraction and which are unlikely to attain even 80% extraction in a reasonable time period. RPA has estimated the average extraction for the Mineral Reserves at the Mine to be 80%.

GRADE ESTIMATION

The Mineral Reserve grades are estimated in the same manner as the Mineral Resource grades, as described in Section 14 of this report, but with the addition of the mine dilution and modified for extraction to date. The technological block grades are estimated from geophysical data but in the same manner as described in Section 14. For Mineral Resource blocks being converted to Probable Mineral Reserves, the Mineral Reserve grades are calculated from the Mineral Resource grades. For the Proven Mineral Reserve blocks, the tonnage and grade is taken from the technological block calculations, which are identical to the Mineral Resource grade estimate calculations but are based upon data from the technological well drilling.

CLASSIFICATION OF MINERAL RESERVES

RPA considers the Mineral Resources under leach to be Proven Mineral Reserves and the Mineral Reserves estimated from the conversion of Mineral Resource blocks to be Probable Mineral Reserves.

ESTIMATION OF MINERAL RESERVES

For the purpose of this report, the Mineral Reserves were estimated at June 30, 2013 using the Mineral Resource estimates, as of that date, less project to date (PTD) production of 3,724 t U extracted from the subsoil. The Mineral Reserves were then updated by depletion of production to December 31, 2013.

The Proven Mineral Reserves were estimated as the ore under leach as shown in Table 15-6.

TABLE 15-6 TECHNOLOGICAL BLOCK (MINERAL RESERVES)
Uranium One Inc. – Zarechnoye Uranium Mine

Block	Months Leaching	Tonnes (000)	Contained U (t)	Extracted U (t)	Extraction (%)
1	79.5	1,806	450.0	353.3	78.5
2	78.5	738	268.7	181.2	67.4
3	76.0	1,747	243.5	93.4	38.4
4	75.0	713	67.8	40.4	59.6
5	68.5	1,231	214.1	171.3	80.0
6	43.6	456	58.0	47.2	81.5
7	45.2	814	255.0	146.2	57.3
8	36.5	1,082	199.9	174.0	87.1
9	33.3	819	86.4	77.8	90.0
10	35.1	672	118.0	94.8	80.4
11	43.7	1,551	289.0	231.2	80.0
12	35.8	2,151	327.9	262.6	80.1
13	26.0	561	92.3	73.9	80.0
14	21.7	466	96.6	81.5	84.3
15	31.0	790	85.5	68.3	79.9
16	34.0	755	167.4	111.5	66.6
17	35.0	568	162.4	95.4	58.7
18	37.0	552	209.6	141.9	67.7
19	21.3	379	81.0	16.8	20.7
20	27.1	734	60.3	45.5	75.4
21	19.8	450	78.4	61.3	78.2
22	26.3	1,028	128.8	79.8	61.9
23	25.3	915	111.8	60.2	53.9
24	23.9	950	204.1	89.5	43.8
25	22.2	794	201.8	96.9	48.0
26	21.4	746	110.0	83.0	75.5
27	18.5	288	42.3	30.9	73.1
28	18.1	65	9.4	3.5	37.7
29	19.4	480	78.2	59.2	75.7
30	16.9	542	132.1	59.8	45.3
31	16.0	558	99.3	65.3	65.7
32	14.1	477	76.4	31.1	40.7
21-A	15.0	372	108.4	47.6	43.9
35	13.3	602	90.6	59.0	65.1
35-A	12.4	450	87.2	61.1	70.0
34	11.7	460	57.7	34.9	60.5
36	11.0	446	80.4	54.5	67.8
37	10.1	495	94.1	32.9	35.0
37-A	9.4	581	124.9	83.2	66.6
37-B	9.2	381	132.8	67.7	51.0
33	8.3	467	41.4	13.4	32.4

Block	Months Leaching	Tonnes (000)	Contained U (t)	Extracted U (t)	Extraction (%)
14-A	8.0	125	10.6	8.5	80.2
38	6.8	414	76.1	16.4	21.6
40	4.4	372	31.4	5.6	17.7
47	4.9	398	38.1	3.7	9.7
45-A	3.5	636	56.3	7.0	12.4
40-A	2.0	677	46.7		
54	0.5	455	38.6		
45	0.1	362	22.7		
Total		33,571	5,944	3,724	62.7

Mineral Resources beyond the technological blocks were converted to Probable Mineral Reserves by applying a 100% dilution factor to the tonnage and a 35% loss of uranium for non-conversion of Mineral Resources as shown in Table 15-7.

TABLE 15-7 MINERAL RESERVE ESTIMATE AT JUNE 30, 2013
Uranium One Inc. – Zarechnoye Uranium Mine

	Tonnes (000)	Grade (%U)	U (t)
Proven:	33,571	0.018%	5,944
Extractable 80%			4,755
Less: extraction to June 2013			3,724
Remaining at June 30, 2013	33,571	0.003%	1,031
Proven Reserve (rounded)	33,600	0.003%	1,030
Probable			
C-1 remaining	11,752	0.057%	6,699
Dilute 100%	11,752		
35% non-conversion of U	8,227		2,345
Reserves before extraction	15,278	0.029%	4,354
80% extraction			3,483
Probable Mineral Reserve	15,278	0.023%	3,483
Probable Mineral Reserve (rounded)	15,300	0.023%	3,480
Proven and Probable Mineral Reserves	48,900	0.009%	4,510

Subsequently, at Uranium One's request, RPA updated the Mineral Reserve estimate to December 31, 2013 based on depletion due to production to the end of 2013. Depletion for

the period June 30, 2013 to December 31, 2013 is based upon Uranium One reported production of 113 tonnes U from Proven Mineral Reserves plus 328 tonnes U from Probable Mineral Reserves.

The Mineral Reserves as at December 31, 2013, are shown in Table 15-8.

