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PARTS B AND C

ASSESSMENT REPORT FOR ATHABASCA MINERALS INC.'S RICHARDSON PROPERTY, NORTHEASTERN ALBERTA

Metallic and Industrial Mineral Permits: 9310060418-9310060419, 9312060367, 9312060387-9312060388, 9312070594, 9312100494 and 9312110408

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1 Summary

In 2014 Athabasca Minerals Inc. (Athabasca Minerals) commissioned APEX Geoscience Ltd. (APEX) to conduct an eight hole drill program over the Richardson Property (the Property) supplementing the 2013 drill program conducted by Athabasca Minerals. Based on the results of the 2013 and 2014 drill programs, APEX was further contracted to: 1) supervise the logging and sampling of the 2013 and 2014 drill core; 2) supervise the appropriate aggregate test work and geochemical analysis to assess the Winnipegosis Formation and the Precambrian basement granite for their suitability as potential source of crush rock aggregate; 3) conduct a multi-technique geophysical survey over the Richardson Property; 4) prepare a maiden inferred crush rock aggregate resource estimate of the Middle Devonian Winnipegosis Formation; 5) make recommendations on future exploration to advance the Athabasca Minerals Richardson Property and 6) Prepare an Assessment Report (this Report) detailing the work conducted on the Richardson Property from 2013 to 2014. The Winnipegosis Formation is the focus of this Report due to the near surface proximity of the dolostone unit in the drill area, which represents a small north-central portion of the Property. A secondary objective includes an aggregate assessment of the basement granite, mainly intended towards future exploration strategies at Athabasca Minerals Richardson Property.

This Assessment Report is prepared by APEX on behalf of Athabasca Minerals and details the work completed on the Richardson Property from 2013 to 2014. Exploration on the Property included: two separate drill programs, totaling twelve holes; aggregate and geochemical testing; surface geophysical surveys and the calculation of a maiden inferred mineral resource. The total cost to complete exploration on the Richardson Property during 2013 and 2014, in Canadian dollars (CDN$), was CDN$613,594.98, not including GST.

Athabasca Minerals' Richardson Property is located adjacent to the prolific Athabasca oil sands region of northeastern Alberta, approximately 130 kilometres (km) north-northeast of the urban service area (formerly the city) of Fort McMurray. The Property comprises eight contiguous Alberta Metallic and Industrial Minerals (MIM) Permits totalling 60,966 hectares (150,650 acres). Athabasca Minerals Inc. maintains 100 percent (%) interest in all eight permits, and has the exclusive right to conduct metallic and industrial minerals exploration on the permits for 14 years subject to biannual assessment work and reporting. There are no all-weather roads to the Property; however, a 280 km winter road extending from Fort McMurray to the hamlet of Fort Chipewyan traverses through the central portion of the Richardson Property and provides intermittent access with transport-load capacity.

The Richardson Property is being assessed by Athabasca Minerals for its crush rock aggregate potential, which generally refers to materials that are hard and granular, and are suitable to be used alone or with other materials as binding agents for a number of applications such as: concrete in building construction; road stone; railway track blast; mortar; flux in iron and steelmaking; or to reduce coal sulphur dioxide emissions. Crush rock aggregate is produced from a variety of materials that are usually produced as low-cost, high-volume and bulk minable commodities.

The Richardson Property is situated along the passive, eastward thinning margin of the Western Canada Sedimentary Basin where sedimentary successions unconformably overly and onlap the southwest dipping Precambrian basement. Within the Property, Precambrian basement, Devonian carbonate and Quaternary surficial materials are either exposed, or occur near the surface. From the industrial mineral perspective, carbonate rocks are commonly considered to be mechanically strong due to their interlocking grain fabrics, carbonaceous mineralogy and subjectivity to recrystallization processes, which in turn increase their strength and decrease porosity. In addition, igneous Precambrian rocks such as granite typically produce strong aggregates that are skid resistant and therefore, are favourable road aggregate materials.

During 2013, Athabasca Minerals conducted a four-hole diamond drilling program (drillholes GNA-05, GNA-10, GNA-11 and GNA-16), totalling 235 metres (m), with the intention to test the Devonian carbonate and Precambrian basement at the Richardson Property. The drill program cored complete stratigraphic sections of the uppermost carbonate lithostratigraphic unit (the Winnipegosis Formation) in two of the four drillholes. A single drillhole (GNA-10) intersected down through the carbonate stratigraphy and into the Precambrian basement. To acquire additional material for evaluation, APEX was retained by Athabasca Minerals in 2014 to conduct an eight-hole diamond drilling program (drillholes 14RLD001 to 14RLD008) at the Property, totalling 843 m, over an area spanning approximately 20 square kilometres (km^2). With the exception of one of the eight 2014 drillholes, the program successfully cored entire stratigraphic sections that terminated in Precambrian basement granite.

The 2013 and 2014 drill campaigns, conducted by Athabasca Minerals, show that the bedrock underlying the Richardson Property includes, from stratigraphic base to top: Precambrian crystalline basement granitic rocks of the Taltson Magmatic Zone; an Early Devonian (or earlier?) discontinuous zone of detrital basal feldspathic sandstone and conglomerate known as the La Loche Formation; marginal marine dolomitic silty shale of the Devonian Contact Rapids Formation; and a thick (relative to the Contact Rapids and La Loche formations), finely crystalline dolostone known as the Winnipegosis Formation. The bedrock is overlain by a layer of Quaternary glaciofluvial and glaciolacustrine deposits that have formed kettle depressions and kame deposits, and redistributed surficial sediments into low-lying areas.

The drilling strategy was to terminate each drillhole once ten metres of Precambrian basement granite was penetrated and cored. A single drillhole (14RLD007) tested the granite to a coring depth of 44.5 m to test its uniformity and crush rock aggregate potential at depth (as well as the precious-, base- and specialty- metal potential). The Precambrian basement was comprised of light blue-grey, coarse-grained, weakly foliated granite, which was subjected to variable potassic alteration. The thickness of the Winnipegosis Formation varies from 8.3 m to 47.9 m (averages 39.5 m) and is comprised largely of competent, light brown dolostone. Overburden thickness ranged from 18.0 m to 64.9 m (averages 35.7 m) and is comprised largely of unconsolidated glaciofluvial sand and boulders.

The core was logged and sampled in accordance with the appropriate assessment of crush rock aggregate, which involves criteria that considers the materials strength, continuity, fractures and the presence of weakening particulate matter. Geotechnical measurements included: rock quality description, fracture frequency and rock defects, and discontinuity and fracture conditions. Density measurements were carried out once per every metre using the "hydrostatic" method, which involves weighing the item in air and then again while fully submerged in water, to calculate the weight (tonnage) of a volume of rock. Portable X-Ray Fluorescence (XRF) analyzer measurements were taken every metre of core to provide an evaluation of the chemical homogeneity and potential aggregate strength of the core, and secondarily, to evaluate the metallic mineral potential of the core.

The analytical sampling process consisted of two separate sample sets: 1) composite samples for aggregate test work; and 2) interval or channel samples for major- and trace-element geochemical analysis. The objective of the aggregate analytical test work – in the context of this crush rock aggregate resource estimate – was predominantly focused on the aggregate mechanical qualities for its use in aggregate road building and concrete. A sufficient and appropriate number of samples were analyzed to ensure that meaningful sample results were obtained, including: 11 composite samples of Winnipegosis Formation (one sample per drillhole plus one duplicate sample for quality assurance); one composite sample of Contact Rapids (amalgamated from all ten drillholes due to the narrowness of the unit); and two composite samples of basement granite (amalgamated from all drillholes that penetrated basement; n=8).

The results of the aggregate test work were evaluated by making comparisons with aggregate specification and screening criteria as set by Alberta Transportation and the Canadian Standards Association. The results show that the Winnipegosis Formation and Precambrian basement granite met the maximum allowable screening criteria for major aggregate test methods, including: plasticity index; Los Angeles abrasion; magnesium sulphate ($MgSO_4$) soundness; and unconfined freeze-thaw. Based on the results of this test work and evidence of the homogeneity and uniformity of the rock units, it is concluded that the Winnipegosis Formation and Precambrian basement granite represent material of merit for several Alberta Transportation aggregate designations, including: Designation 1 (asphalt concrete pavement); and Designation 2 (base course aggregate).

With respect to reporting a resource estimate and abiding by the General Guidelines of NI 43-101, the aggregate test work yields results that suggest the Winnipegosis Formation from Athabasca Minerals' Richardson Property has reasonable prospects of economic viability for an industrial mineral deposit. Despite having analyzed only two amalgamated composite granite samples, the Precambrian basement granite also yielded positive aggregate test work results and is recommended, therefore, to undergo additional aggregate testing in the future. In contrast, the single Contact Rapids sample does not meet the screening criteria, and therefore, does not meet the reasonable expectation and/or demonstration of economic viability of an industrial mineral deposit.

During 2014, a number of surface geophysical surveys were conducted at the Richardson Property by APEX (on behalf of Athabasca Minerals). The surveys were performed over the area immediately surrounding a known granite outcrop on the eastern part of the Richardson Property. The surface geophysical surveys including: ground penetrating radar (GPR); frequency domain electromagnetics (FDEM); and Total Field Magnetics. The goal of the surface geophysical surveys was to: 1) test the effectiveness of three easily employable surface geophysical tools for identifying and characterizing potential aggregate deposits at the Richardson Property; and 2) make inferences on the dimensions of the granite body, including the relationship between the granite with the overlying overburden and Devonian Winnipegosis Formation dolostone.

A survey grid was established with proposed traverse lines centred over a granite outcrop. The grid had a bearing of Azimuth 135º/315º and a line spacing of 50 m. The paths occasionally deviated from the proposed line paths due to: inherent errors of the GPS coordinate; water-bodies located within the survey area; and areas where line-cutting was not completed.

The GPR survey and resulted in 9.7 line-km of UltraGPR data collected over nine traverse lines and one tie line. Deliverables from Ground Radar Inc. work included XYZ coordinates of the interpreted layer surfaces and databases containing the cross sectional responses recorded along the traverse lines. The cross-sections illustrate three distinct reflectors, which are caused by contrasts in the conductivity and dielectric constant of the sub-surface and are attributed to layers of different rock types and/or compositions. The reflectors are assumed to exist between traverse lines because the depth to these reflectors does not change drastically from one traverse line to the next, and are therefore interpreted to be the interfaces between distinct geologic layers.

The FDEM Survey used the EM31 system, which was operated in vertical dipole mode with the boom oriented longitudinally along the traverse lines. In total, 8.7 line-km of FDEM data were collected over eight traverse lines and one tie line with the EM31 recoding at a frequency of one reading per second. The EM31 quadrature response shows that the area is weakly conductive overall, but that there is a definitive conductive halo occurring in the area immediately surrounding the granite outcrop. The apparent conductivity map shows that the granite outcrop is a resistive body, and that the conductive halo is due to a conductive layer overlaying the granite bedrock. This conductive halo area is directly associated with a regional topographic low, which indicates the apparent conductance might be a due to a zone in the near surface with elevated water content.

The Total Field Magnetics survey was completed using a Gem System GSM 19-W walking magnetometer. The survey resulted in 24.5 line-km of survey data, which was collected along 13 traverse lines and two tie lines. The data was collected at a frequency of one reading per second at an elevation of between 1.75 m and 2 m above the ground. The survey included the immediate area around the granite outcrop, which mimicked the area surveyed by GPR and EM31. In addition, two survey lines were extended to the northwest, along lines 8 and 19. The goal of these two regional magnetic survey lines was to investigate the region between the granite outcrop (main focus of the geophysical survey) with the 2014 drill program to: 1) determine if any major structures occur in this area; and/or 2) make some inferences on the continuity of strata between the geophysical survey area (i.e., granite outcrop) and the area of drilling and resource delineation.

The ground magnetics survey data highlights three distinct litho-magnetic zones within the geophysical survey area including: a zone with a strong positive magnetic response, occurring over the northern half of the EM31 and GPR survey lines (Zone A); a moderate negative magnetic response over the southern half of the EM31 and GPR survey lines (Zone B); and a weak positive magnetic gradient occurring on the very end of the regional magnetic lines extending out to the 14RLD003 and 14RLD002 drill holes (Zone C).

The interpretations remain inherently ambiguous, and require petrophysical data and other geological information to properly classify the identified litho-magnetic zones. Nevertheless, several preliminary interpretations can help to guide future exploration in the eastern part of the Richardson Property. The results of the geophysical surveys show that the spatial extent of several distinct geologic features can be mapped using a combination of GPR and ground magnetics data. There is a strong correlation among the physical properties of the overburden (particularly the kame deposit), the Winnipegosis Formation and the granite bedrock. The geophysical surveys depict several distinct geologic zones that merit follow up work, including drilling, at the Richardson Property.

The Richardson maiden inferred crush rock aggregate resource estimate is reported in accordance with the Canadian Securities Administrators National Instrument 43-101 and has been estimated using the CIM "Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines" dated November 23rd, 2003 and CIM "Definition Standards for Mineral Resources and Mineral Reserves" dated November 27th, 2010. The CIM Standards on Mineral Resources and Mineral Reserves, Definitions and Guidelines, dated August 20, 2000 (the "CIM Standards", NI 43-101 and Companion Policy 43-101CP) states that: "when reporting Mineral Resource and Mineral Reserve estimates relating to an industrial mineral site, the Qualified Person(s) must make the reader aware of certain special properties of these commodities". It should be noted that the Richardson crush rock aggregate, in the context of this Report, represents an 'early stage project'. The ultimate suitability of an industrial mineral for use in specific applications requires detailed marketing and economic investigations, which are beyond the scope of this Report. With respect to the Richardson Property and northeastern Alberta in general, however, a fundamental statement is that the Fort McMurray region is best known for its vast resource of bituminous oil sand, and that vast quantities of aggregate materials are required to supplement ongoing oil sands infrastructure and construction demand. In addition, it is pertinent to note that government baseline aggregate mapping in the Fort McMurray area has shown that sand and gravel deposits are distributed unevenly, of variable quality and quantity, and have largely been exploited. Consequently, aggregate exploration has focused on importing aggregate, which is difficult from an industrial mineral economics perspective, or on locating local sources of buried crush rock aggregate. For example, Hammerstone Corporation currently produces limestone crush rock aggregate from its Muskeg Valley Quarry, which is adjacent to the Richardson Property. Lastly, the oil sands industry poses no potential conflict or risk to industrial minerals production as separate statues regulate the right to metallic and industrial minerals, to coal, to oil/gas, and to bitumen (oil sands) in the province of Alberta.

The resource estimation presented in this Report considered data from four 2013 drillholes and eight 2014 drillholes drilled by Athabasca Minerals (twelve total drillholes). Because two of the 2013 drillholes were terminated at <30 m, and did not penetrate through the entire lithostratigraphic section of the Winnipegosis Formation (the primary focus of this resource estimate), only ten drillholes were utilized in the Richardson maiden inferred crush rock aggregate resource modelling and estimation. The 2013 and 2014 drillholes were initially surveyed using a hand held Garmin GPS unit with the collar elevations subsequently being modified using high resolution Light Detection and Ranging (LiDar) technology with 1 m resolution. All drillholes were vertical holes; no down hole surveying was employed. Spacing between drillholes varies from 500 m to 1.37 km, with an average of about 900 m between drillholes. Consequently, modelling in MICROMINE utilized seven drill lines that ranged in spacing from 570 m to 900 m. In the context of this crushed rock aggregate deposit type, style and formation, the drill spacing is sufficient for resource volume estimation.

Stratigraphic logging, which was performed by APEX for both the 2013 and 2014 drillholes, showed that with the exception of the La Loche Formation–Precambrian basement boundary, which can be gradational, the boundaries between formations have sharp, visually identifiable contacts. These definitive geological boundaries are further characterized as having extensive lateral continuity of the individual formations. The homogeneity of the stratigraphic units was further evaluated using geotechnical (Rock Quality Description and total fracture data) and geochemical data derived from the cores. A positive correlation between the drill logs and the geotechnical/ geochemical data confirmed the lithostratigraphic formation divisions, and the homogenous nature of the Winnipegosis Formation, which highlights its applicability in resource estimation as a potential source of crush rock aggregate.

The single 'impurity' to report involves supplementary bitumen, which is more or less confined to the uppermost portions of the Winnipegosis Formation (and the La Loche Formation directly overlying the Winnipegosis dolostone). The bitumen ranges in intensity from non-existent (in most of the core) to pervasive, the latter of which is evident in 25 cm to 90 cm wide 'bituminous horizons' that occur in the eastern drillholes 14RLD006 and 14RLD008. The bitumen appears to be confined to porosity enabling textures in the carbonate such as vugs, sandy horizons and fracture planes. It is not known how the bitumen might influence the processing or marketing of the potential crush rock aggregate, but the overall consistency and volume of non-bitumen-bearing dolostone, and the positive aggregate test work results, provide justification that the bitumen does not influence the viability of the Winnipegosis as an industrial mineral deposit in the current evaluation of this early stage project.

A total of 675 bulk density measurements were collected from drill core within the Richardson maiden inferred crush rock aggregate resource area. Additional density measurements (n=14) were also performed as part of aggregate test work, and these results were consistent with hydrostatic average formation density values of 2.68, 2.50 and 2.63 for the Winnipegosis, Contact Rapids and basement granite, respectively, that were used in this Report.

Mineral resource modelling was carried out using a three-dimensional model in commercial geologic modelling and mine planning software MICROMINE (v.14.0.4). Block modelling of the resource area was not necessary as no 'grade' was being estimated; instead a three-dimensional computer-generated 'solid' of the area was generated in MICROMINE to calculate the resource 'volume'. A separate wireframe was created for each formation (Precambrian basement granite; La Loche Formation; Contact Rapids Formation; Winnipegosis Formation; and overburden), from which, separate ensuing formation volumes could be derived for each lithostratigraphic unit.

The surface area of the resource outline reported in this Report is 6.30 km^2. With the exception of two northwestern drillholes (GNA-10 and 14RDL-008), a resource outline of 500 m was constructed around the outermost drillholes: 1) to clip the individual formation wireframes; and 2) restrict the lateral extension of the wireframes and the main resource model to the general 2013 and 2014 Athabasca Minerals drill area, which represents only a small north-central portion of the Richardson Property. The resource outline of 500 m was deemed appropriate based on the continuous nature of the stratigraphic formations within the resource outline area as defined by 2013 and 2014 Athabasca Minerals drilling and because the same generally flat-lying stratigraphic formations have been intersected in oil and gas wells that are located several 10's to 100's of kilometres away from the Richardson resource area. The radius of the boundary outlines for drillholes GNA-10 and 14RDL-008 was reduced to 50 m (from 500 m) due to the proximity of a lake.

This three-dimensional model formed the spatial basis for calculating the volume and tonnage for the Richardson maiden inferred crush rock aggregate resource estimate. Within the three-dimensional model, the volume of each formation was used to multiply against a nominal density value, which was determined on a formation by formation basis. This resulted in the reported tonnages. The Richardson maiden inferred crush rock aggregate resource estimate has been classified as 'inferred' according to the CIM definition standards. The classification of the Richardson maiden inferred crush rock aggregate resource was based on geological confidence, data quality and stratigraphic continuity. That is, the criteria and rational for the classification of inferred resource is based upon the wide spaced nature of the drilling to date and the fact that the Richardson crush rock aggregate project is classified as an early stage project with little mineral processing test work completed to date. As this is the maiden inferred resource, no mining studies have been employed to constrain the resource within an optimal pit shell.

The Richardson maiden inferred crush rock aggregate resource estimate consists of 683 million tonnes of aggregate material situated within the favourable Winnipegosis Formation (Table 1). Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve. The Winnipegosis aggregate resource is directly overlain by 497 million tonnes of overburden-waste material.

Table 1. Richardson maiden inferred crush rock aggregate resource. Volumes and tonnages for the overburden and all lithostratigraphic units in the resource area are included, but the main resource reported in this Report relates to the Winnipegosis Formation.

Formation	Volume (m^3)	Density (t/m^3) *	Tonnes (million tonnes) **
Overburden	220,625,000	2.25	497.29
Winnipegosis	**254,523,000**	**2.68**	**683.14**
Contact Rapids	63,322,000	2.50	158.11
La Loche	13,339,000	2.54	33.93
Basement granite	62,941,000	2.63	165.41

* Density has been rounded to two decimal places.

** Tonnes have been rounded to the nearest 10,000 tonnes.

Note 1: Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve.

Note 2: The quantity of tonnes reported in these inferred resource estimations are uncertain in nature and there has been insufficient exploration to define these inferred resources as an indicated or measured mineral resource, and it is uncertain if further exploration will result in upgrading them to an indicated or measured resource category.

Note 3: The estimate of mineral resources may be materially affected by geology, environment, permitting, legal, title, taxation, socio-political, marketing or other relevant issues.

The portion of the Richardson Property resource that has been classified as 'Inferred' demonstrates that the nature, quantity and distribution of data is such as to allow confident interpretation of the geological framework and to reasonably assume continuity of geological formations. The collective work to date from the Richardson Property indicates that while the project is in early stages of exploration/resource work, the metallurgical and mineral processing qualities give suggestions that they are of high enough quality that the Winnipegosis at the Richardson Property is considered to be a 'property of merit' and warrants further exploration. This contention is supported by results presented in this Report, which include:

- the Winnipegosis Formation is a uniform and continuous target unit that has undergone pervasive dolomitization and is therefore a hard, competent and resistive lithostratigraphic unit with crush rock aggregate deposit potential;

- sample composites of the Winnipegosis Formation yielded positive aggregate test work results in comparison to Alberta Transportation and Canadian Standards Association aggregate specifications and standards;

- the Winnipegosis Formation is considered the most favourable unit for crush rock aggregate in the current resource area given that it is the shallowest lithostratigraphic unit (directly underlying the quaternary cover and occurs at depths ranging from 18.0 m to 64.9 m) with early stage project crush rock aggregate deposit potential;

- a Richardson maiden inferred crush rock aggregate resource estimate, which has an aerial extent of 6.30 km^2 and consists of 683 million tonnes of crush rock aggregate material, situated within the Winnipegosis Formation (see aforementioned disclaimers); and

- the oil sands region of northeastern Alberta represents an area of enormous growth – while continued oil sands development is subject to an infinite number of variables (e.g., geology, hydrocarbon prices, environment, taxation, socio-political, marketing or other relevant issues), the current circumstances suggest a continued and positive market demand for 'local' aggregate products.

In addition to the Richardson maiden inferred crush rock aggregate resource estimate, a stratigraphic compilation of publicly available oil and gas well information, historical metallic and industrial mineral assessment reports, and data from Athabasca Minerals Inc. 2013 and 2014 drill programs shows that there is good stratigraphic continuity of the Winnipegosis Formation and Precambrian basement surface in the general Richardson Property area. By way of preliminary reasoning, the Richardson Property has several potential targets for further exploration. The following statements referring to any potential extension of the Richardson crush aggregate deposit are conceptual in nature, as there has been insufficient exploration to define the extended mineral deposit and it is uncertain if further exploration will result in the target being delineated as a mineral deposit and/or resource. Potential targets for further exploration are summarized as follows:

1. Based on good stratigraphic continuity of the Winnipegosis Formation, an extension of the current Winnipegosis crush rock aggregate deposit outwards from the current resource area to other parts of the Property could create additional and/or more accessible Winnipegosis tonnage. For example, a

potential southerly extension of the Winnipegosis Formation deposit (i.e., an additional aerial extent of 7.49 km^2) could add between 0.671 and 1.006 billion tonnes of aggregate crush rock. There is also justification in targeting the Winnipegosis Formation to the east-northeast, where the thickness of overburden is assumed to be thinner and could potentially lower the strip ratio to access the Winnipegosis in comparison to the current resource area.

2. If the economics of mining the Winnipegosis Formation are feasible, then the Precambrian basement granite represents a potential secondary crush rock aggregate target within the current resource area due to its uniform nature and overall hardness as shown by aggregate test work conducted in this Report. Modelling in this Report shows that within the current resource area, the Precambrian basement granite could account for an additional 165 million tonnes of aggregate. This estimate is conservative as the volume assumes a maximum depth of 10 m (corresponding to when most of the drillholes were terminated). Based on drillhole 14RLD007, which confirmed uniform granite to a depth of 48.35 m, the granite could easily be extended, such that the granite could account for 319 million tonnes if, for example, the modelling depth was extended to 20 m instead of 10 m.

3. In scenario 2 above, any potential granite evaluation in the resource area is contingent on the Winnipegosis being economic. However, the Precambrian basement granite is known crop out on the Richardson Property directly east-southeast of the current resource area. In addition, geophysical surveys conducted over the general granite outcrop area helps to define the near-surface boundaries of the granite body. The GPR profiles and ground magnetic data show that the granite outcrop is fairly constrained to the immediate observed exposure; however, the GPR profiles suggest that the area directly north of the outcrop has the least amount of overburden and/or Winnipegosis dolostone material to overlie the Precambrian basement granite. The geophysical interpretations remain inherently ambiguous, and require other geological information such as drilling to properly confirm and classify the identified litho-magnetic zones. However, based on the uniformity and positive granite aggregate test results from the current resource area, and delineation of an exposed and near-surface area of granite on the eastern part of the Property, Precambrian granite at the Richardson Property represents a potential target for further exploration.

4. Lastly, the Contact Rapids Formation, which underlies the Winnipegosis, comprises weakly consolidated muddy and sandy limestone, and is therefore not as desirable in comparison to the Winnipegosis (this is evident in poor aggregate test work results presented in this Report). There is the possibility, however, that the Contract Rapids could provide a source of alternative flux material if the Winnipegosis were to be mined as crush rock aggregate.

To conclude, several exploration targets could potentially extend the current aggregate deposit. Accordingly, a two Phase approach is recommended for 2015-2016 exploration at the Richardson Property consisting of: Phase One ground geophysical surveys to extend and verify positive results from GPR, and Phase Two extension/infill drilling in conjunction with a Preliminary Economic Assessment (PEA) scoping study.

The recommended Phase One exploration work includes a 35 line-kilometre Ground Penetrating Radar (GPR) survey to: 1) create a preliminary three-dimensional geological model of the general area surrounding the current resource area; 2) depict those areas that have shallow overburden overlying the Devonian Winnipegosis dolomite and/or the Precambrian basement granite; and 3) define the drillhole locations for the Phase Two drill program. The approximate cost of the Phase One work is CDN$40,000 (Table 2).

Subject to the results of the Phase One survey, a Phase Two extension/infill drillhole program and subsequent composite aggregate test work analyses on the drill cores will: 1) verify the three-dimensional geological model; and 2) provide additional confidence to uniformity, extent, depth and quality of the Winnipegosis dolomite and the basement granite, which is necessary to produce an updated inferred, and possibly indicated, mineral resource estimate.

It is recommended that the Phase Two extension and infill drilling consists of ten to eleven systematically placed diamond drillholes in accordance with the Phase One GPR survey (totalling approximately 1,000 m). Areas of focus should include two separate justifications for drill testing as follows.

1. Winnipegosis Extension. The Winnipegosis Formation deposit could be extended to the south, east and northeast of the current resource area. It is anticipated that the topography (i.e., overburden) on the Property thins out to the east-northeast such that the depth to the Winnipegosis Formation may be thinner than in the current resource area (overburden averages 36 m thickness; n = 11 drillholes drilled in 2013 and 2014 by Athabasca minerals). The Winnipegosis extension drilling would advance the project by increasing the confidence in the continuity and uniformity of the Winnipegosis Formation and the depth of overburden overlying the Winnipegosis.

2. Precambrian Basement Granite Extension. This drilling will test the granite as a potential crush rock aggregate source. Drill targets should be collared east-southeast of the current resource area in an area directly adjacent to an exposure of Precambrian granite. The granite outcrop identified during 2013 field program and the 2014 ground geophysical program has the advantage of shallow to non-existent overburden and/or Winnipegosis Formation cover rock.

The Phase Two extension/infill drilling, aggregate test work analyses and an updated NI 43-101 inferred (and possibly indicated) resource estimate is projected to cost approximately CDN$576,000 (Table 2).

In conjunction with the Phase Two work, it is recommended that a PEA Scoping Study of the Richardson Project be conducted. The scoping study should include: the creation of an initial pit shell; estimations of strip ratios to remove the overburden; and examine certain economic and environmental factors related to the market for crushed rock aggregate in the immediate vicinity of the Project. The completion of a PEA scoping study would add confidence to the viability of the Project. For example, this maiden inferred resource is reported in tonnages, and mining studies are required to constrain the resource within an optimal pit shell. The estimated cost to complete the PEA is CDN$300,000 (Table 2).

The total cost of both phases of recommended exploration work is estimated at CDN$916,000 (Table 2; not including contingency). With a 10% contingency the total budget is CDN$1,007,600.

Table 2. Summary of 2015-2016 recommendations for the Richardson Property.

Phase One: Ground Geophysical Survey and Preliminary 3D Model

Activity	Description	Cost (CDN$)
Ground Penetrating Radar (GPR) geophysical survey	A 35-line km GPR survey to develop a preliminary 3D model, determine o/b thickness and site drillhole locations.	$40,000
	Sub-total	**$40,000**

Phase Two: Drill Program, Indicated/Inferred Technical Report and Preliminary Economic Assessment

Activity	Description	Cost (CDN$)
Drilling	A 10-11 drillhole heli-supported program (approximately 1,000 m of coring)	$511,000
Analysis	Aggregate test work	$30,000
Reporting	NI 43-101 Mineral Resource Estimation and Technical Report	$35,000
Reporting	Preliminary Economic Assessment Scoping Study	$300,000
	Sub-total	**$876,000**
	Total	**$916,000**
	10% Contingency	**$91,600**
	Total with Contingency	**$1,007,600**

2 Introduction

Athabasca Minerals Inc. (Athabasca Minerals) maintains 100 percent (%) interest in the Richardson Property (the Property), which is located in the Athabasca oil sands region of northeastern Alberta, approximately 80 kilometres (km) northeast of the hamlet of Fort Mackay, and 130 km north-northeast of the urban service area of Fort McMurray. The Property comprises eight contiguous Alberta Metallic and Industrial Minerals (MIM) Permits totalling 60,966 hectares (150,650 acres). Athabasca Minerals has the exclusive right to conduct metallic and industrial minerals exploration on the permits for up to fourteen years, subject to biannual assessment work and reporting.

Athabasca Minerals is a Canadian mineral exploration company that has identified, explored and developed various industrial minerals to support oil sands development in the prolific Athabasca oil sands area of northeastern Alberta. For example, Athabasca Minerals currently manages the largest open pit gravel pit in Canada, the Susan Lake Aggregate Operation, which is located approximately 25 km south-southwest of the Richardson Property.

The Richardson Property, which is the focus of this Assessment Report (this Report), lies along the passive, eastward thinning margin of the Western Canadian Sedimentary Basin (WCSB), where sedimentary successions unconformably overlie and onlap the southwest dipping Precambrian basement. The bedrock geology at the Property generally consists of Precambrian basement and Middle Devonian carbonate rocks that are either exposed or buried by a veneer of Quaternary surficial deposits.

The Richardson Property is being assessed by Athabasca Minerals for its crush rock aggregate potential. From the industrial mineral perspective, carbonate rocks are commonly considered to be mechanically strong due to their interlocking grain fabrics, carbonaceous mineralogy and subjectivity to recrystallization processes. In addition, Precambrian igneous rocks such as granite typically produce strong aggregates that are skid resistant and therefore, are favourable road aggregate materials.

During 2014, APEX Geoscience Ltd. (APEX) was retained by Athabasca Minerals to:

1. Complete an eight drillhole program at the Property, on behalf of Athabasca Minerals, intended to increase the amount of material available for the crush rock aggregate assessment (the 2014 drill program builds upon a 2013 drill program by Athabasca Minerals that drilled four drillholes, totalling 235.1 m);

2. Review, log, sample and analyze drill cores from the 2013 and 2014 drill programs that were completed at the Property by Athabasca Minerals and APEX;

3. Conduct ground geophysical surveys over the Property;

4. Prepare a maiden inferred crush rock aggregate resource estimate of the Middle Devonian Winnipegosis Formation at the Property;

5. Make recommendations on potential target areas for future exploration; and

6. Complete an Assessment Report detailing the work conducted on the Property from 2013 to 2014.

This Assessment Report is prepared by APEX, on behalf of Athabasca Minerals, and details the work completed on the Richardson Property from 2013 to 2014. Exploration on the Property included: two separate drill programs, totaling twelve holes; aggregate and geochemical testing; ground geophysical surveys; and the calculation of a maiden Inferred mineral resource. The total cost to complete exploration on the Richardson Property during 2013 and 2014, in Canadian dollars (CDN$), was CDN$613,594.98, not including GST.

Outcrop exposures of the Mesoarchean to Paleoproterozoic Marguerite River Complex are found on the eastern edge of the Property. The Marguerite River Complex comprises undifferentiated granite, Arch Lake-type granitoid, hornblende-quartz monzonite and granitoid gneiss rocks (Dufresne et al., 1994; Prior et al., 2013). The crystalline basement at the Property is overlain by (from stratigraphic base to top) the: La Loche, Contract Rapids and Winnipegosis formations. The Devonian and Precambrian rock units are almost entirely overlain by Quaternary surficial deposits, which form a thin veneer of ice-contact glaciofluvial and glaciofluvial outwash deposits (Bayrock, 1971; Fenton et al., 20012). The Early Devonian La Loche Formation is composed of detrital basal feldspathic sandstone and conglomerate, and is considered equivalent to the Granite Wash (Sherwin, 1962; Norris, 1963; Schneider et al., 2013). The Contact Rapids Formation is comprised of marginal marine dolomitic siltstone-shale, argillaceous dolostone and shale-siltstone (Sherwin, 1962; Meijer Drees, 1994).

Most of the bedrock overlying the crystalline basement at the Property comprises the Middle Devonian Winnipegosis Formation of the Upper Elk Point Group, which is the focus of this Report (a secondary interest is the Precambrian granite). The Winnipegosis Formation is stratigraphically equivalent to the Keg River Formation in northwestern Alberta. The Winnipegosis Formation reflects an open-marine platform and reef system, and is composed of thickly bedded brownish to yellowish-grey dolostone containing various brachiopod, bivalve and gastropod fossils (Macoun, 1877; Bassett, 1952; Norris, 1963; Schneider et al., 2013).

The authors of this Report include R. Eccles, B. Atkinson and S. Nicholls, all of whom are independent of Athabasca Minerals and employed as geological consultants with APEX. Mr. Eccles, M.Sc. P.Geol., supervised the preparation of, and is responsible for the ultimate publication of this Report. Mr. Eccles is a Qualified Person as defined by the Canadian Securities Administration National Instrument (NI) 43-101. The Canadian Institute of Mining and Metallurgy defines a Qualified Person as

> *"an individual who is a geoscientist with at least five years of experience in mineral exploration, mine development or operation or mineral project assessment, or any combination of these; has experience*

relevant to the subject matter of the mineral project and the report; and is a member or licensee in good standing of a professional association."

Mr. Eccles is a Professional Geologist with the Association of Professional Engineers and Geoscientists of Alberta (APEGA), and has worked as a geologist for more than 25 years since his graduation from University. Mr. Eccles has been involved in all aspects of mineral exploration and mineral resource estimations for metallic and industrial mineral projects and deposits in Canada. Mr. Eccles was a geologist with the Alberta Geological Survey for 21 years (1990-2011). In this capacity, he travelled and conducted geological studies in northeastern Alberta's clastic sedimentary rock units, including specific studies related to Devonian rock units at the sub-Cretaceous unconformity. Mr. Eccles did not visit the Property during the preparation of this Report or on behalf of Athabasca Minerals, but did review drill cores from the 2013 and 2014 programs. Given that Mr. Eccles is familiar with the Property area and geology, a Property visit was not deemed necessary during the preparation of this Assessment Report.

Mr. Atkinson is a Professional Geologist with the Association of Professional Engineers and Geoscientists of Alberta (APEGA; since 2008) and the Australasian Institute of Mining and Metallurgy (AusIMM; since 2009) and a Qualified Person as defined by the Canadian Securities Administration National Instrument (NI) 43-101. Mr. Atkinson supervised Athabasca Minerals 2014 drill program and was on the Property between February 4th and 26th, 2014. In addition, Mr. Atkinson logged all of the drill core and supervised geotechnical work and sampling from the 2013 and 2014 Athabasca Minerals drill programs.

The resource estimation statistical analysis and three-dimensional modeling was completed by Mr. Nicholls, MAIG, a Qualified Person, under the direct supervision of Mr. Eccles, P.Geol. and Mr. Atkinson, P.Geol., who are both Qualified Persons with respect to mineral estimation as defined by the Canadian Securities Administration NI 43-101. Mr. Nicholls is a resource geologist with over 14 years of exploration and mining experience.

The maiden crush rock aggregate resource estimate of the Middle Devonian Winnipegosis Formation on Athabasca Minerals Richardson Property is classified as an "Inferred" Mineral Resource, and was classified in accordance with guidelines established by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) "Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines" dated November 23rd, 2003 and CIM "Definition Standards for Mineral Resources and Mineral Reserves" dated November 27th, 2010. By definition,

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

This Report is a compilation of proprietary and publicly available information, as well as information obtained during the 2013 and 2014 drill programs. References in this Report are made to publicly available reports which may or may not have been written prior to implementation of NI 43-101, including government geological publications and Alberta Metallic and Industrial Mineral Permit Assessment Reports that are filed with Alberta Energy. These reports are cited in the 'Reference' section.

Government reports include those that depict the geology of northern Alberta (e.g., Carrigy, 1959; Bayrock, 1971; Fox, 1980; Meijer Drees, 1980, 1990, 1994; Ross et al., 1991; Burwash et al., 1994; Dufresne et al., 1994; Halbertsma, 1994; Mossop and Shetson, 1994; Ross et al., 1994; Oldale and Munday, 1994; Switzer et al., 1994; Wright et al., 1994; Abercrombie and Feng, 1997; Scafe et al., 1988; Pana and Olson, 2009; Scafe and Edwards, 2000a,b; Jefferson et al., 2007; Eccles, 2011; Fenton et al., 2013; Prior et al., 2013; and Schneider et al., 2013). Alberta Metallic and Industrial Mineral Permit Assessment Reports, which are reviewed by the Alberta Government, were used to reference historical mineral exploration work in the general Richardson Property area (e.g., Sproule, 1968; Frantz, 1969; McWilliams and Sawyer, 1977; Laanela, 1977, 1978; Bradley, 1978; Fortuna, 1979; McWilliams et al., 1979; Walker, 1980; Orr, 1986, 1989, 1991; Orr and Robertshaw, 1989; Aravanis, 1999; De Paoli et al., 2000; Dahrouge, 2004).

The authors of this Report have reviewed all government, work assessment and laboratory reports. Government reports were prepared by a person, or persons, holding post-secondary geology or related degrees. Industry prepared work reports were reviewed, approved and archived by the Alberta Government (Alberta Energy and the Alberta Geological Survey). Based on review of these documents and/or information, the authors have deemed that these reports and information, to the best of their knowledge, are valid contributions to this Assessment Report, and take ownership of the ideas and values as they pertain to the current Report.

Geochemical and geotechnical data presented in this Assessment Report were analyzed at: Amec Foster Wheeler plc. (AMEC) in Calgary, Alberta (AB; Tetra Tech EBA Inc. in Edmonton, AB; and Acme Analytical Laboratories Ltd. (Acme; a Bureau Veritas Mineral Laboratories company) in Vancouver, British Columbia (BC). AMEC and Tetra Tech EBA are both certified by the Canadian Council of Independent Laboratories (CCIL) in accordance with Canadian Standards Association (CSA) standards for testing concrete and concrete aggregates, and are qualified as a Category II Laboratories. Acme is an ISO/IEC 17025:2005 accredited analytical laboratory. The authors have reviewed the geotechnical and geochemical data and found no significant issues or inconsistencies that would cause one to question the validity of the data.

Unless otherwise stated, all units used in the Report are metric, the geographic coordinates provided are projected in the Universal Transverse Mercator (UTM) system relative to Zone 12 (north) of the North American Datum (NAD) 1983 and all references to currency are in Canadian dollars (CDN$).

3 Disclaimer

Athabasca Minerals' Richardson Property comprises eight contiguous Alberta Metallic and Industrial Minerals Permits totalling 60,966 hectares (150,650 acres). Athabasca Minerals acquired the current Richardson Property Permits directly, by application to Alberta Energy, and holds a 100% interest therein under agreements with Alberta Energy. All prior, historic mineral activities in the area consist entirely of grass roots exploration work. There are no historic metallic mineral mines or resources known in the area.

The authors of this Report have not attempted to verify the legal status of the Property, however, the Alberta Energy Interactive Metallic and Industrial Minerals Map, which displays current metallic and industrial minerals dispositions, shows that the Athabasca Mineral claims are active and in good standing at the effective date of this Assessment Report: May 25, 2015 (http://www.energy.gov.ab.ca/OurBusiness/1071.asp).

The authors of this Report are not experts with respect to environmental, legal, socio-economic, land title or political issues. The authors of this Report are not qualified to comment on issues related to permitting, legal agreements, royalties, and environmental matters.

The authors of this report have assumed, and relied on the fact, that all the information and existing technical documents listed in the 'References' section of this Report are accurate and complete in all material aspects. While the Authors have carefully reviewed all the available information presented to them, they cannot guarantee its accuracy and completeness. The authors reserve the right, but will not be obligated, to revise the Report and conclusions if additional information becomes known to them subsequent to the date of this report.

4 Property Description and Location

4.1 Property Description

Athabasca Minerals Inc.'s Richardson Property is located in northeast Alberta in the Athabasca oil sands region, approximately 80 km northeast of hamlet of Fort Mackay, and 130 km north-northeast of the urban service area of Fort McMurray (Figure 1). The Property lies entirely within the 1:250,000 scale National Topographic System (NTS) Map Sheet 074E, more specifically is within the 1:50,000 NTS Map Sheets 074E10, 074E11, 074E14 and 074E15. The Property is approximately centered at 57° 48' 50" North Latitude and 111° 05' 34" West Longitude (494484E, 6407988N UTM). The Property is contained within the Alberta Township Survey (ATS) system Townships (T) 99-102, Ranges (R) 6-9, west (W) of the 4th meridian. The Property comprises eight contiguous Alberta Metallic and Industrial Minerals Permits (9310060418, 9310060419, 9312060367, 9312060387, 9312060388, 9312070594, 9312100494 and 9312110408), totalling approximately 60,966 hectares (150,650 acres), of which Athabasca Minerals holds 100% interest (Figure 2; Table 3).

Figure 1. Location of Athabasca Minerals Inc.'s Richardson Property in northeastern Alberta.

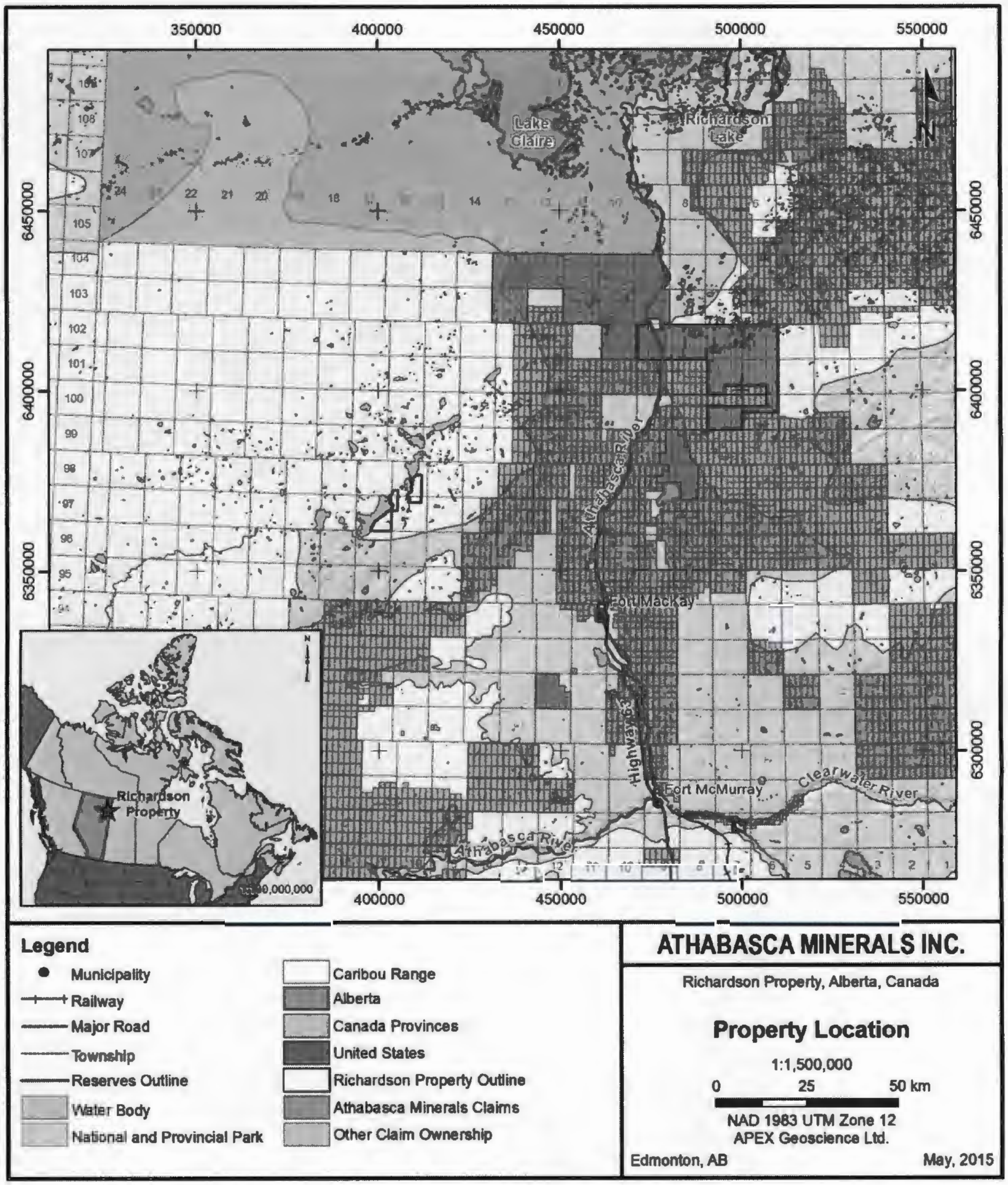


Figure 2. Athabasca Minerals Inc.'s Alberta metallic and industrial minerals permits at the Richardson Property.

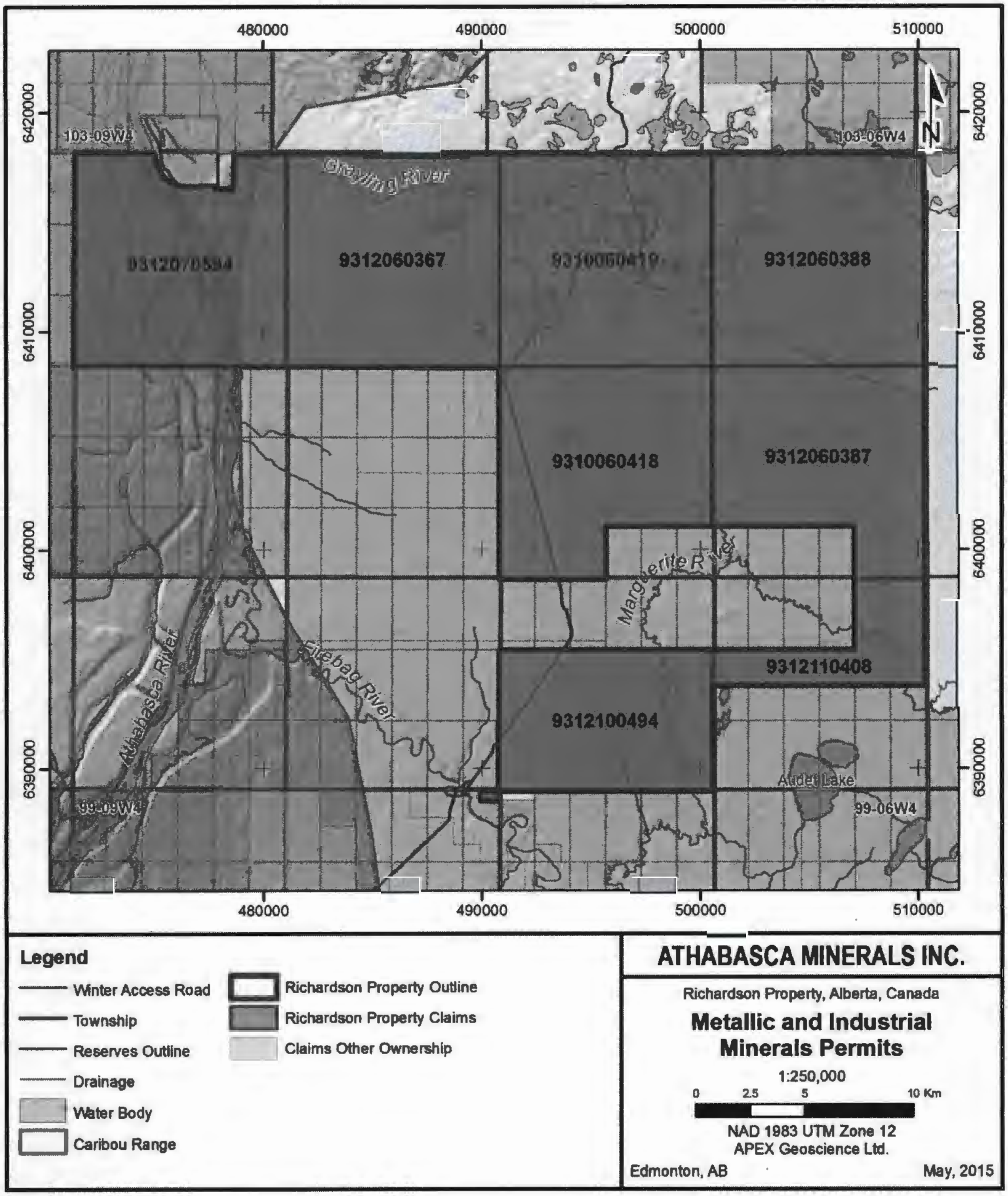


Table 3. Description of Athabasca Mineral Inc.'s Alberta metallic and industrial minerals permits at the Richardson Property.

Agreement Number	Status	Designated Representative	Term Date	Type	Area (hectares)	Area (acres)
093 9310060418	Active	Athabasca Minerals Inc. (100%)	2010-06-23	Metallic and Industrial Minerals Permit	8064	19927
093 9310060419	Active	Athabasca Minerals Inc. (100%)	2010-06-23	Metallic and Industrial Minerals Permit	9216	22773
093 9312060367	Active	Athabasca Minerals Inc. (100%)	2012-06-18	Metallic and Industrial Minerals Permit	9216	22773
093 9312060387	Active	Athabasca Minerals Inc. (100%)	2012-06-21	Metallic and Industrial Minerals Permit	7680	18978
093 9312060388	Active	Athabasca Minerals Inc. (100%)	2012-06-21	Metallic and Industrial Minerals Permit	9216	22773
093 9312070594	Active	Athabasca Minerals Inc. (100%)	2012-07-19	Metallic and Industrial Minerals Permit	8838	21839
093 9312100494	Active	Athabasca Minerals Inc. (100%)	2012-10-02	Metallic and Industrial Minerals Permit	6176	15261
093 9312110408	Active	Athabasca Minerals Inc. (100%)	2012-11-26	Metallic and Industrial Minerals Permit	2560	6326
				Total	**60,966**	**150,650**

4.2 Property Rights and Maintenance

In Alberta, Alberta Metallic and Industrial Minerals Permits may be held by any organization, corporate entity, or individual which is properly registered to conduct a business in Alberta. The Alberta Metallic and Industrial Minerals Permits grant Athabasca Minerals the exclusive right to conduct metallic and industrial mineral exploration for up to seven consecutive two year terms, totalling up to fourteen years, subject to biannual assessment work and reporting. Permit holders are required to perform work compliant to $5.00/ha during the first term, then $10.00/ha for both the second and third terms. Over the fourth, fifth, sixth and seventh terms, $15.00/ha of work is required. Once a mineral deposit has been identified and 14 years of Metallic and Industrial Minerals Permits in good standing have passed, leases may be granted for a fifteen year renewal term subject to annual payments of $3.50/ha, with no work requirements.

The Alberta Mines and Minerals Act and Regulations (Metallic and Industrial Mines Tenure Regulation 145/2005, Metallic and Industrial Exploration Regulation 213/98) states the complete terms and conditions for work and permitting for mineral exploration in Alberta. These acts and regulations, among others pertinent to mineral exploration and mining in Alberta can be found on the Government of Alberta Queen's Printer website (Alberta, 2014).

4.3 Coexisting Oil, Gas and Oil Sands Rights

Separate statues regulate the right to metallic and industrial minerals, to coal, to oil/gas, and to bitumen (oil sands) in the province of Alberta. These separate regulations enable a number of different rights to be held by different grantees and to coexist over the same geographic location. Oil/gas leases, coal leases, oil sands leases and permits coexist on the, in the vicinity of, and under, Richardson Property.

4.4 Land Use and Environmental Matters

Athabasca Minerals Inc. has the right to conduct mineral exploration work on the land surface of the Alberta Metallic and Industrial Minerals Permits, subject to procuring the appropriate Exploration Approval land use permits from the Alberta Ministry of Environment and Sustainable Resource Development ("ESRD")'s Land Administration

Division. The Alberta Metallic and Industrial Minerals Permits identify the minor activity restrictions which apply to the granted land.

The Land Division of the ESRD regulates the land use in Alberta, including the issuance of surface disturbance permits, in addition to structured local consultations. For the 2013 and 2014 drilling programs, a number of consultation meetings were conducted between Athabasca Minerals and aboriginal communities in the Fort MacKay to Fort McMurray area in order to acquire the Exploration Approval necessary for the drilling program.

At present, the authors and Athabasca Minerals have no knowledge of major obstacles to resource development, of any material restrictions, or of pending aboriginal claims on the Property or surrounding area. A few sensitivities exist on the Richardson Property and surrounding area, including trapping rights, moose and caribou calving seasons and wolf migration. The Wood Buffalo National Park is approximately 20 km to the north of the northernmost boundary of the Richardson Property (Figure 1).

The entirety of Alberta Metallic and Industrial Minerals Permits 9310060418, 9310060419, 9312060367, 9312060387, 9312060388, 9312100494 and 9312110408, as well as the easternmost part of 9312070594 are subject to seasonal restrictions on exploration activities due to caribou migration and calving (Figures 1 and 2). Field activities in these areas must recess annually between February 15th and July 15th.

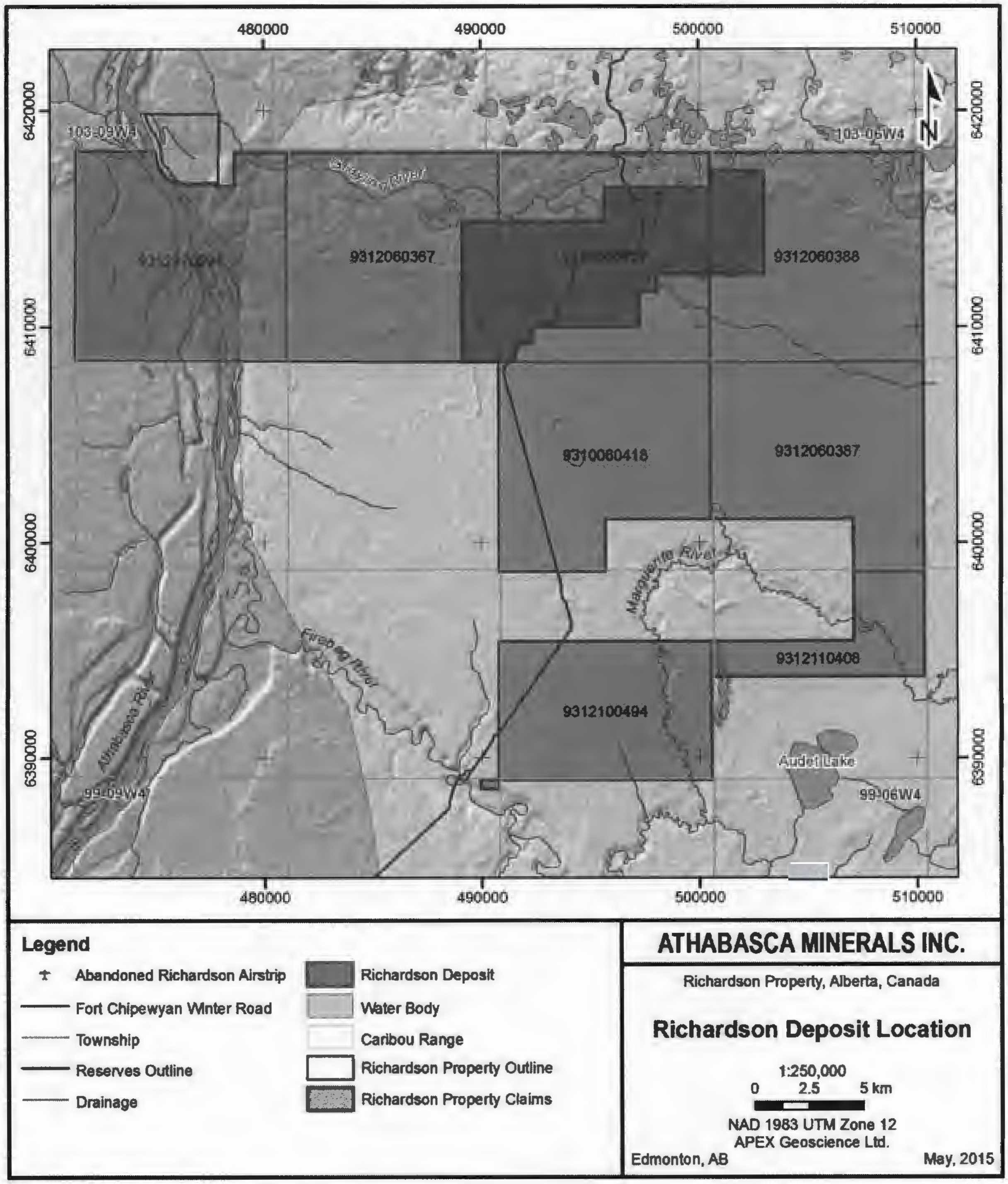
Timber rights for a small portion of the Richardson Property are held by the Alberta Pacific Forestry Industries Inc. (ALPAC), trappers and the crown. In the event of any clearing during drill pad preparation or access, compensation must be paid by way of timber damage assessment (TDA). TDA compensation applies to all land clearing, regardless of quality or quantity of growth.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Access and Infrastructure

The current exploration work is being conducted on the northern part of the Richardson Property (Figure 3). There are no all-weather roads to the Property, however, a 280 km winter road extending from Fort McMurray to Fort Chipewyan provides intermittent access as it traverses through the central portion of the Property and the current area of exploration interest (Figure 3). Within the Property, the Fort Chipewyan Winter Road leads to the abandoned Richardson airstrip, which is located on the northern part of the Property. The winter road is only passable to vehicle traffic during the winter months, due to having to cross the Firebag River to the South of the Property. Year round access to the Property can be accomplished by all-terrain vehicles (ATV). Fall and spring exploration programs would be possible (October to December and March to May) but is not often favourable due to insufficient frozen ground access and thin snow cover. In 2005, Fort Chipewyan residents signed a petition to request the Alberta Government to upgrade the winter road to an all-weather road. The Alberta Government conducted upgrading studies, but to date, no action has taken place.

Figure 3. Winter road access and Athabasca Minerals current area of interest at the Richardson Property.



Athabasca Minerals Richardson Property can be accessed by fixed wing and helicopter aircrafts from Fort McMurray, which is located approximately 130 km south-southwest of the Property. Fort McMurray is nearly 500 km north of Edmonton, Alberta and accessible by road or by regular daily commercial flights from several international airports (e.g., Toronto, Calgary, Edmonton) and other communities.

Rail shipping services to Fort McMurray are offered by the Canadian National Railway Company (Canadian National). Canadian National operates the line that runs from the city of Edmonton and passes though the communities of Boyle, Lac La Biche, Conklin, Leismer, Chard, Cheecham and Anzac to its terminus at Lynton, which is southeast of the Fort McMurray airport (approximately 12.5 km west of Highway 63 on Highway 69). The line received a $135 million upgrade in 2008.

Exploration work in the Fort McMurray region, including the multi-billion dollar oil sands industry, is facilitated by nearby support services and supplies, including medical and equipment supplies, rotary air support, expediting and communications. Telephones and radio communications are good quality, and cellular phone reception has good coverage in many areas, including within the Richardson Property area. A Smart Hub mobile internet booster was used during the drill program to improve internet connectivity.

Accessibility to various areas throughout the region is fairly good, enabled by a system of highways, secondary roads and cut seismic lines that service the oil sands industry. The access routes are used year-round as winter and rush roads, and occasionally by all-terrain vehicles in the summer.

The 2014 exploration program was supported from a trailer camp set up on the abandoned Richardson airstrip.

5.2 Physiography, Vegetation and Climate

The physiography of the Fort McMurray area is generally characterized by a flat to low relief terrain with land elevation varying between 240 m and 360 m above sea level (asl). The Property is located within the Athabasca Plain and Central Mixed Wood Natural Sub-regions of the Boreal Forest Natural Region. The Central Mixed Wood Natural Sub-region occupies 25% of Alberta and is characterized by gently undulating to flat plains, upland forests (white spruce, aspen and mixed wood) and wetlands (treed fens). The Athabasca Plain Natural Sub-region is characterized by dune fields, sandy plains and gravel-cored hills populated by low shrubs and jack pine forests (Downing and Pettapiece, 2006).

The principal waterways in the region are the Athabasca River and Clearwater River, fed by numerous small rivers and streams. In general, the small rivers and streams consist of relatively straight yet jagged water courses, often reflecting the joint and fault systems underneath. Water at the Richardson Property area was sourced from nearby lakes and streams, although the ideal source of nearby fresh water is the Athabasca River, located approximately 15 km from the Property, due to its size and flow continuity.

The closest weather station producing long-term climate data (years 1971 to 2000) is located in Fort McMurray, and is available on the Environment Canada website (Government of Canada, 2014). Temperatures in the winter average -18.8 degrees Celsius (°C) and a daily minimum temperature of -24.0° C during the coldest month of January. In general, winters are long, having on average daily minimum temperatures below zero between the months of October and April, and below -10° C between November and March. Summer temperatures are generally warm, averaging 16.8° C with an average daily maximum temperature of 23.2° C during the warmest month of July. Annual precipitation in Fort McMurray averages 455.5 millimetres (mm), up to 81.3 mm in July and as little as 15.0 mm in February.

6 History

6.1 Historical Energy-Related Exploration

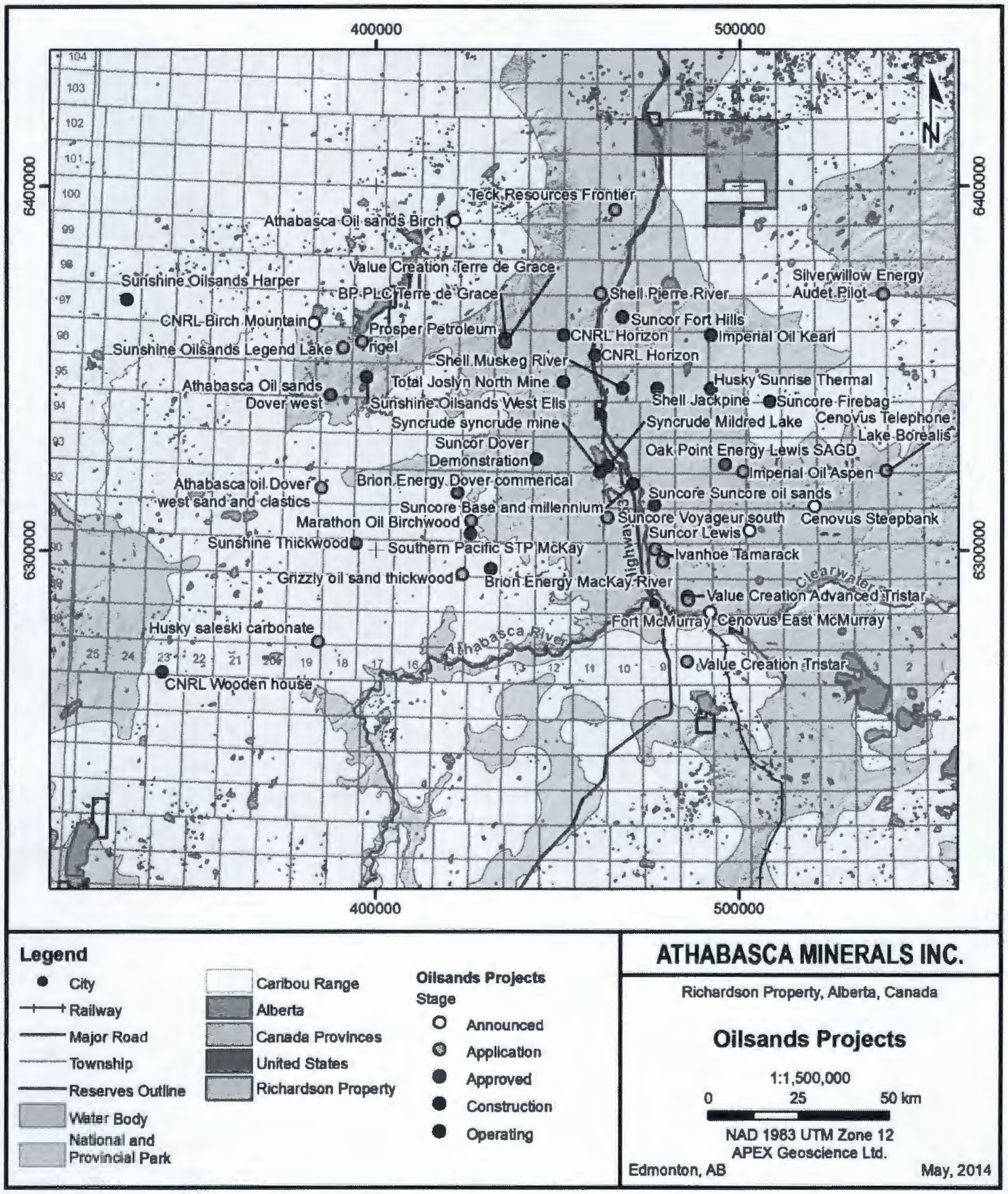
The Fort McMurray region is best known for its vast resource of bituminous oil sand. Based on the present bitumen recovery technologies, these oil reserves are estimated at 168 billion barrels (Alberta Government, 2013). The oil sands industry is a significant driver in the search for new sources of aggregate. That is, vast quantities of aggregate materials are required to supplement ongoing oil sands infrastructure construction demands. The location and status of oil sands operations in the general Richardson Property are shown in Figure 4.

A total of six energy-related (oil sands) wells are known to have previously been drilled by companies other than Athabasca Minerals on the Richardson Property. Five wells are located within Athabasca Minerals permit 9310060418, and the sixth well is located within permit 9312100494. The wells located within permit 9310060418 were drilled in 2007 by Silverbirch Energy Corp. Each well was drilled down to the Devonian Beaverhill Lake Formation and abandoned. The single well located within permit 9312100494 was drilled in 2008 by Value Creation Inc. This well was drilled down to the Cretaceous McMurray Formation and has also been abandoned. Total vertical well depths were between 69 m and 102 m. The Precambrian crystalline basement was not intersected in any of the wells (Table 4).

Table 4. Historical energy-related wells that were drilled with the current boundaries of the Richardson Property.

Well ID (UWI)	Operator	Spud Date	Total well depth (m)	Formation intersected at end of well	Status
1AA/02-05-101-07W4/00	Silverbirch Energy Corp.	14/02/2007	101.9	Devonian Beaverhill Lake	Drilled & Abandoned
1AA/07-22-100-07W4/00	Value Creation Inc.	11/03/2008	77	Creataceous McMurray	Drilled & Abandoned
1AA/11-19-101-07W4/00	Silverbirch Energy Corp.	19/02/2007	77.9	Devonian Beaverhill Lake	Drilled & Abandoned
1AA/12-04-101-07W4/00	Silverbirch Energy Corp.	16/02/2007	81.9	Devonian Beaverhill Lake	Drilled & Abandoned
1AA/12-06-101-07W4/00	Silverbirch Energy Corp.	21/02/2007	89.9	Devonian Beaverhill Lake	Drilled & Abandoned
1AA/12-31-101-07W4/00	Silverbirch Energy Corp.	18/02/2007	68.9	Devonian Beaverhill Lake	Drilled & Abandoned

Figure 4. Oil sands operations in the Athabasca Oil Sands region of northeastern Alberta, which are located directly south of the Richardson Property area.



6.2 Industrial and Metallic Mineral Exploration in Northeastern Alberta

Oil and gas are the drivers of the Alberta economy; however, several non-hydrocarbon mineral exploration discoveries have been made in northeastern Alberta since the 1990's. A summary of the various mineral commodity and deposit types in northeastern Alberta are summarized in the following text and in Figure 5 with consideration for their location with respect to Athabasca Minerals Richardson Property. With the exception of crush rock aggregate, which is the focus of this Assessment Report, none of these resources and/or occurrences is known to occur at the Richardson Property, nor do the authors infer that the commodity types might exist on the Property. Rather this information is provided as general background knowledge for northeastern Alberta. With respect to crush rock aggregate, the description of limestone aggregate at Hammerstone Corporation's Muskeg Valley Limestone Quarry is in no way implied to extend onto the Property, but is provided as supplemental information, and to make note of the potential for, and importance of, crush rock aggregate deposits in the expanding oil sands area north of Fort McMurray.

6.2.1 Crush Rock Aggregate, and Sand and Gravel Aggregate

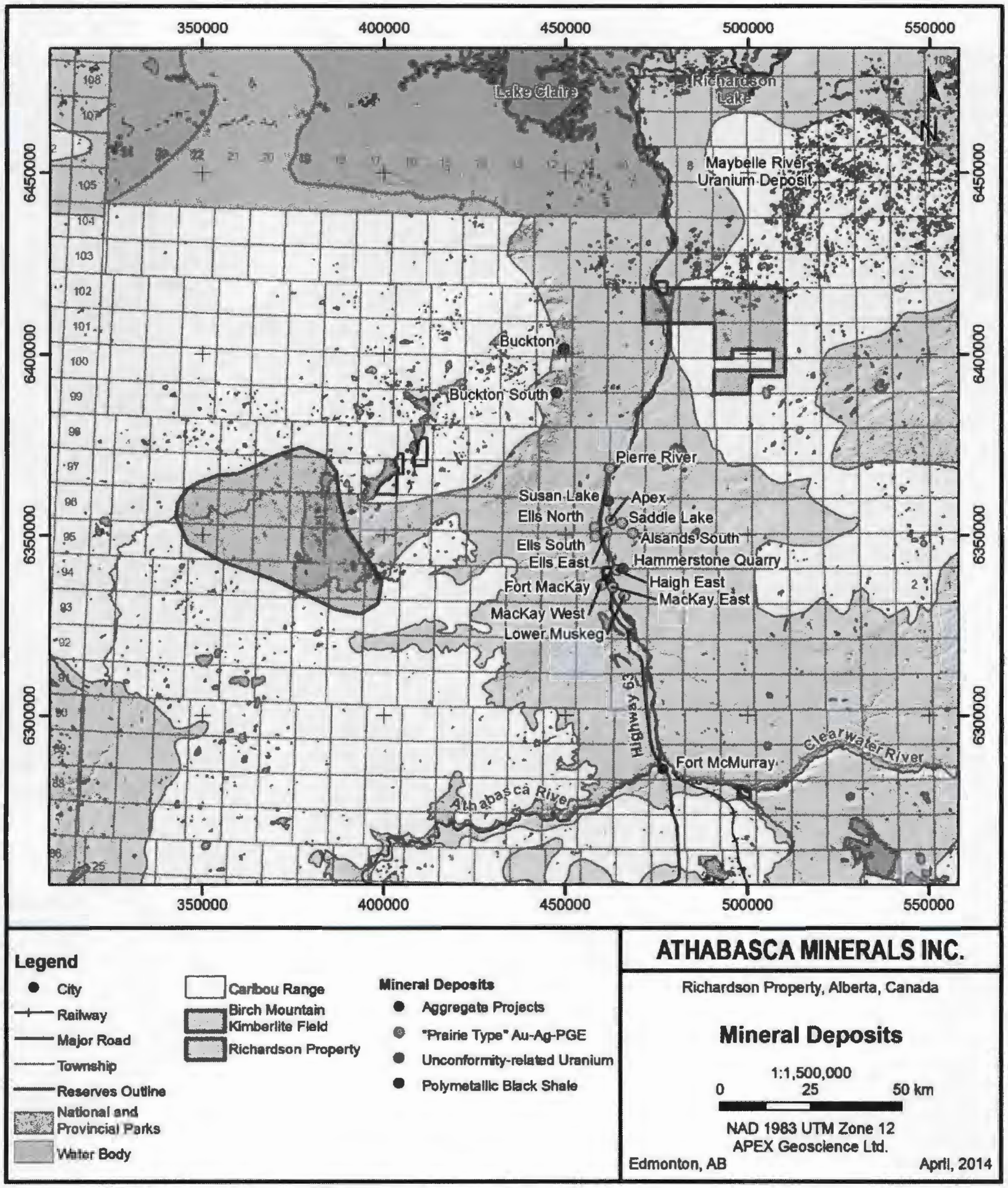
South of the Richardson Property, Hammerstone Corporation operates the Muskeg Valley Limestone Quarry (also known as the Hammerstone Project), which provides aggregate and limestone products for construction aggregate and for flue-gas desulphurization for the oil sands extraction process (Figure 5). The Hammerstone Project covers an area of approximately 1,200 hectares and contains over 1 billion tonnes of proven and probable limestone reserves (Hammerstone Corporation, 2014). The quarry has four limestone units, each of which produces products with distinct chemical and physical properties. The quarry has the capacity to produce over six million tonnes of processed product annually with the current crusher capacity.

In addition to the Richardson Crush Rock Property, Athabasca Minerals also manages the Susan Lake Aggregate Operation, which is located southwest of the Richardson Property (Figure 5). The gravel lease is 9,262 acres in size making it the largest open pit gravel operation in Canada. The massive aggregate operation is situated in the heart of existing oil sands developments, is accessible via major roads year round and provides gravel to the majority of the oil sands companies operating in northern Alberta. In 2009, the Susan Lake Pit was named the top aggregate supplier in Canada for the amount of aggregate sold, totaling 6.59 million tonnes. During 2010 and 2011 Susan Lake Pit sales increased to 7.13 million tonnes and 7.75 million tonnes, respectively (Athabasca Minerals Inc., 2014).

6.2.2 Polymetallic Black Shale

Southwest of the Property, the Birch Mountains area is known to host near-surface polymetallic nickel-cobalt-zinc-copper-uranium-rare-earth elements-yttrium (Ni-Co-Zn-Cu-U-REE-Y) black shale (Figure 5). The mineralization is hosted in three late Upper Cretaceous shale units: Labiche, Second White Speckled Shale and Shaftesbury formations. The shale package comprises flat-lying, near-surface mineralization that is envisaged to extend over a vast area (100's of km^2) across the Birch Mountains.

Figure 5. Summary of selected industrial and metallic mineral projects and occurrences in northeastern Alberta.



The Buckton mineral resource, which represents a portion of the black shale unit, has an aggregate of 4.7 billion tonnes of mineralized black shale material consisting of 4.4 billion tonnes classified as an Inferred Resource and 271 million tonnes classified as an Indicated Resource (Eccles et al, 2013). The proposed mining design is a low strip ratio, high tonnage co-production of Ni-U-Zn-Cu-Co-REE-Y from the Cretaceous Labiche and Second White Speckled formations.

6.2.3 Uranium

To the northeast of the Property, the Athabasca Basin accounts for roughly 15% of the world's annual uranium production. The majority of the unconformity-associated uranium mines and prospects occur in the eastern portion of the basin where ca. 1.7 to 1.5 Ga Athabasca Group clastic sedimentary rocks unconformably overlie the western Wollaston and Wollaston-Mudjatik basement domains. However, significant uranium discoveries such as the Cluff Lake Mine and Shea Creek Deposit in Saskatchewan, near the Saskatchewan-Alberta border, (underlain by the Clearwater Domain) and the Maybelle River prospect in Alberta (underlain by the Taltson Magmatic Zone), demonstrated the potential for similar unconformity-associated uranium deposits in the western part of the Athabasca Basin (Figure 5; Ruzicka, 1997; Jefferson et al., 2007; Pană and Olson, 2009). Pană and Olson (2009) concluded that shear/fault–controlled hydrothermal convection through a fertile granitoid basement which was sealed by the late Paleoproterozoic to early Mesoproterozoic Athabasca Group strata was the key mechanism in the origin of these deposits.

The AREVA Resources Canada Inc.'s (AREVA) Maybelle River uranium deposit is located along a northerly trending shear zone in the Taltson magmatic zone (Jefferson et. al., 2007). The basement unconformity at Maybelle River is relatively shallow (between zero and 250 m in depth), making the area of particular economic interest (Collier, 2005). Grades of 21% triuranium octoxide (U_3O_8) were intercepted over a 5 m interval (drill core MR-39; Collier, 2005). An alteration halo of numerous other metals, including Ni, Co, arsenic (As), lead (Pb) and molybdenum (Mo) has been identified, and extends for at least 200 m along the zone.

Several companies have conducted U exploration in northeastern Alberta, particularly in an area that extends from the general Richardson River area northeastwards to the western portion of the Athabasca Basin as summarized in the following text:

- Between 1975 and 1979, Eldorado Nuclear Ltd. (Eldorado) conducted U exploration in the Maybelle River and Richardson River area. Regional stream/lake sediment and water geochemistry, soil sampling, airborne/ground radiometric/magnetic/electromagnetic (EM) surveys, boulder mapping, ground resistivity surveys, and diamond drilling discovered several anomalies including the Rabbit Lake, Cluff Lake, Key Lake and Maurice Bay anomalies (Laanela, 1977, 1978; Fortuna, 1979).

- In 1976 to 1979, Norcen Energy Resources Ltd. (Norcen), in joint venture with Campbell Chibougamau Mines Ltd., E & B Explorations Ltd. and Ontario Hydro conducted U exploration in northeastern Alberta consisting of surface prospecting, lake sediment geochemical surveys, airborne EM survey and diamond drilling. A favourable structure trap similar to known U deposits was identified (McWilliams, 1977; McWilliams et al., 1979).

- In 1978, BP Minerals Inc. completed a diamond drilling program in search of uranium. No anomalous radioactive materials were discovered (Bradley, 1978).
- In 1980, SMD Mining Company conducted an airborne EM/magnetic survey and drilling. A strong east-northeast magnetic break/fault was identified and reportedly has the potential to host U and/or Pb-Zn deposits (Walker, 1980).
- Uranerz Exploration and Mining Ltd. conducted exploration in the area between 1984 and 1990. The exploration programs consisted of an aeromagnetic gradiometer survey, gravity, EM, resistivity and magnetic ground surveys, lake sediment geochemistry, structural mapping, aerial photography, and diamond drilling. Geochemical core analysis yielded high grade U intersections and core with U deposit characteristics such as graphitic sediments and aluminous content were located (Orr, 1986, 1989, 1991; Orr and Robertshaw, 1989).

6.2.4 Prairie-Type Precious Metals

South of the Property, Birch Mountains Resources Ltd. proposed a 'Prairie-type' deposit model, in which reduced formational fluids interacted with sulphate-rich evaporite and red beds to become oxidized brines (Figure 5; Feng and Abercrombie, 1994). The latter leached gold and other metals from the basement and/or red bed units and carried the metals as chloride (Cl^-) complexes. The metal-loaded solutions migrating across formations at the solution front of the Prairie Evaporite Formation and/or along fault-breccia zones deposited the metals either at a reducing interface (e.g., organic matter in the overlying carbonate and clastic rocks) or due to mixing with fluids of contrasting activity of electrons (Eh), activity of hydrogen ions (pH) or salinity (Abercrombie and Feng, 1997).

Feng and Abercrombie (1994) first documented 0.5 µm – 2 µm scale native gold (Au), silver (Ag), bismuth (Bi), cadmium (Cd), Cu, Pb, tin (Sn) and Zn, along with their alloys, sulphides (S^{2-}), oxides (O^{2-}), Cl^-, carbonates (CO_3^{2-}) and other compounds in the Precambrian basement granitoids and overlying Phanerozoic rocks of northeastern Alberta (Abercrombie and Feng, 1997).

6.2.5 Diamondiferous Kimberlite

During 1998-1999, eight kimberlitic intrusions were discovered in the Birch Mountains, which is located southwest of the Property (Figure 5). The Birch Mountains kimberlite field contains an eclectic mixture of alkaline to evolved kimberlite compositions, and therefore, has significantly lower diamond content than the Buffalo Head Hills kimberlite field, which is located in north-central Alberta (Eccles, 2011). All eight bodies were sampled for diamond and only two pipes, Phoenix and Legend returned minimal diamonds (Aravanis, 1999).

During 1998-2000, Ashton Mining of Canada Inc. (Ashton) collected 168 till samples for kimberlite-indicator mineral (KIM) analysis from their Athabasca Property, which encompassed a large region of northeastern Alberta (Skelton and Bursey, 2000). Fifty-eight samples returned positive grain counts, however, none of the sample results contained higher than six total grains of combined pyrope, chrome diopside, olivine, chromite or picroilmenite. Within the Richardson Property, the Ashton survey sampled no sites. Ashton also conducted an aeromagnetic survey. Unfortunately, the Ashton assessment report does not include any geochemical data associated with the KIM grains (i.e. only grain counts are recorded).

7 Geological Setting and Mineralization

7.1 Regional Geology

The regional inferred basement geology, bedrock geology and stratigraphic table of formations are presented in Figures 6 and 7 and Table 5, respectively, and summarized in the text that follows.

The majority of Alberta is underlain by sedimentary sequences of the Western Canada Sedimentary Basin (WCSB), which is bounded to the west by the Rocky Mountains and to the east by the Canadian Shied. In Alberta, the WCSB is composed of a Phanerozoic wedge of strata overlying the crystalline Precambrian basement. This wedge measures up to 7,000 m in thickness adjacent to the foothills, and diminishes to its zero edge along the Canadian Shield to the northeast (Mossop and Shetsen, 1994).

7.1.1 Precambrian Basement Geology

Basement rocks typically are masked by sedimentary rocks of the WCSB, and as such, the basement domains underlying much of Alberta are inferred from the few oil and gas wells that have penetrated to basement, and the chronological studies performed on relatively few cores; as a result the basement terrains are defined predominantly from regional, widely-spaced aeromagnetic data (Thériault and Ross, 1991; Ross et al., 1991; Ross et al., 1994).

With the exception of the easternmost portions of the Property, basement rocks on the Richardson Property are generally covered by WCSB sedimentary rocks. The basement rocks underlying the WCSB in the Property area consist of two main lithotectonic zones: the Taltson Magmatic Zone and the Rae Province (Figure 6). The Taltson Magmatic Zone is characterized by a 150 km to 200 km wide, north-trending belt of positive aeromagnetic anomalies (Ross et al., 1991, 1994). The Taltson magmatic zone contains a wide belt of meta-plutonic rocks that can be split into ca. 1.986-1.959 billion years (Ga) magnetite-series (I-type) or continental-arc plutons (e.g. Bostock et al., 1987; McDonough et al., 2000) and ca. 1.955-1.910 Ga peraluminous (S-type) plutons (e.g. Bostock et al., 1987; McDonough et al., 2000). These plutons intruded a narrow belt of Mesoarchean to Paleoproterozoic orthogneisses and granitoid rocks (e.g. McNicoll et al., 2000), termed the Taltson basement complex.

Figure 6. Inferred basement domains in the Richardson Property area.

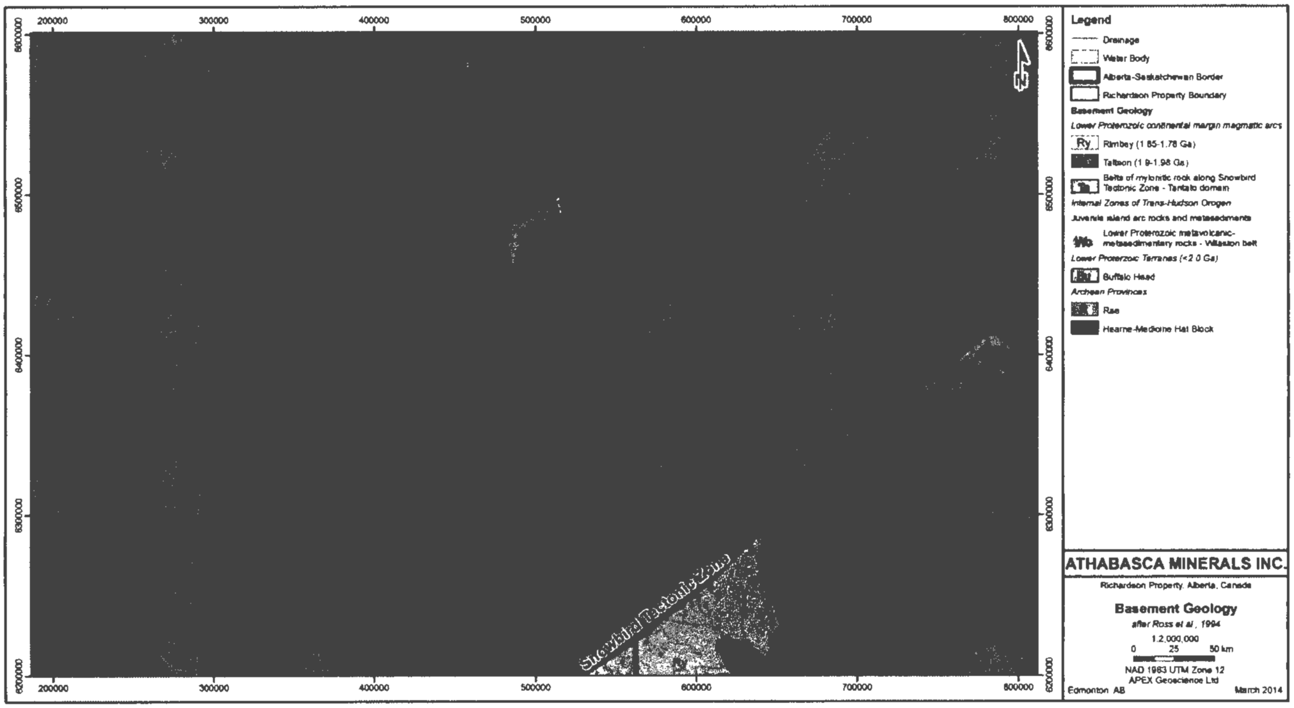


Figure 7. Regional bedrock geology of the Richardson Property area.

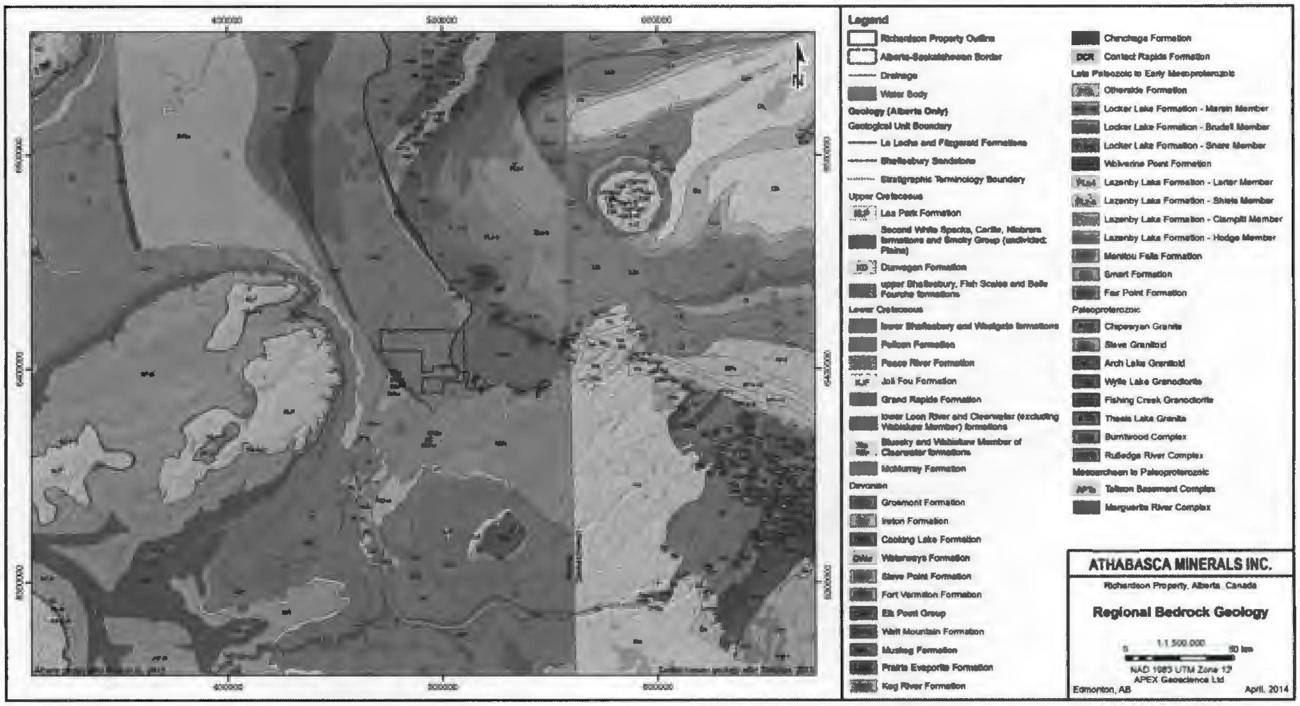


Table 5. Stratigraphic table of formations in northeastern Alberta. The bedrock geology at the Richardson Property area is confined to the lower portion of the table in Precambrian and Middle Devonian rocks.