TABLE 15-8 MINERAL RESERVE ESTIMATE – DECEMBER 31, 2013
Uranium One Inc. – Zarechnoye Uranium Mine

Category	Tonnes (Mt)	Grade (%U)	Recoverable U (tonnes)	Grade (%U ₃ O ₈)	Recoverable U ₃ O ₈ (M lb)
Proven	33.6	0.003	917	0.003	2.4
Probable	15.3	0.021	3,152	0.024	8.2
Proven & Probable	48.9	0.008	4,069	0.010	10.6

Notes:

1. CIM definitions were followed for Mineral Reserves.
2. Mineral Reserves are estimated at a cut-off grade of 0.01% U.
3. Mineral Reserves are estimated using an average long-term uranium price of US\$65 per pound U₃O₈.
4. A minimum mining thickness of four metres was used.
5. Bulk density is 1.64 t/m³ for Proven Mineral Reserves and 1.60 t/m³ for Probable Mineral Reserves.
6. Columns and rows may not add due to rounding.
7. Uranium quantities and grade are net of extraction

16 MINING METHODS

The Zarechnoye Mine is an operating ISR uranium operation. From the start of leaching to December 31, 2013, the operation has extracted 4,165 t of uranium from the subsoil for subsequent processing and shipment as U_3O_8 in the form of yellowcake.

MINING METHOD

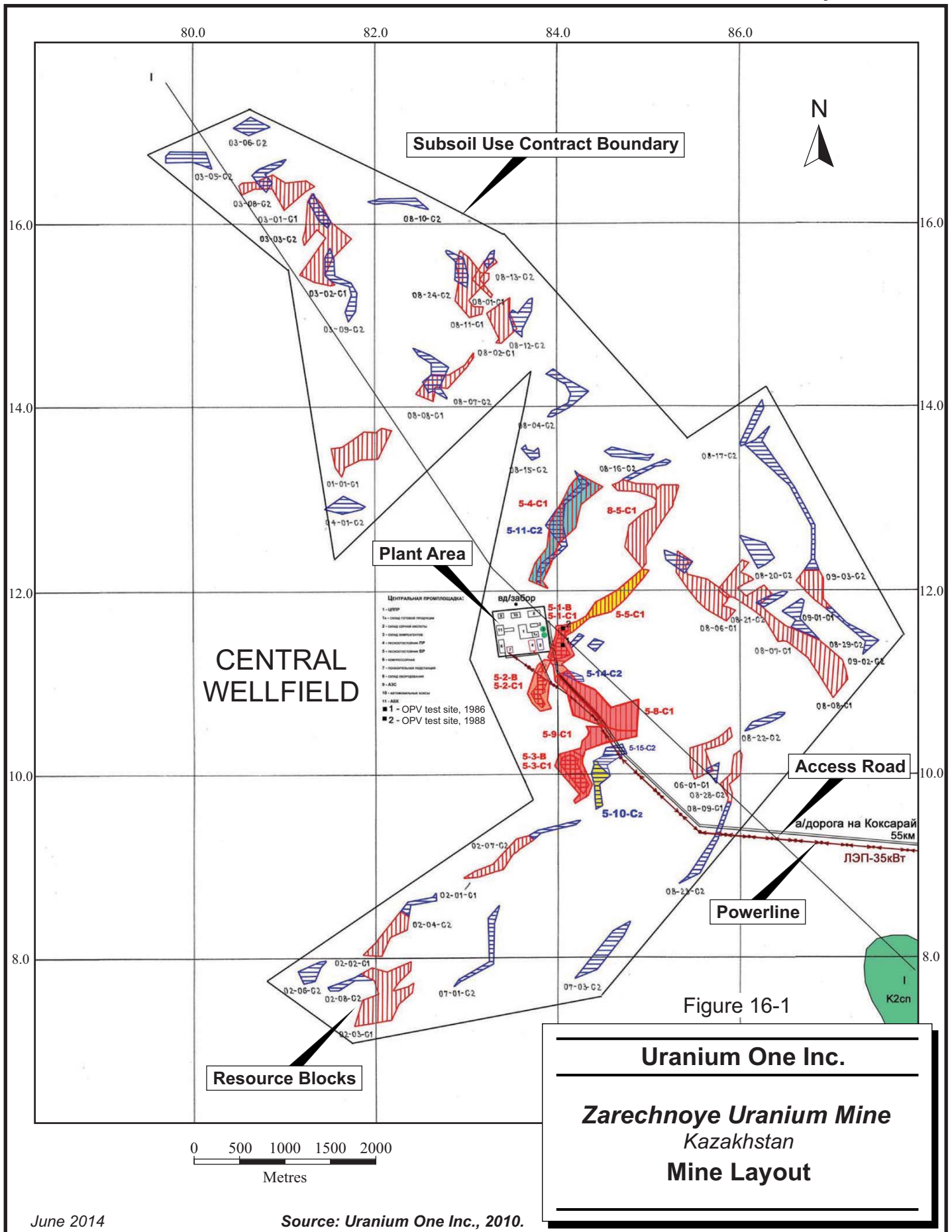
The Zarechnoye Mineral Reserves are located in permeable sandstones approximately 550 m below surface. In light of the depth of the deposit, the sand host rock, and the low grades, RPA agrees that ISR mining is the appropriate method for the extraction of uranium from the deposit.

MINING OPERATIONS

Operations at the Mine include the wellfield operations and the process plant (Figure 16-1). The Mine comprises one deposit that is in production with at least nine mineralized horizons, four of which are developed and currently in production (Figure 4-2). Kazatomprom is the operator of the Mine.

The uranium ISR operation uses a sulphuric acid leach. Sulphuric acid leaching solution is pumped into the mineralized zone through a network of injection wells (boreholes) and the resulting uranium bearing solution is extracted by production wells. The wells are typically 200 mm in diameter in the upper portions reducing to 100 mm lower in the hole. At the Mine, the wells are an average of 550 m deep and are generally placed in a hexagonal pattern with a 40 m radius or in line patterns with wells 25 m to 40 m apart on lines that are 25 m to 50 m apart.

As of June 30, 2013, the process plant was operating at a rate of approximately 3,000 m³/h using a resin for the recovery of uranium, producing a precipitate which is shipped off site for further processing.



WELLFIELD PRODUCTION

As of December 31, 2013, the wellfield had 952 wells in operation (215 extraction wells and 737 injection wells). The wells are located from approximately two kilometres north of the plant to two kilometres south of the plant and over a width of up to two kilometres. Wells are typically 550 m deep.

Production solutions are mainly produced using submersible pumps. The average grade of the production solution was 36.3 mg/L U for June 2013 and 43.4 mg/L U for the project to date. Acid consumption for the project to date has averaged 94 kg acid per kilogram of uranium for acidification and 195 kg acid per kilogram of uranium for leaching.