System or Subsystem	Group	Formation	Member
Quaternary			
Upper Cretaceous	Smoky		
	La Biche	La Biche	
		Shaftesbury	
Lower Cretaceous	Mannville	Grand Rapids	
		Clearwater	Wabiskaw
		McMurray	
Upper Devonian	Woodbend	Grosmont	
		Ireton	
		Cooking Lake	
	Beaverhill Lake	Waterways	Mildred
			Moberly
			Christine
			Calumet
			Firebag
Middle Devonian		Slave Point / Fort Vermillion	
	Upper Elk Point	Watt Mountain	
		Prairie Evaporite	
		Winnipegosis / Keg River	
	Lower Elk Point	Contact Rapids	
		La Loche	
Precambrian	Marguerite River Complex		

*Modified after Halferdahl (1985); Cotterill and Hamilton (1995)

~~~~~~ Erosional Unconformity

- - - - - Paraconformity

Rocks south of, and underlying, the western Athabasca Basin have historically been included in the Rae Province (e.g., Ross et al., 1991, 1994). The Rae Province is comprised of five domains (Zemlack, Beaverlodge, Tantato, Lloyd and Clearwater domains) consisting mainly of deformed and metamorphosed granite and granitoid gneiss (Sibbald, 1974; Lewry and Sibbald, 1977; Ross et al., 1994; Hanmer, 1997). The Clearwater Domain is an elongated basement trend contiguous with the 1.85-1.78 Ga Rimbey Arc in Alberta (Ross et al., 1994), a basement feature that coincides with the 560 km long Leduc-Homeglen-Rimbey-Meadowbrook reef chain.
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7.1.2 Bedrock Geology

With the exception of the easternmost part of the Property where basement rocks crop out, Precambrian metamorphic and igneous rocks in the Property area are unconformably overlain by Devonian rocks of the WCSB (Table 5; Norford et al., 2004; Meijer Drees, 1994). Lower Devonian rocks found within the WCSB are only remnants of what once where extensive sedimentary rock layers deposited over the majority of the Craton, which were subsequently almost entirely eroded. The Lower Devonian sedimentary rocks generally consist of shallow-water carbonates and minor evaporate and clastic rocks, with a sharp change to basinal limestone and shale along the western border (Norford et al., 2004).

Stratigraphic sequences of the Lower to Middle Devonian Elk Point Group are more common and generally occur throughout the Interior Plains. Elk Point Group strata are composed of carbonate, evaporate, red bed and clastic rock units. Unconformities representing periods of erosion, subaerial exposure and non-deposition separate the sequences from one another (Bebout and Maiklem, 1973; Meijir Drees, 1980). Three erosional unconformities, the pre-Devonian, the sub-Headless and the sub-Watt Mountain subdivide the Elk Point Group (Moore, 1988; Morrow and Geldsetzer, 1988; Meijer Drees, 1990). The Elk Point Group measures up to 1,000 m thickness in the Mackenzie Mountains and as little as 215 m in the southern plains. It is exposed in the Cordilleran Orogen and along parts of the WCSB's northeastern margin. Upper Elk point Group formations are extensive and define the Elk point Embayment which extends from North Dakota through southern Manitoba and Saskatchewan to northeast British Columbia (Meijer Drees, 1994).

The Middle to Late Devonian Beaverhill Lake Group occurs throughout much of Alberta and reach thicknesses up to 240 m. It is unconformably deposited over the Elk Point Group, and is unconformably to conformably overlain by the Woodbend Group. Two stratigraphic phases subdivide the succession into a transgressive reefal phase dominated by the Slave Point and Swan Hills carbonate formations, and a regressive basin-fill phase dominated by argillaceous carbonate and shale of the Waterways Formation. The transgressive phases occurred first during sea-level rise, depositing sedimentary rocks of the Watt Mountain Formation, and carbonate and evaporate of the Fort Vermillion Formation, and carbonate of the Slave Point Formation. Three reef complexes (the Hay River Bank, the Peace River Arch Fringing reef Complex and the Swan Hill Complex) developed after the formation of a platform. During the regression phase, the Souris River Formation (Souris River Shelf) was formed, followed by progradational deposition of the Waterways Formation (Oldale and Munday, 1994)

The Woodbend and Winterburn groups of the Late Devonian are composed of cyclic clastic and carbonate with minor cyclic carbonate and evaporite sequences. Deposition of the Woodbend Group occurred during a period of gradual deepening of the WCSB, filling the basin with marine shale deposits. Alternatively, the Winterburn Group was deposited during a period of shallowing and basin filling. Together, the Woodbend and Winterburn groups can measure up to 850 m in thickness. They are recognizable by the thick (over 275 m) Leduc Formation reef complex and the Muskwa and Duvernay Formations; both known to be source rocks high in bitumen. Subsequent transgressive cycles lead to the deposition of the Lower Ireton, the Upper Leduc, the Upper Ireton, the Nisku, and the Blue Ridge intervals, although regression was dominant and resulted in relatively flat topography (Switzer et al., 1994).

In 1990, the Woodbend and Winterburn Groups were known to contain roughly 11% and 32% of the oil-equivalent gas reserves and initially established conventional oil within Paleozoic strata in the Alberta Basin, respectively (Energy Resources Conservation Board, 1990). In general, these pools of oil and gas are characteristic of ancient reef complexes formed by different depositional settings, size, shape and facies composition (Alberta Society of Petroleum Geologists, 1960, 1966 and 1969).

The Wabamun Group is the youngest Devonian strata of the WCSB found in the subsurface of British Columbia, and in southern Alberta and Saskatchewan. It is composed of a number of cycled shelf and ramp carbonate and associated evaporite deposits. These rocks sub crop from Manitoba to Alberta along a 700 km belt. The Wabamun Group's northern and eastern margins are characterized by pre-Mesozoic erosion. Two major stratigraphic sequences represent the Wabamun Group; the Stettle Formation composed of a low and high-stand carbonate sequence unconformably overlain by the Big Valley Formation composed of a siliclastic-carbonate low stand of the Banff assemblage (Halbertsma, 1994).

7.1.3 Surficial Geology

Surficial deposits in northeastern Alberta are dominated by diamicton (till), glaciofluvial and lacustrine deposits, comprised of a mixture of clay, silt, sand and minor pebbles to boulders, which were deposited directly by glacial ice. Factors influencing the location of thick accumulations of sediment in northern Alberta are: 1) preglacial valleys; 2) bedrock highlands and remnants; 3) ice marginal still-stands; and 4) bedrock contacts or scarps (Fenton et al., 2013). Glacial advances in northern Alberta originated from the Laurentide Ice Sheet, which generally flowed across Alberta in a southwesterly direction (Dyke et al., 2002).

7.2 Property Geology

The Richardson Property area lies along the passive, eastward thinning margin of the WCSB where sedimentary successions unconformably overly and on lap the southwest dipping Precambrian basement. Within the Property, Precambrian basement, Devonian carbonate and surficial deposits are exposed or occur near surface.

7.2.1 Precambrian Basement Geology at the Property

The crystalline basement in the Richardson Property area is part of the Taltson Magmatic Zone and Rae Province. Basement rocks in Alberta typically are observed from oil and gas wells that have penetrated through the WCSB to basement. A total of twelve oil and gas wells were drilled historically on the Richardson Property (all prior to 2013). None of these wells penetrated basement, and as such the depth from surface to basement, originally, was estimated at zero to 200 m (Wright et al., 1994). In the greater Richardson Property area, a total of three wells have penetrated bedrock, the closest of which, is located approximately 15 km north of the Property and intersected the Precambrian at 70.1 m depth.

Precambrian basement rocks consisting of meta-igneous and granitoid lithologies are known to crop out in the Property area. Exposures of the Mesoarchean to Paleoproterozoic Marguerite River Complex are found on the eastern edge of the Property, through Permits 9312060387 and 9312060388. The Marguerite River Complex comprises undifferentiated granite, Arch Lake-type granitoid, hornblende-quartz monzonite and granitoid gneiss rocks (Dufresne et al., 1994; Prior et al., 2013).

Based on outcrop and drill cores, the Precambrian basement at the Richardson property area is comprised of a medium to coarse grained granite, with a weak foliation defined by the alignment of biotite grains. The granite is variably potassically altered, ranging in colour from light blue-grey to salmon pink. Coarse grains of quartz and alkali feldspar dominate the granite.

7.2.2 Bedrock Geology at the Property

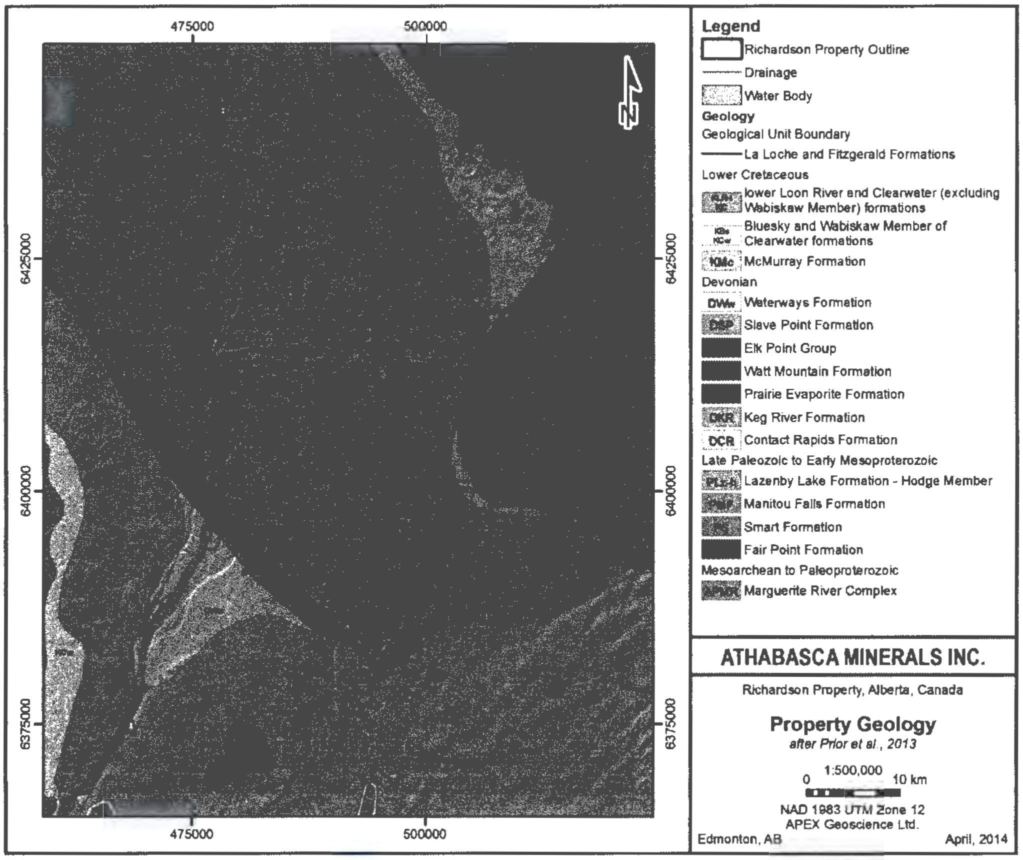
The majority of the basement rocks within the Richardson Property are overlain by Devonian bedrock (Figure 8; Table 5), in addition to Quaternary surficial deposits. Most of the bedrock found on the Property comprises the Middle Devonian Winnipegosis Formation of the Elk Point Group. The Winnipegosis Formation reflects an open-marine platform and reef system and is composed of thickly bedded brownish to yellowish-grey dolostone containing various fossils (Macoun, 1877; Bassett, 1952).

The Winnipegosis Formation can be separated into two different members, a thinly-bedded lower member and a massive upper member. The lower member consists of a thick, finely crystalline light brown and moderately vuggy calcareous dolostone, containing local grey chert nodules and silty crenulated laminae. The upper member consists of finely crystalline, light brown to mottled medium and light brown, massive to irregularly thick-bedded, vuggy dolostone, which contains greenish-grey chert in its lower section. Sparse brachiopod, bivalve and gastropod fossils can be found within the Winnipegosis Formation (Norris, 1963).

Specific to the Property area, and as interpreted in this Report, the Winnipegosis has not been subdivided into two members. While the Winnipegosis Formation does comprise variable texture, chemical and physical rock properties (e.g., rock-quality designation or RQD) over its entire length, the formation overall, is extremely consistent and there does not seem to be a readily identifiable break between and upper and lower members. While the lithological units vary from mudstone to packstone to boundstone, there was no single consistent stratigraphic position where one particular property was dominant over the other (i.e., where one texture was dominant enough to define upper and lower members).

Underlying the Winnipegosis Formation, the Contact Rapids Formation is comprised of marginal marine dolomitic silty shale, argillaceous dolostone and shale-siltstone with brachiopods, tentaculites and small spores (Sherwin, 1962; Meijer Drees, 1994). A conformable gradational to sharp contact separates the Contract Rapids Formation from the Winnipegosis Formation (Norris, 1963). The Contact Rapids Formation reportedly occurs on the Property between near the Marguerite River Complex (Permits 9312060387, 9312060388 and 9312110408; Prior et al., 2013).

Figure 8. Bedrock geology at the Richardson Property (after Prior et al., 2013).



A discontinuous zone of detrital basal feldspathic sandstone and conglomerate known as the La Loche Formation (equivalent to the Granite Wash) typically occurs between the Contact Rapids Formation and the crystalline Precambrian basement.

The La Loche Formation is of Early Devonian age or older, and comprises fine to medium-grained pale brown, irregularly lenticular to thinly-bedded arkosic sandstone, cemented with hematite and containing sub-rounded to angular coarse quartz and feldspar fragments (Sherwin, 1962; Norris, 1963). Core interpretation indicates that the upper and lower contacts of the formation, the basement rocks and the overlying Contact Rapids Formation are gradational (Norris, 1963).

7.2.3 Surficial Geology at the Property

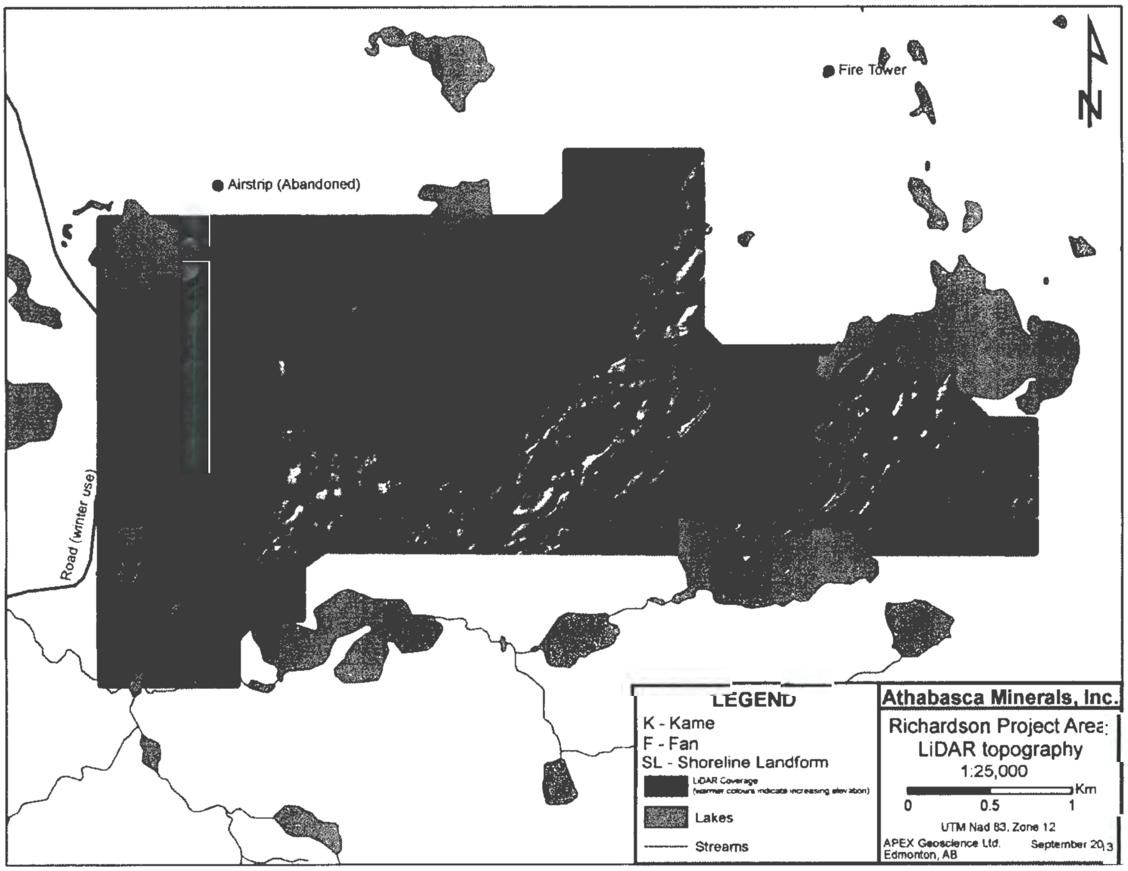
A preliminary interpretation of surficial geology over a portion of the Property (the area of exploration interest; see Figure 9) was completed by APEX prior to selecting drill collar locations for the 2014 drill program. LiDAR data shows the Richardson Property is dominated by uneven landforms typical of ice-contact glaciofluvial processes, such as kettle depressions and kame deposits (Figure 9). Glaciolacustrine processes have also affected the Property topography, typically redistributing sediments into low-lying areas and erosion.

Two topography zones have been defined using LiDAR data; a Southeast Zone consisting of hilly topography, and the Northwest Zone consisting of relatively flat topography (Figure 9). The Southeast Zone is characterized by large hills and valleys measuring hundreds of metres in width, generally trending northeast-southwest up to 10 km long and up to 40 m in elevation. In the Southeast Zone, shoreline features seem to be present at an elevation of approximately 295 m, near the base of kame hills. Two kame drainage streams have created outwash fans, causing moderate dissecting of the kames. Small and sporadic gravel lags may be present within stream valleys (McMillan, 2013).

The Northwest Zone is characterized by a mostly flat landscape commonly littered with depressions and lesser hills. The flat landscape likely reflects wave action erosion. A number of small morainal ridges formed during retreat of the Laurentide Ice Sheet. Two kame deposits are present, likely consisting of mixed sand and gravel material. The deposits trend northwest-southeast and measure up to 200 m wide and 400 m long, and are about 325 m in elevation. Depressions exceeding 50 m (often 100 m) wide and 3 m deep appear to correlate with one another in linear patterns over several hundred metres.

The division between the Southeast and Northwest Zones of the Richardson Property was created by the former shoreline of Lake McConnell; a glacial lake located along the western edge of the Laurentide Ice Sheet (Smith, 1994). Glacial Lake McConnell inundated the majority of the Northwest Zone, after approximately 10,500 years before present (Dyke and Prest, 1987; Smith and Fisher, 1993; Smith, 1994). The hilly topography of the Southwest Zone prevented it from being inundated by Lake McConnell.

Figure 9. Preliminary surficial geology interpretation of the northeastern part of the Richardson Property (the area of current exploration interest).



In general, the soils on the Property are classified as leached, well-drained soils with occasional peaty soils. Soil differences occur where landscape varies between being sloped, hummocky and ridged. In the southeastern corner of the Property, soils have developed on a hilly landscape, where they drain quickly, contrary to the southern region of the Property, where organic-rich soils drain poorly.

7.3 Mineralization

One objective of the 2013-2014 work was to assess the rock properties associated with the Winnipegosis Formation dolostone and Precambrian granite at the Richardson Property for their suitability as potential crush rock aggregate. Dolomite used as crush rock aggregate must be strong, durable and have a low porosity in order to limit water absorption (Brown et al., 2013). Good aggregate is associated with thick sections of pure dolomite that are well cemented (Ault, 1989). Carbonate rocks are generally strong due to their interlocking grain fabrics and carbonaceous mineralogy (Langer, 2006); although they can become stronger if they are subjected to silicification processes (Langer, 2006). Over time, carbonate rocks are often subjected to more recrystallization processes, which in turn increase their strength and decrease their porosity. Consequently, these older rocks are more favourable aggregate materials than younger ones (Bell, 1993).

Igneous rocks, such as granites, typically produce strong aggregates that are skid resistant and therefore, are favourable road aggregate materials (Brown et al., 2013). Igneous rocks of intrusive origin are generally strong and hard due to their mineralogy, grain intergrowth and small grain size. Ideal igneous rocks have been subjected to minimal weathering and contain few, if any, large grains and soft minerals (Langer, 2006).

Geotechnical and geochemical test work to assess the crush rock aggregate potential of the Winnipegosis Formation dolostone and Precambrian granite at the Richardson Property are reported in the Exploration and Results sections of this Report.

8 2013-2014 Exploration Work and Methodologies

8.1 Drilling

Exploration at the Richardson Property is focused on near surface Devonian and Precambrian aged bedrock. The Devonian stratum is comprised of dolomitic units belonging to the Winnipegosis (and Contact Rapids) formations. The Devonian rocks sit unconformably over Precambrian granite. The units are being explored for their mineral potential and as a source for aggregate crush rock.

During 2013, Athabasca Minerals staff visited the Richardson Property numerous times by ATV and helicopter, produced a field data compilation and drilled four diamond drillholes. Geological mapping identified granite outcrop in the eastern part of the Property. During 2014, Athabasca Minerals retained APEX to complete a drillhole program (totalling 843 m) to obtain additional sample material in order to calculate a resource estimate of the Devonian Winnipegosis Formation and make resource estimate inferences on the underlying Precambrian granite(section 10 of this report.)

Drill collar summaries of the twelve 2013 and 2014 Richardson Property drillholes is presented in Table 6, Figure 10 and Appendix 1 and summarized in the text that follows.

8.1.1 2013 Drill Campaign

In 2013, Athabasca Minerals conducted a drilling program that concluded with core being derived from four diamond drillholes totaling 235.1 m. The program, which was conducted between January 21st and February 16th, 2013, had originally proposed 16 drillholes, but the program was shortened due to lost circulation problems within overburden and through bedrock. In addition, diamond drillholes GNA-05, GNA-11 and GNA-16 were abandoned prior to intersecting Precambrian basement due to poor drilling conditions. Hence, drillhole GNA-10 represented the lone drillhole from the 2013 drill program to penetrate through the entire lithostratigraphic section of Winnipegosis Formation and downwards into Precambrian granite (Table 6)

8.1.2 2014 Drill Campaign

During February 2014, Athabasca Minerals conducted an 843 m core drilling program over a large section of the Richardson Property. A total of eight diamond holes (14RLD001 to 14RLD008) were completed over an area spanning 20 km^2 (Figure 10). With the exception of drillhole 14RLD006, the program successfully cored entire sections of the Winnipegosis Formation, with all but one drillhole terminating in Precambrian basement granite (Table 6). The drilling termination strategy was generally to end each hole once 10 m of Precambrian basement was penetrated. One drillhole (14RDL007) tested the granite, by coring 44.5 m of the Precambrian basement. Drill collar locations were limited to existing access within the Property and, where possible, collars were shifted in order to take advantage of natural and manmade pre-existing clearings. Final collar locations were recorded with a handheld GPS unit. Drill pads were reclaimed by a combination of back blading to distribute and cuttings left on surface as well as redistributing any fallen timber by hand over the drill site. Collars were marked with an aluminum (Al) tag placed on the southwest corner of the drill pad.

Overburden thickness averaged 35.4 m and consisted largely of unconsolidated sand and boulders. The Devonian stratigraphy averaged 55.1 m in thickness and was comprised largely of competent, light brown dolostone with lesser wackestone, sandstone and shale. Bitumen content throughout the project area was highly variable ranging from minor less than (<5%) bitumen infilled vugs to moderate (e.g., 40%) amounts bitumen infilling vugs, fractures and karsts. The vuginess, sand-content and fracturing of the Devonian rocks appears to play a major role in bitumen distribution.

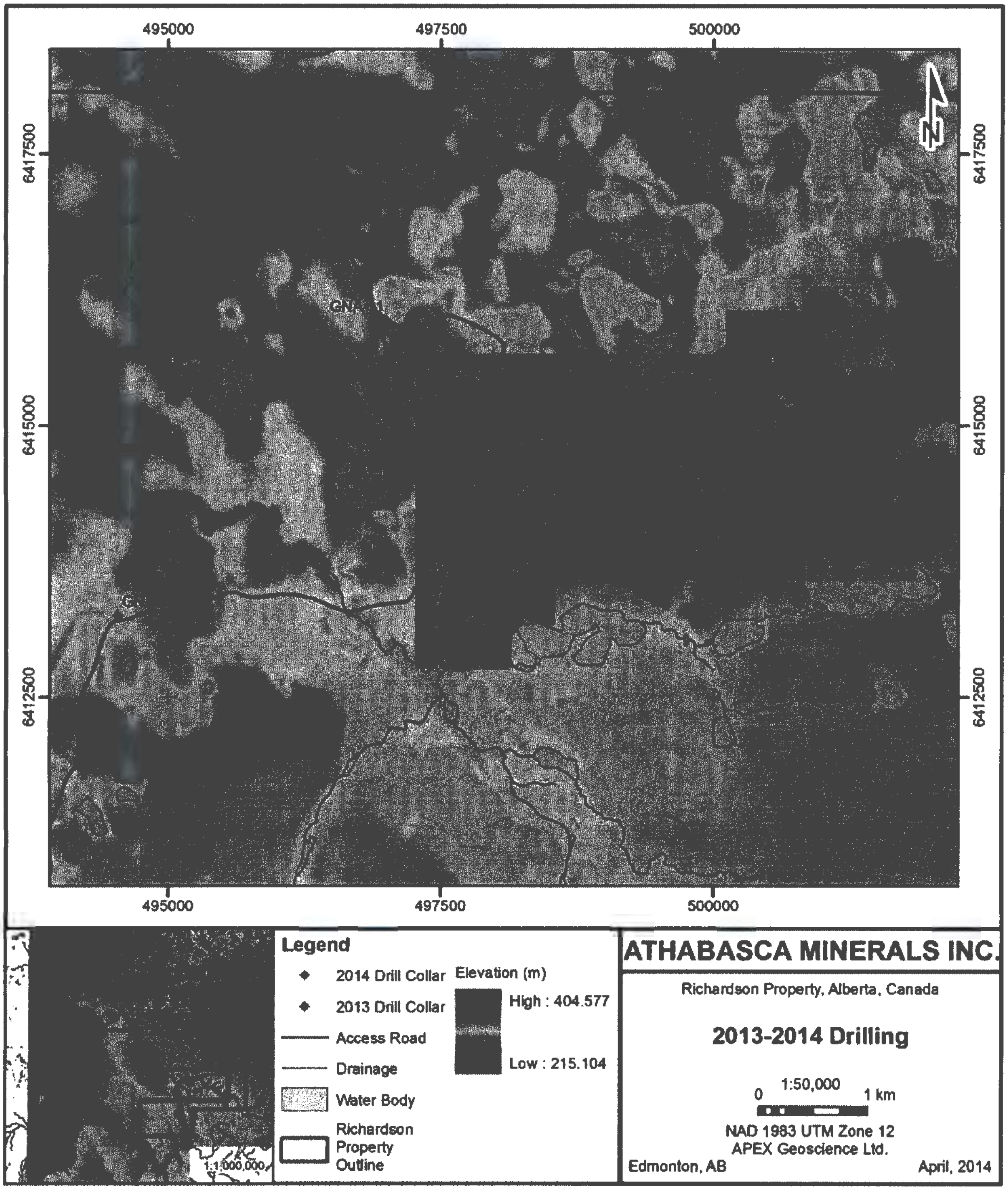
Minor karsting and bitumen content within the Devonian stratigraphy, as well as a conglomerate/pebble lag, mark the unconformity between the Devonian and Precambrian units. The Precambrian basement was comprised of light blue-grey, coarse-grained, weakly foliated granite, which was subjected to variable potassic alteration. The composition of the granite remained fairly consistent throughout the Property.

Further reclamation may be required due to the sandy nature of the area and the development of small depressions that were created by flowing drill water associated with normal drill processes, therefore small depressions are likely to form at the collars in the spring.

Table 6. Drillhole collar summaries for Athabasca Mineral 2013 and 2014 drill campaigns at the Richardson Property with depth to the top of the Devonian (Winnipegosis and Contact Rapids formations), Granite Wash (La Loche Formation) and Precambrian basement rocks. All drillholes have an azimuth and dip of 0 and -90 degrees, respectively.

		(UTM, Z12, NAD83)			Depth to Formation top (m)					Thickness of units (m)		
Drillhole ID	Year drilled	Easting (m)	Northing (m)	Elevation (m)	Winnipegosis	Contact Rapids	La Loche	Precambrian basement	Total hole depth (m)	Winnipegosis	Contact Rapids	La Loche
GNA-05	2013	494542	6413258	295	n/a	n/a	n/a	n/a	29.5	n/a	n/a	n/a
GNA-10	2013	498134	6415333	288	21.34	65.00	75.60	76.12	101.0	43.66	10.60	0.52
GNA-11	2013	496912	6415967	283	18.00	n/a	n/a	n/a	21.0	n/a	n/a	n/a
GNA-16	2013	501617	6415414	313	47.80	82.69	n/a	n/a	83.6	34.89	n/a	n/a
14RLD001	2014	499488	6415279	295	31.33	77.30	92.48	94.37	106.0	45.97	15.18	1.89
14RLD002	2014	500722	6416094	301	30.00	77.94	90.76	92.44	100.0	47.94	12.82	1.68
14RLD003	2014	500142	6415875	301	39.00	73.98	81.22	85.96	96.0	34.98	7.24	4.74
14RLD004	2014	498872	6415401	296	30.00	73.16	83.76	84.98	96.0	43.16	10.60	1.22
14RLD005	2014	497988	6414715	296	30.00	77.05	84.39	86.88	117.0	47.05	7.34	2.49
14RLD006	2014	497390	6413931	296	41.45	83.80	93.96		95.0	42.35	10.16	n/a
14RLD007	2014	497733	6414269	295	39.00	85.70	97.96	98.65	144.0	46.70	12.26	0.69
14RLD008	2014	497361	6414972	294	64.92	73.22	80.26	83.00	89.0	8.30	7.04	2.74
		Overburden average thickness:			**35.71**			**Average thickness:**		**39.50**	**10.36**	**2.08**

Figure 10 Locations of drillholes completed at the Richardson Property during Athabasca Minerals 2013 and 2014 drill campaigns.



8.1.3 Core Handling and Initial Geotechnical Preparation Procedure

The 2014 drill core was quick-logged during the drill program at the Richardson Property camp. Upon completion, the core boxes were tightly secured (to circumvent core displacement) on flatbed trailers and/or truck beds, and transported by road from the Richardson Property to Athabasca Minerals warehouse in Edmonton, Alberta. Upon arrival, the core was stored inside a steel shipping container in a locked yard – together with cores from Athabasca Minerals 2013 drill campaign. The purpose for moving the drill core to Edmonton was to conduct detailed core logging, geotechnical characterization and sampling in indoor, heated and well lit work bays at Athabasca Minerals office. Core handling, geotechnical characterization, logging, sampling and shipping was completed by APEX staff under the direct supervision of R. Eccles and B. Atkinson, the former of which takes overall responsibility for the core procedures and the content of this Assessment Report.

8.1.4 Geotechnical Characterization

This Assessment Report includes a maiden inferred crush rock aggregate resource estimate of the Middle Devonian Winnipegosis Formation at Athabasca Minerals Richardson Property (Section 10). In accordance with proper assessment of a crush rock aggregate deposit, which involves criteria that considers the materials strength, continuity, fractures and the presence of weakening particulate matter, this assessment has implemented an expanded geotechnical procedure for drill core evaluation as follows:

- Length and recovery measurements to record the actual length of core recovered from each logging interval. It was recorded in metres and as a percentage of the logging interval. The length of core was measured (eliminating gaps by pushing pieces together) between each set of blocks. Recovery (percent) was calculated by dividing the Theoretical Length (logged interval) by the Recovered Length and multiplying by 100.

- Rock Quality Description (RQD) is a modified measure of core recovery and is defined as the percentage of core in each log interval in which the spacing between natural fractures is greater than 10 centimetres (cm).

- Fracture frequency and rock defects were measured by recording the number of bedding planes, joints, faults and shears (natural) per metre. The most common rock defect types were recorded as a numeric code and their angles were measured in degrees, with respect to the core axis.

- Discontinuity and fracture condition were examined and classified according to the Joint Roughness (Jr) and Joint Alteration (Ja) descriptors of the Tunnelling Quality Index Q (Barton et al, 1974).

- Rock weathering grade, which was based on rock discolouration extent, rock fabric condition, fracture condition and surface characteristics, were used for field estimation of weathering observed in drill core.

- Specific Gravity (SG) measurements were carried out once per every metre to calculate the weight (tonnage) of a volume of rock using the following formula:

  SG = Weight in air / (Weight in air – Weight in water)

- Portable X-Ray Fluorescence (XRF) analyzer measurements were taken every metre of core to provide an evaluation of the chemical homogeneity, potential aggregate strength of the core, and to evaluate the metallic mineral potential of the core. Major elements measurements were recorded directly onto a laptop computer with tube settings as follows: 15kV, 23μA, no filter and vacuum pump attached. Spectra was collected for a 60 second timed assay and data was sent for calibration and interpreted daily.

8.1.5 Core Documentation

Upon completion of geotechnical characterization, detailed lithological logging was completed by APEX geologists. Logging was entered directly into an Excel logging spreadsheet. Aggregate sample intervals were laid out by Formation. From each hole, composite samples were chosen from the Winnipegosis Formation, Contact Rapids Formation, and the Precambrian basement granite, when applicable.

The core was photographed dry and wet. The camera was mounted to a stand set up in the same location providing consistent zoom, angle and lighting. Photographs were saved directly to the camera and data would be transferred to computer as high resolution jpeg images upon completion of a set. All pictures were checked and renamed as soon as possible to ensure quality and avoid potential data loss.

8.1.6 Core Splitting

A manual wheel splitter with a four inch blade was used to halve and quarter the core. Composite samples were halved with the exception of the duplicate check and geochemical samples, which were quartered. The remaining core (half or quarter) was put back into the box to be kept as an archive. Effort was made by the splitter to ensure that the side of core sampled remained as consistent as possible, proper placement of core back into the box, cleaning between samples to prevent contamination, and proper bagging and recording. In rare instances, any interval that included >30 cm of pervasive bitumen saturation were not included into the splitting process or sample.

8.1.7 Sample Shipping

All sampling was completed by APEX. Samples for the individual geochemistry intervals were collected by placing the material in heavy grade plastic sample bags with the sample numbers written on both sides in permanent marker. Sample tags marked with the sample numbers were included inside each sample bag, which were sealed with plastic cable ties. Samples were then placed into a rice bags lined with a larger heavy grade plastic bag for shipment.

For composite samples, two large heavy grade sample bags were placed into a rice bag to create the composite for the respective drillhole and lithology. Composite samples typically consist of multiple rice bags with each bag weighing approximately 20 kilograms (kg). The composite sample rice bags were sealed with a cable tie for transport to the laboratory. Laboratory instructions included crushing and homogenizing all samples within the single composite sample for test work.

A hard copy submittal form including sample inventory and instructions for the laboratory were placed inside the first bag of each shipment and sealed with plastic cable ties. Rice bags were stretch wrapped onto skids to be transported by courier from Athabasca Minerals office to the laboratories. The exception is the duplicate check sample, which was taken directly to the laboratory by APEX personnel.

8.2 Analytical Test Work

The analytical sampling process consisted of two separate sample sets: 1) composite samples for aggregate test work; and 2) interval or channel samples for major- and trace-element geochemical analysis. The objective of the aggregate analytical test work – in the context of this crush rock aggregate resource estimate – was predominantly focused on the aggregate mechanical qualities for its use in aggregate road building and concrete. Geochemical analyses were also performed to make inferences on the potential hindrances to rock strength (e.g., modal clay abundance through elements like Al). A secondary component of the geochemical work was to test whether the basement granite rocks contain REE and/or precious- and base-metal potential.

The analytical test work was performed in accordance with the thickness and lithology of the various units. Drill core from some of the units (Contact Rapids and the Precambrian basement granite) did not penetrate thick enough intersections to create a large enough sample for certain test work. Consequently, the test work completed as part of this study is complicated, and Table 7 is provided to explain the number and type of individual analysis (aggregate test work and geochemical analysis) that was undertaken for specific lithological units and from each drillhole.

8.2.1 Geochemical Analytical Test Work

Geochemical samples were taken as ¼ core splits of continuous material for 0.5-3 m intervals throughout the Precambrian basement granite and approximately every ten metres of the Winnipegosis Formation. These samples were sent to Acme Analytical Laboratories Ltd. (Acme; a Bureau Veritas Mineral Laboratories (BVML) company), in Vancouver, British Columbia (BC) for analysis. Acme is an international accredited laboratory with International Standards Organization (ISO) Model for Quality Assurance ISO9001:2008 certification. The Vancouver facility is also accredited with ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories.

Whole rock geochemical samples were prepared and analysed at Acme. One kilogram of the crushed sample is passed through a 2 mm screen to +70%. A 250 g split of the sample is then pulverized to +85% passing through a 75 mirometre (µm) screen. The sample is then decomposed by Total Whole Rock Characterization analysis consisting of standard suite major oxides (21 parameters) by Inductively Coupled

Plasma Emission Spectroscopy (ICP-ES) and standard suite trace elements (45 elements) by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS). This is achieved through fusion techniques which completely decompose the sample, account for structural water and provide quantitative silicon values resulting in total element concentration data suitable for whole rock classification diagrams and molar element ratio studies (BVML, 2014).The sample preparation and analysis processes are subject to internal Quality Control and Quality Assurance (QA/QC) protocols carried out by Acme during the progression of the service.

8.2.2 Aggregate Analytical Test Work

Composite aggregate samples were collected by taking a continuous ¼ to ½ split of core over the entire Winnipegosis Formation. The Winnipegosis unit was thick enough to create composite samples from each drillhole (n=10), including one duplicate sample from drillhole GNA-10. The composite samples typically comprised 60 kg to 150 kg of total material. Because the Contact Rapids and granite intersections were not as thick as the Winnipegosis, it was not possible to collect a single composite sample from every drillhole. Subsequently Contact Rapids and granite composite samples encompassed more than one drillhole, which were amalgamated into a single sample to be analysed together (see Table 7). A single composite sample of Contact Rapids was collected using material from all 10 drillholes. Two composite samples of basement granite were collected from eight drillholes (from all of the drillholes that penetrated basement).

Table 7. Summary of aggregate test work and geochemical analyses that was completed by drillhole and by lithological unit.

		Analysis consistent with Alberta Transportation standard Table 3.2.3.2A and CSA standard Table 12							Density analysis to confirm specific gravity core measurements			Additional geochemical analysis	