The leaching process begins with the acidification of the technological blocks; in this phase an acid solution is injected into the ore zones and recirculated with acid addition until the desired acid concentration in the groundwater is achieved. After a block is acidified, the acid content of the injected solution is reduced and the production solutions are sent to the process plant for the recovery of uranium and the barren solution from the plant is returned to the injection wells.

There is a program of well development included in the mine plan. As areas are depleted, the wells will be abandoned and reclaimed. The drilling requires a drill fleet of eight to twelve units in service throughout the year.

WELL OPERATIONS

Wells are drilled by contractors and are subject to detailed specifications including less than one metre of deviation per 100 m over the length of the hole. Holes are drilled, surveyed, and subjected to testing as they are drilled. A drill rig can drill 2.5 to three wells per month. A well cross section is shown in Figure 16-2 and a cross section showing well installations in the ore zones is shown in Figure 16-3.

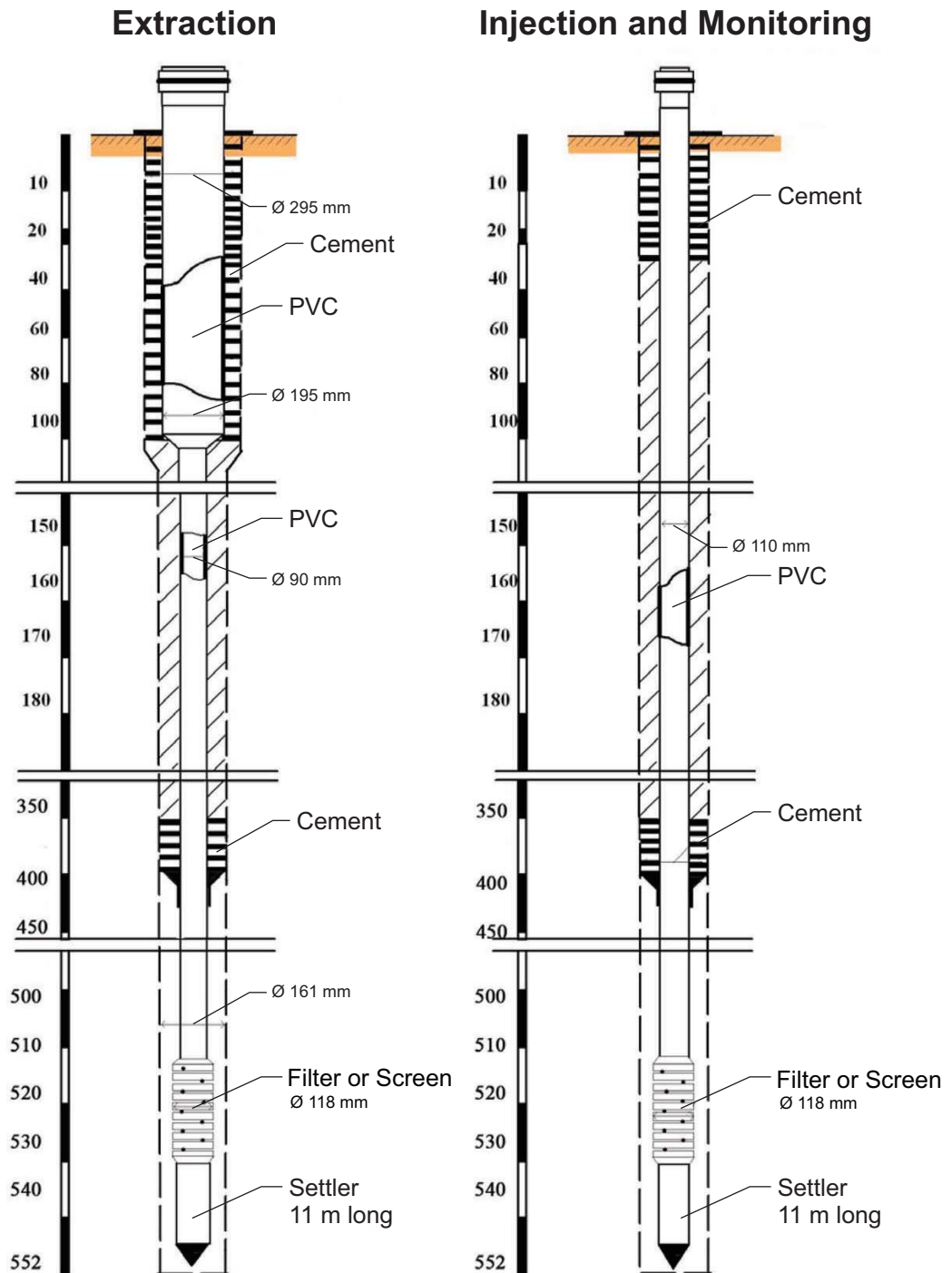


Figure 16-2

Uranium One Inc.

Zarechnoye Uranium Mine
Kazakhstan

Typical Well Cross Section

Figure 16-3

Uranium One Inc.