Drillhole	Formation	Sieve Analysis - Fine Aggregate (<10 mm)	% Fracture by Weight	Plasticity Index	L.A. Abrasion (Coarse)	$MgSO_4$ Soundness (Coarse)	$MgSO_4$ Soundness (Fine)	Unconfined Freeze-Thaw Resistance of Coarse Aggregate	Relative Density (Specific Gravity) and Absorption - Fine	Bulk Density of Aggregate (Dry)	Relative Density (Specific Gravity) and Absorption - Coarse	Whole Rock Geochemistry	Portable X-Ray Fluorescence
GNA-10	Winnipegosis[1]	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓		✓✓	✓✓	✓✓	✓[4]	✓[6]
	Contact Rapids[2]	/	✓	✓	✓	✓	/		/	✓	✓		✓[6]
	Precambrian[3]	/	✓	✓	✓	✓	/		/	✓	✓	✓[5]	✓[6]
GNA-16	Winnipegosis[1]	/	✓	✓	✓	✓	/		/	✓	✓	✓[4]	✓[6]
	Contact Rapids[2]	/	✓	✓	✓	✓	/		/	✓	✓		✓[6]
	Precambrian[3]	n/a	n/a	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a
14RLD-001	Winnipegosis[1]	/	✓	✓	✓	✓	/		/	✓	✓	✓[4]	✓[6]
	Contact Rapids[2]	/	✓	✓	✓	✓	/		/	✓	✓		✓[6]
	Precambrian[3]	/	✓	✓	✓	✓	/		/	✓	✓	✓[5]	✓[6]
14RLD-002	Winnipegosis[1]	/	✓	✓	✓	✓	/	✓	/	✓	✓	✓[4]	✓[6]
	Contact Rapids[2]	/	✓	✓	✓	✓	/		/	✓	✓		✓[6]
	Precambrian[3]	/	✓	✓	✓	✓	/		/	✓	✓	✓[5]	✓[6]
14RLD-003	Winnipegosis[1]	/	✓	✓	✓	✓	/		/	✓	✓	✓[4]	✓[6]
	Contact Rapids[2]	/	✓	✓	✓	✓	/		/	✓	✓		✓[6]
	Precambrian[3]	/	✓	✓	✓	✓	/		/	✓	✓	✓[5]	✓[6]
14RLD-004	Winnipegosis[1]	/	✓	✓	✓	✓	/		/	✓	✓	✓[4]	✓[6]
	Contact Rapids[2]	/	✓	✓	✓	✓	/		/	✓	✓		✓[6]
	Precambrian[3]	/	✓	✓	✓	✓	/		/	✓	✓	✓[5]	✓[6]
14RLD-005	Winnipegosis[1]	/	✓	✓	✓	✓	/		/	✓	✓	✓[4]	✓[6]
	Contact Rapids[2]	/	✓	✓	✓	✓	/		/	✓	✓		✓[6]
	Precambrian[3]	/	✓	✓	✓	✓	/		/	✓	✓	✓[5]	✓[6]
14RLD-006	Winnipegosis[1]	/	✓	✓	✓	✓	/		/	✓	✓	✓[4]	✓[6]
	Contact Rapids[2]	/	✓	✓	✓	✓	/		/	✓	✓		✓[6]
	Precambrian[3]	n/a	n/a	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a
14RLD-007	Winnipegosis[1]	/	✓	✓	✓	✓	/	✓	/	✓	✓	✓[4]	✓[6]
	Contact Rapids[2]	/	✓	✓	✓	✓	/		/	✓	✓		✓[6]
	Precambrian[3]	/	✓	✓	✓	✓	/		/	✓	✓	✓[5]	✓[6]
14RLD-008	Winnipegosis[1]	/	✓	✓	✓	✓	/		/	✓	✓	✓[4]	✓[6]
	Contact Rapids[2]	/	✓	✓	✓	✓	/		/	✓	✓		✓[6]
	Precambrian[3]	/	✓	✓	✓	✓	/		/	✓	✓	✓[5]	✓[6]

1 Winnipegosis composite sample: one composite sample per hole (using continuous material from 10 separate drillholes; i.e., 10 composite samples in total)
2 Contract Rapids composite sample: one composite sample (using continuous and combined material from ten drillholes; i.e., one composite sample in total)
3 Precambrian basement composite sample: two composite samples (using continuous and combined material from eight drillholes; i.e., two composite samples in total)
4 Winnipegosis geochemistry sample: a one metre long continuous interval sample was taken every ten metres
5 Precambrian basement geochemistry: one continuous interval sample per every two metres
6 Portable x-ray fluorescence analyzer: one spot analysis per every one metre
✓ - Single composite test sample tested at AMEC
✓✓ - Duplicate test sample of Winnipegosis dolostone: core splits were composited into two samples with one tested at AMEC and the other at Tetra Tech EBA
/ - Analysis not performed by AMEC (on core material from the Richardson Property)
n/a - drill core material not available for analysis

To summarize, the sample set consisted of the following 14 composite samples:

- Eleven total Winnipegosis composite samples (10 samples from each drillhole that were analyzed at AMEC, and one duplicate sample from drillhole GNA-10 that was analyzed at Tetra Tech EBA);

- One Contact Rapids composite sample, which includes material from the 10 drillholes; and

- Two Precambrian basement granite composite samples, which included material from the eight drillholes that penetrated basement (Table 7).

The sampling scheme was adopted to place emphasis on the road crush aggregate potential of Devonian Winnipegosis Formation and secondarily to test the aggregate potential of the Precambrian basement granite. The Contract Rapids Formation was not considered a crush rock aggregate candidate, however, a single sample was analyzed to obtain is aggregate specification, particularly because the unit occurs stratigraphically between the overlying Winnipegosis and underlying granite.

Aggregate samples were analyzed at AMEC in Calgary, Alberta. A separate laboratory 'check aggregate sample' (discussed in the Data Verification Section) was analyzed at EBA Tetra Tech in Edmonton, Alberta. The aggregate test work methodologies are in accordance with the Alberta Transportation aggregate standards for road aggregate and Canadian Standards Association (CSA) concrete standards. These test standards are better referenced as:

1. Alberta Transportation Specification for aggregate production and stockpiling (Alberta Transportation, 2010) – more specifically, Test Methods Used to Determine Material Characteristics (their Table 3.2.3.2A,B,C); and

2. CSA-A23.1-09/A23.2-09 Concrete materials and methods of concrete construction/Test methods and standard practices for concrete (CSA, 2009) – more specifically, Limits for Deleterious Substances and Physical Properties of Concrete Aggregate (their Table 12, CSA A23.2).

The individual analytical techniques for the Alberta Transportation and CSA aggregate testing methods are presented in Table 8. Because the Winnipegosis dolostone and Precambrian basement granite materials are 'hard rock' and uncharacteristic of 'typical' sand and gravel-type aggregate, not all of the Alberta Transportation and CSA test methods were performed on the Richardson Property core samples. With the exception of sieve analyses, all of the Alberta Transportation specifications for aggregate test methods were conducted on the Winnipegosis, Contact Rapids and basement granite composite samples. With respect to the CSA standard test methods, only two Winnipegosis Formation composite samples were tested for unconfined freeze-thaw test. Due to the nature of the competent dolostone and granite rock, the majority of the CSA standard test methods were not analyzed. Hence, the testing should be viewed as a general aggregate testing, as opposed to fine- or coarse-aggregate testing.

Table 8. Summary of the Alberta Transportation and Canadian Standards Association test methods.

Alberta Transportation and CSA Testing Methods		
Specifications for Aggregate (Table 3.2.3.1)[1]	**Test Methods Used to Determine Material Characteristics (Table 3.2.3.2)[1]**	**Limits for Deleterious Substances and Physical Properties of Concrete Aggregate (Table 12, CSA A23.2)[2]**
Sieve analysis	Sieve analysis	Sieve analysis
% Fracture by weight	% Fracture	Clay lumps
Plasticity index	Plasticity Index	Low density material
Flakiness index	Flakiness index (one/source)	Material finer than 80 microns
L.A. Abrasion	L.A. Abrasion	Flat and elongated particles
	Determining the liquid limit of soils	Micro Deval **
	Dry strength (one/20,000 tonnes)	Unconfined freeze-thaw
	Coefficient of unconformity (not for des 1+2)	
	Detrimental matter, coarse aggregate (1/5,000 tonnes) *	
Additional Analysis Required for Resource Model and Estimate		
Relative Density (Specific Gravity) and Absorption - Fine		
Bulk Density of Aggregate (Dry)		
Relative Density (Specific Gravity) and Absorption - Coarse		

* Abbreviated petrographic analysis TLT-107

** equivalent to magnesium sulphate ($MgSO_4$) soundness

[1] Alberta Transportation Specification 3.2 for aggregate production and stockpiling (Alberta Transportation, 2010)

[2] CSA-A23.1-09/A23.2-09 Concrete materials and methods of concrete construction/Test methods and standard practices for concrete (CSA, 2009)

8.2.3 Density Analytical Test Work

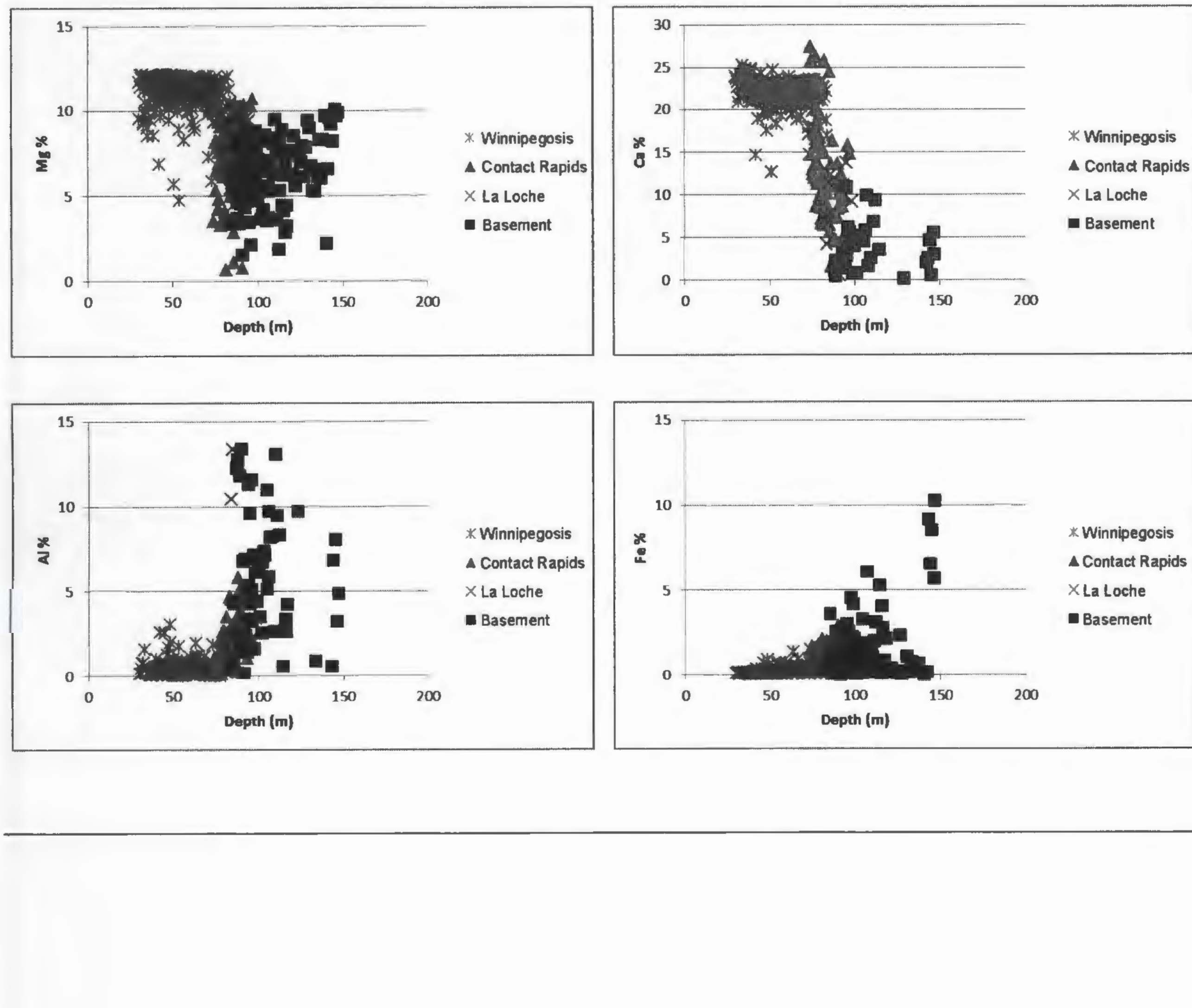
In addition to SG measurements, which were measured during the geotechnical work (one SG measurement per every metre), bulk and relative density and absorption tests were also conducted on the composite samples at AMEC and Tetra Tech EBA to determine the absorption of water on aggregate, the bulk specific gravity and the saturated-surface dry bulk specific gravity of aggregate samples.

8.3 Geophysical Surveys

From July 7th to 14th, 2014, a series of surface geophysical surveys were conducted at the Richardson Property by APEX (on behalf of Athabasca Minerals). The geophysical surveys were performed over the area immediately surrounding a known granite outcrop on the eastern part of the Property. The surveys included: ground penetrating radar (GPR); frequency domain electromagnetics (EM); and total ground magnetics (Figure 11). The goal of the surface geophysical surveys was to: 1) test the effectiveness of three easily employable surface geophysical tools for identifying and characterizing potential aggregate deposits; and 2) make inferences on the dimensions of the granite body, including the relationship between the granite with the overlying overburden and Devonian Winnipegosis Formation dolostone.

The geophysical survey data supports the LiDAR surficial geology interpretations in this Report (see Section 7.2.3; Figure 11), and depicts several distinct geologic zones that merit follow up work, including drilling, at the Richardson Property. The methodology and results of the geophysical work is summarized in the text that follows.

Figure 15 Bivariate plots of selected elements (Mg, Ca, Al and Fe) versus depth. The geochemical data are portable x-ray fluorescence analyzer measurements that were taken every metre of core to provide an evaluation of the chemical homogeneity of the rock units.



9.2 Analytical Test Work Results

9.2.1 XRF Results

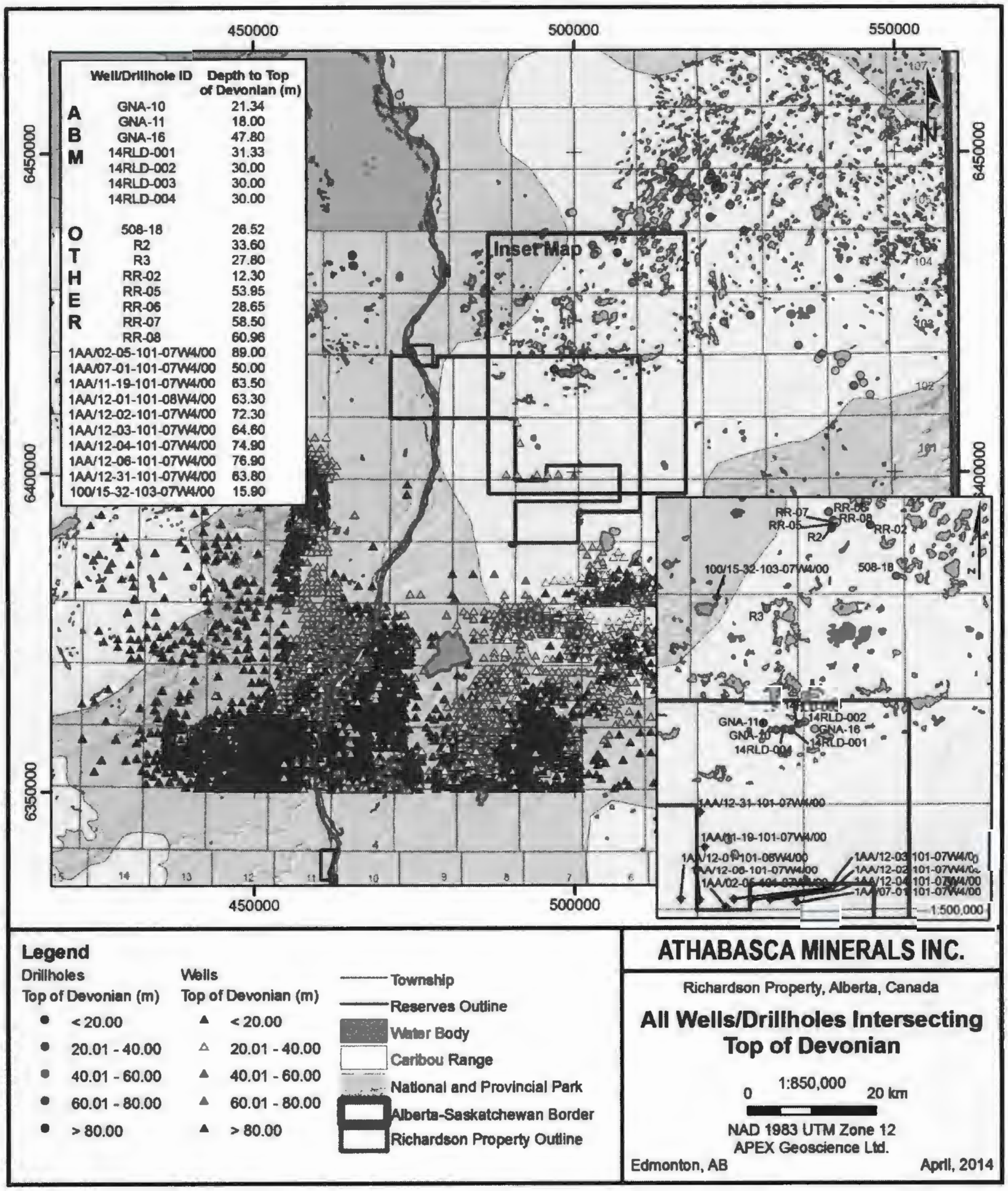
Portable X-Ray Fluorescence (XRF) analyzer measurements were taken every metre of core to provide an evaluation of the chemical homogeneity, potential aggregate strength of the core, and to evaluate the metallic mineral potential of the core. 553 individual measurements were taken; results are summarized below and a complete list presented in Appendix 3a.

In General, the XRF data shows that geochemical data can be utilized to distinguish between the various lithological formations that are present at the Richardson Property. The upper and lower boundaries of the Winnipegosis Formation, Contact Rapids Formation, La Loche Formation and the Precambrian basement granite have been identified in core and these boundaries were confirmed using trace element geochemical measurements from a portable XRF. For example, Figure 15 shows that even though the Winnipegosis Formation contains several texturally distinct units (via logging), the major element geochemistry of the Winnipegosis is fairly consistent and distinct from the other geological units.

This data demonstrates the homogeneity of the individual units, and with respect to the Winnipegosis Formation, shows that dolomitization of the unit was pervasive. In addition, the low Al content of the Winnipegosis Formation (<3.5 wt. %; Figure 15) is indicative of a low mud and clay component, which is a favourable indication in terms of the strength and quality of the dolostone as an aggregate material.

Based on the bivariate plots of the selected elements Mg, Calcium (Ca), Al and Iron (Fe) versus depth, the representative geochemical groupings for the Winnipegosis, Contact Rapids and the La Loche formations, and the Precambrian basement granite, are respectively homogenous and clearly differentiate the four respective rock types (Figure 15). For example, the Winnipegosis Formation has consistently higher Mg and Ca than the basement granite; the Contract Rapids and La Loche formations, which typically represent transitional rock types between the dolostone and basement, plot between the Winnipegosis Formation and the basement granite.

Figure 13 Results of a well and drillhole compilation to depict the top of the Devonian in the Richardson Property area.



The Athabasca Minerals drillholes shows that the depth to the top of the Precambrian generally shallows towards the north and northwest of the Richardson Property and that the depth shown in the 2013 and 2014 drillholes is not continuous away from this area. Within the refined area, collar elevations varied between 262.1 m and 338.0 m asl. By adjusting Precambrian depths to be calculated with respect to the 'lowest collar elevation of 262.1 m', the continuity of the Precambrian supports previous observations that the top of the Precambrian decreases in depth to the northeast and east of the 2013 and 2014 drillholes (Figure 14, Table 10). However, this conclusion is tenuous because the granite is known to crop out in the eastern part of the Property.

Table 9. Estimate depth to the top of the Devonian in the Richardson Property area; relative to the calculated lowest collar elevation.

Well/Drillhole ID	Depth to Top of Devonian (m)	Collar Elevation (m)	Collar Elevation minus 262.1 m	Depth to Top of Devonian - Calculated Elevation
GNA-10	21.34	288	25.9	-4.56
GNA-11	18	283.4	21.3	-3.3
GNA-16	47.8	313	50.9	-3.1
14RLD-001	31.33	295	32.9	-1.57
14RLD-002	30	301	38.9	-8.9
14RLD-003	30	301	38.9	-8.9
14RLD-004	30	296	33.9	-3.9
508-18	26.52	302	39.9	-13.38
R2	33.6	287	24.9	8.7
R3	27.8	288	25.9	1.9
RR-02	12.3	274.3	12.2	0.1
RR-05	53.95	262.1	0	53.95
RR-06	28.65	262.1	0	28.65
RR-07	58.5	298.7	36.6	21.9
RR-08	60.96	294.1	32	28.96
1AA/02-05-101-07W4/00	89	311	48.9	40.1
1AA/07-01-101-07W4/00	50	281	18.9	31.1
1AA/11-19-101-07W4/00	63.5	305	42.9	20.6
1AA/12-01-101-08W4/00	63.3	297	34.9	28.4
1AA/12-02-101-07W4/00	72.3	295	32.9	39.4
1AA/12-03-101-07W4/00	64.6	297	34.9	29.7
1AA/12-04-101-07W4/00	74.9	304	41.9	33
1AA/12-06-101-07W4/00	76.9	303	40.9	36
1AA/12-31-101-07W4/00	63.8	301	38.9	24.9
100/15-32-103-07W4/00	15.9	267	4.9	11

Figure 14 Results of a well and drillhole compilation to depict the top of the Precambrian in the Richardson Property area.

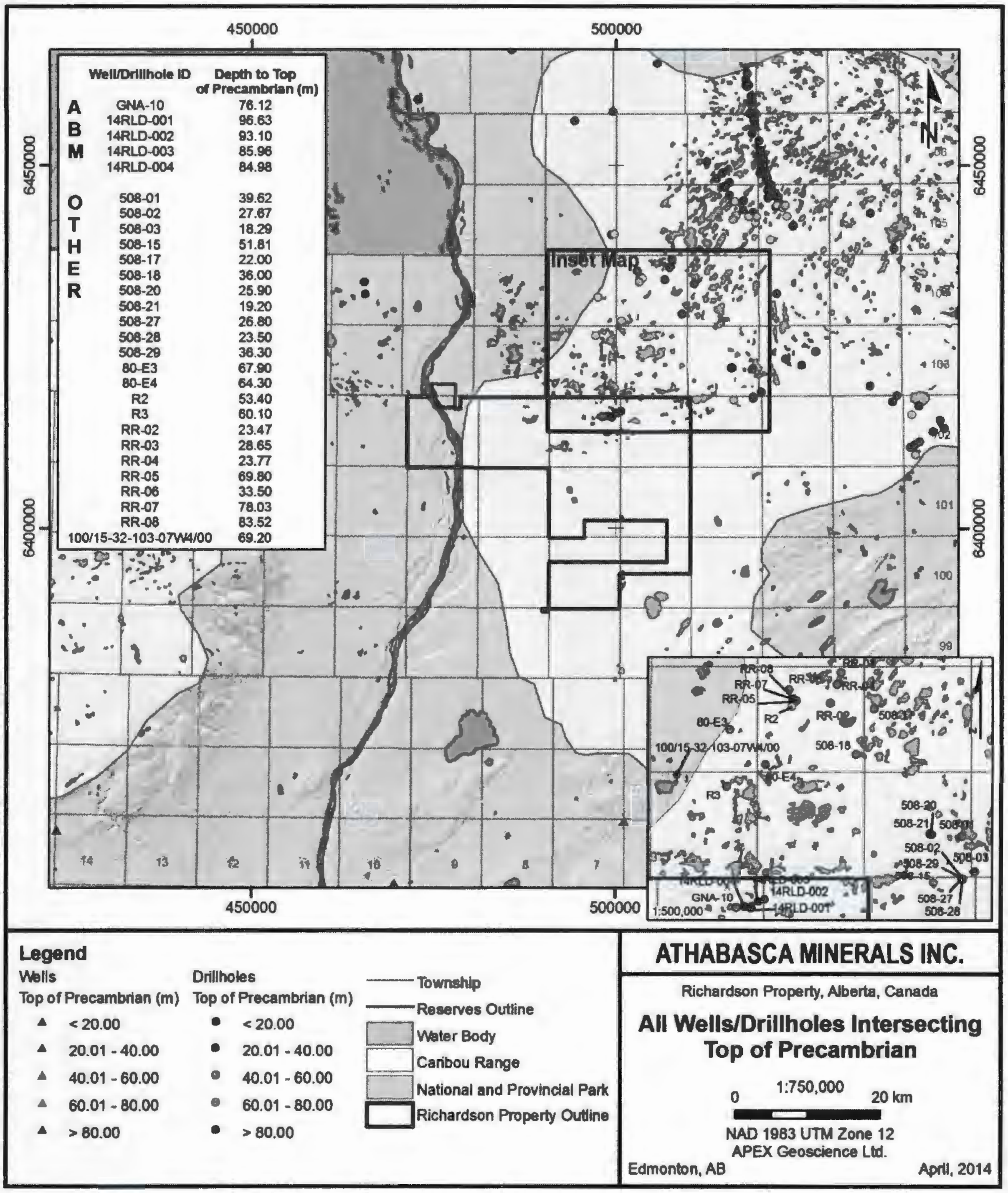
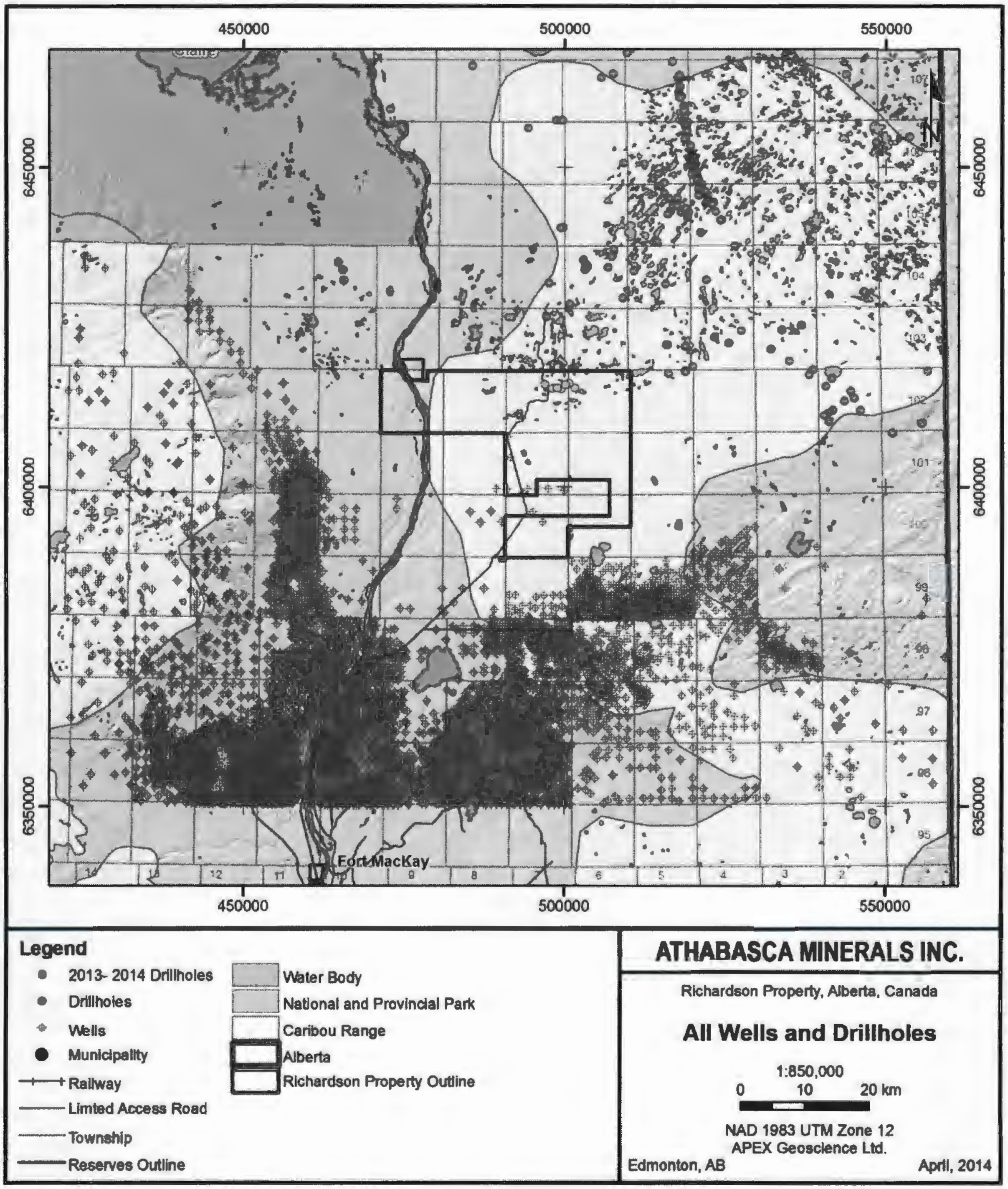


Table 10. Estimate depth to the top of the Precambrian basement in the Richardson Property area; relative to the calculated lowest collar elevation.

Well/Drillhole ID	Depth to Top of Precambrian (m)	Collar Elevation (m)	Collar Elevation minus 262.1m	Depth to Top of Precambrian - Calculated Elevation
GNA-10	76.12	288	25.9	50.22
14RLD-001	96.63	295	32.9	63.73
14RLD-002	93.1	301	38.9	54.2
14RLD-003	85.96	301	38.9	47.06
14RLD-004	84.98	296	33.9	51.08
508-01	39.62	320	57.9	-18.28
508-02	27.67	330	67.9	-40.23
508-03	18.29	319	56.9	-38.61
508-15	51.81	338	75.9	-24.09
508-17	22	290	27.9	-5.9
508-18	36	302	39.9	-3.9
508-20	25.9	310	47.9	-22
508-21	19.2	310	47.9	-28.7
508-27	26.8	330	67.9	-41.1
508-28	23.5	330	67.9	-44.4
508-29	36.3	331	68.9	-32.6
80-E3	67.9	299.3	37.2	30.7
80-E4	64.3	301.1	39	25.3
R2	53.4	287	24.9	28.5
R3	60.1	288	25.9	34.2
RR-02	23.47	274.3	12.2	11.27
RR-03	28.65	281.9	19.8	8.85
RR-04	23.77	289.5	27.4	-3.63
RR-05	69.8	262.1	0	69.8
RR-06	33.5	262.1	0	33.5
RR-07	78.03	298.7	36.6	41.43
RR-08	83.52	294.1	32	51.52
100/15-32-103-07W4/00	69.2	267	4.9	64.3

Figure 12 Location of selected wells and drillholes used to determine the stratigraphic continuity of the top of Devonian and Precambrian basement in the Athabasca Minerals Richardson Property area.



GeoSCOUT (an oil and gas information system that provides publicly available formation top data); and 3) historical metallic and industrial mineral assessment reports (e.g., Laanela, 1977, 1978; McWilliams and Sawyer, 1977; Bradley, 1978; Fortuna, 1979; McWilliams et al, 1977; Walker, 1980; Orr, 1986, 1989, 1991; Orr and Robertshaw, 1989).

The investigation consisted of an area encompassed by Townships 96 to 106 and Ranges 1 to 14, west of the 4th Meridian (Figure 12). Within this area, 6,264 Devonian penetrating wells are known from GeoSCOUT; only five of these wells penetrated the basement illustrating the emphasis on the Cretaceous McMurray Formation as an oil sands prospect. From historic assessment reports, 140 and 65 drillholes penetrated the top of the Devonian and basement, respectively (Figure 13). A more refined study area measuring approximately 1,000 km^2 (inset map in Figure 13), contains 29 wells and drillholes that penetrated Devonian (including Athabasca Minerals 2013 and 2014 drillholes). The depth to the top of the Devonian within these wells and drillholes varies between 18 m and 89 m from surface and, in general, the depth to Devonian increases to the southwest to depths of 50 m or greater.

The Athabasca Minerals drillholes, and other historical wells and drillholes to the north of the 2013 and 2014 drillholes indicate Devonian depths between 18 m and 334 m, with only four historical drillholes with Devonian depths of between 48 m and 61 m, including Athabasca Minerals 2013 drillhole GNA-16 (depth of 47.80 m). This data suggests that the depth to the top of the Devonian as seen within 2013 and 2014 drillholes has general depth continuity towards the north and northwest of the Richardson Property.

During the investigation, drillhole and well collar elevations were taken into consideration. Within the refined area of interest, collar elevations varied between 262 m and 313 m asl. By adjusting Devonian depths to be calculated with respect to the 'lowest collar elevation of 262.1 m', the continuity of the Devonian can be evaluated (Table 9). This study shows that these units are not continually flat, but rather increase in depths to the north and south of the 2013 and 2014 drillhole locations. Based on the data compilation, the depth to the top of the Devonian in the area, as shown in Figure 13 (and Table 9), is relatively shallow within the Richardson Property, and in particular, towards the northeast. The depth to the top of the Devonian increases in thickness towards to southwest as distance from the Property increases.

Data for the top of the Precambrian is limited towards the south, southeast, southwest and west of the Richardson Property, due to overall shallow nature of the oil and gas testing. The top of the Precambrian, as represented in Figure 14, is relatively deep within the Property and shallows towards the east-northeast. A more refined study area, measuring approximately 750 km^2, contains a total of 32 wells and drillholes that penetrate basement (Figure 14). The depth to the top of the Precambrian within these wells/drillholes varies between 19 m and 97 m from surface.

stratigraphic sections, which terminated in Precambrian basement granite. Drillhole 14RLD006 was the only hole which did not end in Precambrian Basement. Thickness of the Winnipegosis formation ranged from 8.3 m to 47.9 m.

The 2013 and 2014 drill campaigns conducted by Athabasca Minerals indicated that the bedrock underlying the Richardson Property includes, from stratigraphic base to top: Precambrian crystalline basement granitic rocks of the Taltson Magmatic Zone; an Early Devonian (or earlier?) discontinuous zone of detrital basal feldspathic sandstone and conglomerate known as the La Loche Formation; marginal marine dolomitic silty shale of the Devonian Contact Rapids Formation; and a thick (relative to the Contact Rapids and La Loche formations), finely crystalline dolostone known as the Winnipegosis Formation. The bedrock is overlain by a layer of Quaternary glaciofluvial and glaciolacustrine deposits that have formed kettle depressions and kame deposits, and redistributed surficial sediments into low-lying areas

Stratigraphic logging, which was performed by APEX for both the 2013 and 2014 drillholes, showed that with the exception of the La Loche Formation–Precambrian basement boundary, which can be gradational, the boundaries between formations have sharp, visually identifiable contacts. These definitive geological boundaries are further characterized as having extensive lateral continuity of the individual formations. The homogeneity of the stratigraphic units was further evaluated using geotechnical (Rock Quality Description and total fracture data) and geochemical data derived from the cores. A positive correlation between the drill logs and the geotechnical/ geochemical data confirmed the lithostratigraphic formation divisions, and the homogenous nature of the Winnipegosis Formation, which highlights its applicability in resource estimation as a potential source of crush rock aggregate. Drill Logs are included in this report as Appendix 2

The single 'impurity' to report involves supplementary bitumen, which is more or less confined to the uppermost portions of the Winnipegosis Formation (and the La Loche Formation directly overlying the Winnipegosis dolostone). The bitumen ranges in intensity from non-existent (in most of the core) to pervasive, the latter of which is evident in 25 cm to 90 cm wide 'bituminous horizons' that occur in the eastern drillholes 14RLD006 and 14RLD008. The bitumen appears to be confined to porosity enabling textures in the carbonate such as vugs, sandy horizons and fracture planes. It is not known how the bitumen might influence the processing or marketing of the potential crush rock aggregate, but the overall consistency and volume of non-bitumen-bearing dolostone, and the positive aggregate test work results, provide justification that the bitumen does not influence the viability of the Winnipegosis as an industrial mineral deposit in the current evaluation of this early stage project.

9.1.2 Regional Stratigraphic Considerations

To test whether the Richardson crush rock aggregate deposit has the potential to be extended, a regional stratigraphic evaluation was undertaken on the Devonian and Precambrian basement formation tops. Data compilation for the purpose of evaluating the continuity of Devonian and basement units include data from: 1) Athabasca Minerals 2013 and 2014 drill programs; 2) oil and gas well information from

Radar Inc. work included XYZ coordinates of the interpreted layer surfaces and databases containing the cross sectional responses recorded along the traverse lines.

8.4.2 Frequency Domain Electromagnetic Survey-EM31 System

The Frequency Domain Electromagnetic Survey (FDEM) survey using the EM31 system, was operated in vertical dipole mode with the boom oriented longitudinally along the traverse lines. In total, 8.7 line-km of FDEM data were collected over eight traverse lines and one tie line with the EM31 recoding at a frequency of one reading per second (Figure 11). Effort was taken to keep the boom parallel to the ground as measurements were being taken, so that the coils proximity to the ground would not severely affect the apparent conductivity measurements. The GPS coordinates were placed at the mid-point between the transmitter and coil.

The apparent conductivity was measured over a test line before each day of surveying so that any instrumental drift could be accounted for. During the test line measurements, the recorded profiles were found to be within acceptable noise levels, such that no further calibrations were required.

8.4.3 Magnetic Susceptibility- GSM 19-W magnetometer

The magnetic survey was conducted using a Gem System, GSM 19-W walking magnetometer. The survey resulted in 24.5 line-km of survey data, which was collected along 13 traverse lines and two tie lines (Figure 11). The data was collected at a frequency of one reading per second, at an elevation of between 1.75 m and 2 m above the ground (i.e., the height of the operator). The survey included the immediate area around the granite outcrop, overlapping the area surveyed by GPR and EM31. For the magnetic survey, two of the grid survey lines (8 and 19) were extended northwest to tie in two of the 2014 drill holes (14RLD003 and 14RLD002 respectively). This extension added approximately 1,700 m of magnetometer readings along lines 8 and 19. The goal of the northward extension of the two magnetic survey lines was to investigate the region between the granite outcrop (main focus of the geophysical survey) and the area of the 2014 drill program in order to: 1) determine if any major structures occur in this area; and/or 2) make some inferences on the continuity of strata between the geophysical survey area (i.e., granite outcrop) and the area of drilling and resource delineation.

9 Results

9.1 Drilling

9.1.1 Results of drilling

The 2013 drilling program included four drillholes (GNA-05, GNA-10, GNA-11 and GNA-16) and totalled 235 m. The drillholes cored complete stratigraphic sections of the uppermost carbonate lithostratigraphic unit (the Winnipegosis Formation) in two of the four (GNA-10 and GNA16), with drillhole GNA-10 advancing into the Precambrian basement. Thickness of the Winnipegosis formation ranged from 34.9 m to 43.7 m.

The 2014 drilling program included 8 drillholes (14RLD001 to 14RLD008) and totalled 843 m. A total of seven, of the eight drillholes, successfully cored entire

Several geophysical survey instruments and methods were considered and evaluated for their ability to characterize and map the shallow sub-surface at the Richardson Property. Distinct geophysical survey methods deemed suitable for this geologic setting and selected for field testing include: GPR, EM and ground magnetic surveying. More specifically, three properties were recorded and used to characterize the shallow sub-surface: bulk dielectric permittivity, recorded using an UltraGPR ultra-wide band ground penetrating radar system; bulk electrical resistivity, recorded using both a Geonics EM-31 frequency domain electromagnetics instrument and the UltraGPR system; and bulk magnetic susceptibility, recorded using a GSM-19W walking magnetometer.

The geophysical survey instruments were selected for a variety of reasons: they have the ability to measure physical properties, which would provide information useful for identifying bedrock and possible aggregate deposits; the survey equipment requires no more than two operators; a lack of line-cutting would not be detrimental to the survey results; the instruments would append the GPS coordinates to the geophysical response measurements; and the signal and noise levels of the instruments would not prevent the sought after contrasts of the geophysical signatures from being easily discerned. The instruments have the ability to determine the lateral extent and the dip of geological contacts in the shallow sub-surface on the Richardson Property. The depth of geologic features was estimated using the GPR and EM responses, while the lateral extent of geologic zones was estimated using the magnetic and EM responses.

8.4 Surface Geophysical Survey Methodology

A survey grid was established with proposed traverse lines centred over a granite outcrop. The grid had a bearing of 135°/315° and a line spacing of 50 m (Figure 11). The proposed line paths were followed as closely as possible by the GPS operator, who used a Garmin GPSmap 62 handheld receiver, which was pre-loaded with the proposed traverse lines. The GPS operator was followed by the geophysical instrument operator, who conducted the survey. The paths occasionally deviated from the proposed line paths due to: inherent errors of the GPS receiver; water-bodies located within the survey area; and because no line-cutting was completed. The deviations from the proposed line paths are not an issue, as the goals of these surveys require only that the three geophysical surveys be conducted over the same line paths in real space. While the surveys were being conducted, the traverse lines, which were actually followed, were marked with biodegradable flagging tape, so that there would be accurate overlapping. Having overlapping survey lines with the three instruments allows for the combination of the three geophysical properties to be attributed to distinct features, and therefore allows for more confident target delineation.

8.4.1 Ground Penetrating Radar Survey – Ultra GPR System

The GPR survey at the Richardson resulted in 9.7 line-km of UltraGPR data collected over nine traverse lines and one tie line (Figure 11). The GPR data was processed and interpreted for sub-surface geologic contacts by Jan Francke of Ground Radar Inc. of Toronto, ON). The GPR responses were converted from two-way travel times, measured in nanoseconds, to depths in metres. Deliverables from Ground

Figure 11 Location of the known granite outcrop and the ground geophysical survey grids that were used as part of 2014 geophysical surveys to identify and characterize potential aggregate deposits at the Richardson Property.

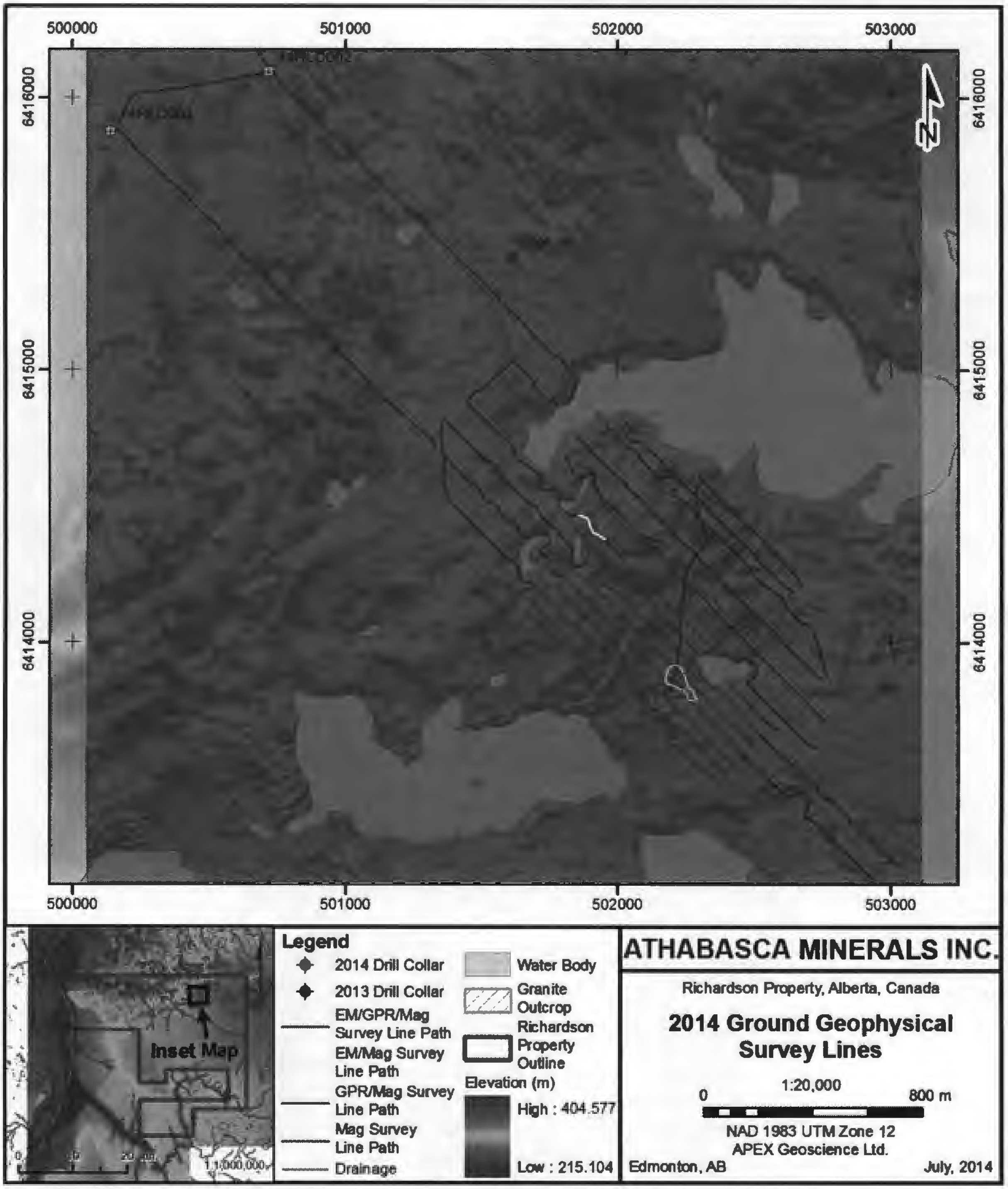


Figure 16 Histograms for selected metals and pathfinder elements from Winnipegosis dolostone and Precambrian basement granite from the Richardson Property.

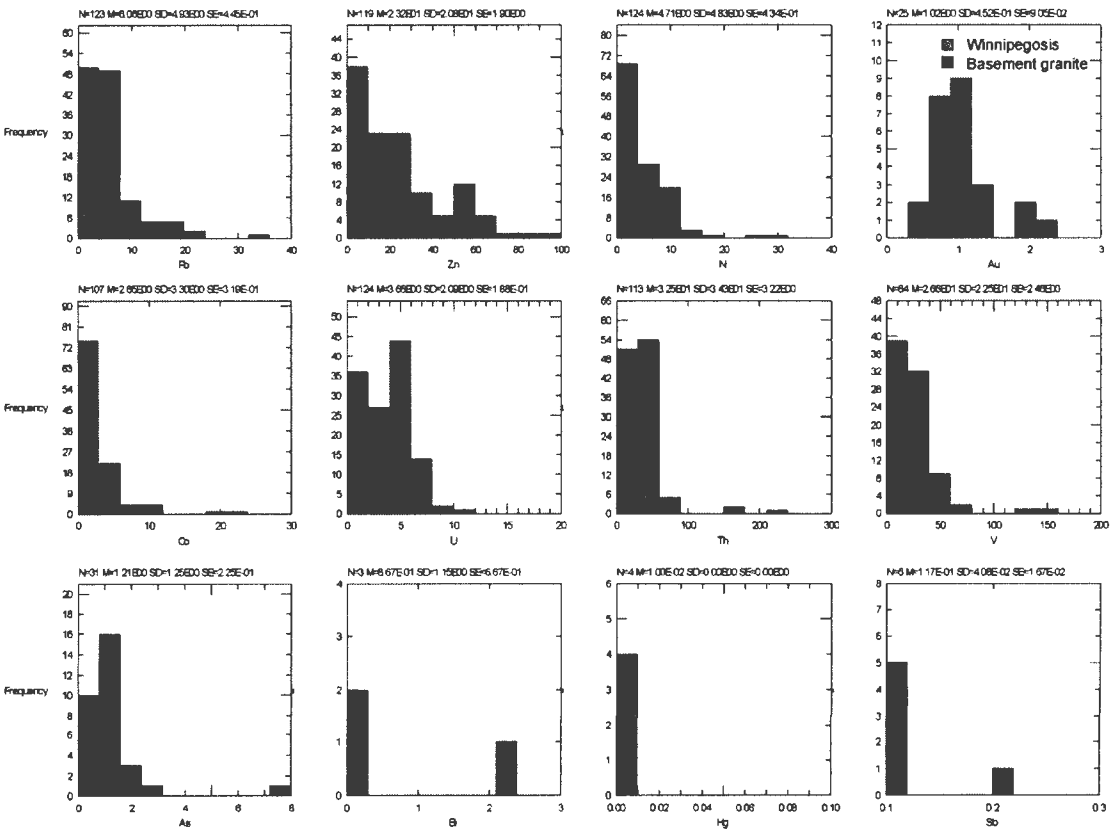
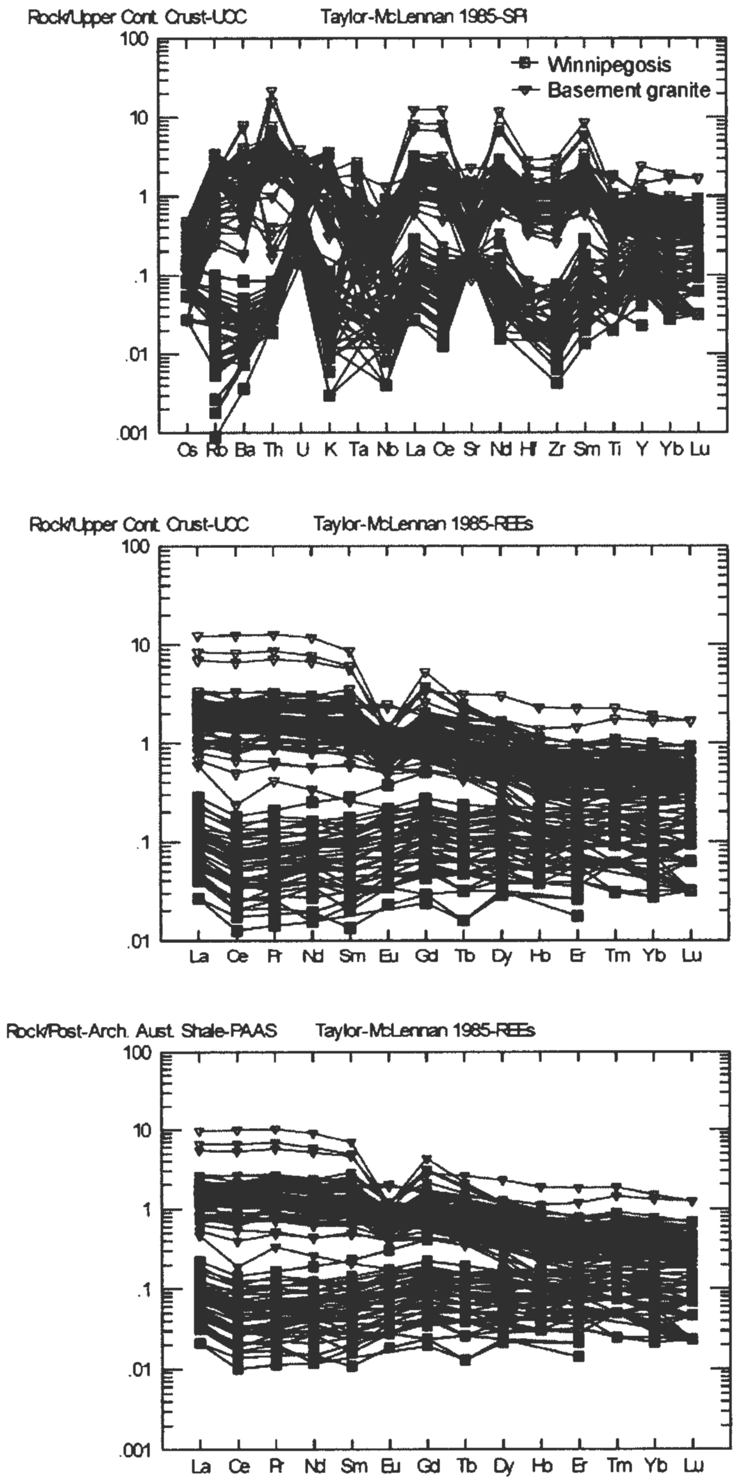


Figure 17 Spider diagrams normalizing Winnipegosis dolostone and Precambrian basement granite geochemical results from the Richardson Property to upper continental crust and post Archean Australian shale (Taylor and McLennan, 1985).

A)

B)

C)



9.2.3 Aggregate Test Work Results

The results of the aggregate test work for 14 composite samples are presented in their entirety in Table 13 and in Appendix 4a and 4b. These data include aggregate test results for:

- Winnipegosis samples (10 samples from each drillhole that were analyzed at AMEC (Appendix 4a), and one duplicate sample from drillhole GNA-10 that was analyzed at Tetra Tech (Appendix 4b) EBA; n=11 total samples);
- One Contact Rapids sample; and
- Two Precambrian basement granite samples.

Published specifications and standards for any industrial mineral project should be used primarily as a screening mechanism to establish the marketability of an industrial mineral. The ultimate suitability of an industrial mineral for use in specific applications can only be determined through detailed market investigations and discussions with potential product users. To evaluate the suitability of Winnipegosis, Contact Rapids and Precambrian basement granite samples from the Richardson Property, we have made comparisons with Alberta Transportation (their Table 3.2.3.2C) and CSA (their Table 12) screening criteria as summarized in Table 13 and in the following text.

9.2.4 Aggregate Test Work Processing Note

Not all of the aggregate test methods that are outlined in Alberta Transportation's Table 3.2.3.2A and CSA's Table 12 were performed on the Richardson Property core samples. That is, several analytical methods were not recommended by AMEC – at this particular phase of evaluating an early stage crush rock aggregate project – including: sieve analysis; flat and elongated; flakiness index; and material finer than 80 µm test methods.

To conduct these test methods, a preliminary crush of the drill core is required; however there are drawbacks associated with this type of pre-processing in that any preliminary crush down could not replicate a typical crushing process in the field, and would therefore produce test results that are different from that of the field. It is important to point out that the test methods adopted in this Report (see Tables 8 and 13) do provide a good indication of the quality of the material. The only difference is that the composite Winnipegosis, Contact Rapids and Precambrian basement granite samples that were sent to AMEC were not tested by individual sieve sizes of material (due to AMEC's pre-crush cautioning). Hence, the testing should be viewed as a general aggregate testing, as opposed to fine- or coarse-aggregate testing. In accordance with discussions with AMEC, and in review other crush rock aggregate NI 43-101 Technical Reports, the authors of this report acknowledge that the test results obtained are valid and applicable to assessing the Richardson crush rock aggregate potential and to stating a maiden inferred resource estimate.

Table 13. Summary of aggregate test work completed at the Richardson crush rock aggregate Property

Sample ID	Drillhole	From (m)	To (m)	Laboratory	Formation	Plasticity index classification	L.A. Abrasion: loss at 1,000 revolutions (%)	$MgSO_4$ soundness loss; coarse aggregate (%)	Unconfined freeze-thaw test (%)	Bulk Relative Density	SSD Bulk Relative Density [5]	Apparent Relative Density	Absorption (%)
288401	GNA-16	47 8	81 37	AMEC	Winnipegosis	Non-plastic	28 2	10 5	/	2 70	2 74	2 81	1 43
288402	GNA-10	21.34	64 17	AMEC	Winnipegosis	Non-plastic	21	2 0	/	2 65	2 71	2 82	2 28
288404	14RLD001	31 33	76 72	AMEC	Winnipegosis	Non-plastic	23 2	0 5	/	2 62	2.69	2 82	2.66
288405	14RLD002	30	76 96	AMEC	Winnipegosis	Non-plastic	23.6	4 6	0 19	2 77	2.79	2.84	0.90
288407	14RLD003	39	72.66	AMEC	Winnipegosis	Non-plastic	25 5	17 7	/	2 60	2.65	2 74	2 00
288408	14RLD004	30	72 01	AMEC	Winnipegosis	Non-plastic	26 6	12 1	/	2 62	2 67	2 75	1 84
288410	14RLD005	35	76 3	AMEC	Winnipegosis	Non-plastic	18 8	4 4	/	2 61	2 68	2 81	2 74
288411	14RLD006	41 45	83 01	AMEC	Winnipegosis	Non-plastic	23 7	4 6	/	2 64	2 70	2 79	1 99
288412	14RLD007	39	83 6	AMEC	Winnipegosis	Non-plastic	26 8	9 9	0 21	2 63	2 70	2 81	2 39
288413	14RLD008	64 92	72 94	AMEC	Winnipegosis	Non-plastic	29 1	17 6	/	2 64	2 71	2 83	2 52
8636 C	GNA-10	21 34	64 17	EBA	Winnipegosis	Non-plastic	21	6 5	/	2 62	2 68	2 79	2 20
288406	Multiple drillholes [1]			AMEC	Contact Rapids	Non-plastic	43 4	82 0	/	2 49	2 59	2 76	3 88
288403	Multiple drillholes [2]			AMEC	Granite	Non-plastic	17 7	9 0	/	2 62	2 63	2.64	0.33
288409	Multiple drillholes [3]			AMEC	Granite	Non-plastic	18 8	10 8	/	2 74	2 74	2 75	0 19
Maximum allowable standard specifications for aggregate [4]						NP to NP-8	35-50	12 0	6 0	/	/	/	/
						Winnipegosis statistics							
						Minimum	18 80	0 5	0 19	2 60	2 65	2 74	0 90
						Maximum	29 10	17 7	0 21	2 77	2.79	2 84	2 74
						Average	24 32	8 2	0 20	2 65	2 70	2 80	2 09
						Variance	10 532	34 3	0 00	0 002	0 001	0 001	0 300
						Standard Deviation	3 25	5 9	0.01	0 05	0.04	0 03	0 55