Zarechnoye Uranium Mine

Kazakhstan

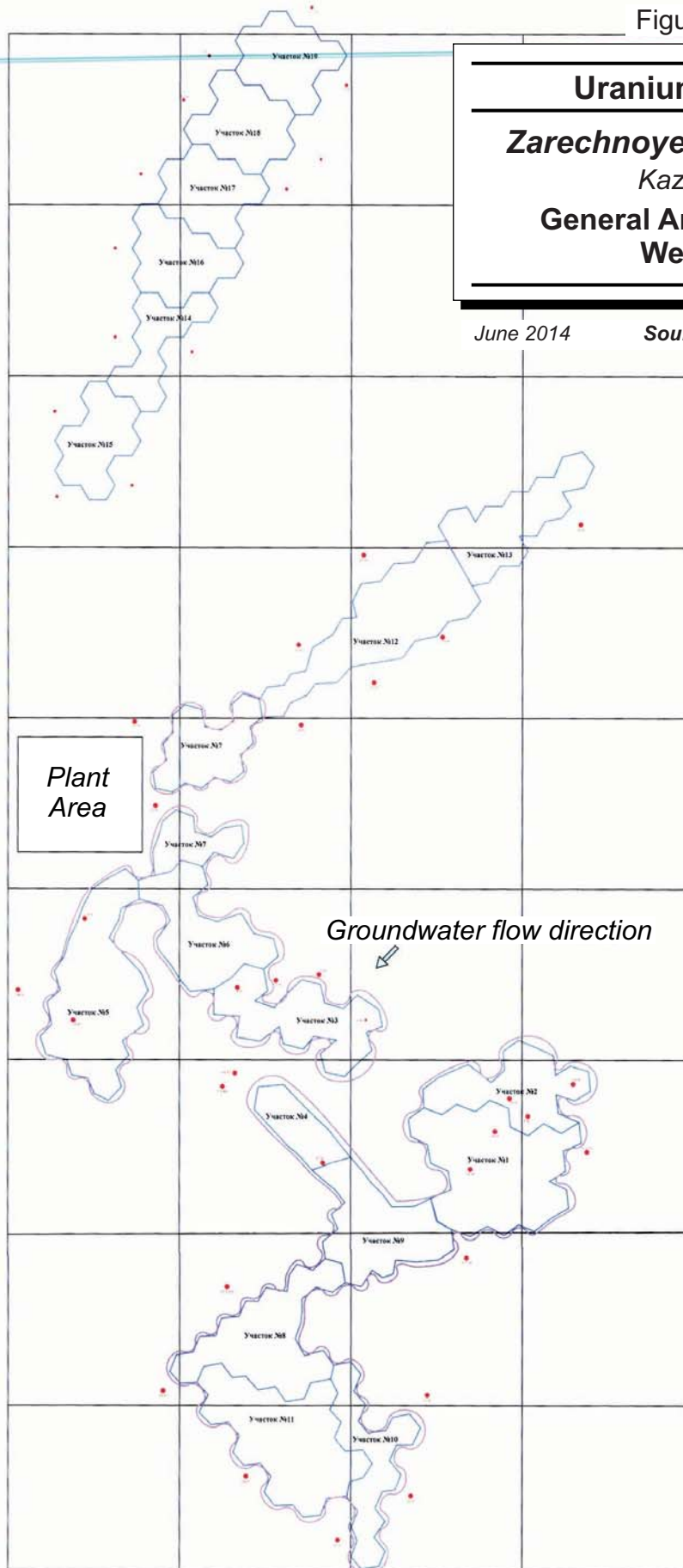
General Arrangement of Wellfields

June 2014

Source: Uranium One Inc., 2010.



0 0.5 1 1.5 2
Kilometres



After drilling, a network of pipes and cables is required for the field. Power is required for submersible pumps and is provided from local substations installed in the wellfield. Piping is required for the acid feed to the wells, production solutions from the wells, and barren solutions to the wells. The piping consists of a system of larger main lines fed by small lines from the production areas. Well houses are built from sea containers and contain the injection and production well manifolds and valves for a given block. Flow meters are employed at all well houses to provide operating information. Drip samplers are used to collect solution samples at the well houses.

As noted previously, the current operations extend some two kilometres north and south of the production plant. The Zarechnoye uranium field extends up to 6.5 km from the production plant. This distance does not, in Kazatomprom's opinion, warrant installation of a remote plant but will require installation of a pumping facility to handle solutions.

17 RECOVERY METHODS

MINERAL PROCESSING

The process consists of the following stages:

- Pregnant solution is taken from the solution settling pond.
- Uranium recovery from the pregnant solution using Amberlite IRA-910 Cl ion-exchange resin (class A Ambersept-920) in SNK-3m pressure sorption columns.
- Barren solution is collected in the leach solution-settling pond.
- The uranium-enriched resin is transferred to an interim buffer tank.
- The uranium-enriched resin is washed to remove suspended solids.
- The uranium-enriched resin flows to a series of stripping columns.
- Uranium is stripped from the resin using ammonium nitrate solution in a countercurrent circuit.
- Uranium enriched eluate from the last column flows into a buffer tank.
- After stripping, nitrate is removed from the resin using sulphuric acid.
- After nitrate removal, the resin is washed and the regenerated resin is placed back into the SNK-3m columns.
- The uranium-rich eluate from the buffer tank flows into the precipitation circuit.
- The eluate is treated with caustic soda in a series of precipitation columns to neutralize excess acidity and precipitate uranium.
- The precipitate is filtered and washed by process water on horizontal frame filter presses.
- The resulting yellowcake is placed in shipping containers.
- The sales product is then shipped to refineries for upgrading to U_3O_8 .

The plant flow sheet is shown in Figure 17-1.

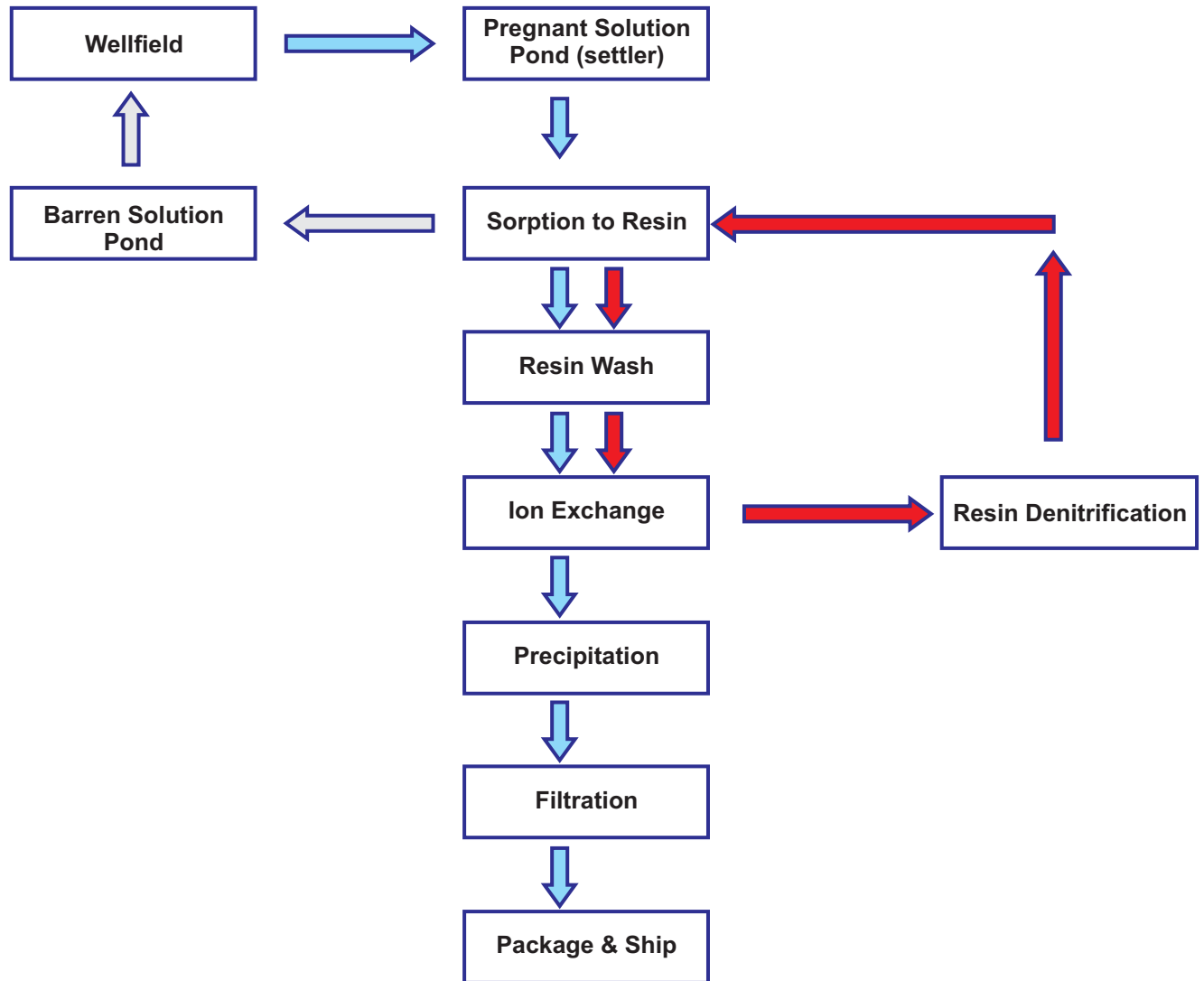


Figure 17-1

Uranium One Inc.

 Zarechnoye Uranium Mine
 Kazakhstan

Process Flow Sheet

Solution is maintained in two open topped 3,000 m³ solution storage/sand filter ponds. The feed to the plant is from two pumps in parallel with a set of two back-up pumps in a separate pump house adjacent to the first pump house. The plant is a conventional leach recovery plant which uses eight up-flow absorption tanks operated in parallel and three down-flow ion exchange cells operated in series.

After absorption, the resin is moved to ion exchange from which a loaded eluent with a reported grade of 35 g U/L is obtained. Resin consumption was approximately 3 m³ per month. The precipitate is filtered in one of two filter presses and the product from the filter press drops into containers with a capacity of approximately 500 kg each.

The final product is 20% to 25% moisture and 45% U to 50% U. The maximum allowable moisture content is 30%. The bins have bolted lids and are kept in a locked and video monitored store room prior to shipment. The containers are moved by truck to the rail station (90 km) and then by rail to the converters or refiners.

Operators monitor and control plant flows from the control room. Individual wells are not controlled from the control room. The control system was designed and built in-house and is maintained by Zarechnoye technical employees. The operation of the plant can be controlled, but production numbers are based on manual assay inputs for the estimation of production.

The process solution ponds at Zarechnoye are open air ponds, which would be susceptible to dust accumulation from frequent dust storms and solution loss to evaporation in a hot sunny, windy environment. These issues will cause problems related to pond clean-up, suspended solids in the solutions, and increased make-up water requirements.

The plant was found to be orderly and clean in all areas. RPA is of the opinion that the plant is suitable for the operation and that it is being maintained in a clean and efficient manner.

PLANT PERFORMANCE

The target for the plant is a barren solution grade of 1.2 mg/L U, down from 1.7 mg/L in the previous technical report. From 2007 to 2010, the barren solution grade decreased from 2.8 mg/L U to 2 mg/L U. Since 2010, the barren solution grades have remained relatively

constant at 2 mg/L U. At the current pregnant solution grades of approximately 40 mg/L U, the recovery of uranium in the plant is at 94.5% compared to a planned recovery of 97%.

RPA recommends that a recovery of 94% be used for the economic analysis of the Zarechnoye deposit based upon the assumed production solution grade.

PRODUCTION

Production to date from Zarechnoye from 2007 to the end of 2013 and the production solution grade are shown below (Table 17-1). As noted in Section 16, the productive solution grades have fallen since 2009. The falling grades have been offset by increased treatment plant throughput.

TABLE 17-1 ZARECHNOYE PRODUCTION DATA
Uranium One Inc. – Zarechnoye Uranium Mine

Period	U Produced (t)	Production Solution Grade (mg/L U)
2007	105	53
2008	167	56
2009	494	57
2010	815	51
2011	712	45
2012	942	44
2013	930	37
Total	4,145	n/a

Pursuant to the Zarechnoye Contract (see Section 4 of this report), Zarechnoye was to reach the design capacity of the Mine (i.e., 1,000 tpa of uranium) in 2011.

18 PROJECT INFRASTRUCTURE

The Mine has a number of support facilities including:

- 500 kW back-up generator
- Connection to the grid
- Hot water heaters for plant heat supply
- Compressed air supply for airlifts
- Shops and supplies storage area
- Acid storage tanks
- Offices, change rooms and dining room
- Fenced plant area with security at the gate
- Employee housing with a central hot water heating plant for heating needs

STAFF ACCOMMODATION

The staff accommodation consists of 21 multi-room houses with sufficient capacity for the crews who work on a rotating basis. The camp is located outside the plant security fence and is situated approximately 500 m from the plant yard. Kazakh regulations do not allow the camp to be located immediately adjacent to the plant.

The cook house is located within the administration building.

POWER

Electrical power is supplied from the national power grid and emergency back-up is only able to provide power for critical plant operations in the event of a failure of the grid power supply.

TRANSPORTATION AND LOGISTICS

The site is accessed by a combination of hard surface roads and highways. The nearest rail access is at Timor approximately 90 km from the mine. At Timor, Zarechnoye owns and operates a freight terminal for the movement of supplies and materials to the site and for the transportation of uranium from the site.

There is a terminal along the rail yard with office and storage areas. The company owns a yard locomotive to move rail cars within the yard area. There are storage tanks for diesel and for sulphuric acid such that acid can be received in rail cars and stored at Timor before being shipped by highway transport truck to the Mine.