						RSD%	13 34	71 3	7.1	1 85	1.39	1 12	26 26
						Granite statistics							
						Minimum	17 70	9 0	/	2 62	2 63	2 64	0 19
						Maximum	18 80	10 8	/	2 74	2 74	2 75	0 33
						Average	18 25	9 9	/	2 68	2 69	2 70	0 26
						Variance	0 605	1 6	/	0 007	0 006	0 006	0 010
						Standard Deviation	0 78	1 3	/	0 08	0 08	0 08	0 10
						RSD%	4 26	12 9	/	3 17	2 90	2 89	38 07

1 Amalgamated composite sample includes core from GNA-10 (64.17-75 60 m), 14RDL001 (76 72-92.48 m), 14RDL002 (76 96-90 76 m) 14RDL003 (72 66-82 45 m), 14RDL004 (72 01-83 76 m), 14RDL005 (76 30-84.39 m), 14RDL006 (83 01-95.76 m), 14RDL007 (83 60-97 96 m) and 14RDL008 (72.94-81 18 m)

2 Amalgamated composite sample includes core from GNA-10 (76.12-101 0m), 14RDL001 (96 63-106.00 m), 14RDL002 (93 10-99 00 m) and 14RDL003 (85 96-96 00 m)

3 Amalgamated composite sample includes core from 14RDL004 (84 96-96 00 m), 14RDL005 (86 88-117 05 m), 14RDL007 (98 65-147 00 m) and 14RDL008 (83 00-89 002 m)

4 Published specifications and standards for industrial mineral should be used primarily as a screeing mechanism to establish the marketability of an industrial mineral The ultimate suitability of an industrial mineral for use in specific applications can only be determined through detailed market investigations and discussions with potential product users and customers (source Alberta Transportation Table 3 2 3 2C, CSA, Table 12) Also see the text as some aggregate designations have a range of maximum allowable standards

5 SSD - saturated surface dry

9.2.5 Los Angeles Abrasion Test

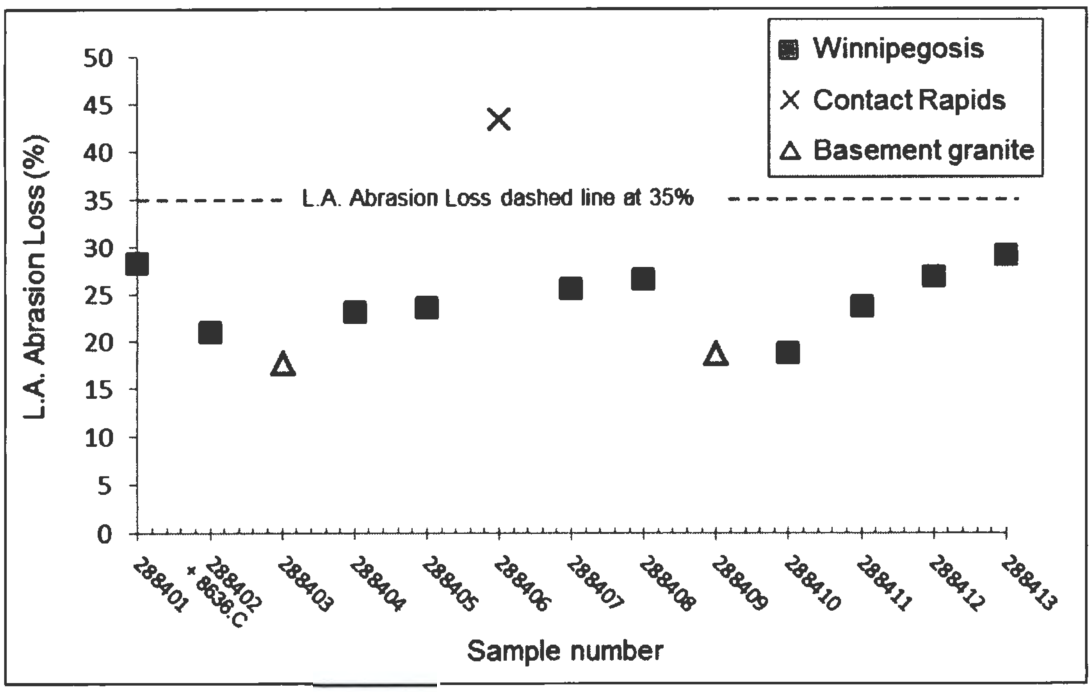
A common test used to characterize toughness and abrasion resistance is the Los Angeles (L.A.) abrasion test. In Alberta, the maximum abrasion loss value for:

- Designation 1 (asphalt concrete pavement) aggregate is 40%;
- Designation 2 (base course aggregate) aggregate is 50%;
- Designation 3 (seal coat aggregate) is 35%; and
- Designation 4 (gravel surfacing aggregate) does not have a maximum permissible abrasion loss value (Alberta Transportation, 2007, 2010).

Sample testing was in accordance with CSA A23.2-17A (ASTM C535). Preparation consisted of sieving the sample, which produced nearly identical weights for sieve fractions: -50 mm to +37.5 mm and -37.5 mm to +25 mm, followed by placing the fractions in a cylindrical mill with twelve spheres at 1,000 revolutions.

All Winnipegosis and Precambrian basement granite composite samples analyzed as part of this Report yielded L.A. Abrasion values that were <29%. The Winnipegosis and granite samples yielded L.A. Abrasion ranging between 18.8% and 29.1% (averaging 24.32%; n=11), and 17.7% to 18.8% (averaging 18.25%; n=2), respectively (Table 13; Figure 18). These values exceed the maximum abrasion loss value within Alberta Transportations designations 1 through 4.

Figure 18 Los Angeles abrasion loss test results for Winnipegosis, Contact Rapids and Precambrian basement granite samples from the Richardson Property.



The Winnipegosis results fit within the typical L.A. Abrasion loss values for dolomite (18%-30%), but the granite samples are significantly lower than the typical L.A. Abrasion loss values for granite (27%-49%; Roberts et al., 1996). One sample from the Contact Rapids Formation had an L.A. Abrasion of 43.4%, which represents the highest abrasion value in this dataset and the only value with abrasion loss of >29%.

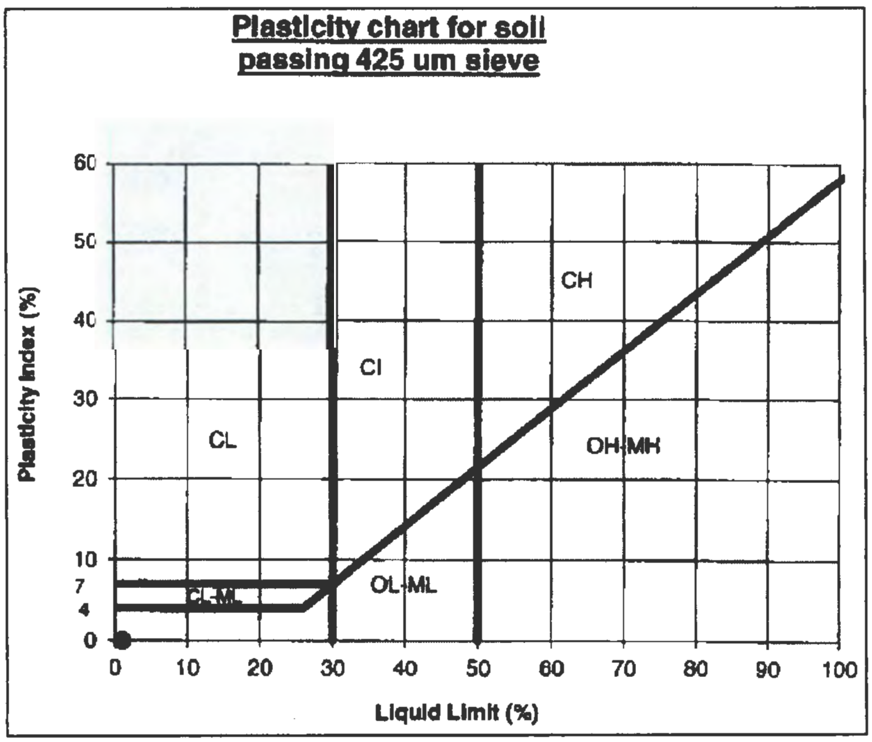
9.2.6 Plasticity Index Test

In Alberta, the maximum permissible plasticity index classification for:

- Designation 1 (asphalt concrete pavement) is "non-plastic";
- Designation 2 (base course aggregate) is "non-plastic" to "non-plastic-6";
- Designation 3 (seal coat aggregate) is "non-plastic-4"; and
- Designation 4 (gravel surfacing aggregate) is "non-plastic-8" (Alberta Transportation, 2007, 2010).

Sample testing was in accordance with ASTM D4318 – dry method. The plasticity index from all 14 samples tested, regardless of formation, was classified as zero, or "non-plastic" (Table 13). An example of the plasticity index for the Winnipegosis Formation from drillhole GNA-10 is shown in Figure 19.

Figure 19 Plasticity Index for a Winnipegosis Formation composite sample from GNA-10 shown on the Plasticity chart of U.S.B.R (1974). All samples analyzed were classified as non-plastic.

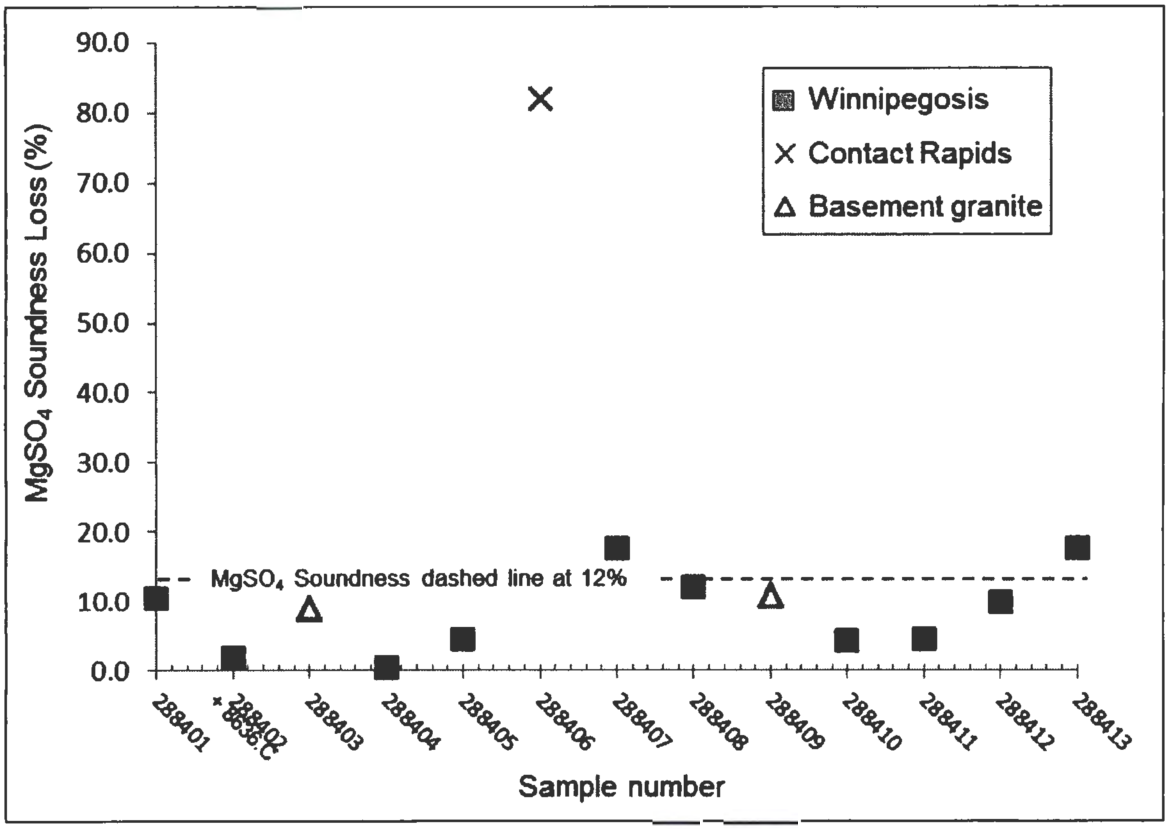


9.2.7 $MgSO_4$ Soundness Loss Test

Magnesium Sulphate soundness testing was performed on coarse aggregate specimens (split into 80-40 mm and 40-20 mm fractions) in accordance with CSA A23.2-9A (ASTM C88). As per CSA A23.1, the maximum allowable $MgSO_4$ Soundness Loss is 12% for coarse aggregate exposed to freeze-thaw.

The majority of the Winnipegosis composite samples yielded an $MgSO_4$ Soundness Loss of 12.1% or less (n=9 of 11 samples; Table 13; Figure 20). Two Winnipegosis composite samples from drillhole 14RLD003 and 14RLD008 yielded $MgSO_4$ Soundness Loss of 17.7% and 17.6%, respectively, which are above the maximum allowable $MgSO_4$ Soundness Loss for coarse aggregate. The overall average $MgSO_4$ Soundness Loss for the Winnipegosis is 8.2% (n=11 samples). Two composite Precambrian basement granite samples yielded low $MgSO_4$ Soundness Loss of 9.0% and 10.8%. The Contact Rapids composite sample has an $MgSO_4$ Soundness Loss of 82%, which is significantly above the maximum allowable standard $MgSO_4$ Soundness Loss.

Figure 20 $MgSO_4$ soundness loss test results for Winnipegosis, Contact Rapids and Precambrian basement granite samples from the Richardson Property.



9.2.8 Unconfined Freeze-Thaw Test

In accordance with CSA A23.1, the maximum allowable unconfined freeze-thaw for coarse aggregate is 6%. Two composite Winnipegosis samples from drillhole 14RLD002 and 14RLD007 yielded unconfined freeze-thaw results of 0.19% and 0.21%, respectively, which are significantly below the maximum allowable unconfined freeze-thaw for coarse aggregate (Table 13).

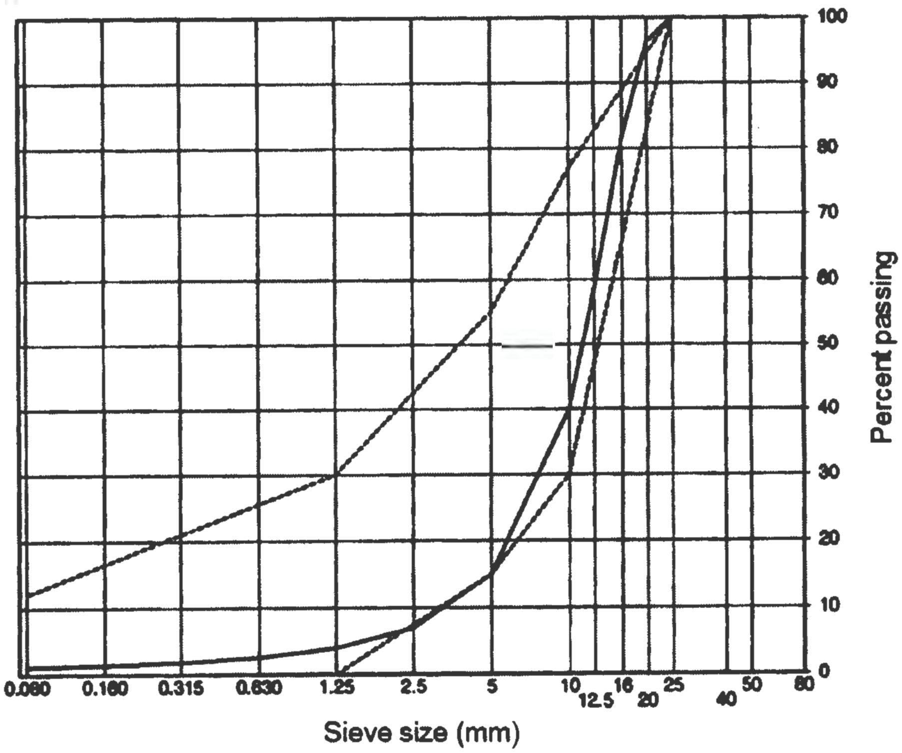
9.2.9 Sieve Analysis

A single composite Winnipegosis sample from drillhole GNA-10 was subject to sieve analysis. The sieve test was done on the duplicate sample at Tetra Tech EBA. At Tetra Tech EBA, the sample was preliminary crushed to the -25 mm fraction prior to sieve analysis, the result of which is shown in Figure 21. Sieve analyses were not conducted at AMEC because the material was submitted as drill core and not as processed material (see Section 9.2.4 Aggregate Test Work Processing Note).

Figure 21 Sieve analysis from a single Winnipegosis composite sample from drillhole GNA-10.

Sieve analysis report: Washed sieve ASTM C136 and C117
AT D4-C25 gravel surfacing aggregate; drill core; moisture content 0.1% (as received)

Sieve Size	Percent Passing
25	100
20	96
16	82
12.5	59
10.0	40
5.00	15
2.5	7
1.25	4
0.630	3
0.315	2
0.160	1
0.080	1.2



9.2.10 Density Results

A total of 675 bulk density measurements were collected from drill core within the Richardson maiden inferred crush rock aggregate resource area. The measurements were conducted directly on drill core sample using the "hydrostatic" method, which involves weighing the item in air and then again while it is fully submerged in water. Density measurements were collected once every metre of drill core, and were separated by formation to calculate an average bulk density for the resource area. The density values used in the Richardson maiden inferred crush rock aggregate resource estimate are shown in Table 14.

The density samples were collected during core geotechnical, logging and sampling work on eight drillholes drilled in 2014 and two drillholes completed in 2013. All of these holes are situated within the Richardson maiden inferred crush rock aggregate resources area. Samples were collected every metre where possible down the drillhole. The specific gravity calculation was performed using the weight in air/weight in water emulsion methodology.

Table 14. Average bulk density values that were used in the Richardson maiden inferred crush rock aggregate resource estimate.

Formation	Number of samples	Average bulk density	Variance
Overburden/overlying till	19	2.25	0.044
Winnipegosis	395	2.68	0.010
Contact Rapids	90	2.50	0.006
La Loche	19	2.54	0.004
Basement granite	152	2.63	0.005

The density measurements were examined in relation to the formation in which the sample measurement was situated within. As such, all density samples were tagged with the formation name, in order to examine and assign a nominal density for each stratigraphic unit. Statistical analysis was performed on each of the stratigraphic unit density datasets in order to asses any potential outliers and to examine the variance of the samples. No outliers were identified and the variance of the density samples was very small. The small variance in the density samples is to be expected from the uniform and stratigraphically continuous nature of the geological formations.

It should be noted that the assigned density for the overburden/overlying till of 2.25 t/m^3 was calculated using only 19 samples. This was due to the fact that limited overburden drill core was available for sampling as the majority of the overburden was in drill casing. Given this the calculated density of 2.25 t/m^3 is considered appropriate and reasonable for the use in the Richardson maiden inferred crush rock aggregate resource estimate.

Density measurements (n=14) were also performed as part of aggregate test work at AMEC (n=13) with one duplicate sample being analyzed at Tetra Tech EBA. The average bulk relative density, saturated surface dry (SSD) relative density and apparent relative density of 11 Winnipegosis Formation samples yielded values of 2.65, 2.70 and 2.80, respectively. The bulk relative density, SSD relative density and apparent relative density of one Contact Rapids sample yielded values of 2.49, 2.59 and 2.76, respectively. The average bulk relative density, SSD relative density and apparent relative density of two basement granite samples yielded values of 2.68, 2.69 and 2.70, respectively. The comparison between the hydrostatic density measurements, which were taken during core logging, and the aggregate test work results are similar. Hence, the hydrostatic method based density values of 2.68, 2.50 and 2.63 for the Winnipegosis, Contact Rapids and basement granite, which were used in this Report, are considered realistic and a conservative density value for resource estimation.

9.3 Geophysical Survey Results

9.3.1 Ground Penetrating Radar

The results of the GPR survey are presented in Figures 22 to 24. The GPR responses, as recorded along traverse lines 6, 8, 10 and 99, are displayed as grayscale cross-section images in Figure 22. The cross-sections illustrate three distinct reflectors that are caused by contrasts in the conductivity and dielectric constant of the sub-surface, and are attributed to layers of different rock types and/or compositions. The reflectors are assumed to exist between traverse lines because the depth to these reflectors does not change drastically from one traverse line to the next, and are therefore interpreted to be the interfaces between distinct geologic layers.

Figure 22 Ground Penetrating Radar responses, as recorded along traverse lines 6, 8, 10 and 99, displayed as grayscale cross-section images.

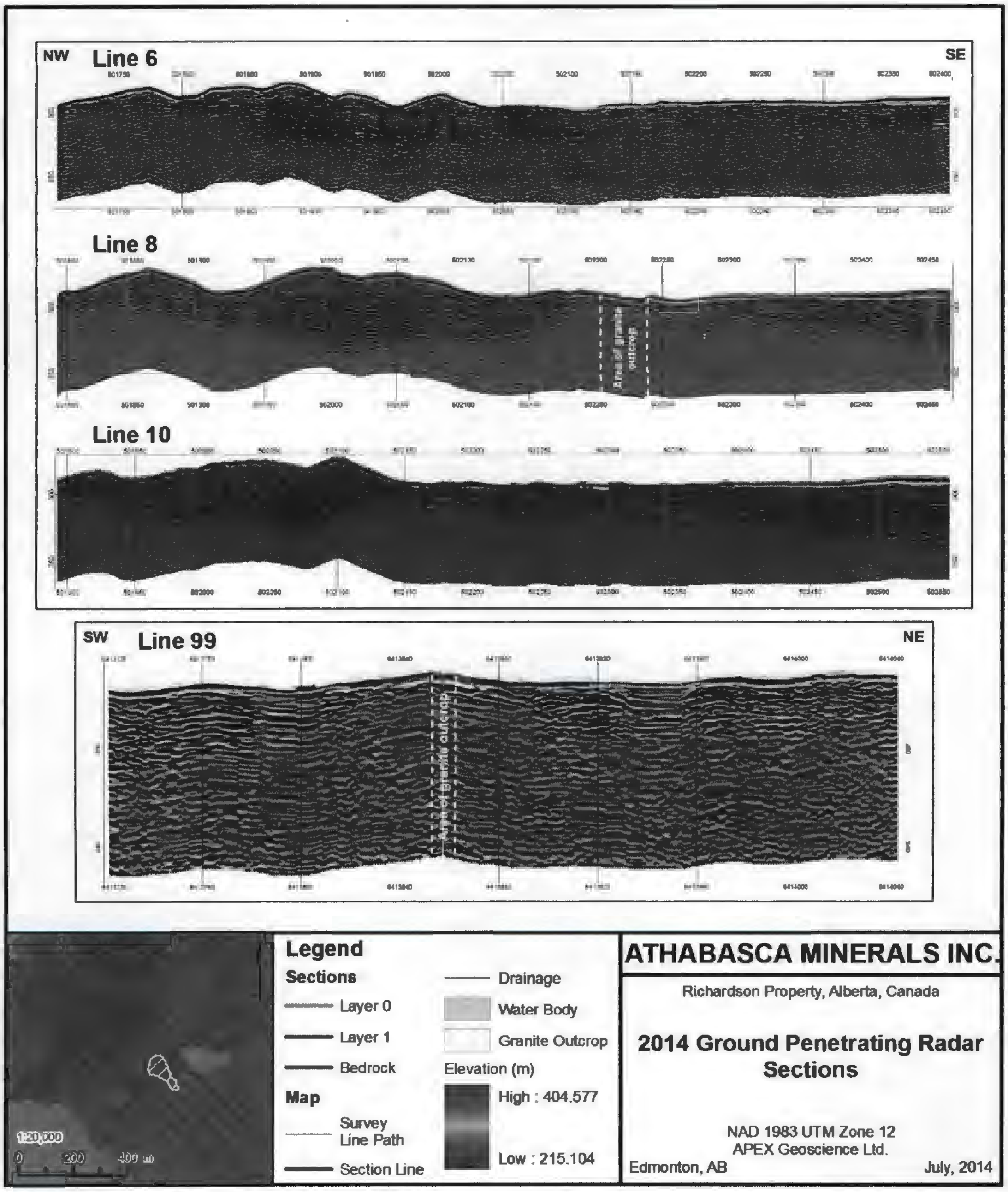


Figure 23 Gridded Ground Penetrating Radar responses to the top of the "Bedrock" reflector.

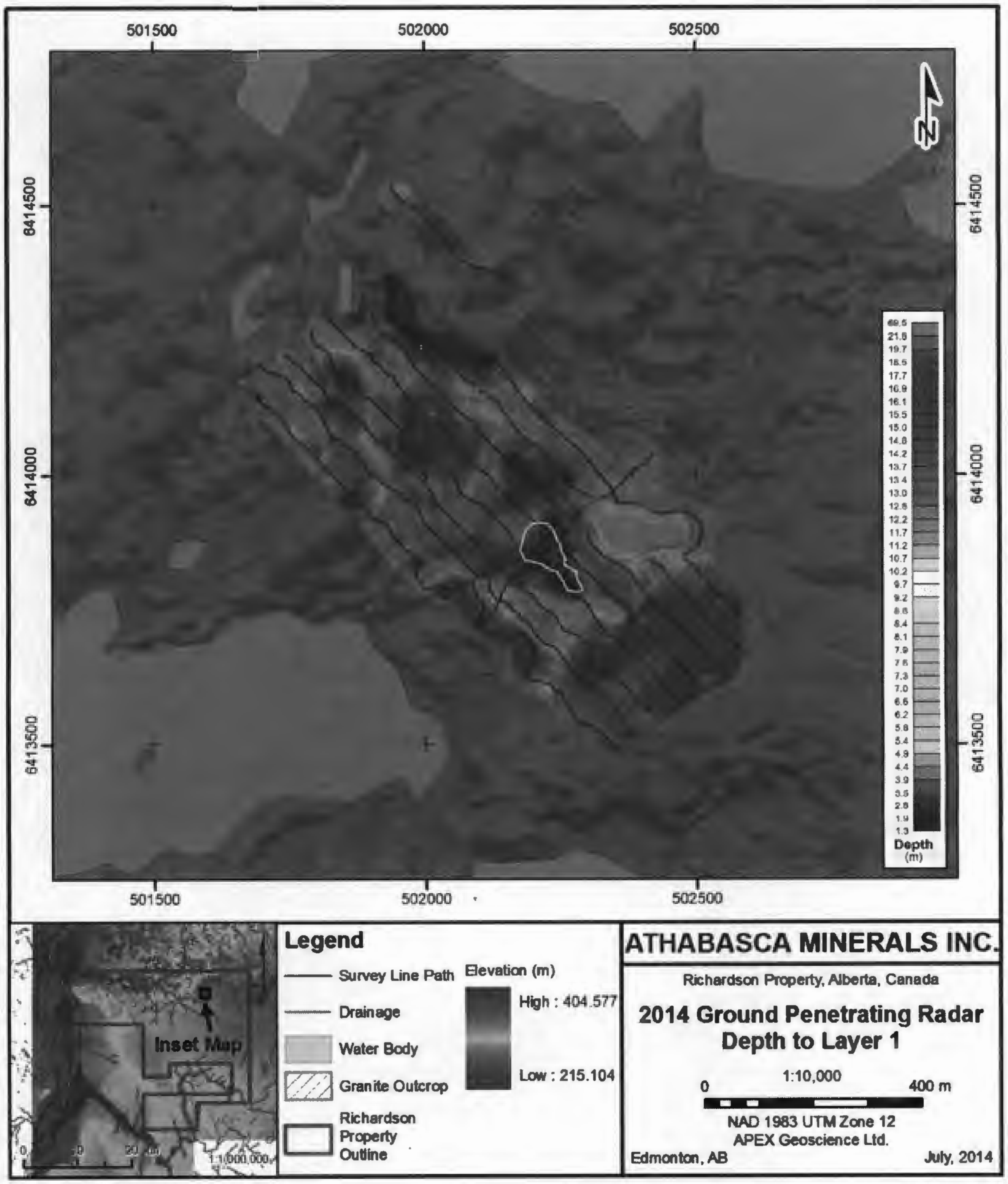
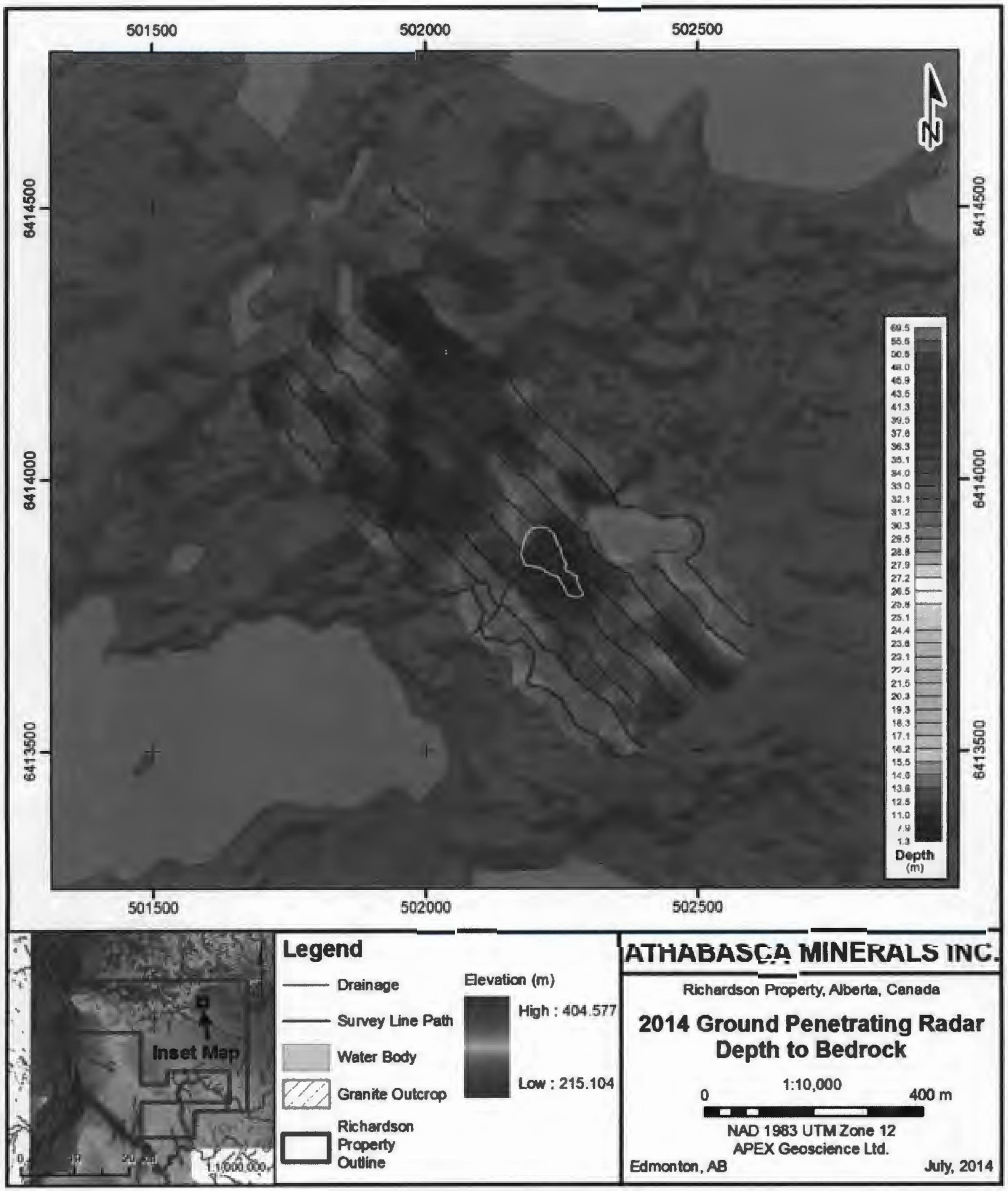


Figure 24 Gridded Ground Penetrating Radar responses to the top of the "Bedrock" reflector.



The three reflectors have been labelled in order of their depth as "Layer 0", "Layer 1", and "Bedrock", where "Layer 0" is the shallowest reflector, and "Bedrock" is the deepest reflector (Figure 22). Based on the known geology (from the 2014 drill program and fieldwork mapping and testing), these three reflectors are interpreted to represent contacts that separate:

- Layer 0 to Layer 1 - overburden (Layer 0), which includes kame and glacial outwash deposits, which unconformably overlie the Winnipegosis Formation (Layer 1) reflector;

- Layer 1 to Bedrock – this area corresponds to the Devonian Winnipegosis Formation (Layer 1) reflector down to the Bedrock (Bedrock) reflector, or the Precambrian crystalline basement granite.

- Bedrock and below – the Precambrian crystalline basement granite.

Anything above the Layer 1 reflector in Figure 22 is designated as overburden surficial deposits. The Layer 0 reflector in the southeastern portion of the survey area must relate to a distinct subset of the overall overburden that was identified by the GPR survey (i.e., from surface to the top of reflector Layer 1). Although this overburden (Layer 0) reflector will require further investigation to be properly explained, initial interpretations are that it is due to zones of high water content in the glacial deposits, however Ground Radar Inc. suggests it is too strong of a reflection to be entirely attributed to a change in water content in the glacial deposits. In addition, the southeast survey area is characterized as the driest area on the grid and there is still no re-growth after a large 2011 wildfire. Hence, Layer 0 could reflect a very dry layer (i.e., a thick sequence of sand), but it's unlikely that the water content changes vary that much and that abruptly. The problem, possibly, is that the GPR system is too powerful, and operates at too low a frequency to make any details visible within that specific overburden horizon.

The depths to the Layer 1 and Bedrock reflectors have been gridded to show how the depths of these interpreted geologic layers varies over the survey area (Figures 23 and 24, respectively). The layers are shown to be generally flat lying. The thicknesses of the overburden surficial material (anything above the top of reflector Layer 1), is generally attributed to correspond to glacial features (i.e., the kame deposit) that has been observed and mapped in the LiDAR data (see Section 7.2.3, Surficial Geology at the Property).

Based on the GPR results, the estimated areas of combined surficial overburden and Winnipegosis Formation dolostone material that is situated on top of the Precambrian granite and is within 5 m, 10 m, 15 m, 20 m and 25 m of surface is approximately: 4,600 m^2; 15,200 m^2; 45,100 m^2; 91,300 m^2; and 147,233 m^2, respectively (Figure 24).

9.3.2 *Frequency Domain Electromagnetic Survey (FDEM) EM31 System*

The apparent conductance measured during this survey fell between -5.75 and 5.97 millisiemens per meter (mS/m), with a mean value of 0.32 mS/m and a standard deviation of 1.05 mS/m.

Processing of the in-phase data revealed a static shift along several of the lines (amounting to 1.9 line-km of in-phase data; Figure 25). Consequently, the in-phase data was not considered for interpretation (i.e., the in-phase component of the measured electromagnetic field is most valuable for highly conductive features, such as detection of buried metal objects).

In contrast, the EM31 quadrature response shows that the area is weakly conductive overall, but that there is a definitive conductive halo occurring in the area immediately surrounding the granite outcrop (Figure 26). The apparent conductivity map shows that the granite outcrop is a resistive body, and that the conductive halo is due to a conductive layer overlaying the granite bedrock. This conductive halo area is directly associated with a regional topographic low, which indicates the apparent conductance might be a due to a zone in the near surface with elevated water content.

The GPR data shows that the depth to the granite bedrock is relatively shallow in this area of increased conductivity, and it could be that the shallow bedrock is causing the water content to remain at relatively shallow depths that can be measured by the EM31 system (up to six m). The map of the EM31 quadrature response shows a second conductive zone on the northwest end of traverse lines 7 through 12 (Figure 26). The traverse lines end where the quadrature response is trending upwards, and subsequently, this conductive response is thought to represent a gridding artefact where there has been no data collected. In addition, it should be noted that the traverse lines to the northwest end at the edge of a swamp, so it would be expected that the apparent conductance would be higher at this locale. This supports the belief that the conductive halo around the granite outcrop is due to near surface having high water content.

Figure 25 In-phase electromagnetic response of the Richardson survey grid using the EM31 system.

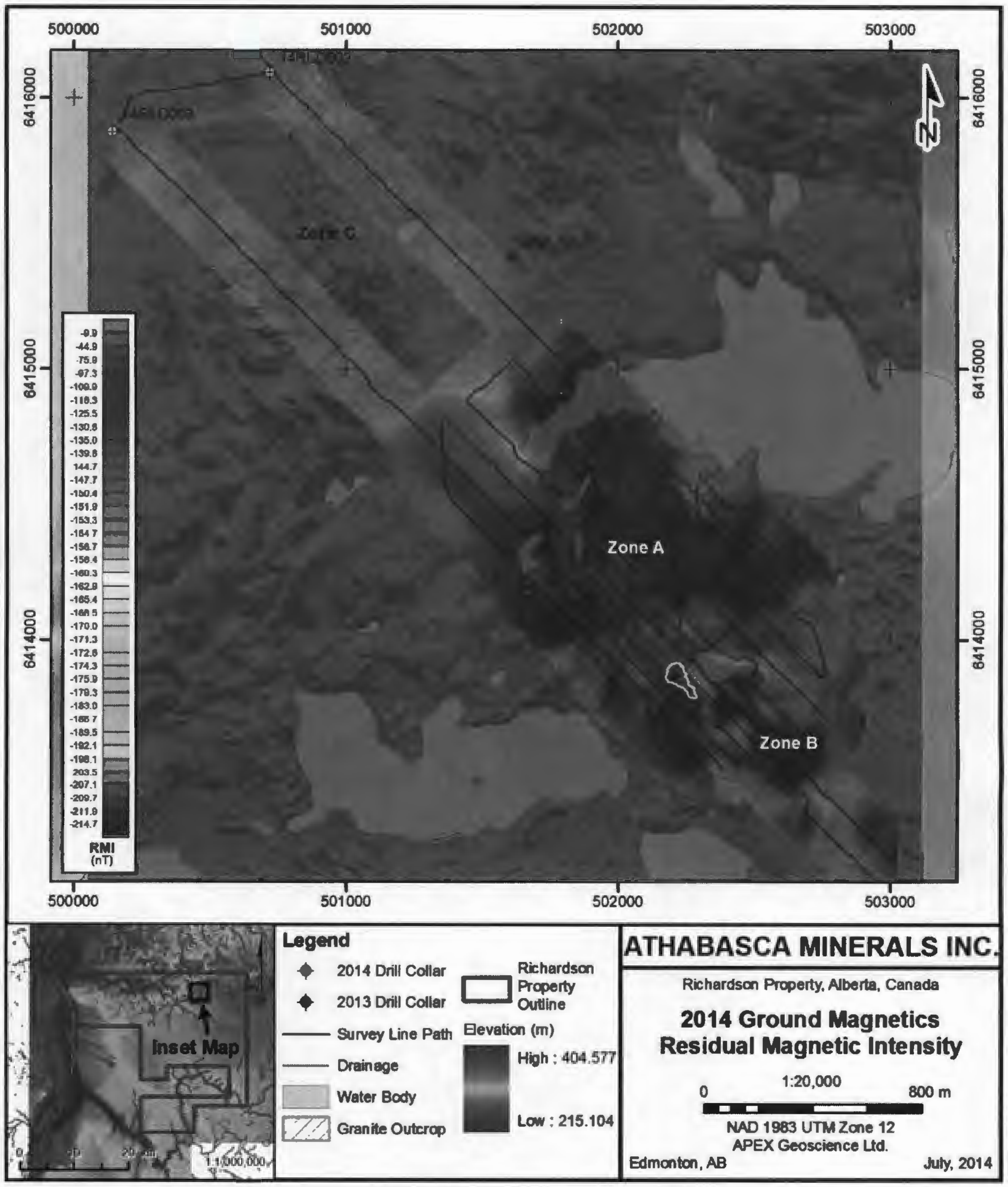
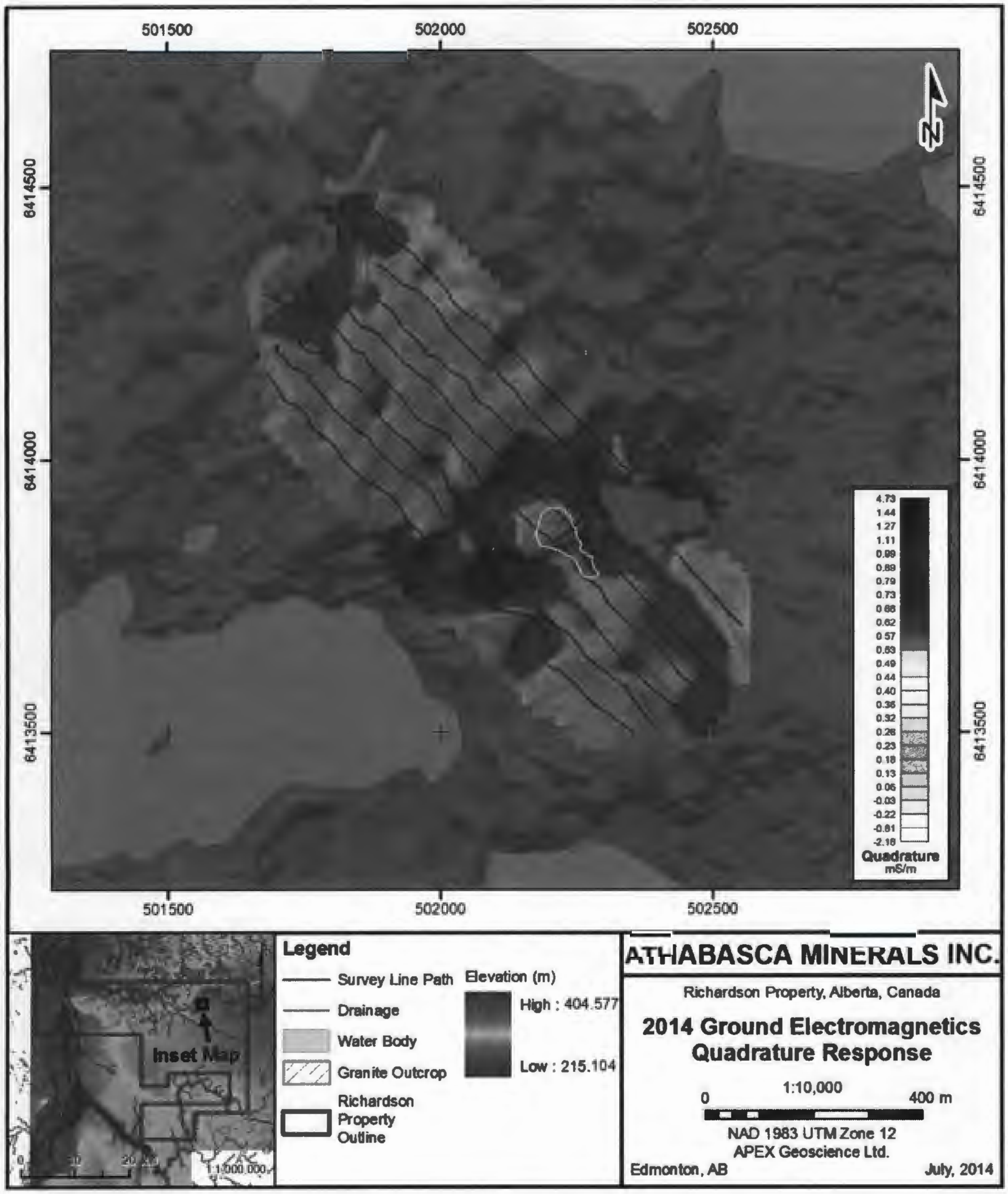


Figure 26 Quadrature electromagnetic response of the Richardson survey grid using the EM31 system.



9.3.3 Magnetic Survey Results

The results from the magnetic survey are presented in Figures 27, 28 and 29. Processing of the magnetic survey data included reducing the data to residual magnetic intensity (RMI), which levels data that were collected on different days to a common reference line, removes spurious readings associated with low signal quality, and then grids the survey data to create colour images of the RMI amplitude (Figure 27). The geostatistics were calculated for the RMI response measured during the magnetic survey, and the range of magnetic field strength over the Property is found to be 270.65 nanoTeslas (nT), with a standard deviation of over 53 nT. In addition, derivative filters, such as the vertical derivative and analytical signal, were applied to the gridded RMI map and were used to interpret edges and centres of the causative magnetic source bodies (Figures 28 and 29).

The ground magnetics survey data highlights three distinct litho-magnetic zones at the Richardson Property geophysical survey area (e.g., Figure 27), including:

1. The dominant magnetic feature occurring on the Richardson Property can be identified as a zone with a strong positive magnetic response, occurring over the northern half of the EM31 and GPR survey lines – Zone A.

2. The magnetics data over the southern half of the EM31 and GPR survey lines identifies a zone with a moderate negative magnetic response – Zone B.

3. The area to the northwest of the magnetic anomaly (Zone A) is magnetically quiet, with a weak positive magnetic gradient occurring on the very end of the regional magnetic lines extending out to the 14RLD003 and 14RLD002 drill holes – Zone C.

The spatial extent of magnetic Zone A strongly correlates with the area identified as a kame deposit by McMillan (2013; see Section 7.2.3, Surficial Geology at the Property). The spatial extent of magnetic Zone B correlates with "Layer 0" in the GPR interpretation. This suggests that the overburden deposits throughout the survey area are not laterally homogeneous, and lends further support to the presence of a unique kame deposit that is situated directly northwest of the granite outcrop (i.e., the Zone A magnetic high).

Figure 27 Residual magnetic intensity of the Richardson survey grid using the GSM 19-W walking magnetometer.

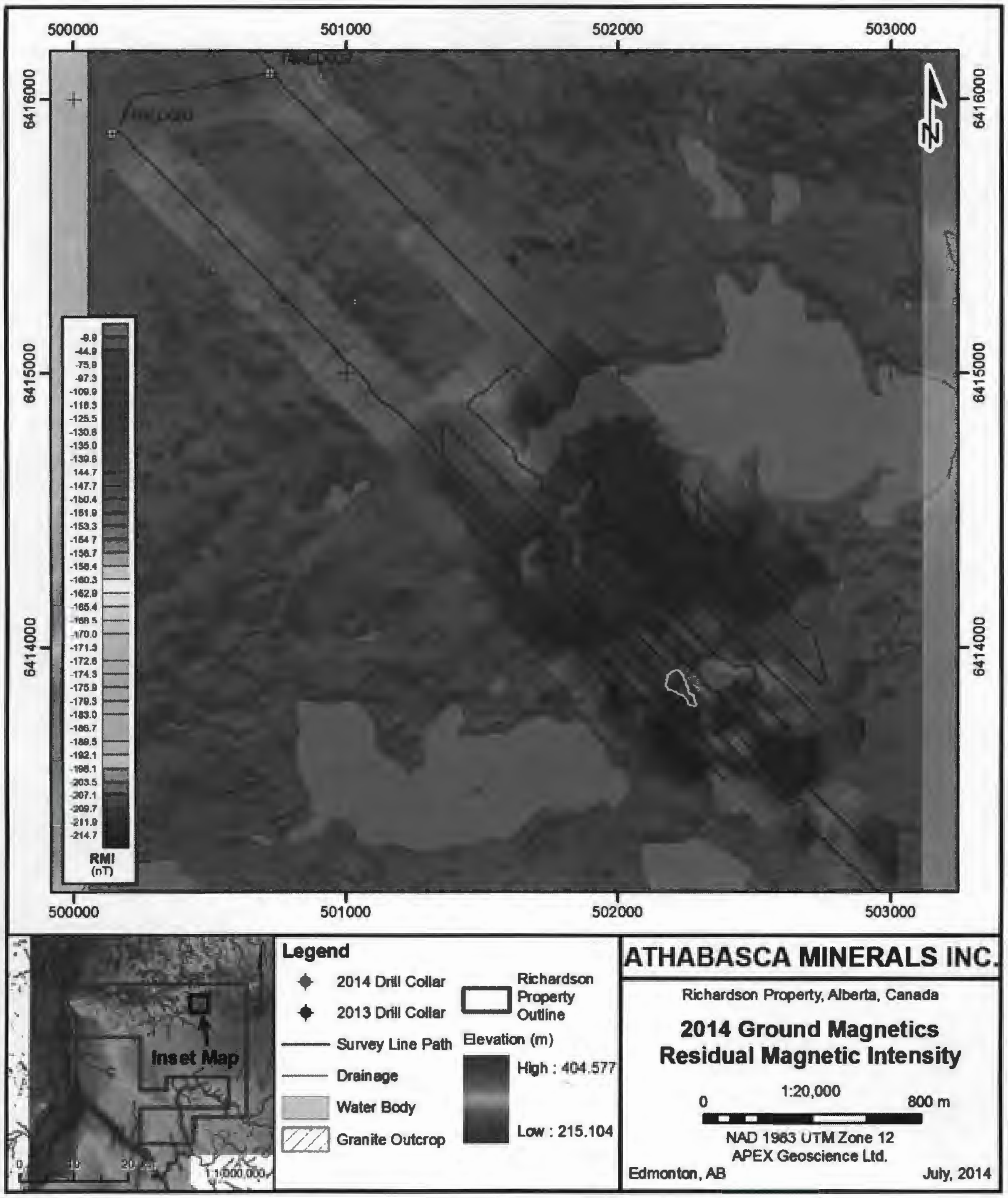


Figure 28 Vertical derivative of the Richardson survey grid using the GSM 19-W walking magnetometer.

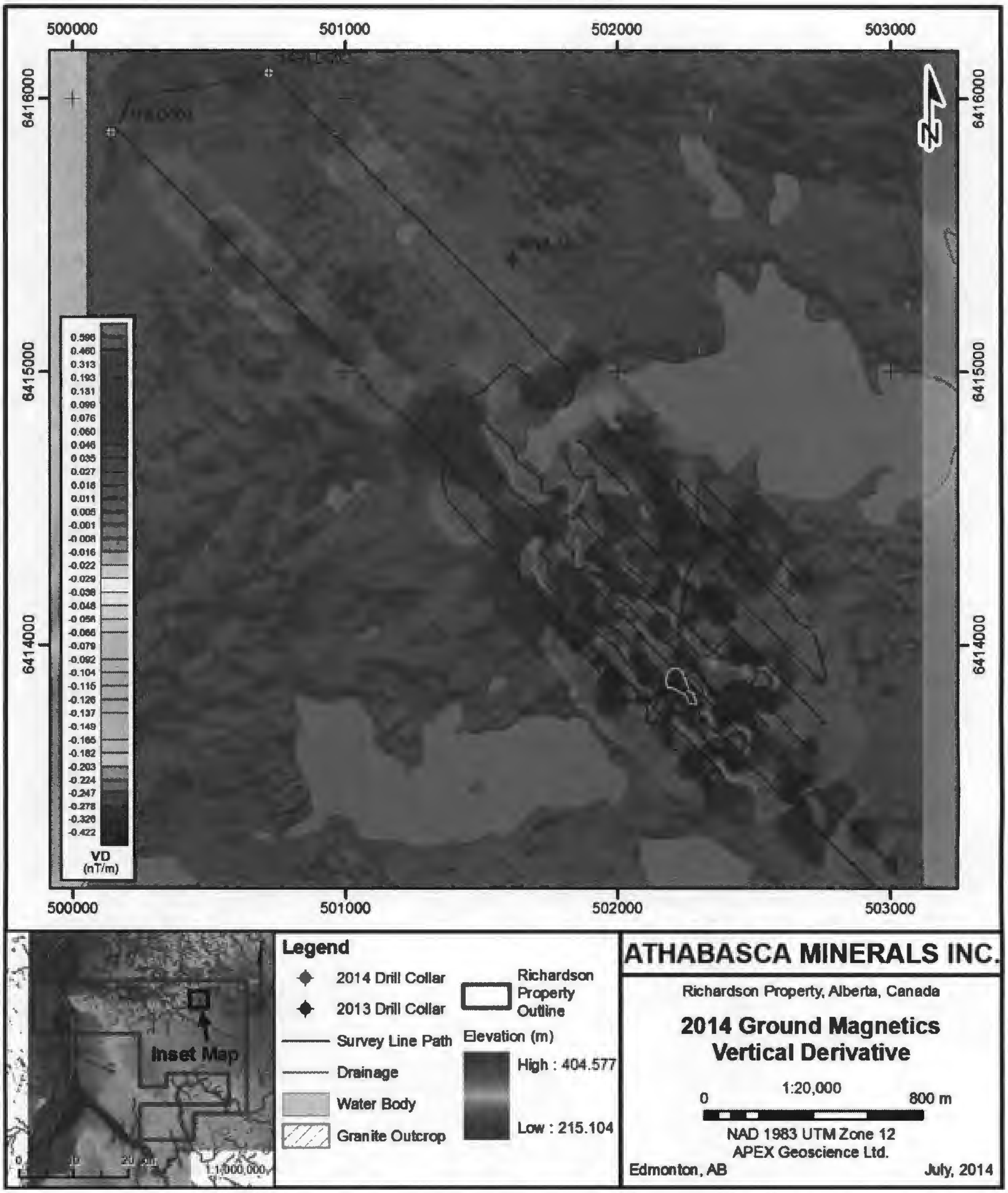
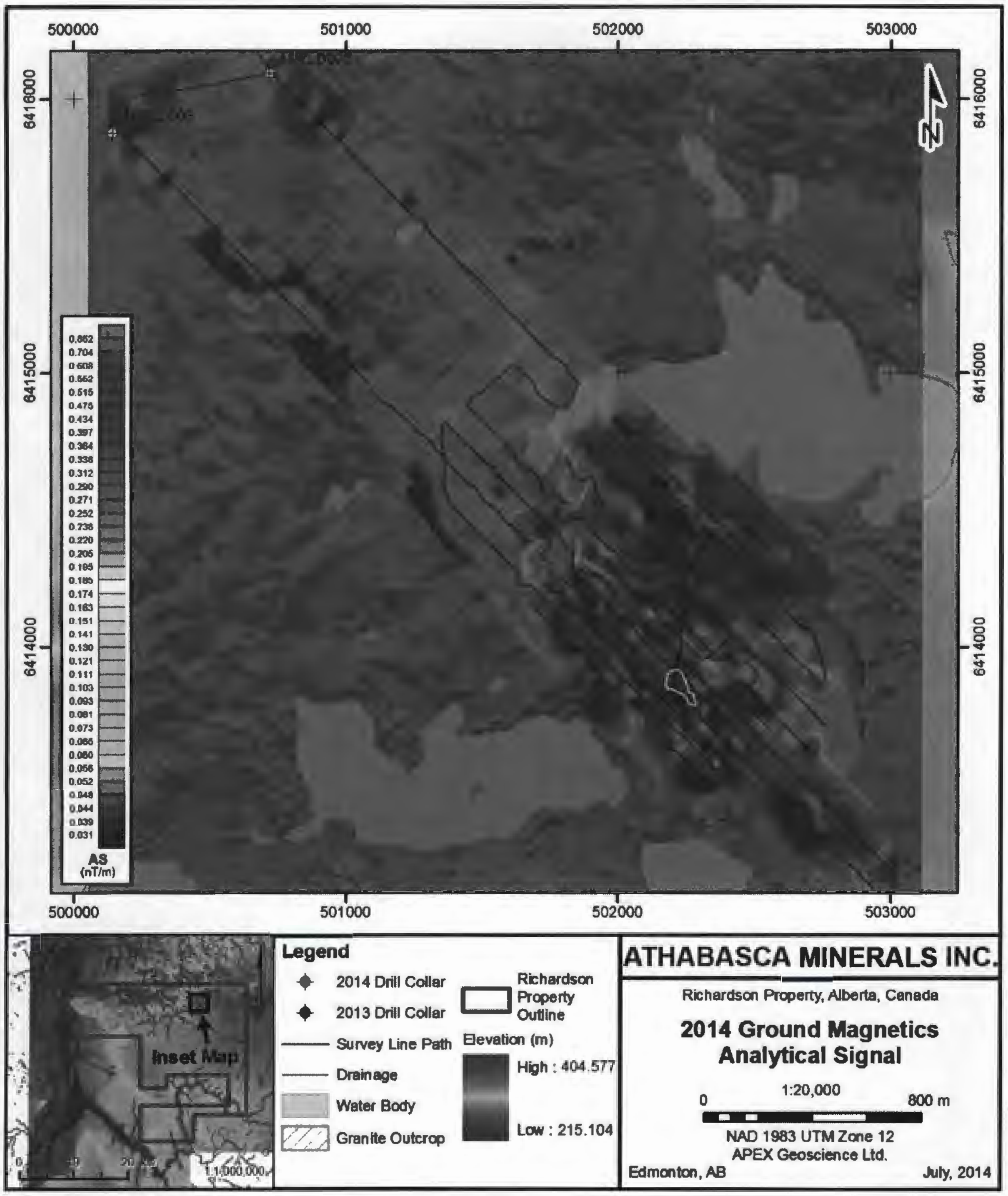


Figure 29 Analytical signal of the Richardson survey grid using the GSM 19-W walking magnetometer.



10 Mineral Resource Estimate

10.1 Introduction

Modelling, resource estimation and statistics were performed by Mr. Nicholls, MAIG under the direct supervision of Mr. Eccles, who is a Qualified Persons as defined by National Instrument 43-101. Mineral resource modelling was carried out using a three-dimensional model in commercial geologic modelling and mine planning software MICROMINE (v14.0.4).

The project area is based in the Universal Transverse Mercator (UTM) coordinate system, North American Datum (NAD) 1983 and UTM Zone12. No block modelling of the resource area was necessary as no 'grade' was being estimated; instead a three dimensional computer generated 'solid' of the area was generated in MICROMINE to calculate the resource 'volume'. The resource estimation presented in this Report considered data from eight drillholes drilled by Athabasca Minerals in 2014 and four drillholes drilled by Athabasca Minerals in 2013 (twelve total drillholes). Because two of the 2013 drillholes were terminated at <30 m and therefore did not penetrate, or did not penetrate through the entire section of, the Winnipegosis Formation (the uppermost bedrock and primary focus of this resource estimate), only ten drillholes were utilized in the Richardson maiden inferred crush rock aggregate resource modelling that is presented in this Report. Accordingly, this resource section hereafter refers to ten drillholes.

Mr. Atkinson, P.Geol, supervised the 2014 drill campaign along with logging and sampling of both the 2013 and 2014 drill core. Specific gravity and geologic information is derived from work conducted by APEX personnel, on behalf of Athabasca Minerals, during the 2014 field season. A specific gravity measurement was taken once every one metre of drill core. The density data were confirmed by comparing these measurements with a separate set of density analysis on the composite samples that were analyzed at AMEC and Tetra Tech EBA in Calgary and Edmonton, Alberta, respectively.

Richardson maiden inferred crush rock aggregate resource estimate is reported in accordance with the Canadian Securities Administrators National Instrument 43-101 and has been estimated using the CIM "Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines" dated November 23rd, 2003 and CIM "Definition Standards for Mineral Resources and Mineral Reserves" dated November 27th, 2010. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve.

The CIM Standards on Mineral Resources and Mineral Reserves, Definitions and Guidelines, dated August 20, 2000 (the "CIM Standards", NI 43-101 and Companion Policy 43-101CP) states that:

"When reporting Mineral Resource and Mineral Reserve estimates relating to an industrial mineral site, the Qualified Person(s) must make the reader aware of certain special properties of these commodities".

The authors have attempted to follow this guideline in this resource section and throughout this Report. Accordingly, an important up front statement is to acknowledge that the objective of the aggregate analytical test work – in the context of this crush rock aggregate resource estimate – is predominantly focused on the aggregate mechanical qualities for its use in aggregate road building and concrete in support of locale and prolific oil sands operations and development.

10.2 Drillhole Database Validation

The 2013 and 2014 drillholes were surveyed using a hand held Garmin GPS unit in UTM coordinates (UTM Zone 12) and NAD 1983 datum. The elevations of the drillholes were initially obtained using the hand held Garmin GPS, however, the collar elevations have been subsequently modified for all 10 drillholes by using high resolution Light Detection and Ranging (LiDar) technology with 1 m resolution. As per the MME Land Use Permit, a metal tag was nailed to a tree on the SW corner of the drill site. The tag was labelled with the MME permit number (130005), drillhole number and legal description of the site by LSD. All drillholes were vertical holes; therefore no down hole surveying was employed. Upon completion of each of the 2014 drillholes, the casing was removed and the drill sites were reclaimed. No visible collar marker was left.

All drill logs, summaries, survey data and analytical results from the 2013 and 2014 programs have been imported and stored in a MICROMINE drilling database and Microsoft Excel spreadsheets. Drill core logging was completed in Excel format, with hardcopy, PDF and digital back-ups. Drill data, cross sections and 3D plots were interpreted and generated in Edmonton using, Excel and MICROMINE software. The 2013 and 2014 drill core were logged and sampled by APEX personnel under the direct supervision of Mr. Atkinson.

At the end of the 2014 program, the excel drillhole database was copied into MICROMINE by APEX personnel. Using MICROMINE's drillhole database validation function, the data was checked for overlapping geological intervals, and survey, collar and drillhole length data. A few minor discrepancies were found and promptly fixed within the database. All 10 drillholes were manually checked and validated for collar, survey, and lithological boundaries data. Collar data was compared back to values on the original drill logs. Lithology codes were compared to original drill logs and assay results were compared to laboratory certificates. The database is considered reliable for mineral resource estimation purposes.

10.3 Micromine Database

The drilling database used is current (May 20th, 2014). The drillhole database was validated within MICROMINE and no errors were identified. The database incorporates all available diamond drilling and analytical data. All data for the mineral resource estimation was copied from Excel into MICROMINE format.

The five main MICROMINE.DAT files that were utilized in the resource estimations, these include:

- Richardson_collars_all – the drillhole collar file;
- XRF – the portable x-ray fluorescence data;
- Density – the density measurements file;
- 2014_lithos_final – the geology and formation information; and
- LiDar 15m– the surface topography.

There were a total of 10 drillholes within the export that guided the geological interpretation of the aggregate resource. Spacing between drillholes varies from 500 m to 1.37 km, with an average of about 0.9 km between drillholes. There were seven drill lines that ranged in spacing from 570 m to 900 m. In this Report, Mr. Nicholls, under the direct supervision of Mr. Eccles, has used reasonable judgment in the context of this crushed rock aggregate deposit type, style and formation to determine that this drill spacing is sufficient for resource volume estimation.

Data supplied and utilized in MICROMINE included collar Easting, Northing and elevation coordinates, lithology information, and bulk density data. The collar co-ordinates were obtained by hand held GPS and the relative elevation were assigned using the detailed one-metre spaced LiDar data. All drillholes are short (up to 147 m) vertical holes and as such there are no down hole surveys. Dip of the hole was set up using a clinometer after the drill was properly levelled.

10.4 Data Type Comparison

As there has only been diamond drilling conducted at the Richardson maiden inferred crush rock aggregate resource area, a data type comparison is not required. Diamond drilling is considered to be representative of a good quality drilling method and is suitable for resource estimation.

10.5 Stratigraphic Representation and Resource Estimate Objectives by Formation

The drillhole lithology was plotted and displayed next to the drillhole (Figure 30a). From the top of the drillhole to the base, this includes: Quaternary surficial deposits (or overburden); Winnipegosis Formation; Contact Rapids Formation; La Loche Formation; and the Precambrian basement granite. The formations are described in detail in Section 7, 'Geological Setting and Mineralization.'

The Winnipegosis Formation is the primary unit being assessed in this Richardson maiden inferred crushed rock aggregate resource estimate. Athabasca Minerals is also interested in the potential of the granite as a crushed rock aggregate and we have therefore included a volume estimate of the granite albeit to a depth of 10 m below the top of the Precambrian to correlate with drill results. In aggregate operations, different kinds of 'Flux' are often required for blending purposes, as a result of this it was decided to model up all formations to provide blending option volumes of the other formations beside the Winnipegosis Formation.

10.6 Demonstration of Stratigraphic Homogeneity

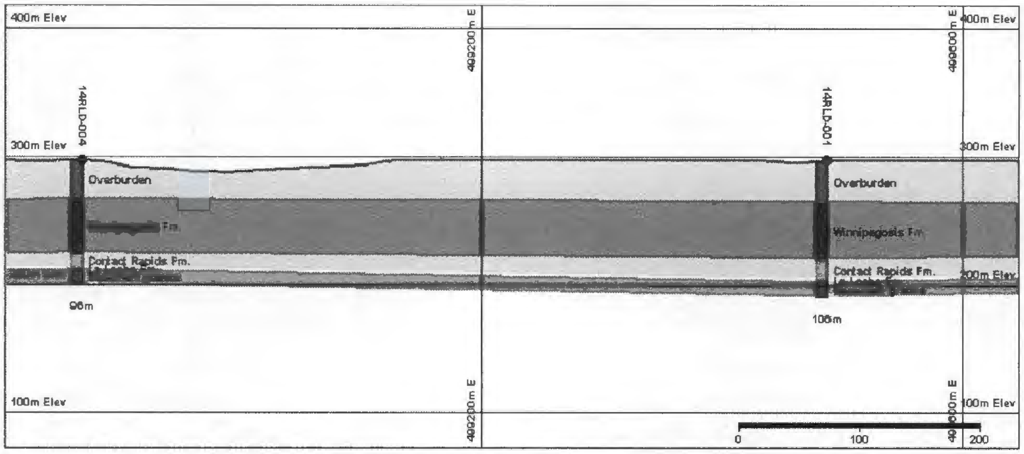
Stratigraphic logging, which was performed by APEX for both the 2013 and 2014 drillholes, showed definitive geological boundaries that are characterized by extensive lateral continuity of the individual geounits. With the exception of the La Loche Formation – Precambrian basement boundary which can be gradational, the boundaries between formations have sharp, visually identifiable contacts.

To demonstrate the homogeneity of the stratigraphic units using geotechnical and geochemical data derived from the cores, Figures 30 and 31 show a comparison between the stratigraphic horizons versus selected geotechnical and geochemical data, respectively. The Rock Quality Description (RDQ) and total fracture data closely mimic the stratigraphic units (Figure 30). This is particularly evident for drillhole 14RLD-007 because this hole cored the deepest into the Precambrian basement granite. Of particular note, the RDQ and total fracture scores are most evident in the Contact Rapids and La Loche formations, which occur between the more competent Winnipegosis Formation dolostone and Precambrian basement granite. In comparison to the majority of the drillholes, the RDQ and total fractures scores are higher in the Precambrian basement granite in drillholes 14RDL-001; this is representative of a transitional zone between the La Loche Formation and the underlying basement granite, the latter of which, is characterized by variable potassic and albite alteration at this local area.

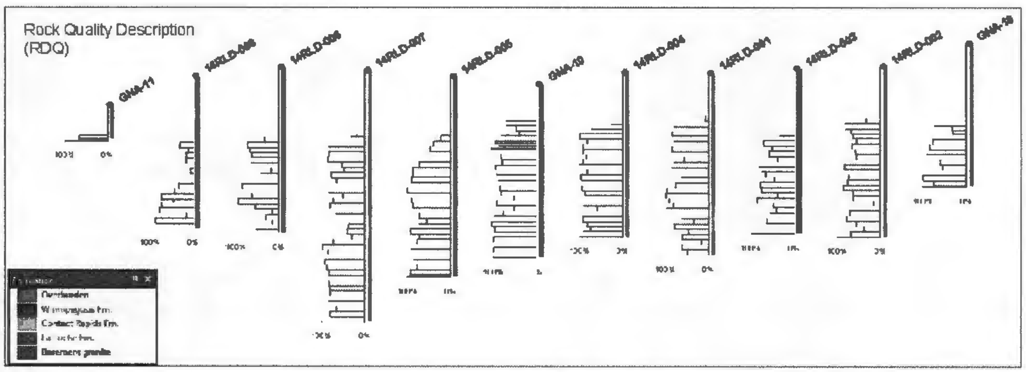
The stratigraphic formation divisions are further supported by chemical homogeneity, which is illustrated by plotting the one-metre interval XRF data next to the stratigraphic units (Figure 31). In conjunction with the stratigraphic cross-section, the 'zones' of elevated or depleted Ca+Mg (Figure 31b) or Fe (Figure 31c) closely mimic the geological formations (Figure 31a). In addition, the Ca+Mg plot, in particular, shows the homogenous nature of the Winnipegosis Formation, which highlights its applicability as a potential source of crush rock aggregate.

Figure 30 Comparison of the stratigraphic and geotechnical rock quality homogeneity of the subsurface geology at the Richardson Property. A) Drillholes 14RLD-004 & 14RLD-001 illustrate the down hole stratigraphic sequence. B, C) Schematic diagram of all drillholes showing the geotechnical homogeneity between rock quality description, and total fractures with respect to the formation boundaries.

A)



B)



C)

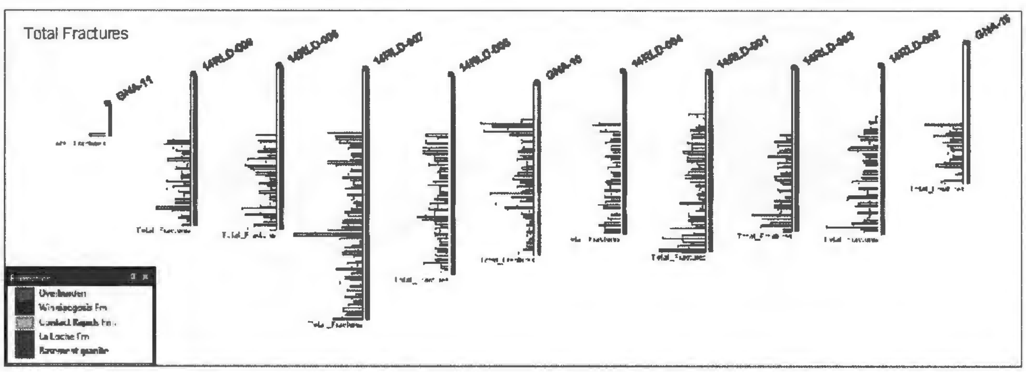
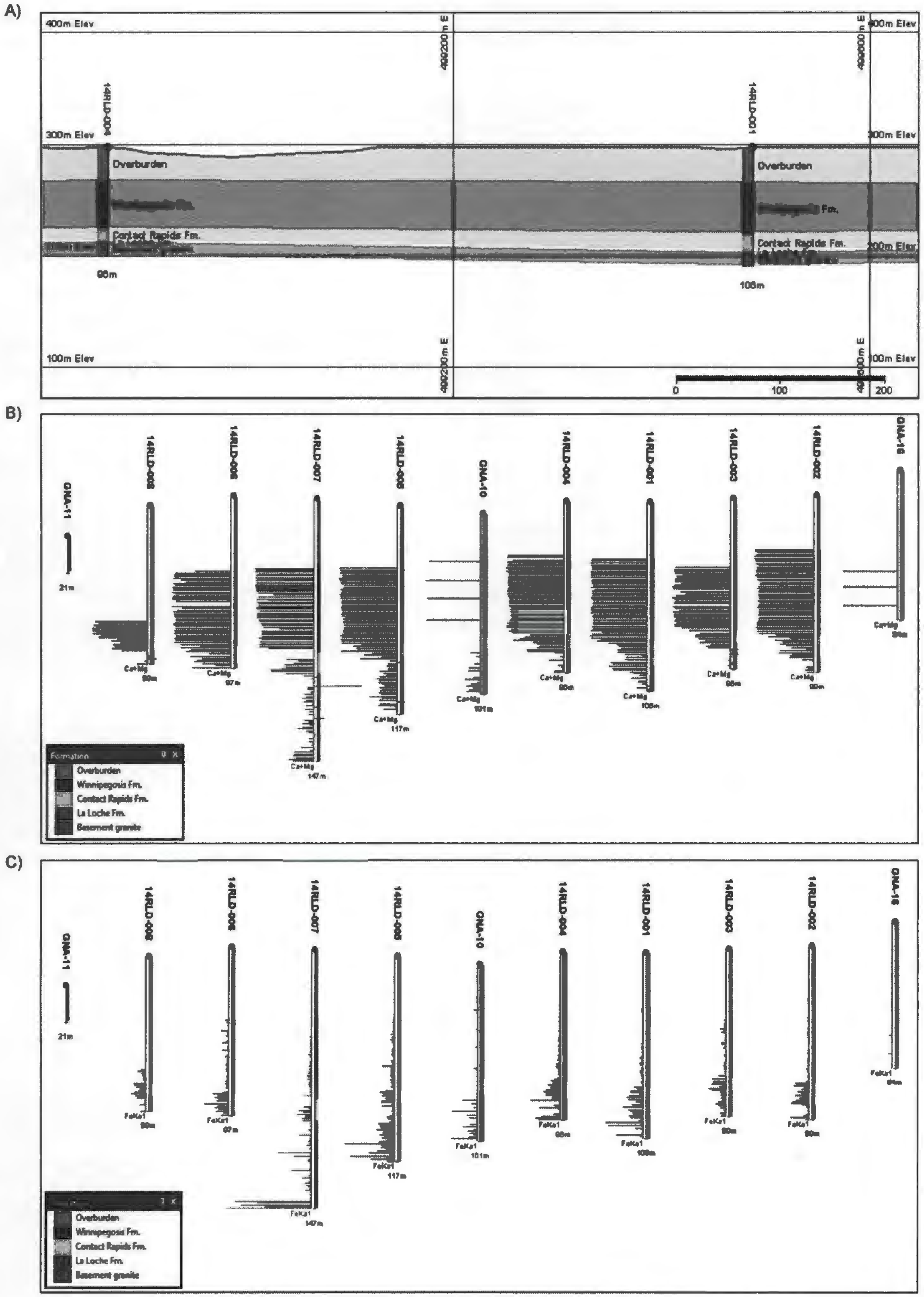


Figure 31 Comparison of the stratigraphic and chemical homogeneity of the subsurface geology at the Richardson Property. A) Drillholes 14RLD-004 & 14RLD-001 illustrate the down hole stratigraphic sequence. B, C) Schematic diagram of all drillholes showing the chemical homogeneity between Calcium + Magnesium, and iron with respect to the formation boundaries.

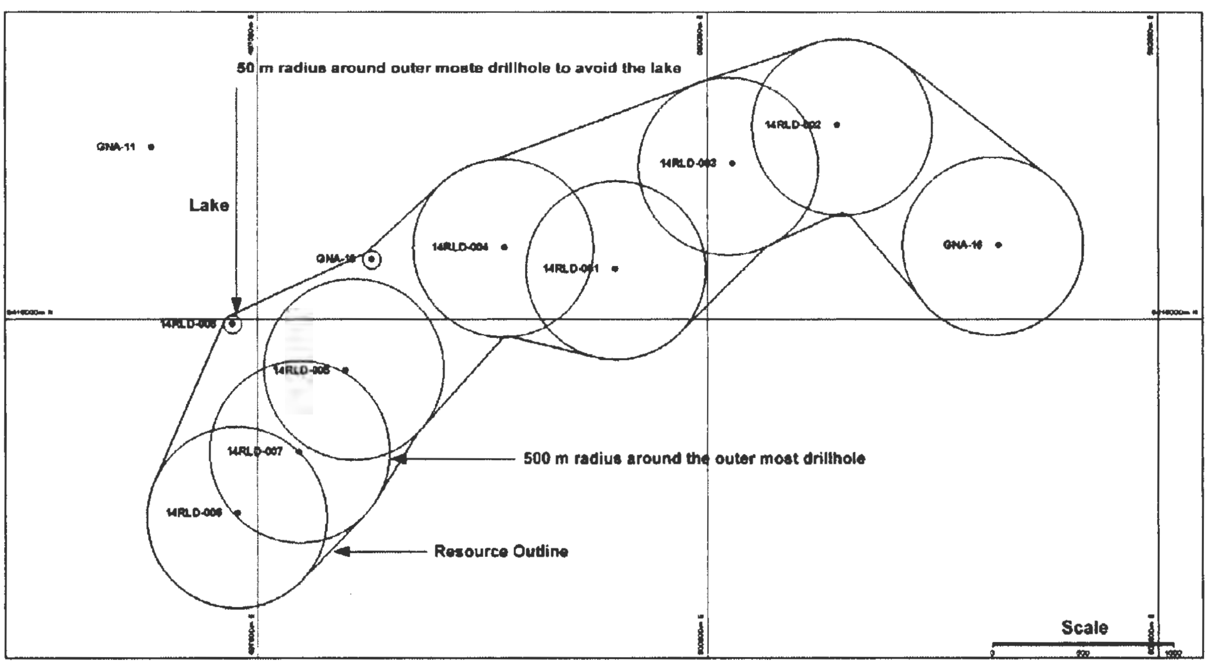


10.7 Lithological Model Design and Interpretation

As a result of the homogenous and continuous nature of the stratigraphic formations, the wireframes were constructed and extrapolated from hole to hole for the 10 drillholes that were used in this resource model. A resource outline of 500 m was constructed around the outermost drillholes to define the outer limits of the resource area (Figure 32). The resource outline of 500 m was deemed appropriate based on the continuous nature of the stratigraphic formation within the resource outline area as defined by 2013 and 2014 Athabasca Minerals drilling, and because the same generally flat-lying stratigraphic formations has been intersected in drillholes and/or oil and gas wells that are located several 10's of kilometres away from the Richardson resource area providing further support of the continuous nature of these geological formations. The boundary outline radius directly north of drillholes GNA-10 and 14RDL-008 was reduced to 50 m (from 500 m) due to the proximity of the lake. I.e., we have not extended the inferred resource estimate under the lake. The surface area of the resource outline is 6.30 km^2.

A separate wireframe was created for each formation from which, separate formation volumes could be derived. The 500 m resource outline was used to clip the individual formation wireframes to restrict the lateral extension of the wireframes and thereby constrict the main resource model to the general 2013 and 2014 Athabasca Minerals drill area. The one-metre LiDar surface topography was reduced to a 15 m survey due to file size constraints within MICROMINE; this surface was then used to clip the overlying overburden wireframe with the best approximation of surface. This model formed the spatial basis for calculating the volume and tonnage for the Richardson maiden inferred crush rock aggregate resource estimate.

Figure 32 The 500 m resource boundary outline that was used to constrain the Richardson maiden inferred crush rock aggregate resource estimate.



Eight out of the 10 drillholes used in the resource modelling intersected the basement granite. The remaining two drillholes (GNA-16 and 14RLD-006) stopped short of penetrating and coring the basement due to drilling conditions. Given, the stratigraphic continuity of the Winnipegosis dolostone, which was intersected in these drillholes, and the continuity of the basement granite in the resource area, the top of basement wireframe was extrapolated to include these two holes.