19 MARKET STUDIES AND CONTRACTS

MARKETS

SALES CONTRACTS

Generally, Uranium One sells its uranium production to major nuclear utilities in North America, Europe, and Asia under long term supply agreements and, in limited circumstances, to third parties such as trading companies, in small quantities. Uranium One has entered into market-related sales contracts with price mechanisms that reference the market price in effect at or near the time of delivery. In addition, Uranium One has negotiated floor price protection in many of its sales contracts.

Customers take delivery of U_3O_8 at conversion facilities and Uranium One ships the U_3O_8 produced at its mines to converters in time for scheduled deliveries to customers. Depending on the location of the conversion facility, shipping times from Kazakhstan can be up to four months and the lead time between production of U_3O_8 and sales has a significant impact on the inventory levels at any given time. Uranium One has entered into a uranium logistics agreement with JSC Atomredmetzoloto, the Russian state-owned uranium mining company, which allows both parties to enter into location swaps and spot sales in order to facilitate deliveries of uranium to customers, and to better manage shipping logistics.

URANIUM PRICE

RPA notes that the market for uranium fluctuated during the past four years. Figure 19-1, copied from the Ux Consulting Company LLC (UxC) website, shows the trend in uranium pricing over the past three years.

The spot quote listed by UxC on November 25, 2013 was US\$36.25/lb U_3O_8 . For economic analysis, RPA has used a spot price of US\$55.00/lb in 2013, US\$65.00/lb in 2014, US\$70.00/lb in 2015, and US\$65.00/lb U_3O_8 thereafter.

Metal prices used for Mineral Resources and Mineral Reserves are based on consensus, long term forecasts from banks, financial institutions, and other sources.

FIGURE 19-1 UXC U₃O₈ HISTORICAL URANIUM PRICES



Source: The Ux Consulting Company, LLC available at <http://www.uxc.com>

CONTRACTS

Zarechnoye has contracts in place for the major services and supplies including:

- Sulphuric acid,
- Processing of product,
- Shipping of the product to a refiner,
- Freight and forwarding to the upgrader facility in France, and
- Well drilling.

The contracts are generally for annual periods and include the usual provisions for documentation, material specifications, and events such as force majeure.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

ENVIRONMENT, HEALTH AND SAFETY

Initial observations were that the site was well kept, clean, and with good housekeeping practices. Staff appeared to be knowledgeable in their job areas, and designs appeared to be adequate for the nature of the work at the facility. Conventional health and safety programs exist with respect to acid management (a key health, safety, and environment program element) as well as other conventional health and safety elements.

A radiation protection program also exists that is based on international standards for exposure (IAEA) that monitors worker health and safety. Key elements of the program include good housekeeping, and monitoring of gamma radiation exposures through the use of worker thermoluminescent dosimeters (TLDs) (reported and posted quarterly) and periodic radon measurements at selected areas of the plant.

Small quantities of sand may accumulate in the process ponds. This material may contain radioactive materials and is planned to be disposed of in an approved waste disposal area off site.

No material issues of concern became evident and no fatal flaws from an environmental perspective were identified.

Current Kazakhstan regulations regarding development are being followed. For this operation, the environmental issues relative to start-up can be expected to be minimized. In view of the depth of the zones being mined and the relative isolation of the aquifer, there is no aquifer remediation planned as part of the closure. The surface disturbances will be reclaimed and process facilities will be removed.

The environmental risk is currently perceived to be low.

PROJECT PERMITTING

The Mine is operating and has obtained the necessary permits for exploration and production operations currently being conducted.

SOCIAL OR COMMUNITY REQUIREMENTS

There are no communities in the immediate vicinity of the Mine. Under the subsoil agreement, Zarechnoye is required to make certain social expenditures.

MINE CLOSURE REQUIREMENTS

In view of the depth of the zones being mined and the relative isolation of the aquifer, there is no aquifer remediation planned as part of the closure. The surface disturbances will be reclaimed and process facilities will be removed.

Under the SUC, Zarechnoye is required to contribute to a reclamation fund each year.

As of December 31, 2013, the Uranium One portion of the asset retirement obligations (on an undiscounted basis) has been estimated at US\$1.8 million for the successful decommissioning, reclamation and long term care of the surface and well field facilities. The total asset retirement obligation is then estimated to be US\$3.6 million.

21 CAPITAL AND OPERATING COSTS

CAPITAL REQUIREMENTS

The Zarechnoye Mine is in operation and the planned expenditures are for the ongoing wellfield development, any planned plant modifications, and for sustaining capital. The LOM plan capital costs for the Mine were prepared based upon management's budgets but reflecting the LOM plan in this report.

The capital expenditures are estimated to be \$122 million over the life of mine and are summarized in Table 21-1. The capital is based upon the estimates and budgets prepared by management.

TABLE 21-1 CAPITAL EXPENDITURE ESTIMATE
Uranium One Inc. – Zarechnoye Uranium Mine

		2014	2015	2016	2017	2018	Total
Wellfield Development	US\$ (M)	32.06	30.08	36.71	9.00		107.85
New Construction	US\$ (M)	0.30	0.13	-		-	0.43
Expansion/Upgrade	US\$ (M)	0.30	0.13	-		-	0.43
Sustaining Capital	US\$ (M)	3.58	3.67	4.43			11.68
Social	US\$ (M)	0.11	0.11	0.36	0.36	0.36	1.30
Total Capital Costs	US\$ (M)	36.35	34.13	41.50	9.36	0.36	121.69

OPERATING COSTS

The June 2013 YTD operating costs are shown in Table 21-2. The operating costs are favourable compared to the budget on a total dollar basis, but the shortfall in production has led to an unfavourable variance in the cost per pound produced.

TABLE 21-2 JUNE 2013 YTD OPERATING COSTS
Uranium One Inc. – Zarechnoye Uranium Mine

	Jun Actual YTD	Jun Budget YTD	Variance
Tons U	489	468	(21)
Lbs U ₃ O ₈	1,271,030	1,215,838	(55,192)
Mining	19.70	19.87	0.17
Processing	4.63	5.37	0.73
Auxiliary	2.75	3.38	0.63
Mine Administration	0.45	0.51	0.06
Regional Office Allocation	1.83	1.85	0.02
Total Operations	29.35	30.97	1.62
Selling Expenses	0.56	0.56	(0.00)
Interest Expenses	2.85	3.15	0.30
Total Other Expense	3.41	3.71	0.30
Total Operations Cost per Lb	23.09	25.47	2.38

Management prepares annual budgets and projections for longer term expenditures. RPA used management's budget as the basis for the operating costs in this report. As such, the operating costs are based upon the site operating experience in terms of reagents, supplies, and manpower and the estimated costs of those supplies and labour.

The estimated operating costs are summarized in Table 21-3.

TABLE 21-3 LOM OPERATING COST ESTIMATES
Uranium One Inc. – Zarechnoye Uranium Mine

		2014	2015	2016	2017	2018	Total
Mining	US\$ (M)	26.17	26.21	26.15	18.30	10.98	107.81
Processing	US\$ (M)	4.65	4.71	4.65	3.26	1.95	19.23
Auxiliary	US\$ (M)	6.01	5.96	5.97	4.18	2.51	24.62
Administration	US\$ (M)	0.85	0.85	0.85	0.60	0.36	3.51
Contract Processing	US\$ (M)	7.10	7.12	7.11	4.98	2.99	29.31
Almaty Office	US\$ (M)	3.36	3.35	3.31	2.32	1.39	13.72
Selling Expenses	US\$ (M)	0.76	0.76	0.83	0.83	0.77	3.95
Subtotal	US\$ (M)	48.91	48.96	48.87	34.46	20.95	202.15
Social Cost	US\$ (M)	0.40	0.40	0.40	0.40	0.40	2.00
Training	US\$ (M)	0.62	0.60	0.66	0.30	0.12	2.30
Reclamation	US\$ (M)	0.62	0.60	0.66	0.30	0.12	2.30
Subtotal Other Costs	US\$ (M)	1.63	1.59	1.73	0.99	0.65	6.59
Total Operating Costs	US\$ (M)	50.54	50.56	50.60	35.45	21.60	208.75
MET		16.28	15.76	17.49	7.84	3.28	60.65
Total Operating Costs	US\$ (M)	66.82	66.32	68.09	43.29	24.88	269.39
Cost per lb U Produced	US\$	31.21	30.98	31.81	28.05	28.35	30.03
Cost per kg U Produced	US\$	68.82	68.30	70.13	61.84	62.51	66.21
Cost per lb U₃O₈ Produced	US\$	26.45	26.26	26.96	23.77	24.03	25.45

MANPOWER

The Mine is in operation and average manpower levels of 358 people in operations and 60 in administration were projected for 2013. A breakdown of the manpower is shown in Table 21-4.

TABLE 21-4 2013 PROJECTED MANPOWER
Uranium One Inc. – Zarechnoye Uranium Mine

Management	7
Sales	2
Office	58
Mine	145
Process	50
Auxiliary	156
Total	418

22 ECONOMIC ANALYSIS

Under NI 43-101 and Form 43-101F1, producing issuers may exclude the information required for Section 22 (Economic Analysis) for properties that are currently in production, unless the Technical Report includes a material expansion of current production. RPA notes that Uranium One is a producing issuer, the Zarechnoye Mine is currently in production, and a material expansion is not being planned. RPA has performed an economic analysis of the Zarechnoye Mine as part of its estimate of Mineral Reserves using the estimates presented in this report and concluded that the outcome is a positive cash flow.

23 ADJACENT PROPERTIES

There are currently no adjacent properties, however, RPA notes that Uranium One has returned the adjacent Zarechnoye South SUC to the Government of Kazakhstan. A brief description of the Zarechnoye South property is therefore provided in this section.

The central part of the Zarechnoye South deposit is located approximately 6.5 km south of Zarechnoye Main, but at their closest point, the properties are separated by a 400 m wide gap. Information regarding location, land tenure, and contracts may be found in Agnerian and Bergen, 2012.

Zarechnoye South shares its permits, accessibility, climate, local resources, infrastructure, physiography, geological setting, mineralization, sample preparation, sample analyses, sample security, and deposit type model with the Zarechnoye Main deposit described in this report.

Kazatomprom conducted exploration of the Zarechnoye South in 2008 and 2009. Results from these programs, along with exploration plans to 2013, were reported in 2010. Based on the results, Volkovgeologia prepared a resource estimate for Zarechnoye South which was reported in a previous Technical Report by RPA, dated May 2, 2012 (Agnerian and Bergen, 2012). Subsequently, based upon poor exploration results, Uranium One has written off the Zarechnoye South deposit and has returned the Zarechnoye South SUC to the Government of Kazakhstan.

24 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to make this Technical Report understandable and not misleading.

25 INTERPRETATION AND CONCLUSIONS

Based on the site visit and review of the available data, RPA concludes that:

- The uranium mineralization is a sandstone-hosted, roll front type deposit.
- Uranium mineralization occurs in at least nineteen horizons, nine of which have been outlined by drilling with reported Mineral Resources. Four of the nine zones constitute approximately 91% of the reported Mineral Resources.
- The methodologies of lithological and radiometric logging procedures, and sampling and assaying during past drilling campaigns were in keeping with industry standards.
- The Zarechnoye Main deposit has favourable characteristics for uranium extraction as the uranium is hosted in zones of acceptable permeability with good solution mining conditions.
- In general, carbonate content of the mineralized and host rocks ranges from 0.4% to 1%. In places, however, it may be up to 12%.
- The mineralization is in several sub-horizons within impermeable layers that have appropriate groundwater levels. These allow greater than 20 m of head and greater than 6 MPa of injection pressure.
- The December 31, 2013 Mineral Resource estimates for the 100% interest in the Mine are:
 - o Measured Mineral Resources of 16.8 million tonnes grading 0.007% U (0.008% U_3O_8), containing approximately 1,148 tonnes U (2.94 M lb U_3O_8).
 - o Indicated Mineral Resources of 11.8 million tonnes grading 0.052% U (0.061% U_3O_8), containing approximately 6,068 tonnes U (15.53 M lb U_3O_8).
 - o Inferred Mineral Resources of 9.4 million tonnes grading 0.048% U (0.056% U_3O_8), containing approximately 4,500 tonnes U (11.7 M lb U_3O_8).
- The December 31, 2013 Mineral Reserve estimates for the 100% interest in the Mine are:
 - o 33.6 million tonnes of Proven Mineral Reserves grading 0.003% U (0.003% U_3O_8) and containing 917 t of extractable U (2.38 M lb U_3O_8).
 - o 15.3 million tonnes of Probable Mineral Reserves grading 0.021% U (0.024% U_3O_8) and containing 3,152 t of extractable U (8.20 M lb U_3O_8).
- Based upon experience and a reconciliation between Mineral Resources and Mineral Reserves, the conversion of contained uranium from Mineral Resources to Mineral Reserves was estimated to be 65% and this factor has been applied in the estimation of Mineral Reserves.
- The extraction of the Mineral Reserves is estimated to be 80%.
- The Zarechnoye deposit is being successfully exploited using ISR techniques.