The overall modeling of the basement granite was restricted to a 10 m thick unit across the entire resource area. The 10 m thickness is considered to provide a conservative estimate because the granite was confirmed to extend to depth in a single drillhole (14RLD-007), which cored up to 48.35 m of basement granite. However, all other drillholes were terminated once they cored approximately 10 m into the basement granite as this drill program (and in this particular part of Athabasca Minerals Richardson Property) placed emphasis on the Winnipegosis Formation.

10.8 Resource Calculation

The volume of the Winnipegosis Formation was calculated from 3-dimmenional modelling that utilised the commercial mine planning software MICROMINE. In addition to the Winnipegosis Formation volume, the separate wireframes and density values for each of the sub-surface formations facilitated the calculation of volumes for the overburden, Contract Rapids, La Loche and Precambrian basement granite.

The specifics of the three dimensional modelling is described in section 14.8. There was no need to create a block model as no specific chemical elements were being estimated. As such the volume of each formation was used to multiply against a nominal specific gravity value, which was determined on a formation by formation basis. This resulted in the reported tonnages. As this is the maiden inferred resource, no mining studies have yet been employed to constrain the resource within an optimal pit shell. This work is recommended for future resource studies.

The Winnipegosis Formation is considered the most favourable unit for crush rock aggregate as it is the shallowest (directly underlying the quaternary cover) at depths ranging from 18 m to 64.92 m, in this particular part of the Richardson Property. This unit has undergone pervasive dolomitization; the higher Mg content makes the unit harder and thus more resistive in consideration of crush rock aggregate.

Underlying the Winnipegosis Formation, the Contact Rapids is mudstone-enriched (higher Al content), is more limey in nature and comprises weakly consolidated muddy limestone and sandy limestone in comparison to the Winnipegosis dolostone. The Contact Rapids is therefore not nearly as desirable as a crush rock aggregate source in comparison to the Winnipegosis. There is the possibility, however, that the Contract Rapids may provide some alternative flux material if the Winnipegosis were to be mined as a crush rock aggregate source. There is a distinct unconformity between the carbonate units, which is therefore easy to separate if the deposit undergoes mining.

If the economics of mining the Winnipegosis Formation are feasible, then the Precambrian basement granite represents a secondary crush rock aggregate target within the current Richardson resource area due to the hardness and the uniform nature of the granite.

10.9 Mineral Resource Marketability

Industrial minerals are influenced by a number of factors that are less applicable to metallic mineral deposits such as: particular physical and chemical characteristics; mineral quality issues; market size; the level of the producer's technical applications knowledge; market concentration; and transportation costs. Market considerations must, therefore, incorporate not only the requirement for detailed market analyses and/or contracts of sale, but also recognition that markets for many industrial minerals are relatively small, may have a high degree of producer concentration, or may have very high technical barriers to entry, thus imposing limits or constraints on achievable market volumes. Accordingly, the reader must be made aware of any special properties related to the industry specifications.

In the case of the Richardson project, the crush rock aggregate deposit is located in close proximity to several major oil sands operations and operations in development (see Figure 4). In light of the continued investment in the oil sands industry, it is possible that there is an ongoing requirement for aggregate throughout the region. In addition, the close proximity of the Winnipegosis Formation to surface, its overall uniformity, and positive aggregate test results in comparison to Alberta aggregate standards, indicates that the Winnipegosis crushed rock aggregate has reasonable prospects of economic viability.

It should be noted that no mining or detailed economic studies have been performed and that the Richardson crush rock aggregate deposit represents an early stage project. No aggregate price data were integrated into the resource estimate presented in this Report. In a brief scan, crush aggregate product varies anywhere from CDN$9.00 per ton to CDN$27.00 per ton (e.g., Dufferin Aggregate, 2014; Hammerstone Corporation, 2014; Jordan River Gravel and Excavating, 2014; Polaris Minerals Corporation, 2014). With respect to potential for economic extraction, Hammerstone is currently mining limestone at its Hammerstone Project, which is located directly adjacent to the southeastern Richardson Property permits: 9312100494 and 9312110408. Hence, it appears that the Richardson crush rock aggregate would support the cost of mining and the removal of the overburden

10.10 Resource Classification

The Richardson maiden inferred crush rock aggregate resource estimate has been classified in accordance with guidelines established by the CIM "Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines" dated November 23rd, 2003 and CIM "Definition Standards for Mineral Resources and Mineral Reserves" dated November 14th, 2004.

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

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

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

The Richardson maiden inferred crush rock aggregate resource estimate has been classified as 'inferred' according to the CIM definition standards. The classification of the Richardson maiden inferred crush rock aggregate resource was based on geological confidence, data quality and stratigraphic continuity. That is, the criteria and rational for the classification of inferred resources was based upon the wide spaced nature of the drilling to date and the fact that this is classed as an early stage project with little mineral processing test work completed to date.

10.11 Mineral Resource Reporting

The Richardson maiden inferred crush rock aggregate resource estimate is reported in accordance with the Canadian Securities Administrators National Instrument 43-101 and has been estimated using the CIM "Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines" dated November 23rd, 2003 and CIM "Definition Standards for Mineral Resources and Mineral Reserves" dated November 27th, 2010.

The Richardson maiden inferred crush rock aggregate resource estimate has been classified as inferred only. The aerial extent of the Richardson maiden inferred crush rock aggregate resource area is 6.30 km^2. The Richardson maiden inferred crush rock aggregate resource consists of 683.14 million tonnes of aggregate material situated within the favourable Winnipegosis Formation (Table 15). The thickness of the Winnipegosis aggregate resource varies from 8.3 m to 47.9 m. The Winnipegosis aggregate resource is overlain by 497.29 million tonnes of overburden-waste material.

Table 15. Richardson maiden inferred crush rock aggregate resource. Volumes and tonnages for the overburden and all lithostratigraphic units are included, but the main resource reported belongs to the Winnipegosis Formation.

Formation	Volume (m^3)	Density (t/m^3) *	Tonnes (million tonnes) **
Overburden	220,625,000	2.25	497.29
Winnipegosis	**254,523,000**	**2.68**	**683.14**
Contact Rapids	63,322,000	2.50	158.11
La Loche	13,339,000	2.54	33.93
Basement granite	62,941,000	2.63	165.41

* Density has been rounded to two decimal places.

** Tonnes have been rounded to the nearest 10,000 tonnes.

Note 1: Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve.
Note 2: The quantity of tonnes reported in these inferred resource estimations are uncertain in nature and there has been insufficient exploration to define these inferred resources as an indicated or measured mineral resource, and it is uncertain if further exploration will result in upgrading them to an indicated or measured resource category.
Note 3: The estimate of mineral resources may be materially affected by geology, environment, permitting, legal, title, taxation, socio-political, marketing or other relevant issues.

The quality and grade of reported Inferred resource in this estimation is uncertain in nature, as there has been insufficient exploration to define these Inferred resources as an Indicated or Measured mineral resource, and it is uncertain if further exploration will result in upgrading them to an indicated or measured resource category. The portion of the Richardson property resource that has been classified as 'Inferred' demonstrates that the nature, quantity and distribution of data is such as to allow confident interpretation of the geological framework and to reasonably assume continuity of geological formations. The collective work to date from the Richardson Property indicate that while the project is in early stages of exploration/resource work that indications of the metallurgical and mineral processing qualities give suggestions that they are of high enough quality that the Winnipegosis is of economic interest.

If the economics of mining the Winnipegosis Formation are feasible, then the Precambrian basement granite represents a secondary crush rock aggregate target within the current Richardson resource area, due to its uniform nature and overall hardness as shown by the few (n=2) samples that were processed using standard aggregate test work. In the current resource area, the basement granite has a volume of 165.41 million tonnes; the overall volume of the granite was calculated to a maximum depth of ten metres from the top of the Precambrian rock unit.

11 Exploration Expenditures

During 2014 Athabasca completed two separate drill programs totaling twelve holes, aggregate and geochemical testing, ground geophysical surveys and the calculation of a maiden Inferred mineral resource. The total cost to complete exploration on the Richardson Property during 2014 was $613,594.98. A breakdown of expenditures is presented in Appendix 5.

12 Interpretation and Conclusions

12.1 Analytical Testing Interpretation and Conclusions

Published specifications and standards for industrial minerals should be used primarily as a screening mechanism to establish the marketability of an industrial mineral. The suitability of an industrial mineral for use in specific applications can only be determined through detailed market investigations and discussions with potential consumers.

While detailed market investigations and discussions with potential consumers are beyond the scope of this Report, we have demonstrated that the Winnipegosis and basement granite rock types have uniform compositions, and that the aggregate test work for the 11 Winnipegosis samples and two Precambrian basement granite samples meets the screening criteria for most of the aggregate designations in Alberta, including asphalt concrete pavement and base course aggregate, as per the guidelines set by Alberta Transportation and the Canadian Standards Association (see Tables 7, 8 and 13).

Accordingly, with respect to reporting a resource estimate and abiding by the General Guidelines of NI 43-101, it should be emphasized that the aggregate test rock results suggest that the Winnipegosis Formation (and secondly, the Precambrian basement granite) from the Richardson crushed rock aggregate deposit has reasonable prospects of economic viability for an industrial mineral deposit.

In contrast, the single Contact Rapids sample does not meet the screening criteria, and therefore, does not meet the *reasonable expectation* and/or *demonstration of economic viability* of an industrial mineral deposit.

12.2 Geophysical Survey Interpretation and Conclusions

The interpretations remain inherently ambiguous, and require petrophysical data and other geological information to properly classify the identified litho-magnetic zones. Nevertheless, several preliminary interpretations can help to guide future exploration in the eastern part of the Richardson Property. The results of the geophysical surveys show that the spatial extent of several distinct geologic features can be mapped using a combination of GPR and ground magnetics data. There is a strong correlation among the physical properties of the overburden (particularly the kame deposit), the Winnipegosis Formation and the granite bedrock.

The GPR was most useful for showing the depth to the geologic layers, while the magnetics data identified lateral changes in the subsurface that were not observed in the GPR response. The GPR profiles display interpretable data to depths of up to 60 m. The granite outcrop is fairly constrained to the immediate area; however, the GPR profiles suggest that the area directly north of the outcrop yields the shallowest thickness of overburden and/or Winnipegosis Formation to the Precambrian basement granite. Hence, any further exploration on the granite as a potential source of crush rock aggregate can use the results of this geophysical survey to target drill locations.

Based on the GPR results, the estimated areas of combined surficial overburden and Winnipegosis Formation dolostone material that is situated on top of the Precambrian granite and is within 5 m, 10 m, 15 m, 20 m and 25 m of surface is approximately: 4,600 m^2; 15,200 m^2; 45,100 m^2; 91,300 m^2; and 147,233 m^2, respectively (Figure 24).

Using the interpreted GPR litho-units, in concert with surficial topography associated with the LiDAR data, a rough volume calculation of potential geological units over an area of 407,700 m^2 yields:

- 11,758,000 m^3 of total combined material (overburden and/or Winnipegosis Formation) from surface to the granite basement;

- 4,377,000 m^3 of overburden from surface to top of the Winnipegosis Formation; and

- 7,381,147 m^3 of potential Winnipegosis Formation.

With respect to lateral changes, the GPR was unable to identify changes in overburden type across the survey area (apart from vertical layering associated with Layer 0). However, the magnetic data clearly shows that there is a lateral change in the rock properties of the uppermost surficial materials, as explained by the contrasting magnetic zones A and B.

12.3 Drilling and Inferred Resource Estimate Interpretation and Conclusions

Industrial minerals are influenced by a number of factors that are less applicable to metallic mineral deposits such as: particular physical and chemical characteristics; mineral quality issues; market size; the level of the producer's technical applications knowledge; market concentration; and transportation costs. While the inclusion of a detailed market analyses is beyond the scope of this Report, the reader should be made aware of several special factors that are related to this 'early stage project'.

Athabasca Minerals Richardson Property comprises eight contiguous Alberta Metallic and Industrial Minerals Permits totalling 60,966 hectares (150,650 acres). The Property is active, in good standing and 100% owned by Athabasca Minerals, who have—prior to the Richardson Property work outlined in this Report—identified, explored and operated industrial mineral deposits in other parts of northeastern Alberta. With respect to aggregate marketing, technical applications knowledge and production experience, Athabasca Minerals is therefore assumed to have familiarity of the industrial mineral economics specific to the area.

Proximity to market and market demand are also important industrial mineral factors. The Richardson Property is directly adjacent to the Athabasca oil Sands region of northeastern Alberta. The oil sands operations represent an area of enormous growth opportunity, and subsequently, require substantial sources of local aggregate. While continued oil sands development is subject to an infinite number of variables (e.g., geology, hydrocarbon prices, environment, taxation, socio-political, marketing or other relevant issues), the current development suggests a continued and positive aggregate market demand. Of equal note, sand and gravel aggregate in the oil sands region is scarce and inadequate to meet industrial demand. Consequently, alternative local sources such as crush rock aggregate are required to minimize common industrial mineral impediments such as transportation costs. Crush rock aggregate in the form of limestone is currently being mined adjacent to the Richardson Property region by Hammerstone Corporation exhibiting the potential demand for aggregate in the region.

To assess the Richardson Property for its crush rock aggregate potential, APEX Geoscience Ltd. has reviewed, logged, measured, sampled and analyzed drill cores from a 2013 (4 holes, totalling 235 m) and a 2014 (8 holes, totalling 843 m) drilling programs, both of which were conducted by Athabasca Minerals. Two distinct geological units - the Winnipegosis Formation, which is the primary focus of this Report, and the Precambrian basement granite – are identified in this Report as having reasonable prospects of economic viability for an industrial mineral deposit. The thickness of the Winnipegosis varies from 8.3 m to 47.9 m (averages 39.5 m) and is comprised largely of competent, light brown dolostone. Precambrian basement granite was drill-tested to a depth of 10 m prior to terminating the drillholes, although a single drillhole (14RLD007) tested the granite to a coring depth of 44.5 m to test its uniformity and crush rock aggregate potential at depth. The granite is comprised light blue-grey, coarse-grained, weakly foliated granite. Based on the 2013 and 2014 drill results, Athabasca Minerals Inc. further commissioned APEX Geoscience Ltd. to prepare a National Instrument 43-101 compliant maiden inferred crush rock aggregate resource estimate of the Middle Devonian Winnipegosis Formation and make recommendations on future exploration to advance the Athabasca Minerals Richardson Property.

A review of oil and gas well, historical mineral exploration and Athabasca Minerals 2013 and 2014 drill program information, indicates that stratigraphic continuity of the Winnipegosis appears to extend over large distances in the Property area representing an apparently continuous target unit. Geotechnical measurements and geochemical analysis demonstrates that within the resource area, the Winnipegosis Formation is homogenous, uniform and has undergone pervasive dolomitization, attributing to its hardness, competency and resistive nature. The single 'impurity' to report involves supplementary bitumen, which is more or less confined to the uppermost portions of the Winnipegosis Formation (and the La Loche Formation directly overlying the Winnipegosis dolostone). The bitumen ranges in intensity from non-existent (in most of the core) to pervasive, the latter of which is evident in 25 cm to 90 cm wide 'bituminous horizons' that occur in the eastern drillholes 14RLD006 and 14RLD008. The bitumen appears to be confined to porosity enabling textures in the carbonate such as vugs, sandy horizons and fracture planes. However, the overall consistency and volume of non-bitumen-bearing dolostone, and the positive aggregate test work results, provide justification that the bitumen does not influence the viability of the Winnipegosis as an industrial mineral deposit, at least in the current evaluation of this early stage project.

The Winnipegosis Formation and Precambrian basement granite were analyzed using relevant aggregate analytical techniques, the results of which were compared to Alberta Transportation and Canadian Standards Association aggregate specifications and standards. The results show that the Winnipegosis Formation and Precambrian basement granite met the maximum allowable screening criteria for major aggregate test methods, including: plasticity index; Los Angeles abrasion; magnesium sulphate soundness; and unconfined freeze-thaw. Based on the results of this test work and evidence of the homogeneity and uniformity of the rock units, it is concluded that the Winnipegosis Formation and Precambrian basement granite represent material of merit for several Alberta Transportation aggregate designations, including: Designation 1 (asphalt concrete pavement); and Designation 2 (base course aggregate).

The Richardson maiden inferred crush rock aggregate resource estimate is reported in accordance with the Canadian Securities Administrators National Instrument 43-101 and has been estimated using the CIM "Estimation of Mineral Resources and Mineral Reserves Best Practice Guidelines" dated November 23rd, 2003 and CIM "Definition Standards for Mineral Resources and Mineral Reserves" dated November 27th, 2010. The mineral resource modelling was carried out using a three-dimensional model in commercial geologic modelling and mine planning software MICROMINE (v.14.0.4).

The resource estimation utilized data from two 2013 drillholes and eight 2014 drillholes drilled by Athabasca Minerals (to drillholes in total). All drillholes were vertical holes and spacing between the drillholes varies from 500 m to 1.37 km, with an average of about 900 m between drillholes. A separate wireframe was created for each formation (Precambrian basement granite; La Loche Formation; Contact Rapids Formation; Winnipegosis Formation; and overburden), from which, separate formation volumes could be derived for each lithostratigraphic unit.

Block modelling of the resource area was not necessary as no 'grade' was being estimated; instead a three-dimensional computer-generated 'solid' of the area was generated in MICROMINE to calculate the resource 'volume'. Within the model, the volume of each formation was used to multiply against a nominal density value, which was determined as averages on a formation by formation basis from the 675 bulk density measurements collected. This resulted in the reported tonnages.

The surface area of the resource outline reported in this Report is 6.30 km^2, representing a small north-central portion of Athabasca Minerals Richardson Property. The Richardson maiden inferred crush rock aggregate resource estimate has been classified as 'inferred' according to the CIM definition standards. The classification of the Richardson maiden inferred crush rock aggregate resource was based on geological confidence, data quality and stratigraphic continuity. That is, the criteria and rational for the classification of inferred resource is based upon the wide spaced nature of the drilling to date and the fact that the Richardson crush rock aggregate project is classified as an early stage project with little mineral processing test work completed to date. As this is the maiden inferred resource, no mining studies have been employed to constrain the resource within an optimal pit shell.

The Richardson maiden inferred crush rock aggregate resource estimate has been classified as inferred only and consists of 683 million tonnes of aggregate material situated within the favourable Winnipegosis Formation (Table 16). Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve. The Winnipegosis aggregate resource is directly overlain by 497 million tonnes of overburden-waste material.

The portion of the Richardson Property resource that has been classified as 'Inferred' demonstrates that the nature, quantity and distribution of data is such as to allow confident interpretation of the geological framework and to reasonably assume continuity of geological formations. The collective work to date from the Richardson Property demonstrates that although the project is in early stages of exploration/resource work, metallurgical and mineral processing qualities give suggestions that they are of high enough quality that the Winnipegosis is of economic interest.

Table 16. Richardson maiden inferred crush rock aggregate resource. Volumes and tonnages for the overburden and all lithostratigraphic units within the resource area are included, but the resource reported in this Report relates to the Winnipegosis Formation.

Formation	Volume (m^3)	Density (t/m^3) *	Tonnes (million tonnes) **
Overburden	220,625,000	2.25	497.29
Winnipegosis	**254,523,000**	**2.68**	**683.14**
Contact Rapids	63,322,000	2.50	158.11
La Loche	13,339,000	2.54	33.93
Basement granite	62,941,000	2.63	165.41

* Density has been rounded to two decimal places.

** Tonnes have been rounded to the nearest 10,000 tonnes.

Note 1: Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into a mineral reserve.

Note 2: The quantity of tonnes reported in these inferred resource estimations are uncertain in nature and there has been insufficient exploration to define these inferred resources as an indicated or measured mineral resource, and it is uncertain if further exploration will result in upgrading them to an indicated or measured resource category.

Note 3: The estimate of mineral resources may be materially affected by geology, environment, permitting, legal, title, taxation, socio-political, marketing or other relevant issues.

12.4 Potential Targets for Future Exploration

The Winnipegosis Formation is considered the most favourable unit for crush rock aggregate in the current resource area, given that it is the shallowest lithostratigraphic unit (directly underlying the quaternary cover and occurs at depths ranging from 18.0 m to 64.9 m). A stratigraphic compilation of publicly available oil and gas well information, historical metallic and industrial mineral assessment work, and data from Athabasca Minerals 2013 and 2014 drill programs shows that there is good stratigraphic continuity of the lithostratigraphic units in the Richardson Property area. This includes the Winnipegosis Formation and the Precambrian basement granite. By way of preliminary reasoning to extrapolate these formations based on the stratigraphic continuity and observations made at the Property, the Richardson Property has several potential targets for further exploration.

The following statements referring to any potential extension of the Richardson crush aggregate deposit are conceptual in nature; as there has been insufficient exploration to define the extended mineral deposit and it is uncertain if further exploration will result in the target being delineated as a mineral deposit and/or resource. Potential targets for further exploration are summarized as follows:

1. Based on stratigraphic continuity of the Winnipegosis Formation, an extension of the current Winnipegosis crush rock aggregate deposit outwards from the current resource area to other parts of the Property could create additional and/or more accessible Winnipegosis tonnage. To provide an example of the potential range increase in volume, a southerly extension of the Winnipegosis Formation deposit equivalent to an additional aerial extent of 7.49 km^2 could add between 0.6707 and 1.0060 billion tonnes of aggregate crush rock (e.g., Table 17; Figure 33). The approximate tonnages have been interpreted by extrapolating the formation wireframes from the current resource area southwards and using the same averaged densities that were used for the Richardson maiden inferred crush rock aggregate resource. The volume range is within 20% of the modelled volume for each formation in the Richardson maiden inferred crush rock aggregate resource (compare versus Table 16).

2. There is also justification in targeting future Winnipegosis exploration to the east-northeast, where the thickness of overburden is assumed to be thinner. If successful, this would lower the strip ratios to access the Winnipegosis in comparison to the current resource area.

3. If the economics of mining the Winnipegosis Formation are feasible, then the Precambrian basement granite represents a potential secondary crush rock aggregate target within the current resource area, due to its uniform nature and overall hardness as shown by aggregate test work conducted in this Report. In the current resource area, the Precambrian basement granite could account for

an additional 165 million tonnes of aggregate. This estimate is conservative as the volume assumes a depth of 10 m (corresponding to when most of the drillholes ended). Based on drillhole 14RLD007, which confirmed uniform granite to a depth of 48.35 m, the granite could easily be extended, such that the granite could account for 319 million tonnes if, for example, the depth was extended to 20 m instead of 10 m.

4. In in the resource area, any potential granite crush rock aggregate source is contingent on the Winnipegosis being economic. However, the Precambrian basement granite is known to outcrop directly east-southeast of the current resource area. Based on the uniformity and positive granite aggregate test results from the current resource area, the adjacent exposed and near-surface granite represents a potential target for further exploration.

5. Surface geophysical surveys conducted over the general granite outcrop area help to define the near-surface boundaries of the granite body. Ground Penetrating Radar (GPR) profiles, which display interpretable data in the area of up to depths of 60 m, shows that the granite outcrop is fairly constrained to the immediate observed exposure; however, the GPR profiles suggest that the area directly north of the outcrop has the least amount of overburden and/or Winnipegosis dolostone material to overlie the Precambrian basement granite. Based on the GPR results, the estimated areas of combined surficial overburden and Winnipegosis Formation dolostone material that is situated on top of the Precambrian granite and is within 5 m, 10 m, 15 m, 20 m and 25 m of surface is approximately: 4,600 m^2; 15,200 m^2; 45,100 m^2; 91,300 m^2; and 147,233 m^2, respectively. The ground magnetic data, which illustrates lateral changes in the subsurface that were not observed in the GPR response, shows that the overburden, in particular, is thicker to the northeast of the granite outcrop correlating to kame-type deposits delineated using LiDAR data. The geophysical interpretations remain inherently ambiguous, and require other geological information such as drilling to properly confirm and classify the identified litho-magnetic zones.

6. Lastly, the Contact Rapids Formation, which underlies the Winnipegosis, comprises weakly consolidated muddy and sandy limestone, and is therefore not as desirable in comparison to the Winnipegosis (this is evident in poor aggregate test work results presented in this Report). There is the possibility, however, that the Contract Rapids could provide a source of alternative flux material if the Winnipegosis were to be mined as crush rock aggregate.

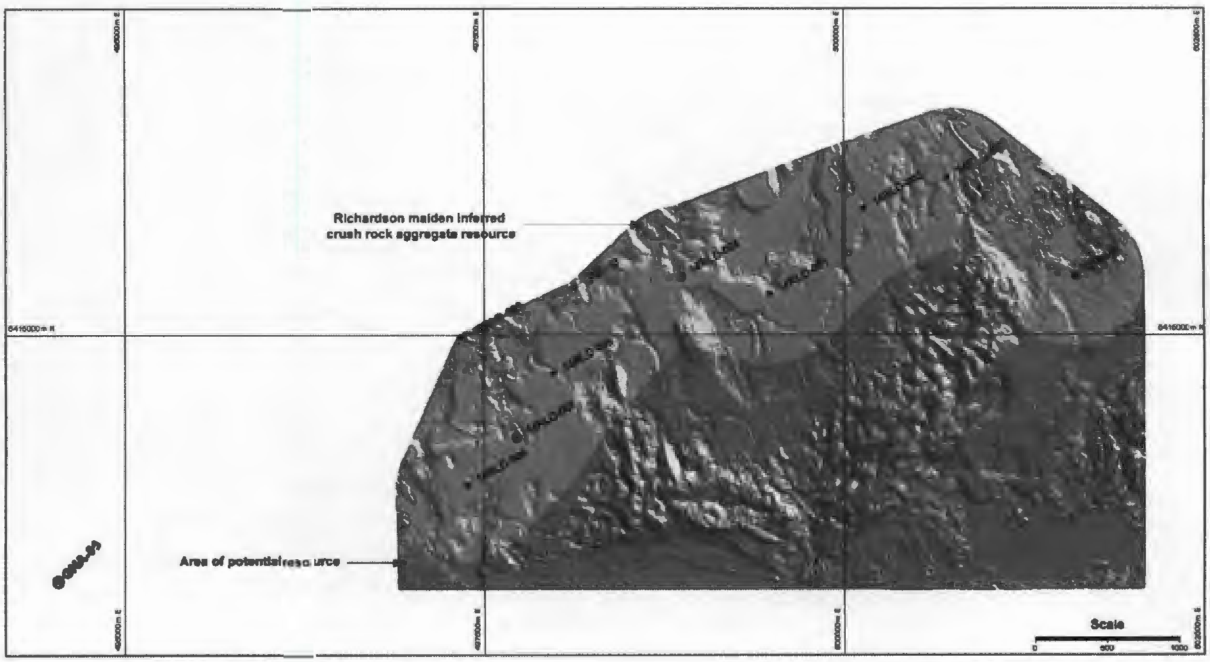
Table 17. A projected range of volumes associated with an example of extending a potential Winnipegosis deposit southwards of the current resource area at the Richardson Property.

	Volume (m^3)		Tonnes (million tonnes) *	
Formation	**Range from**	**Range to**	**Range from**	**Range to**
Overburden	247,560,000	371,341,000	558.00	837.00
Winnipegosis	**248,928,000**	**373,392,000**	**668.12**	**1002.18**
Contact Rapids	59,478,000	89,216,000	148.52	222.77
La Loche	12,856,000	19,284,000	32.71	49.06
Basement granite	59,858,000	89,787,000	157.31	235.96

* Tonnes have been rounded to the nearest 10,000 tonnes.

Note 1: The potential deposit quantity is conceptual in nature; there has been insufficient exploration to define the extended mineral deposit and it is uncertain if further exploration will result in the target being delineated as a mineral deposit and/or resource.

Figure 33 An example of a potential Winnipegosis deposit extension to the south of the current resource area at the Richardson Property.



13 Recommendations

The Richardson Property is considered to be a property of merit and warrants further exploration. This contention is supported by results presented in this Assessment Report, which include: uniform and continuous Winnipegosis Formation target unit (and a secondary target unit in the Precambrian basement granite); positive aggregate test work results that were evaluated against Alberta Transportation and

Canadian Standards Association aggregate standards; a Richardson maiden inferred crush rock aggregate resource estimate that has an aerial extent of 6.30 km^2 and consists of 683 million tonnes of aggregate material situated within the Winnipegosis Formation; and a continuing and positive market demand for aggregate products in the oil sands northeastern Alberta.

In addition to the current inferred aggregate resource area, this Assessment Report has shown the potential: 1) to extend the Winnipegosis deposit southwards and/or to the east-northeast; and 2) for the Precambrian basement granite to provide another source of crush rock aggregate at the Property based on sample results presented in this Report and knowledge that the granite crops out in the eastern part of the Richardson Property. Note: the potential deposit quantity and suggestion of a granite crush rock aggregate source is conceptual in nature as there has been insufficient exploration to define the extended mineral deposit and it is uncertain if further exploration will result in the target being delineated as a mineral deposit and/or resource.

A two Phase approach is therefore recommended for 2015-2016 exploration at the Richardson Property consisting of Phase One geophysical surveying, and Phase Two extension/infill drilling in conjunction with a Preliminary Economic Assessment (PEA) scoping study. The total cost of both phases of recommended exploration work is estimated at CDN$916,000 (Table 19; not including contingency). With a 10% contingency the total budget is CDN$1,007,600.

The recommended Phase One exploration work includes a 35 line-kilometre Ground Penetrating Radar (GPR) survey to:

- create a preliminary three-dimensional geological model of the general area surrounding the current resource area;
- depict those areas that have shallow overburden overlying the Devonian Winnipegosis dolomite and/or the Precambrian basement granite; and
- define the drillhole locations for the Phase Two drill program.

The proposed 2015 GPR survey will include eight northwesterly grid-lines designed to connect the 2014 GPR test area (i.e., the test area around the granite outcrop) to the 2013 and 2014 drillhole collars. The 2015 GPR survey will also include four north-easterly tie-lines that are designed to verify the grid-line data, and add confidence to the measured depths of the overburden, Winnipegosis dolomite and basement granite. The approximate cost of the Phase One work is CDN$40,000 (Table 19).

Subject to the results of the Phase One survey, a Phase Two extension/infill drillhole program and subsequent composite aggregate test work analyses on the drill cores will:

- verify the three-dimensional geological model; and

- provide additional confidence to uniformity, extent, depth and quality of the Winnipegosis dolomite and the basement granite, which is necessary to produce an updated inferred, and possibly indicated, mineral resource estimate.

It is recommended that the Phase Two extension and infill drilling consists of ten to eleven systematically placed diamond drillholes in accordance with the Phase One GPR survey (totalling approximately 1,000 m). Areas of focus should include two separate justifications for drill testing as follows.

1. Winnipegosis Extension. The Winnipegosis Formation deposit could be extended to the south, east and northeast of the current resource area. It is anticipated that the topography (i.e., overburden) on the Property thins out to the east-northeast such that the depth to the Winnipegosis Formation may be thinner than in the current resource area (overburden averages 36 m thickness; n = 11 drillholes drilled in 2013 and 2014 by Athabasca minerals). The Winnipegosis extension drilling would advance the project by increasing the confidence in the continuity and uniformity of the Winnipegosis Formation and the depth of overburden overlying the Winnipegosis.

2. Precambrian Basement Granite Extension. This drilling will test the granite as a potential crush rock aggregate source. Drill targets should be collared east-southeast of the current resource area in an area directly adjacent to an exposure of Precambrian granite. The granite outcrop identified during 2013 field program and the 2014 ground geophysical program has the advantage of shallow to non-existent overburden and/or Winnipegosis Formation cover rock.

The Phase Two extension/infill drilling, aggregate test work analyses and an updated NI 43-101 inferred (and possibly indicated) resource estimate is projected to cost approximately CDN$576,000 (Table 19).

In conjunction with the Phase Two work, it is recommended that a PEA Scoping Study of the Richardson Project be conducted. The scoping study should include: the creation of an initial pit shell; estimations of strip ratios to remove the overburden; and examine certain economic and environmental factors related to the market for crushed rock aggregate in the immediate vicinity of the Project. The completion of a PEA scoping study would add confidence to the viability of the Project. For example, this maiden inferred resource is reported in tonnages, and mining studies are required to constrain the resource within an optimal pit shell. The estimated cost to complete the PEA is CDN$300,000 (Table19).

Table 18. Summary of 2015-2016 recommendations for the Richardson Property.

Phase One: Ground Geophysical Survey and Preliminary 3D Model

Activity	Description	Cost (CDN$)
Ground Penetrating Radar (GPR) geophysical survey	A 35-line km GPR survey to develop a preliminary 3D model, determine o/b thickness and site drillhole locations.	$40,000
	Sub-total	**$40,000**

Phase Two: Drill Program, Indicated/Inferred Technical Report and Preliminary Economic Assessment

Activity	Description	Cost (CDN$)
Drilling	A 10-11 drillhole heli-supported program (approximately 1,000 m of coring)	$511,000
Analysis	Aggregate test work	$30,000
Reporting	NI 43-101 Mineral Resource Estimation and Technical Report	$35,000
Reporting	Preliminary Economic Assessment Scoping Study	$300,000
	Sub-total	**$876,000**
	Total	**$916,000**
	10% Contingency	**$91,600**
	Total with Contingency	**$1,007,600**

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15 Certificate of Author

I, D. Roy Eccles, P.Geol., do here by certify that:

1. I am currently Senior Consulting Geologist and Operations Manager with APEX Geoscience Ltd., Suite 100, 9797 – 45th Avenue, Edmonton, Alberta T6E 5V8

2. I graduated with a B.Sc. in Geology from the University of Manitoba in Winnipeg, Manitoba in 1986 and with a M.Sc. in Geology from the University of Alberta in Edmonton, Alberta in 2004.

3. I am and have been registered as a Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta since 2003.

4. I have worked as a geologist for more than 25 years since my graduation from university and have been involved in all aspects of mineral exploration and mineral resource estimations for metallic and industrial mineral projects and deposits in North America.

5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.

6. I supervised and am responsible for the *"Assessment Report for Athabasca Minerals Inc.'s Richardson Property, Northeastern Alberta"*. I have had prior involvement with the Property, but have not recently visited the Property. I have reviewed 2013 and 2014 drill core from the Richardson Property.

7. I consent to the filing of the Assessment Report with the regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files or their websites, following the one-year confidentiality period.

Dated May 25, 2015
Edmonton, Alberta, Canada

D. Roy Eccles, M.Sc., P.Geol.

I, Bryan Roy Atkinson, B.Sc., P.Geol., MAusIMM, do hereby certify that:

1. I am a senior geologist with APEX Geoscience Ltd., Suite 100, 9797 – 45th Avenue, Edmonton, Alberta T6E 5V8.

2. I graduated with a B.Sc. with Specialization in Geology from the University of Alberta in 2004.

3. I am and have been registered as a Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta since 2008.

4. I have worked as a geologist and practiced my profession for more than eight years since my graduation from university and have been involved in mineral exploration, mine site geology and operations and mineral resource estimations on numerous projects and deposits in Canada, the United States, Mexico, South America, Africa, Australia, Indonesia and Saudi Arabia.

5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purpose of NI 43-101.

6. I was involved in the preparation of this report. More specifically, under the direct supervision of Roy Eccles, M.Sc., P.Geol., I contributed to the portions pertaining to drilling and drill core in Sections 8 '2013-2014 Exploration Work and Methodologies,' 9 'Results,' 13 'Recommendations' of the *"Assessment Report for Athabasca Minerals Inc.'s Richardson Property, Northeastern Alberta"*.

7. I supervised Athabasca Minerals 2014 drill program and was on the Richardson Property between February 4th and 26th, 2014. I logged all drill cores from Athabasca Minerals 2013 and 2014 drill campaigns, and supervised the geotechnical measurements and sampling.

8. I consent to the filing of the Assessment Report with the regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files or their websites, following the one-year confidentiality period.

Dated May 25, 2015
Edmonton, Alberta, Canada

Bryan R. Atkinson, B.Sc., P.Geol., MAusIMM

I, Steven J. Nicholls, MAIG., do here by certify that:

1. I am currently employed as a Resource Geologist with:
   APEX Geoscience Australia Pty Ltd.
   39B Kensington St
   East Perth WA Australia 6004

2. I graduated with a Bachelor of Applied Science (BASc.) in Geology, received from the University of Ballarat, Victoria, Australia in 1997.

3. My professional affiliation is member of the Australian Institute of Geoscientists, Australia (AIG).

4. I have worked as a geologist for more than 13 years since my graduation from university.

5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI 43-101.

6. I was involved in the preparation of this report. More specifically, under the direct supervision of Roy Eccles, M.Sc., P.Geol., I prepared Section 10 'Mineral Resource Estimate' of the *"Assessment Report for Athabasca Minerals Inc.'s Richardson Property, Northeastern Alberta".*

7. I consent to the filing of the Assessment Report with the regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files or their websites, following the one-year confidentiality period.

Dated May 25, 2015
Edmonton, Alberta, Canada

[redacted]

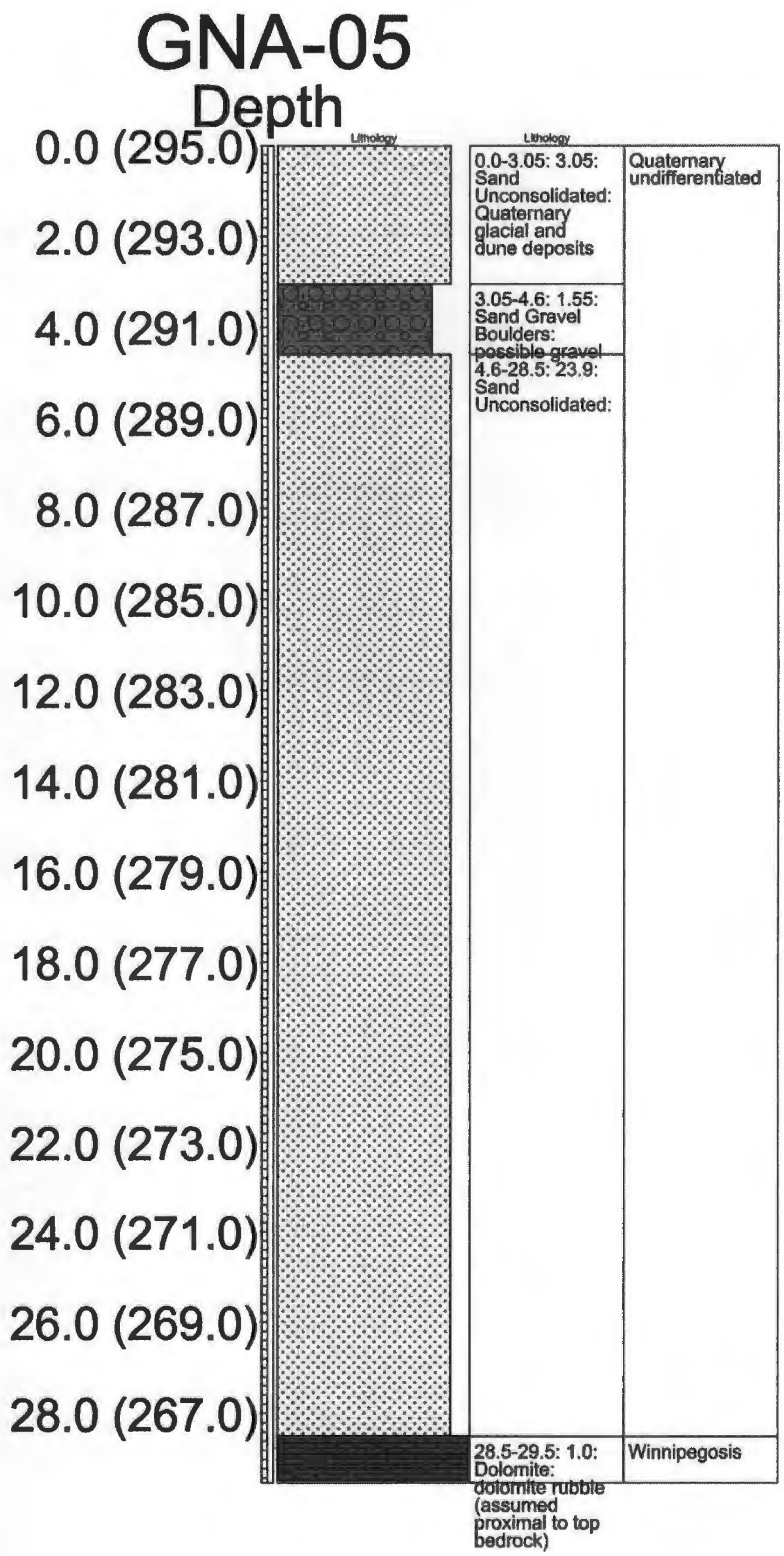
Steven J. Nicholls, BASc., MAIG.

PART C- Appendices

Appendix 1 – 2013-2014 Drill Collar Summary

		Location (UTM, Z12, NAD83)			Depth to Formation top (m)					Thickness of units (m)		
Drillhole ID	Year drilled	Easting (m)	Northing (m)	Elevation (m)	Winnipegosis	Contact Rapids	La Loche	Precambrian basement	Total hole depth (m)	Winnipegosis	Contact Rapids	La Loche
GNA-05	2013	494542	6413258	295	n/a	n/a	n/a	n/a	29.5	n/a	n/a	n/a
GNA-10	2013	498134	6415333	288	21.34	65.00	75.60	76.12	101.0	43.66	10.60	0.52
GNA-11	2013	496912	6415967	283	18.00	n/a	n/a	n/a	21.0	n/a	n/a	n/a
GNA-16	2013	501617	6415414	313	47.80	82.69	n/a	n/a	83.6	34.89	n/a	n/a
14RLD001	2014	499488	6415279	295	31.33	77.30	92.48	94.37	106.0	45.97	15.18	1.89
14RLD002	2014	500722	6416094	301	30.00	77.94	90.76	92.44	100.0	47.94	12.82	1.68
14RLD003	2014	500142	6415875	301	39.00	73.98	81.22	85.96	96.0	34.98	7.24	4.74
14RLD004	2014	498872	6415401	296	30.00	73.16	83.76	84.98	96.0	43.16	10.60	1.22
14RLD005	2014	497988	6414715	296	30.00	77.05	84.39	86.88	117.0	47.05	7.34	2.49
14RLD006	2014	497390	6413931	296	41.45	83.80	93.96		95.0	42.35	10.16	n/a
14RLD007	2014	497733	6414269	295	39.00	85.70	97.96	98.65	144.0	46.70	12.26	0.69
14RLD008	2014	497361	6414972	294	64.92	73.22	80.26	83.00	89.0	8.30	7.04	2.74
				Overburden average thickness:	**35.71**				**Average thickness:**	**39.50**	**10.36**	**2.08**

Appendix 2 – 2013-2014 Drill Logs


GNA-05
Depth
Lithology
Lithology
0.0 (295.0)
2.0 (293.0)
4.0 (291.0)
6.0 (289.0)
8.0 (287.0)
10.0 (285.0)
12.0 (283.0)
14.0 (281.0)
16.0 (279.0)
18.0 (277.0)
20.0 (275.0)
22.0 (273.0)
24.0 (271.0)
26.0 (269.0)
28.0 (267.0)
0.0-3.05: 3.05: Sand Unconsolidated: Quaternary glacial and dune deposits
Quaternary undifferentiated
3.05-4.6: 1.55: Sand Gravel Boulders: possible gravel
4.6-28.5: 23.9: Sand Unconsolidated:
28.5-29.5: 1.0: Dolomite: dolomite rubble (assumed proximal to top bedrock)
Winnipegosis

Hole ID	Easting (UTM)	Northing (UTM)	Azimuth	Dip	Total Depth	Elevation	Target Area	Target	Contractor	Drill Rig	Drilling Start Date	Drilling End Date
GNA-10	488124.0	6415834.0	0.0	-90.0	101.00	281.00	Richardson	Richardson	Lone Peak	1	1-Feb-2013	

Logged By	Logging Start Date	Logging End Date	Casing	Core Size	Collar Survey Type	Collar Survey Date	Logged By	Downhole Survey Date	Downhole Survey By
SA	20-Mar-2014	25-Mar-2013	21.34	H/NQ	GPS	[redacted]		NA	NA

DDH	From	To	Lith Code	Lith Name	Lith2	Formation	Texture Type	Texture Intensity	Lith Colour Code	Nodules	Nodule %	Fossil Type	Bitumen	Alteration	Description
GNA-10	0.00	21.34	OB	Overburden		OVB									
GNA-10	21.34	28.10	C-DOL	Calcareous Dolomite	MS	WIN	FS	VW	lt brn			CN	vmnr		Light to medium brown mudstone with minor 10-15cm wackestone interbeds. Minor mm to cm scale vugs - open to bitumen lined. Minor thin fractures sealed with bitumen. Rare dark wavy organic layers
GNA-10	28.10	32.40	C-DOL	Calcareous Dolomite	MS	WIN	FS	W	med brn			BRP	mnr		Medium brown fine grained mudstone with scattered shell fragments. Minor vugs infilled with bitumen. Medium grey dolomitic mudstone interbeds.
GNA-10	32.40	42.46	C-DOL	Calcareous Dolomite	MS	WIN	DIS	M	drk gry			CN	mnr		Dark organic rich mudstone with flat bedding. Rare isolated cm scale vugs. Bitumen coating fractures. Rare 2-10cm rugose corals. Minor 10cm wackestone interbeds.
GNA-10	42.46	43.02	C-DOL	Calcareous Dolomite	WS	WIN	FS	S	lt brn			CN	mnr		Crinoidal wackestone with abundant organic shelly debris. Minor gastropod shell fragments. Organic shaly laminae. Bitumen infilling fractures.
GNA-10	43.02	43.85	C-DOL	Calcareous Dolomite	MS	WIN	FS	W	med brn			CN	vmnr		Medium brown fine grained mudstone with minor scattered crinoids. Mm scale vugs infilled with bitumen. Flat bedding. Minor small brachiopods.
GNA-10	43.85	44.73	C-DOL	Calcareous Dolomite	WS	WIN	FS	S	drk brn			CN	mnr		Crinoidal wackestone with abundant shell and coral fragments. Euhedral dolomite rhombs. Minor dissolution vugs. Bitumen along fractures.
GNA-10	44.73	46.44	C-DOL	Calcareous Dolomite	MS	WIN	FS	m	med brn			CN	mnr		Medium brown fine grained mudstone with minor thin wackestone interbeds. Rare 2-5cm coral fragments. Flat to wavy bedding.
GNA-10	46.44	46.68	C-DOL	Calcareous Dolomite	PS	WIN	FS	VS	lt gry			CN	vmnr		Light grey crinoidal packstone with abundant coral and shell fragments. Euhedral dolomite rhombs. Bitumen along minor fractures.
GNA-10	46.68	48.33	C-DOL	Calcareous Dolomite	MS	WIN	FS	s	med brn			RC	vmnr		Medium brown dolomitic mudstone with wavy to planar organic bedding. Cm scale coral fragments and small crinoid ossicles. Large vug at 47.77m coated with fg calcite and dusty Py
GNA-10	48.33	49.22	C-DOL	Calcareous Dolomite	WS	WIN	FS	s	med brn			CN	vmnr		Medium brown crinoidal wackestone with 5-10% of the fossil component being rugose coral fragments. Moderate wavy black organic laminae
GNA-10	49.22	58.82	C-DOL	Calcareous Dolomite	MS	WIN	FS	w	med brn	Dolomite	5	CN			Wavy to chaotic bedded dolostone. Mottled medium to dark dusky brown with common light brown 5cm irregular siderite nodules.
GNA-10	58.82	61.00	C-DOL	Calcareous Dolomite	WS	WIN	FS	w	lt gry			CN			Light grey dolomitic wackestone. Fossils are typically less than 5mm. Wavy black organic bedding / laminae
GNA-10	61.00	62.73	C-DOL	Calcareous Dolomite	WS	WIN	FS	s	lt brn			CN			Light grey crinoidal wackestone with moderate shell fragments. Wavy organic laminae.
GNA-10	62.73	64.17	C-DOL	Calcareous Dolomite	WS	WIN	FS	w	lt pnk gry			CN			Light pinkish grey mottled dolomitic mud / wackestone. Shell fragments and disturbed bedding.
GNA-10	64.17	64.59	D-sltsh	Dolomitic silty shale	MS	WIN	LA	s	gry						Grey fine grained laminated dolomitic mudstone. Devoid of fossils.
GNA-10	64.59	65.00	C-DOL	Calcareous Dolomite	PS	WIN	BX	VS	grn gry			tc			Imbricated dolomite breccia with elongate breccia clasts shell fragments and mudstone.
GNA-10	65.00	66.06	C-DOL	Calcareous Dolomite	MS	CR	FS	S	Gry			CN			Interbedded dolomitic mudstone with strongly laminated dolomitic siltstone and wackestone.
GNA-10	66.06	75.60	D-shslst	Dolomitic shaly siltstone	SS	CR	SW	M	lt grn brn						Light greenish brn dolomitic mudstone with 2 -10cm wide anhydrite vein stockworking.
GNA-10	75.60	76.12	Gr-tran	Granite Wash - Transitional	MS	LL	BX	M	blue gry						Fractured granite with dolomitic mudstone infilling fractures.
GNA-10	76.12	77.83	Gr	Granite		BSM	MS	M	blue gry						Blue grey massive to weakly foliated granite. Blue quartz and feldspar phenos. Foliation defined by biotite
GNA-10	77.83	92.05	Gr	Granite		BSM	MS	M	pinky blue grey					K	Variably potassic altered weakly foliated granite. K-alt is evidenced by increased bio content and pink staining of feldspars. Small zone of albite alteration at 79.65 to 79.80 m. Coarse quartz and plag phenos.
GNA-10	92.05	93.90	Gr	Granite		BSM	PEG	S	pink					K	Coarse grained pegmatite - devoid of bio except proximal to veins and fractures. Strong to pervasive K-alt. 5 cm bluish qtz vein at 92.45 m - bio rich foot wall. End of interval is marked by a 15 cm bluish massive quartz vein.
GNA-10	93.90	101.00	Gr	Granite		BSM	MS	M	pinky blue grey to black					K	Variably potassic altered weakly foliated granite. K-alt is evidenced by increased bio content and pink staining of feldspars. Coarse quartz and plag phenos.

Samples

DDH	From	To	Sample ID	Sample Int	Type	Weight	Colour
GNA-10	26.00	27.00	263101	1.00	1/4		
GNA-10	37.00	38.00	263102	1.00	1/4		
GNA-10	47.00	48.00	263103	1.00	1/4		
GNA-10	59.00	60.00	263104	1.00	1/4		
GNA-10	77.00	79.00	263105	2.00	1/4		
GNA-10	79.00	81.00	263106	2.00	1/4		
GNA-10	81.00	83.00	263107	2.00	1/4		
GNA-10	83.00	85.00	263108	2.00	1/4		
GNA-10	85.00	87.00	263109	2.00	1/4		
GNA-10	87.00	89.00	263110	2.00	1/4		
GNA-10	89.00	91.00	263111	2.00	1/4		
GNA-10	91.00	92.05	263112	1.05	1/4		
GNA-10	92.05	93.90	263113	1.85	1/4		
GNA-10	93.90	96.00	263114	2.10	1/4		
GNA-10	96.00	98.00	263115	2.00	1/4		
GNA-10	98.00	101.00	263116	3.00	1/4		

Hole ID	Easting (UTM)	Northing (UTM)	Azimuth	Dip	Total Depth	Elevation	Target Area	Target	Contractor	Drill Rig	Drilling Start Date	Drilling End Date
GNA-11	496917.0	6415956.0	0.0	-90.0	19.50	263.80	Richardson	Richardson	Lone Peak	1	27-Jan-2012	

Logged By	Logging Start Date	Logging End Date	Casing	Core Size	Collar Survey Type	Collar Survey Date	Logged By	Downhole Survey Date	Downhole Survey By
BA	26-Mar-2014	26-Mar-2012	18.00	HQ	GPS			NA	NA

DDH	From	To	Lith Code	Lith Name	Lith2	Formation	Texture Type	Texture Intensity	Lith Colour Code	Nodules	Nodule %	Fossil Type	Bitumen	Alteration	Description
GNA-11	[illegible]	18.00	CAS	Casing		OVB	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Casing - no recovery.
GNA-11	[illegible]	19.50	DOL	Dolostone	FS	WIN	BX	m	beige	[illegible]	[illegible]	BSTR	mod	[illegible]	minor dolomitic breccia interbedded with floatstone to wackestone. Fossiliferous breccias include abundant stromatoporoids and lesser crinoids. Wavy to chaotic bedding.

Samples:
None

Hole ID	Easting (UTM)	Northing (UTM)	Azimuth	Dip	Total Depth	Elevation	Target Area	Target	Contractor	Drill Rig	Drilling Start Date	Drilling End Date
GNA-16	501616.0	6415401.0	0.0	-90.0	83.60	309.00	Richardson	Richardson	Lone Peak	1	5-Feb-2013	

Logged By	Logging Start Date	Logging End Date	Casing	Core Size	Collar Survey Type	Collar Survey Date	Logged By	Downhole Survey Date	Downhole Survey By
BA	26-Mar-2014	26-Mar-2012	47.80	H/NQ	GPS			NA	NA

DDH	From	To	Lith Code	Lith Name	Lith2	Formation	Texture Type	Texture Intensity	Lith Colour Code	Nodules	Nodule %	Fossil Type	Bitumen	Alteration	Description
GNA-16	0.00	47.80	CAS	Casing		OVB									Casing - no recovery.
GNA-16	47.80	48.00	C-DOL	Calcareous Dolomite	BS	WIN	FS	s	Beige			TSTR			laminated boundstone with trace bedding at 50 to CA.
GNA-16	48.00	50.95	N-DOL	Nodular dolostone	MS	WIN	MED	m	Med brn	Dolomite	10	RC	mnr		Rare fossil fragments throughout. Bitumen infilling vugs in last 50 cm of the interval increasing with depth. Zones of lenticular bedding influenced by the nodules.
GNA-16	50.95	51.36	C-DOL	Calcareous Dolomite	RS	WIN	FS	S	drk brown			RC	mnr		Bitumen along fractures. High content of fossil fragments throughout. Black wavy organic beds.
GNA-16	51.36	53.26	C-DOL	Calcareous Dolomite	BS	WIN	FS	S	med gry			RC	mnr		Abundant bioclastic debris. Dark matrix with lighter clasts. Bitumen along fractures.
GNA-16	53.26	54.03	C-DOL	Calcareous Dolomite	BS	WIN	BX	S	med gry			RC	str		Highly fractured zone with abundant bitumen infilling fractures. Large light beige dolomite fragment. May represent erosional horizon.
GNA-16	54.03	55.02	N-DOL	Nodular dolostone	BS	WIN	FS	m	light gry	Dolomite	5	TC	mod		Large beige dolomite nodules / fragments. Large amount of fragmented bioclastic debris. Bitumen along fractures.
GNA-16	55.02	56.00	C-DOL	Calcareous Dolomite	WS	WIN	FS	m	med brn				mod		Abundant bioclastic debris and shell fragments. Bitumen along fractures. Minor wavy disarticulated bedding.
GNA-16	56.00	57.33	N-DOL	Nodular dolostone	BS	WIN	DIS	M	light brn	Dolomite	10	RC	mod		Large light beige dolomite nodules. Abundant shell fragments. Highly irregular wavy bedding. Bitumen infilling fractures and dissolution karsts around nodules.
GNA-16	57.33	61.14	C-DOL	Calcareous Dolomite	MS	WIN	LA	S	med gry			CN	mnr		Strongly laminated fine grained mudstone with minor wackestone interbeds. Bitumen filling vugs.
GNA-16	61.14	63.56	C-DOL	Calcareous Dolomite	WS	WIN	FS	M	gry			TC	mnr		Abundant tabular coral fragments with lesser rugose fragments / sections. Rare wavy bedding. Minor laminated mudstone interbeds.
GNA-16	63.56	65.63	C-DOL	Calcareous Dolomite	MS	WIN	LA	s	med brn			CN			Wavy laminated mudstone with laminae deforming around fossils. Mnr wackestone interbeds.
GNA-16	65.63	67.27	C-DOL	Calcareous Dolomite	PS	WIN	FS	s	med gry	Dolomite	2	TC			Variably fossiliferous wackestone. Dominant fossil type varies from small crinoid oscicles to large tabular coral fragments.
GNA-16	67.27	67.88	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	drk brn	Dolomite	0.5	CN			Moderate to strongly laminated mudstone with abundant shell fragments
GNA-16	67.88	68.44	C-DOL	Calcareous Dolomite	FS	WIN	DIS	m	med brn			TC	high		bioclastic floatstone with large crioid oscicles and tabular corals. Bitumen infilling large vugs
GNA-16	68.44	71.20	C-DOL	Calcareous Dolomite	MS	WIN	FS	m	drk brn			CN	mnr		Wavy bedded shell fragment rich wackestone to mudstone
GNA-16	71.20	72.30	C-DOL	Calcareous Dolomite	WS	WIN	DIS	m	drk gry			CN	mnr		Shell fragment rich with wavy bedding.
GNA-16	72.30	73.24	C-DOL	Calcareous Dolomite	MS	WIN	FG	s	med brn	Dolomite	0.5	CN	mod		Longitudinal fracture filled with medium sand and bitumen. Abundant shell fragments.
GNA-16	73.24	77.05	C-DOL	Calcareous Dolomite	WS	WIN	DIS	m	pinky gry brn			CN	mnr		Abundant crinoids, shell fragments and coral fragments throughout. Calcite filled gash fractures. Bitumen infilling vugs and fractures. Large vugs lined with calcite and pyrite.
GNA-16	77.05	80.10	C-DOL	Calcareous Dolomite	MS	WIN	FG	m	brn	Dolomite	1	CN	mnr		fine grined mudstone with occassional black organic beds and wavy lamination. Minor interbedded wackestone. Bitumen is infilling vugs.
GNA-16	80.10	81.37	N-DOL	Nodular dolostone	MS	WIN	DIS	m	pinky brn	Dolomite	10	CN	tr		Nodules deform bedding / lamination. Minor crinoid and shell fragments. Trace bitumen along fractures. Base of the Keg River.
GNA-16	81.37	81.95	D-slstsh	Dolomitic silty shale	MS	WIN	LA	s	grey						fine grained monotonous laminated mudstone. Marks the top of the contact rapids
GNA-16	81.95	82.69	C-DOL	Calcareous Dolomite	PS	WIN	BX	VS	grn gry			tc			Imbrucated dolomite breccia with elongate breccia clasts shell fragments and mudstone. Top 20 cm of the brecciated interval is broken
GNA-16	82.69	83.60	C-DOL	Calcareous Dolomite	MS	CR	DIS	m	grn gry						fine graine mudstone with minor black organic laminae and breccia zones

Samples:

DDH	From	To	Sample ID	Sample Int	Type	Weight	Colour
GNA-16	[redacted]	57.00	263117	1.00	1/4		
GNA-16	[redacted]	65.00	263118	1.00	1/4		
GNA-16	[redacted]	79.00	263119	1.00	1/4		

Hole ID	Easting (UTM)	Northing (UTM)	Azimuth	Dip	Total Depth	Elevation	Target Area	Target	Contractor	Drill Rig	Drilling Start Date	Drilling End Date
14RLD-001	498480	6415279	0	-90	101	295	Richardson	Richardson	Lone Peak	1	2/18/2014	2/12/2014

Logged By	Logging Start D	Logging End Date	Casing	Core Size	Collar Survey	Collar Surv Logged By	Downhole Survey	Downhole Survey By
BA	3/17/2014	3/18/2013	25	H/NQ	GPS		NA	NA

DDH	From	To	Lith Code	Lith Name	Lith2	Formation	Texutre Type	Texture Intesnity	Lith Colour Code	Nodules	Nodule %	Fossil Type	Bitumen	Alteration	Description
14RLD-001	0.00	25.00	CAS	Casing		OVB									Casing - no recovery
14RLD-001	25.00	31.33	OB	Overburden		OVB									Mixed sandstone quartzite and dolomite rubble.
14RLD-001	31.33	31.56	C-DOL	Calcareous Dolomite	WS	WIN	FS	m	pinkish gry			TC			Tabular coral fragments from 1 to 7cm.
14RLD-001	31.56	33.50	C-DOL	Calcareous Dolomite	MS	WIN	FS	w	beige to drk brn			TC	mnr		Mudstone with tabular coral and crinoid oscicles.
14RLD-001	33.50	34.00	C-DOL	Calcareous Dolomite	WS	WIN	FS	m	light brn			TC	mnr		Wackestone with elongate tabular corals and minor shell fragments. Bitumen along fractures
14RLD-001	34.00	37.31	C-DOL	Calcareous Dolomite	MS	WIN	FS	w	light brn	Dolomite	5	CN	mnr		Light brown to grey mudstone with minor crinoid oscicles and coral fragments Lesser mottled sections. Bitumen along fractures. Weak wavy bedding.
14RLD-001	37.31	40.79	C-DOL	Calcareous Dolomite	WS	WIN	FS	m	drk gry			CN	tr		Large abundant crinoids and dolomite rhombs. Wavy to disturbed bedding throughout. Fossil content disturbs the bedding.
14RLD-001	40.79	43.28	C-DOL	Calcareous Dolomite	WS	WIN	LA	m	med brn			CN	tr		Wavy laminations with black organic layers. Large disseminated crinoids with lesser tabular coral.
14RLD-001	43.28	44.54	C-DOL	Calcareous Dolomite	MS	WIN	FS	w	med gry			CN	tr		Darker section with less evident laminae. Crinoids are smaller in size and less abundant.
14RLD-001	44.54	47.01	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	drk gry			CN	tr		Dark grey laminated fine grained mudstone with minor disseminated crinoids and lesser tabular coral. Narrow 1-5cm wackestone beds with tabular coral.
14RLD-001	47.01	49.39	N-DOL	Nodular dolostone	MS	WIN	DIS	m	beige brn	Dolomite	10	CN	mod		Top of interval is marked by a large amount of bitumen. Beige brown mudstone is mottled with large elongate dolomite nodules. Minor crinoids disseminated throughout. Disturbed wavy laminations marked by black organic layers.
14RLD-001	49.39	50.77	C-DOL	Calcareous Dolomite	FS	WIN	DIS	s	drk to bluish grey			TC	mnr		interbedded drk to medium grey mudstone with reef. Reef sections are blue gry to pinky beige and mottled. Reef sections up to 50cm. Minor bitumen along fractures
14RLD-001	50.77	51.44	C-DOL	Calcareous Dolomite	MS	WIN	FS	m	drk gry			TC	mnr		Top 30cm of interval is wackestone with abundant tabular coral which grades into drk grey mudstone with moderate small crinoid content
14RLD-001	51.44	52.10	C-DOL	Calcareous Dolomite	WS	WIN	FS	m	med brn			CN	mod		Large cm scale crinoids and tabular coral fragments. Minor wavy bedding evident. Bitumen infilling fractures.
14RLD-001	52.10	53.30	C-DOL	Calcareous Dolomite	WS	WIN	FS	m	drk gry			CN	mnr		domionant fossil size is small. Minor packstone interbeds.
14RLD-001	53.30	57.12	C-DOL	Calcareous Dolomite	MS	WIN	LA	w	med brn			CN	mnr		weakly laminated fine grained mudstone with low fossil content. Bitumen within fracture and dissolution zones
14RLD-001	57.12	61.33	N-DOL	Nodular dolostone	MS	WIN	DIS	m	beige brn	Dolomite	5	CN	mnr		Nodular mudsone with interbedded wackestone layers up to 20cm.
14RLD-001	61.33	68.96	N-DOL	Nodular dolostone	MS	WIN	DIS	m	beige	Dolomite	15		mnr		Large 5-8 cm dolomite nodules in fine grained matrix. Extremely minor fossil content.
14RLD-001	68.96	70.18	C-DOL	Calcareous Dolomite	MS	WIN	LA	w	med brn			CN	mnr		weakly laminated fine grained mudstone with rare crinoids. Laminae best defined within dark organic rich beds
14RLD-001	70.18	71.05	N-DOL	Nodular dolostone	MS	WIN	DIS	m	light brn	Dolomite	10	CN			very minor crinoids disseminated throughout.
14RLD-001	71.05	72.68	C-DOL	Calcareous Dolomite	MS	WIN	LA	w	light brn			CN			Weak wavy laminations evident. Rare crinoids and lesser shell fragments.
14RLD-001	72.68	76.16	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	pinkish gry			CN			Extremely minor fossil content. Mottled appearance.
14RLD-001	76.16	76.72	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	pinky			TC			Mottled reef like section grading into the Fm below.
14RLD-001	76.72	77.14	D-slstsh	Dolomitic silty shale	MS	WIN	LA	s	grey						Tight extremely fine grained finely laminated silty shale.
14RLD-001	77.14	77.30	C-DOL	Calcareous Dolomite		WIN	BX	s	green			TC			dolomitic breccia marker horizon.
14RLD-001	77.30	78.14	C-DOL	Calcareous Dolomite	MS	CR	BX	m	greenish grey						mudstone with breccia interbeds.
14RLD-001	78.14	82.56	LST	Limestone	MS	CR	LA	s	grey						Calcareous mudstone with minor calcareous sandstone interbeds.
14RLD-001	82.56	84.67	D-slstsh	Dolomitic silty shale	MS	CR	FG	s	grey						Extremely fine grained grey dolomitic shale.
14RLD-001	84.67	88.01	B-ss	Basal Sandstone	SS	CR	MED	s	grey						medium grained calcareous sandstone.
14RLD-001	88.01	89.04	D-slstsh	Dolomitic silty shale	MS	CR	LA	m	gry						fine grained soft dolomitic shale / mudstone
14RLD-001	89.04	92.48	C-DOL	Calcareous Dolomite	MS	CR	DIS	m	pinkish gry						pinkish grey mottled dolomitic mudstone with minor sandstone interbeds. Moderate amount of rip up clasts
14RLD-001	92.48	94.37	B-ss	Basal Sandstone	SS	LL	cgl	m	grey						grey medium sandstone. Clast content increases twoards base of interval. Calcareous throughout
14RLD-001	94.37	96.63	GR-tran	Granite Wash - Transitional		BSM	cgl	m	grey						medium to coarse sands with pebble to gravel sized quartz / granite rounded clasts. Weakly calcareous.
14RLD-001	96.63	98.75	GR	Granite		BSM	FOL	m	bluish gry						weakly foliated weathered granite.
14RLD-001	98.75	106.00	GR	Granite		BSM	FOL	m	drk gry					k	variably potassic altered (increased biotite content and pink staining) and foliated granite. Minor zones of albite alteration

Samples:

DDH	From	To	Sample ID	Sample Int	Type	Weight	Colour
14RLD-001	35.00	36.00	263120	1.00	HC		
14RLD-001	45.00	46.00	263121	1.00	HC		
14RLD-001	54.00	55.00	263122	1.00	HC		
14RLD-001	64.00	65.00	263123	1.00	HC		
14RLD-001	74.00	75.00	263124	1.00	HC		
14RLD-001	96.63	98.75	263125	2.12	HC		
14RLD-001	98.75	101.00	263126	2.25	HC		
14RLD-001	101.00	103.00	263127	2.00	HC		
14RLD-001	104.00	105.00	263128	2.00	HC		
14RLD-001	105.00	106.00	263129	1.00	HC		

Hole ID	Easting (UTM)	Northing (UTM)	Azimuth	Dip	Total Depth	Elevation	Target Area	Target	Contractor	Drill Rig	Drilling Start Date	Drilling End Date
14RLD-002	500722	6416094	0	-90	99	301	Richardson	Richardson	Lena Peak	1	2/12/2014	2/14/2014

Logged By	Logging Start Date	Logging End Date	Casing	Core Size	Collar Survey Type	Collar Survey Date	Logged By	Downhole Survey Date	Downhole Survey By
BA	4/1/2014	4/2/2014	30	NQ	GPS			NA	NA

DDH	From	To	Lith Code	Lith Name	Lith2	Formation	Texutre Type	Texture Intesnity	Lith Colour Code	Nodules	Nodule %	Fossil Type	Bitumen	Alteration	Description
14RLD-002	0.00	30.00	CAS	Casing		OVB									Casing - minor recovery of beige dolomitic mudstone amounting to approximately 15cm
14RLD-002	30.00	33.44	C-DOL	Calcareous Dolomite	MS	WIN	FG	s	beige			CN			minor wavy bedding highlighted by black organic layers. Very low fossil content
14RLD-002	33.44	33.72	C-DOL	Calcareous Dolomite	PS	WIN	FS	s	beige			TC			Randomly oriented elongate tabular corals
14RLD-002	33.72	35.00	N-DOL	Nodular dolostone	MS	WIN	DIS	m	med brn	dolomite	20				Large, up to 10cm, irregular shaped nodules.
14RLD-002	35.00	39.33	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	lt brn			CN			irregular dark organic laminae. Very minor fossil content
14RLD-002	39.33	45.55	C-DOL	Calcareous Dolomite	WS	WIN	FS	m	drk brn			CN	tr		0.5 cm scale crinoids with lesser thin shell fragments
14RLD-002	45.55	48.46	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	lt brn			CN	mnr		Wavy laminae. Crinoids conc'd into specific laminae. Dark organic rich laminae. Large 5-8cm coral fragments. Bitumen infilling fractures
14RLD-002	48.46	52.01	C-DOL	Calcareous Dolomite	MS	WIN	FS	m	brn			CN	mnr		small disseminated crinoids throughout. Mud filled fractures and vugs - some with bitumen. Mnr wavy dark organic laminae
14RLD-002	52.01	56.43	C-DOL	Calcareous Dolomite	MS	WIN	FG	s	drk brn			CN	mnr		Dark brn uniform mudstone. Very low fossil content. Bitumen along fractures. Minor 2-3cm wackestone interbeds
14RLD-002	56.43	60.23	C-DOL	Calcareous Dolomite	MS	WIN	VG	m	drk brn	dolomite	2	CN	tr		moderate vugs caused by dissolution of fossil fragments and calcite nodules
14RLD-002	60.23	62.82	N-DOL	Nodular dolostone	MS	WIN	DIS	m	drk brn	dolomite	5	CN	mnr		Nodular to vuggy mudstone. Bitumen along fractures
14RLD-002	62.82	63.14	C-DOL	Calcareous Dolomite	BS	WIN	FS	s	pale grey			TC	mod		Fractured reef with bitumen infilling fractures
14RLD-002	63.14	67.56	C-DOL	Calcareous Dolomite	MS	WIN	FG	m	med brn	dolomite	tr	CN	mod		dissolved nodules and fossil fragments create minor vugs. 1-2% crinoids and fossil fragments
14RLD-002	67.56	68.49	C-DOL	Calcareous Dolomite	WS	WIN	FS	m	med brn	dolomite	2	TC			Elongate randomly oriented tabular corals with dark brn mudstone lenses / rip up clasts
14RLD-002	68.49	69.60	C-DOL	Calcareous Dolomite	WS	WIN	DIS	s	lt brn	dolomite	2	TC			Abundant white rhombic tabular coral, crinoids and shell fragments with disrupted wavy dark laminae
14RLD-002	69.60	73.31	C-DOL	Calcareous Dolomite	MS	WIN	FG	s	med brn			CN	tr		Minor wackestone interbeds. Crinoids are concentrated into layers
14RLD-002	73.31	75.62	C-DOL	Calcareous Dolomite	MS	WIN	FS	w	gry			CN	tr		Uniform fine grained mudstone with minor wackestone interbeds. Bitumen along fractures and infilling vugs
14RLD-002	75.62	76.96	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	pinky			TC			Mottled reef like section grading into the Fm below.
14RLD-002	76.96	77.52	D-slstsh	Dolomitic silty shale	MS	WIN	LA	s	grey						Tight extremely fine grained finely laminated silty shale
14RLD-002	77.52	77.94	C-DOL	Calcareous Dolomite		WIN	BX	s	green			TC			dolomitic breccia marker horizon.