- The estimated operating cost for the Mine is US\$27.49 per pound U_3O_8 sold.
- The LOM plan includes the extraction of 4,069 tonnes U from the estimated Mineral Reserves. The remaining mine life as of December 31, 2013, and based on current Mineral Reserves, is slightly less than five years.
- The maximum annual production is estimated to be 960 tonnes U.
- The capital cost for the LOM is US\$122 million including plant construction, production well drilling and sustaining capital.

26 RECOMMENDATIONS

Based on the site visit and review of technical data, RPA recommends that Uranium One:

- Continue in-fill drilling on Zarechnoye Main deposit to allow for the further estimation of Indicated Mineral Resources.
- Obtain drill hole database including QA/QC procedures and results for current and subsequent drill programs to facilitate compliance with industry best practices and NI 43-101 reporting.
- Continue to monitor the performance of the various operating cells to determine whether modifications to the anticipated wellfield recovery and production rates are warranted.
- Continue operations and seek methods to improve the operations through the reduction in the acid consumption and increasing production.
- Consider and evaluate alternatives to increase production such as increases in the processing plant capacity.
- Carry out drilling and evaluation to bring material from the CIS C2 resource category into the Indicated Mineral Resource category so that this Mineral Resource can be converted to Mineral Reserves.
- Consider and implement procedures to obtain all of the exploration and technological estimation data on a timely basis to enable Uranium One to complete Mineral Resource and Mineral Reserve estimates independently of Zarechnoye.
- Continue the reconciliation procedures on a regular basis for block by block reconciliation of the production compared to the Mineral Reserve and Mineral Resource estimates.
- Direct more effort to the analysis of the physical and chemical data related to the wellfields, process solutions, and plant operations to assist in the evaluation of the operations and to possibly determine the cause of better or worse than planned operating results.

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28 DATE AND SIGNATURE PAGE

This report titled "Technical Report on the Zarechnoye Uranium Mine, Kazakhstan" and dated June 17, 2014, was prepared and signed by the following authors:

(Signed & Sealed) "Wayne W. Valliant"

Dated at Toronto, ON
June 17, 2014

Wayne W. Valliant, P.Geo.
Principal Geologist

(Signed & Sealed) "R. Dennis Bergen"

Dated at Toronto, ON
June 17, 2014

R. Dennis Bergen, P.Eng.
Associate Principal Mining Engineer

29 CERTIFICATE OF QUALIFIED PERSON

WAYNE W. VALLIANT

I, Wayne W. Valliant, P.Geo., as an author of this report entitled "Technical Report on the Zarechnoye Uranium Mine, Kazakhstan", prepared for Uranium One Inc., dated June 17, 2014, do hereby certify that:

1. I am Principal Geologist with Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.
2. I am a graduate of Carleton University, Ottawa, Ontario, Canada in 1973 with a Bachelor of Science degree in Geology.
3. I am registered as a Geologist in the Province of Ontario (Reg. #1175). I have worked as a geologist for a total of more than 40 years since my graduation. My relevant experience for the purpose of the Technical Report is:
 - Review and report as a consultant on more than fifty mining operations and projects around the world for due diligence and resource/reserve estimation, including numerous uranium ISR mines in Kazakhstan and USA.
 - General Manager of Technical Services for corporation with operations and mine development projects in Canada and Latin America
 - Superintendent of Technical Services at three mines in Canada and Mexico
 - Chief Geologist at three Canadian mines
4. 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.
5. I have not visited the Zarechnoye mine.
6. I am responsible for Sections 6 to 12, 14, and 23 and share responsibility for Sections 1 through 5 and 25 through 27 of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I have had no prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 17th day of June, 2014

(Signed & Sealed) "Wayne W. Valliant"

Wayne W. Valliant, P. Geo.

RAYMOND DENNIS BERGEN

I, Raymond Dennis Bergen, P.Eng., as an author of this report entitled "Technical Report on the Zarechnoye Uranium Mine, Kazakhstan", prepared for Uranium One Inc., dated June 17, 2014, do hereby certify that:

1. I am an Associate Principal Mining Engineer engaged by Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON, M5J 2H7.
2. I am a graduate of the University of British Columbia, Vancouver, B.C., Canada, in 1979 with a Bachelor of Applied Science degree in Mineral Engineering. I am a graduate of the British Columbia Institute Technology in Burnaby, B.C. Canada, in 1972 with a Diploma in Mining Technology.
3. I am registered as a Professional Engineer in the Province of British Columbia (Reg.# 16064) and as a Licensee with the Association of Professional Engineers, Geologists and Geophysicists of the Northwest Territories (Licence L1660). I have worked as an engineer for over 30 years since my graduation. My relevant experience for the purpose of the Technical Report is:
 - Practice as a mining engineer, production superintendent, mine manager, Vice President of Operations and a consultant in the design, operation and review of mining operations.
 - Review and report, as an employee and as a consultant, on numerous mining operations and projects around the world for due diligence and operational review related to project acquisition and technical report preparation, including NI 43-101 technical report preparation.
 - Mining engineer in underground gold and base metal mines.
 - Consulting engineer working on project acquisition and project design.
 - Mine Manager at three different mines with open pit and underground operations
 - Review of uranium ISR projects in the USA, Australia, and Kazakhstan.
4. 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.
5. I visited the Zarechnoye Mine most recently on September 16-17, 2013.
6. I am responsible for Sections 13, 15 through 22, and 24 and share responsibility for Sections 1 through 5 and 25 through 27 of the Technical Report.
7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.
8. I visited the site previously from June 4 to 5, 2010 and on October 20, 2011. I am an author of two previous Technical Reports on the Zarechnoye Uranium Mine dated July 6, 2010 and the May 2, 2012.
9. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

10. As of the effective date of this Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 17th day of June, 2014

(Signed & Sealed) "R. Dennis Bergen"

Raymond Dennis Bergen, P.Eng.