14RLD-002	77.94	81.65	LST	Limestone	SS	CR	BED	m	grey						Interbedded coarse to medium grained sandstone and mudstone
14RLD-002	81.65	85.22	D-slstsh	Dolomitic silty shale	MS	CR	LA	m	grey						minor dolomitic SS interbeds.
14RLD-002	85.22	87.06	C-DOL	Calcareous Dolomite	SS	CR	MED	m	lt gry						light grey to white medium grained calcareous sandstone. Minor dissolution vugs (cm scale)
14RLD-002	87.06	89.21	D-slst	Dolomitic siltstone	MS	CR	FG	s	grey						Discontinuous wavy dark organic matter throughout
14RLD-002	89.21	90.76	D-slstsh	Dolomitic silty shale	MS	CR	DIS	m	greenish grey						fine grained shale with interbedded sandstone and rip up clasts of underlying conglomerate
14RLD-002	90.76	92.44	B-ss	Basal Sandstone	SS	LL	CGL	s	beige brn				mod		basal sandstone / conglomerate containing granite clasts ranging in size from 0.2 to 3cm in a light beige brn fine mud matrix. Bitumen along fractures and within vugs created by dissolution of the matrix.
14RLD-002	92.44	93.10	Gr-tran	Granite Wash - Transitional		BSM	FOL	w	bluish grey						highly fractured and weathered transitional granite. Light beige broun dolomitic mud infilling / healing fractures
14RLD-002	93.10	99.00	Gr	Granite		BSM	FOL	w	bluish grey				mnr	albite	Weakly foliated to massive coarse grained granite. Patchy strong albite alteration throughout. Minor bitumen along fractures

Samples:

DDH	From	To	Sample ID	Sample Int	Type	Weight	Colour
14RLD-002	34.00	35.00	263130	1.00	HC		
14RLD-002	46.00	47.00	263131	1.00	HC		
14RLD-002	57.00	58.00	263132	1.00	HC		
14RLD-002	64.00	65.00	263133	1.00	HC		
14RLD-002	74.00	75.00	263134	1.00	HC		
14RLD-002	93.10	95.00	263135	1.90	HC		
14RLD-002	95.00	97.00	263136	2.00	HC		
14RLD-002	97.00	99.00	263137	2.00	HC		

Assessment Report for Athabasca Minerals Inc.'s Richardson Property, Northeastern Alberta

Hole ID	Easting (UTM)	Northing (UTM)	Azimuth	Dip	Total Depth	Elevation	Target Area	Target	Contractor	Drill Rig	Drilling Start Date	Drilling End Date
14RLD-003	500142	8415875	0	-90	98	301	Richardson	Richardson	Lone Peak	1	2/14/2014	2/15/2014

Logged By	Logging Start D	Logging End Date	Casing	Core Size	Collar Survey	Collar Surv Logged By	Downhole Survey	Downhole Survey By
BA	4/4/2014	4/7/2014	30	NQ	GPS		NA	NA

DDH	From	To	Lith Code	Lith Name	Lith2	Formation	Texutre Type	Texture Intensity	Lith Colour Code	Nodules	Nodule %	Fossil Type	Bitumen	Alteration	Description
14RLD-003	0.00	30.00	CAS	Casing		OVB									Casing - no recovery.
14RLD-003	30.00	39.00	OB	Overburden		OVB									Poor recovery of pink sandstone and beige dolomite from oulders.
14RLD-003	39.00	39.97	C-DOL	Calcareous Dolomite	MS	WIN	FG	m	beige			CN			minor dark organic laminae.
14RLD-003	39.97	41.23	C-DOL	Calcareous Dolomite	WS	WIN	FS	m	beige			CN			abundant white crinoid oscicles and sections. Minor dark organic laminae.
14RLD-003	41.23	44.70	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	med brn			CN	mnr		finely laminated mudstone. Laminae highlightad by dark organic matter. Minor crinoids.
14RLD-003	44.70	45.50	C-DOL	Calcareous Dolomite	WS	WIN	VG	w	lt brn			CN	mnr		small vugs caused by the dissolution of shell fragments. Bitumen staining along fratures.
14RLD-003	45.50	46.76	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	brn			CN	mod		wavy laminae defined by dark organic matter. 0.5cm crinoids
14RLD-003	46.76	48.43	C-DOL	Calcareous Dolomite	WS	WIN	DIS	m	earth brn			RC	mod		Disrupted to wavy laminae defined by dark organic matter. Earthy / muddy look - coarser mud. 48.12 - 48.35 - bitumen rich section - weekly cemented coarse mudstone.
14RLD-003	48.43	48.89	C-DOL	Calcareous Dolomite	MS	WIN	FG	m	lt brn			CN	mnr		Bitumen along fracutres. Fine grained massive mudstone with rare 1-2mm crinoids.
14RLD-003	48.89	50.62	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	lt brn			CN	mod		wackestone interbeds up to 30cm. Bitumen along fractures as well as in muddy weakly consolodated sections
14RLD-003	50.62	51.93	C-DOL	Calcareous Dolomite	WS	WIN	DIS	m	gry brn			CN	mod		minor mudstone interbeds up to 5cm. Large 0.5 - 1cm crinoids with lesser shell fragments.
14RLD-003	51.93	53.17	C-DOL	Calcareous Dolomite	WS	WIN	DIS	m	grn brn			CN	high		large zone of partial cement dissolution leads to weakly to moderately bitumen saturated mud
14RLD-003	53.17	55.36	C-DOL	Calcareous Dolomite	MS	WIN	LA	w	lt brn			CN	mod		weak lamination defined by dark organic rich layers. Bitumen along fractures and in areas where cement has een dissolved
14RLD-003	55.36	57.38	C-DOL	Calcareous Dolomite	WS	WIN	LA	m	med brn			CN	mod		wavy laminated wackestone with large cm scale white crinoids. Minor mudstone interbeds as well as beds with smaller 0.2-0.5cm crinoids. Bitumen rich sections where the cement has been leached. Bitumen is also present along fractures.
14RLD-003	57.38	58.06	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	lt brn			CN	mnr		wavy dark organic laminae. Small vuggy section at 57.53m due to dissolved fossil fragment. Bitumen along fractures
14RLD-003	58.06	61.99	C-DOL	Calcareous Dolomite	WS	WIN	DIS	s	gry			CN	mnr		1-2mm crinoids throughout. 0.5 - 1.5cm vugs caused by dissolving brachiopod shell fragments. Mnr mudstone interbeds typically 2-5 cm, one large one at 60.45 to 60.73m. Bitumen along fractures.
14RLD-003	61.99	62.83	C-DOL	Calcareous Dolomite	MS	WIN	FG	s	drk gry				mnr		Extremely fine grained mudstone with only trace fossils.
14RLD-003	62.83	63.32	C-DOL	Calcareous Dolomite	MS	WIN	LA	s	drk gry			CN	mnr		Strong wavy laminations with dark organic material and lighter carbonate
14RLD-003	63.32	64.43	C-DOL	Calcareous Dolomite	WS	WIN	DIS	s	med gry			CN	mnr		Crinoid rich with lesser shell fragments and dolomite rhombs. Bitumen along fractures.
14RLD-003	64.43	65.11	N-DOL	Noduler dolostone	MS	WIN	FG	m	gry	Dolomite	5	CN	mod		fracutred mudstone with muddy nodules.
14RLD-003	65.11	66.44	C-DOL	Calcareous Dolomite	WS	WIN	DIS	m	gry			CN	mnr		bitumen along fractures and infilling vugs. Irregular wavy lamination evident in some places.
14RLD-003	66.44	71.36	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	gry brn				mnr		mottled grey with disturbed dark organic laminae.
14RLD-003	71.36	72.00	C-DOL	Calcareous Dolomite	MS	WIN	DIS	s	tan				mod		highly disrupted zone. Bitumen along fractures / infilling vugs.
14RLD-003	72.00	72.66	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	pinky gry						mottled pinky grey mudstone.
14RLD-003	72.66	73.38	D-sltsh	Dolomitic silty shale		WIN	LA	s	grey				mod		fine grained tightly laminated shale. 15cm wide bitumen and sand filled fracture at 73.15m
14RLD-003	73.38	73.98	C-DOL	Calcareous Dolomite		WIN	BX	s	green			TC			dolomitic breccia marker horizon.
14RLD-003	73.98	74.49	C-DOL	Calcareous Dolomite	MS	CR	BX	m	greenish grey						mudstone with breccia interbeds.
14RLD-003	74.49	77.91	LST	Limestone	MS	CR	LA	s	lt gry						strongly laminated light gry to white limestone.
14RLD-003	77.91	78.92	D-shslt	Dolomitic shaly siltstone	MS	CR	DIS	m	gry						disrupted fine grained siltstone to shale with 5cm of SS marking end of interval
14RLD-003	78.92	80.34	D-sltsh	Dolomitic silty shale	MS	CR	LA	w	gry						extremely fine grained shale with weak laminae developed. Mnr siltstone interbeds
14RLD-003	80.34	81.22	D-shslt	Dolomitic shaly siltstone	MS	CR	DIS	m	gry						disrupted fine grained siltstone to shale with 5cm of SS marking end of interval
14RLD-003	81.22	82.46	B-ss	Basal Sandstone	SS	LL	med	m	lt gry						grain size coarsens downhole. Mnr siltstone nd shale interbeds in top portion of the interval. Poorly cemented
14RLD-003	82.46	84.52	GR-TRAN	Granite Wash - Transitional	SS	LL	CGL	s	lt gry						Light grey conglomerate. Clast size coarsens down hole. Minor white powdery talc cement. Cement is dominately light brn mud. Chlorite alteration of the cement with trace pyrite.
14RLD-003	84.52	85.96	GR-TRAN	Granite Wash - Transitional	SS	LL	BX	m	drk grn gry					Chlorite	Fractured granite with chlorite alteration and siderite cement
14RLD-003	85.96	87.30	GR	Granite		BSM	MS	m	grn gry					Chlorite	chlorite altered and fractured massive medium grained.
14RLD-003	87.30	88.53	gr	Granite		BSM	MS	m	pale grn					Chlorite	pale green to white highly altered / bleached.
14RLD-003	88.53	89.28	gr	Granite		BSM	fol	w	drk grn gry					Chlorite	dark fine grained weakly foliated.
14RLD-003	89.28	91.30	gr	Granite		BSM	MS	m	drk grn gry					Chlorite	dark massive to weekly foliated chlorite altered. Foliation defined by biotite and chlorite bands. Mnr isolated k-alt of single grains
14RLD-003	91.30	95.47	gr	Granite		BSM	MS	m	pale grn					Chlorite	massive medium grained equigranular.
14RLD-003	95.47	98.00	gr	Granite		BSM	ms	m	pink					potassium	salmon pink pervasively k-altered granite. Pale green chlorite / epidote alteration along fracture. Minor ds py with fx controlled py veinlets

Samples:

DDH	From	To	Sample ID	Sample Int	Type	Weight	Colour
14RLD-003	42.00	43.00	263138	1.00	HC		
14RLD-003	56.00	57.00	263139	1.00	HC		
14RLD-003	67.00	68.00	263140	1.00	HC		
14RLD-003	82.46	84.52	263141	2.06	HC		
14RLD-003	84.52	85.96	263142	1.44	HC		
14RLD-003	85.96	87.30	263143	1.34	HC		
14RLD-003	87.30	88.53	263144	1.23	HC		
14RLD-003	88.53	89.28	263145	0.75	HC		
14RLD-003	89.28	91.30	263146	2.02	HC		
14RLD-003	91.30	93.30	263147	2.00	HC		
14RLD-003	93.30	95.47	263148	2.17	HC		
14RLD-003	95.47	96.00	263149	0.53	HC		

Hole ID	Easting (UTM)	Northing (UTM)	Azimuth	Dip	Total Depth	Elevation	Target Area	Target	Contractor	Drill Rig	Drilling Start Date	Drilling End Date
14RLD-004	488872	6415401	0	-90	96	296	Richardson	Richardson	Lone Peak	1	2/15/2014	2/16/2014
Logged By	**Logging Start Date**	**Logging End Date**	**Casing**	**Core Size**	**Collar Survey Type**	**Collar Survey Date**	**Logged By**	**Downhole Survey Date**	**Downhole Survey By**			
BA	4/7/2014	4/8/2014	30	NQ	GPS			NA	NA			

DDH	From	To	Lith Code	Lith Name	Lith2	Formation	Texutre Type	Texture Intensity	Lith Colour Code	Nodules	Nodule %	Fossil Type	Bitumen	Alteration	Description
14RLD-004	0.00	30.00	CAS	Casing		OVB									Casing - approximately 40cm of recovery of red sandstone boulders and dolomitic mudstone.
14RLD-004	30.00	30.20	C-DOL	Calcareous Dolomite	WS	WIN	LA	w	med brn			TC			0.5 to 1cm coral fossils
14RLD-004	30.20	31.14	C-DOL	Calcareous Dolomite	WS	WIN	FS	m	lt brn			TSTR	mnr		Large (3-5cm) white coral and stromatoporoid fossils.
14RLD-004	31.14	33.00	C-DOL	Calcareous Dolomite	PS	WIN	BX	s	lt gry brn			TSTR	high		Bitumen saturated sand infilling dissolution karst from 31.75-32.22m. Bitumen also infilling rare large (5cm) vugs. Adundant tabular fossil content along with crinoids - breciated. Mudstone interbed at 32.32-32.58m.
14RLD-004	33.00	34.41	C-DOL	Calcareous Dolomite	MS	WIN	LA	w	beige brn			CN	mnr		Weak wavy lamination highlighted by dark organic rich layers. Rare large TC fragments.
14RLD-004	34.41	35.21	C-DOL	Calcareous Dolomite	WS	WIN	LA	m	beige brn			CN	mod		bitumen along fractures. Wavy laminae defined by dark organic rich layers.
14RLD-004	35.21	36.03	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	grey brn			CN	mnr		bitumen along fractures. Highly erratic laminae defined by dark organic bands. Minor wackestone interbeds.
14RLD-004	36.03	42.74	C-DOL	Calcareous Dolomite	MS	WIN	FG	m	lt to med gry			CN	mod		extremely fine grained massive mudstone with rare CN rich WS interbeds. Bitumen filling along fractures.
14RLD-004	42.74	48.63	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	med to drk gry			CN	mnr		finely laminated medim to dark grey mudstone with common white CN and dolomite rhombs disseminated
14RLD-004	48.63	51.00	C-DOL	Calcareous Dolomite	MS	WIN	FG	m	med gry			SF	mnr		low fossil content with random shell fragments and crinoids disseminated throughout. Mnr vugs created by the dissolution of shell fragments. Bitumen infilling fractures and larger vugs.
14RLD-004	51.00	52.80	C-DOL	Calcareous Dolomite	MS	WIN	FG	m	gry			SF	tr		massive grey mudstone with large (2-5cm) shell fragments and rugose corals. Minor vugs. Bitumen along discontinous fractures and infilling random vugs.
14RLD-004	52.80	54.92	N-DOL	Nodular dolostone	MS	WIN	LA	vw	lt gry	dolomite	10	SF	mnr		very weakly laminated mudstone. Planar laminae are disturbed by 1-1.5cm dolomite nodules. Rare 2-3cm WS
14RLD-004	54.92	56.99	N-DOL	Nodular dolostone	MS	WIN	MS	m	med gry brn	dolomite	15	CN	tr		large 2-5cm dolomite nodules - approximately 20% are crytalline in the center, others appear muddy. Trace 2mm
14RLD-004	56.99	59.08	N-DOL	Nodular dolostone	MS	WIN	MS	m	med brn	dolomite	5	CN	tr		nodules are dominately 1 cm in size, rare large nodules up to 5cm. In the last 50cm of the interval nodules are filled with dolomite rhombs and the surrounding mudstone is rich in dolomite rhombs.
14RLD-004	59.08	59.68	C-DOL	Calcareous Dolomite	WS	WIN	LA	s	med brn			CN			Wavy dark organic laminae with abundant crinoids throughout as well as caught up in specific layers.
14RLD-004	59.68	60.83	N-DOL	Nodular dolostone	MS	WIN	DIS	s	lt gry brn	dolomite	10	CN			hghly disturbed laminae. Nodules are patchy and range in size from 0.2 to 1cm.
14RLD-004	60.83	62.35	C-DOL	Calcareous Dolomite	MS	WIN	MS	m	med brn	dolomite	2	CN			cleaner massive dolomitic mudstone with 2% WS interbeds. WS interbeds are rich in crinoids and dark organic
14RLD-004	62.35	66.22	N-DOL	Nodular dolostone	WS	WIN	LA	s	drk brn to beige	dolomite	20	BRP			Large (2-5cm) beige dolomitic mud bands / nodules. Strongly laminated wackestone with abundant crinoids and intact brachiopods. Brachiopods up to 4cm.
14RLD-004	66.22	67.23	C-DOL	Calcareous Dolomite	WS	WIN	DIS	m	lt gry			RC			Fossil content dominated by rugose corals and crinoids. Dark organic rich layers show weak disturbed lamination.
14RLD-004	67.23	68.87	C-DOL	Calcareous Dolomite	MS	WIN	LA	w	lt brn gry			SF			moderate wackestone interbeds up to 10cm. Genrally low fossil content.
14RLD-004	68.87	71.27	C-DOL	Calcareous Dolomite	WS	WIN	DIS	m	med brn			CN			weakly mottled with dark organic rich layers showing wavy laminations.
14RLD-004	71.27	72.01	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	pinky gry						mottled pinky grey mudstone.
14RLD-004	72.01	72.44	D-slstsh	Dolomitic silty shale		WIN	LA	s	grey						fine grained tightly laminated shale.
14RLD-004	72.44	73.16	C-DOL	Calcareous Dolomite		WIN	BX	s	green			TC			dolomitic breccia marker horizon.
14RLD-004	73.16	75.46	LST	Limestone	MS	CR	LA	s	lt to med gry						finely laminated to bedded (10-15cm beds).
14RLD-004	75.46	78.34	D-shslst	Dolomitic shaly siltstone	MS	CR	BD	m	grn gry						interbedded dolomitid calcareous SS, MS and shale. Shale horizons contain calcite >> anhydrite filled fractures /
14RLD-004	78.34	81.10	D-slstsh	Dolomitic silty shale	MS	CR	LA	m	grn gry						extremely fine grained shale with interbedded fine sands. Dark organic rich layers are finely laminated
14RLD-004	81.10	82.65	B-SS	Basal Sandstone	SS	CR	MED	s	gry						medium grained calcareous SS.
14RLD-004	82.65	83.76	D-shslst	Dolomitic shaly siltstone	MS	CR	DIS	m	pinky gry						mottled pinky grey mudstone with large (up to 10cm) white to cream dolomized crystalline blebs. Minor talc blebs.
14RLD-004	83.76	84.98	Gr-tran	Granite Wash - Transitional	SS	LL	CGL	s	lt brn						light brn dolomitic cement. Clast size and abundance increases downhole.
14RLD-004	84.98	85.50	GR	Granite		BSM	BX	m	blue gry					albite	fractured and brecciated granite. Brn dolomitic cement. Mnr alb alt focussed along fractures
14RLD-004	85.50	87.58	GR	Granite		BSM	FOL	w	grn blue gry					Chlorite	medium grained weakly foliated quartz rich with moderate patchy fx controlled chl alteration.
14RLD-004	87.58	89.28	GR	Granite		BSM	MED	m	drk blue gry						fresh dark medium grained granite with quartz and feldspar phenos.
14RLD-004	89.28	90.31	GR	Granite		BSM	MED	m	blue gry					albite	medium grained quartz rich. Alb alt ld fx controlled.
14RLD-004	90.31	91.45	GR	Granite		BSM	FX	m	lt gry					albite	abundant healed frctures. Quartz flooded. Bleached granite with mnr chl along fx's.
14RLD-004	91.45	92.59	GR	Granite		BSM	MED	m	lt gry					albite	abundant fracture controlled albite alteration. Minor chlorite along fractures. Minor quartz flooding.
14RLD-004	92.59	95.46	GR	Granite		BSM	FOL	m	pinky blue grey					Potassic	increased bio content defines weak foliation. K-alt of plag = pink phenos.
14RLD-004	95.46	96.00	GR	Granite		BSM	FOL	m	Salmon pink					Potassic	intense pervasive k-alt'd granite.

Samples:

DDH	From	To	Sample ID	Sample Int	Type	Weight	Colour
14RLD-004	33.00	34.00	263150	1.00	HC		
14RLD-004	42.00	43.00	263151	1.00	HC		
14RLD-004	55.00	56.00	263152	1.00	HC		
14RLD-004	64.00	65.00	263153	1.00	HC		
14RLD-004	70.00	71.00	263154	1.00	HC		
14RLD-004	84.98	85.50	263155	0.52	HC		
14RLD-004	85.50	87.58	263156	2.08	HC		
14RLD-004	87.58	89.28	263157	1.70	HC		
14RLD-004	89.28	90.31	263158	1.03	HC		
14RLD-004	90.31	91.45	263159	1.14	HC		
14RLD-004	91.45	92.59	263160	1.14	HC		
14RLD-004	92.59	94.50	263161	1.91	HC		
14RLD-004	94.50	95.46	263162	0.96	HC		
14RLD-004	95.46	96.00	263163	0.54	HC		

Hole ID	Easting (UTM)	Northing (UTM)	Azimuth	Dip	Total Depth	Elevation	Target Area	Target	Contractor	Drill Rig	Drilling Start Date	Drilling End Date
14RLD-005	497988.0	6414715.0	0.0	-90.0	117.00	296.00	Richardson	Richardson	Lone Peak	1	16-Feb-2014	17-Feb-2014

Logged By	Logging Start Date	Logging End Date	Casing	Core Size	Collar Survey Type	Collar Survey Date	Logged By	Downhole Survey Date	Downhole Survey By
BA	10-Apr-2014	10-Apr-2014	30.00	NQ	GPS			NA	NA

DDH	From	To	Lith Code	Lith Name	Lith2	Formation	Texture Type	Texture Intensity	Lith Colour Code	Nodules	Nodule %	Fossil Type	Bitumen	Alteration	Description
14RLD-005	0.00	30.00	CAS	Casing		OVB									Casing no recovery
14RLD-005	30.00	35.00	OB	Overburden		OVB									Recovery of approximately 1m of dolomite underlain by 40cm of mixed sand and gravel - cased into boulder
14RLD-005	35.00	35.50	C-DOL	Calcareous Dolomite	WS	WIN	FS	m	lt brn			RC	mod		Moderate bitumen within vugs (leached corals).
14RLD-005	35.50	38.40	C-DOL	Calcareous Dolomite	MS	WIN	FG	m	med brn			CN	mnr		minor bitumen along fractures and filling vugs.
14RLD-005	38.40	38.65	C-DOL	Calcareous Dolomite	MS	WIN	DIS	s	black				v. high		Massive bitumen with remnant mudstone.
14RLD-005	38.65	44.30	C-DOL	Calcareous Dolomite	MS	WIN	FG	m	med brn			CN	high		Bitumen infilling fractures / vugs and karsts up to 15cm - possibly replacing dolomite nodules? Mnr 10cm WS interbeds
14RLD-005	44.30	46.28	C-DOL	Calcareous Dolomite	WS	WIN	LA	m	drk brn			CN	high		Wavy laminated wackestone with minor 5-10cm PS interbeds. Abundant fracturing - all filled with bitumen
14RLD-005	46.28	47.87	C-DOL	Calcareous Dolomite	WS	WIN	LA	s	med gry brn			CN	mod		wavy to disrupted laminations. Fine tight fractures filled with bitumen. Bitumen infilling vugs
14RLD-005	47.87	51.75	C-DOL	Calcareous Dolomite	MS	WIN	LA	w	drk gry brn			RC	mnr		Wavy lamination defined by dark organic matter. RC and CN abundance fluctuates from 2-7% as medium sized fossil fragments
14RLD-005	51.75	52.76	C-DOL	Calcareous Dolomite	FS	WIN	DIS	m	med gry brn			TC	mnr		large TC and RC fragments perpendicular to core. Bitumen infilling fractures.
14RLD-005	52.76	53.21	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	drk brn			SF	mnr		fine wavy laminae marked by dark organic rich layers. Small shell fragments and lesser CN
14RLD-005	53.21	53.73	C-DOL	Calcareous Dolomite	BS	WIN	DIS	s	lt brn			TC	mnr		abundent TC and RC along with shell fragments. Bitumen infilling vugs
14RLD-005	53.73	55.99	C-DOL	Calcareous Dolomite	MS	WIN	LA	w	drk brn			CN	mod		Moderate amount of rip up clasts and shell fragments. Two 10cm wide wavy laminated WS interbeds
14RLD-005	55.99	57.27	C-DOL	Calcareous Dolomite	MS	WIN	FG	m	lt gry			CN	mnr		scattered CN and SF throughout. Bitumen along fractures.
14RLD-005	57.27	58.17	C-DOL	Calcareous Dolomite	FS	WIN	FS	m	med brn			RC	mnr		coarse coral fragments with lesser WS component.
14RLD-005	58.17	59.27	C-DOL	Calcareous Dolomite	FS	WIN	LA	s	med gry brn			RC	tr		Strong to moderately laminated floatstone. Bitumen along rare fractures.
14RLD-005	59.27	60.85	C-DOL	Calcareous Dolomite	MS	WIN	LA	w	lt brn gry			CN	mod		weak disrupted to wavy laminae. Bitumen squeezing out of fractures
14RLD-005	60.85	66.14	N-DOL	Nodular dolostone	MS	WIN	LA	w	med gry	Dolomite	5	CN	mnr		small 2-5 cm grey to beige dolomite mud nodules.
14RLD-005	66.14	70.64	N-DOL	Nodular dolostone	MS	WIN	LA	s	med gry	Dolomite	15	CN			large muddy nodules. I large vug at 70.10m lined with calcite and pyrite
14RLD-005	70.64	74.90	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	med gry			CN	tr		Minor wackestone interbeds. Euhedral 0.5cm dolomite rhombs throughout. Wavy discontinuous laminations
14RLD-005	74.90	76.30	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	pinky gry						mottled pinky grey mudstone.
14RLD-005	76.30	76.65	D-slstsh	Dolomitic silty shale		WIN	LA	s	grey						fine grained tightly laminated shale.
14RLD-005	76.65	77.05	C-DOL	Calcareous Dolomite		WIN	BX	s	green			TC			dolomitic breccia marker horizon.
14RLD-005	77.05	79.70	LST	Limestone	MS	CR	LA	s	lt to med gry						finely laminated to bedded (10-15cm beds).
14RLD-005	79.70	82.05	D-shslst	Dolomitic shaly siltstone	MS	CR	BD	m	lt to med gry						interbedded calcareous SS, mudstone and siltstone.
14RLD-005	82.05	84.39	D-slstsh	Dolomitic silty shale	MS	CR	LA	m	grey						fine grained grey shale with minor medium grained SS interbeds
14RLD-005	84.39	86.01	B-SS	Basal Sandstone	SS	LL	MS	m	lt gry						Moderate mudstone / shale interbeds. Calcareous cement.
14RLD-005	86.01	86.88	Gr-tran	Granite Wash - Transitional	SS	LL	CGL	m	pinky brn gry						highly disrupted fine sandstone with minor 2-7cm granite clasts
14RLD-005	86.88	92.93	GR	Granite		BSM	MS	m	blue gry						highly variable bio content. Blue qtz and feldspar phenos
14RLD-005	92.93	94.98	gr	Granite		BSM	MS	m	blue to pinky gry					Potassic	patchy potassic alteration.
14RLD-005	94.98	96.07	gr	Granite		BSM	FOL	w	pinky gry					Potassic	Intense potassic alteration. Weak foliation defined by bio.
14RLD-005	96.07	100.52	gr	Granite		BSM	MS	m	salmon pink					Potassic	Intense pervasive potassic alteration.
14RLD-005	100.52	108.25	gr	Granite		BSM	MS	m	salmon pink					potassic / chl	Intense pervasive potassic alteration and patchy chl alt of bio.
14RLD-005	108.25	110.90	gr	Granite		BSM	FX	m	greenish salmon pink					potassic / chl	moderately fractured potassic altered granite. Fractures are oxidized - granite itself is partially weathered. Chl alt is fx controlled. Mnr albit alt along fractures as well.
14RLD-005	110.90	112.77	gr	Granite		BSM	FOL	m	salmon pink					potassic	weakly foliated pervasively potassic altered granite. Foliation defined by bio
14RLD-005	112.77	117.05	gr	Granite		BSM	MS	m	pink to gry					potassic	Medium grained granite with patchy potassic alteration. Pegmatite sections up to 15cm and fine grained bio rich sections increasing downhole

Samples:

DDH	From	To	Sample ID	Sample Int	Type	Weight	Colour
14RLD-005	37.00	38.00	263164	1.00	HC		
14RLD-005	46.87	47.87	263165	1.00	HC		
14RLD-005	54.00	55.00	263166	1.00	HC		
14RLD-005	64.00	65.00	263167	1.00	HC		
14RLD-005	73.00	74.00	263168	1.00	HC		
14RLD-005	86.88	89.00	263169	2.12	HC		
14RLD-005	89.00	91.00	263170	2.00	HC		
14RLD-005	91.00	92.93	263171	1.93	HC		
14RLD-005	92.93	94.98	263172	2.05	HC		
14RLD-005	94.98	96.07	263173	1.09	HC		
14RLD-005	96.07	98.00	263174	1.93	HC		
14RLD-005	98.00	99.50	263175	1.50	HC		
14RLD-005	99.50	100.52	263176	1.02	HC		
14RLD-005	100.52	102.50	263177	1.98	HC		
14RLD-005	102.50	104.50	263178	2.00	HC		
14RLD-005	104.50	106.50	263179	2.00	HC		
14RLD-005	106.50	108.25	263180	1.75	HC		
14RLD-005	108.25	110.90	263181	2.65	HC		
14RLD-005	110.90	112.77	263182	1.87	HC		
14RLD-005	112.77	115.00	263183	2.23	HC		
14RLD-005	115.00	117.05	263184	2.05	HC		

Hole ID	Easting (UTM)	Northing (UTM)	Azimuth	Dip	Total Depth	Elevation	Target Area	Target	Contractor	Drill Rig	Drilling Start Date	Drilling End Date
14RLD-006	497390.0	6413931.0	0.0	-90.0	98.50	296.00	Richardson	Richardson	Lone Peak	1	18-Feb-2014	19-Feb-2014

Logged By	Logging Start Date	Logging End Date	Casing	Core Size	Collar Survey Type	Collar Survey Date	Logged By	Downhole Survey Date	Downhole Survey By
BA	11-Apr-2014	11-Apr-2014	27.00	NQ	GPS			NA	NA

DDH	From	To	Lith Code	Lith Name	Lith2	Formation	Texture Type	Texture Intensity	Lith Colour Code	Nodules	Nodule %	Fossil Type	Bitumen	Alteration	Description
14RLD-006	0.00	27.00	CAS	Casing		OVB									Casing - no recovery
14RLD-006	27.00	41.45	OB	Overburden		OVB									Approximately 3.75m of recovery. Recovered material consists of large (up to 50cm) dolomite boulders, purple to beige sands and coarse rounded gravels.
14RLD-006	41.45	43.00	C-DOL	Calcareous Dolomite	MS	WIN	DIS	s	drk gry to blk				v. high	weathered	Highly weathered section with dolomitic cement leached out and abundant bitumen. Poorly lithified
14RLD-006	43.00	43.46	C-DOL	Calcareous Dolomite	MS	WIN	LA	w	beige brn			TC	high		zone of muddy dolostone. End of interval is marked by a dolomitic breccia unit. Bitumen infilling fractures.
14RLD-006	43.46	43.95	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	pinky gry			TC	mnr		mottled pinky grey.
14RLD-006	43.95	44.17	C-DOL	Calcareous Dolomite	FS	WIN	FS	m	white			TC	high	bleached	bleached white packstone. Minor leaching of cement. Abundant bitumen throughout
14RLD-006	44.17	44.94	C-DOL	Calcareous Dolomite	MS	WIN	LA	vw	lt gry			CN	mod		spotty bitumen infilling vugs.
14RLD-006	44.94	45.49	C-DOL	Calcareous Dolomite	FS	WIN	DIS	m	white			TC	high	bleached	bleached white fossiliferous unit. Bitumen along fractures, infilling vugs and filling porosity created by dissolution of cement.
14RLD-006	45.49	47.06	C-DOL	Calcareous Dolomite	RS	WIN	FS	m	lt beige			TC	mnr		Large abundant tabular coral fragments. Unit get slightly bleached downhole. Bitumen infilling porosity also increases downhole
14RLD-006	47.06	47.50	C-DOL	Calcareous Dolomite	RS	WIN	FX	m	black to white			TC	v.high		nearly solid bitumen with minor RS fragments remaning.
14RLD-006	47.50	47.72	C-DOL	Calcareous Dolomite	RS	WIN	FS	m	lt beige to white			TC	mnr	bleached	Large abundant tabular coral fragments.
14RLD-006	47.72	50.45	C-DOL	Calcareous Dolomite	MS	WIN	FG	s	v. lt brn			CN	mod		amorphous massive mudstone with very low fossil content. Bitumen present along minor fractures and within muddy dissolution zones.
24RLD-006	50.45	50.95	C-DOL	Calcareous Dolomite	FS	WIN	DIS	m	v. lt brn			TC	mnr		Dissolution of carbonate cement within the corals.
14RLD-006	50.95	53.87	C-DOL	Calcareous Dolomite	MS	WIN	FG	s	v. lt brn			CN	mod		amorphous massive mudstone with very low fossil content. Bitumen present along minor fractures and within muddy dissolution zones.
14RLD-006	53.87	56.07	C-DOL	Calcareous Dolomite	MS	WIN	LA	s	med brn			CN	high		15cm zone of nearly solid bitumen at 53.97m. Very low content of fine grained CN and dolomite rhombs. Wavy to disrupted laminae
14RLD-006	56.07	58.03	C-DOL	Calcareous Dolomite	MS	WIN	LA	s	lt gry			CN	mod		Wavy to disrupted laminae - typically low content of fine grained CN. Rare medium sized brachiopods disrupt the laminae in places
14RLD-006	58.03	58.93	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	lt gry to black			CN	high		wavy laminated mudstone with cement dissolution - porosity filled with bitumen.
14RLD-006	58.93	60.87	OS	oilsand	MS	WIN	DIS	s	black			CN	v. high		karst zone rich in bitumen saturated silica sand.
14RLD-006	60.87	62.43	C-DOL	Calcareous Dolomite	MS	WIN	LA	s	drk brn			CN	mod		strong wavy to disrupted laminae. Moderate mud content due to leached carbonate cement
14RLD-006	62.43	63.73	C-DOL	Calcareous Dolomite	MS	WIN	DIS	s	drk brn				high	leached	abundant leached carbonate cement - muddy. Bitumen infilling porosity created
14RLD-006	63.73	64.16	BIT	Bitumen		WIN			black				v.high		solid massive bitumen - likely filling karst.
14RLD-006	64.16	64.88	C-DOL	Calcareous Dolomite	WS	WIN	LA	w	drk gry			SF	mod		partial leaching of cement - bitumen staining.
14RLD-006	64.88	65.83	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	med brn			SF	mnr	leached	partial leaching of cement - bitumen staining.
14RLD-006	65.83	66.89	C-DOL	Calcareous Dolomite	WS	WIN	FS	m	med brn			SF	tr		very weakly laminated to imbricated in places.
14RLD-006	66.89	67.17	C-DOL	Calcareous Dolomite	BS	WIN	FS	s	lt gry			TC	mod		bitumen infilling fractures. - reef.
14RLD-006	67.17	70.07	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	med brn			SF	mod		Minor CN rich wackestone interbeds. Bitumen infilling fractures.
14RLD-006	70.07	70.79	N-DOL	Nodular dolostone	MS	WIN	LA	m	med brn	Dolomite	5	SF	mnr		5-10cm dolomitic mud nodules. Strong wavy laminations. Bitumen along fractures.
14RLD-006	70.79	71.97	C-DOL	Calcareous Dolomite	WS	WIN	LA	w	lt brn			BRP	mnr		BRP disrupt laminae. Abundant tabular coral perpendicular to CA.
14RLD-006	71.97	74.89	C-DOL	Calcareous Dolomite	FS	WIN	DIS	s	med gry brn			TC	mnr		WS interbeds. Minor vugs created by the dissolution of shells and corals. Wavy to highly disrupted laminae.
14RLD-006	74.89	77.24	C-DOL	Calcareous Dolomite	WS	WIN	LA	w	lt gry			CN	v.mnr		Crinoid rich WS. Bitumen along fractures.
14RLD-006	77.24	78.97	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	med gry			RC	mnr		mottled to disrupted. 2-4cm rugose corals. Bitumen in large vugs and rare fractures
14RLD-006	78.97	80.58	C-DOL	Calcareous Dolomite	MS	WIN	FG	m	gry			RC	mnr		Minor floatstone interbeds with abundant RC.
14RLD-006	80.58	80.71	BIT	Bitumen		WIN			black				v.high		solid massive bitumen - likely filling karst.
14RLD-006	80.71	83.01	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	pinky gry to brn						mottled pinky grey mudstone.
14RLD-006	83.01	83.31	D-slstsh	Dolomitic silty shale		WIN	LA	s	grey						fine grained tightly laminated shale.
14RLD-006	83.31	83.80	C-DOL	Calcareous Dolomite		WIN	BX	s	green			TC			dolomitic breccia marker horizon.
14RLD-006	83.80	85.31	LST	Limestone	MS	CR	LA	s	lt to med gry						finely laminated to bedded (10-15cm beds).
14RLD-006	85.31	88.22	D-shslst	Dolomitic shaly siltstone	SS	CR	BD	m	lt to med gry						interbedded siltstone / shale and lesser sandstone.
14RLD-006	88.22	89.22	BIT	Bitumen		CR			black						solid massive bitumen - likely filling karst.
14RLD-006	89.22	93.96	D-shslst	Dolomitic shaly siltstone	SS	CR	BD	m	lt to med gry						interbedded siltstone / shale and lesser sandstone.
14RLD-006	93.96	95.76	B-ss	Basal Sandstone	SS	LL	MS	m	gry				mnr		medium grained calcareous sandstone.
14RLD-006	95.76	96.50	Gr-tran	Granite Wash - Transitional	SS	LL	cgl	m	lt brn				mnr		clast poor conglomerate. Size and aundence of clasts increases downhole

Samples:

DDH	From	To	Sample ID	Sample Int	Type	Weight	Colour
14RLD-006	[redacted]	47.00	283185	1.00	HC		
14RLD-006	[redacted]	58.00	283186	1.00	HC		
14RLD-006	[redacted]	69.00	283187	1.00	HC		
14RLD-006	[redacted]	77.00	283188	1.00	HC		

Hole ID	Easting (UTM)	Northing (UTM)	Azimuth	Dip	Total Depth	Elevation	Target Area	Target	Contractor	Drill Rig	Drilling Start Date	Drilling End Date
14RLD-007	497733.8	6434269.0	0.0	-90.0	147.00	295.00	Richardson	Richardson	Lone Peak	1	19-Feb-2014	20-Feb-2014

Logged By	Logging Start Date	Logging End Date	Casing	Core Size	Collar Survey Type	Collar Survey Date	Logged By	Downhole Survey Date	Downhole Survey By
BA	16-Apr-2014	17-Apr-2014	39.00	NQ	GPS			NA	NA

DDH	From	To	Lith Code	Lith Name	Lith2	Formation	Texture Type	Texture Intensity	Lith Colour Code	Nodules	Nodule %	Fossil Type	Bitumen	Alteration	Description
14RLD-007	0.00	38.00	CAS	Casing		OVB									Casing - no recovery
14RLD-007	38.00	39.00	CAS	Casing		OVB									Casing - recovery of lt gry to wht C-DOL.
14RLD-007	39.00	40.88	C-DOL	Calcareous Dolomite	PS	WIN	FX	m	med gry			TC	high		abundant fracture controlled bitumen.
14RLD-007	40.88	42.33	C-DOL	Calcareous Dolomite	PS	WIN	DIS	m	med gry brn			TC	mod		less fractured interval with lower bitumen
14RLD-007	42.33	42.77	C-DOL	Calcareous Dolomite	RS	WIN	DIS	m	lt brn				mod		bitumen along fractures.
14RLD-007	42.77	45.11	C-DOL	Calcareous Dolomite	WS	WIN	DIS	m	lt brn			TC	mnr		minor FS interbeds.
14RLD-007	45.11	45.98	C-DOL	Calcareous Dolomite	SS	WIN	MED	m	lt gry			TC	mnr		medium grained strongly cemented dolomitic sandstone with mnr TC component. Bitumen along fractures and infilling dissolution vugs
14RLD-007	45.98	49.97	C-DOL	Calcareous Dolomite	MS	WIN	MT	m	beige brn			TC	v.mnr		moderately to weakly mottled fine grained mudstone. Large coral fragments, up to 5cm - some are partially dissolved
14RLD-007	49.97	50.91	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	med brn			CN	mod		disrupted and fractured zone with bitumen along fractures as well as in vugs associated with fracturing
14RLD-007	50.91	52.72	C-DOL	Calcareous Dolomite	MS	WIN	MT	w	beige brn			CN	v.mnr		interbedded 10-15cm mudstone with mottled mudstone. Small CN disseminated throughout
14RLD-007	52.72	53.44	N-DOL	Nodular dolostone	MS	WIN	DIS	m	med brn	dolomite	15	CN	v.mnr		Small rounded dolomite nodules disturbing the lamination
14RLD-007	53.44	54.15	C-DOL	Calcareous Dolomite	MS	WIN	LA	s	med brn			CN	v.mnr		strong wavy to disrupted laminations.
14RLD-007	54.15	59.00	C-DOL	Calcareous Dolomite	MS	WIN	LA	vs	lt to med brn				mnr		abundant white muddy rip up clasts disturbing the laminae. Bitumen conc'd within fracture zones
14RLD-007	59.00	59.96	C-DOL	Calcareous Dolomite	MS	WIN	LA	s	drk brn			CN	mnr		disturbed laminae. Large intact CN
14RLD-007	59.96	64.29	C-DOL	Calcareous Dolomite	MS	WIN	LA	w	drk gry			CN	mnr		small disseminated CN and SF throughout. Bitumen conc'd in fractured zones
14RLD-007	64.29	64.71	C-DOL	Calcareous Dolomite	PS	WIN	DIS	m	med gry			CN	mnr		0.5cm CN ossicles as well as dolomite rhombs and 1cm TC fragments. Blocky
14RLD-007	64.71	66.69	C-DOL	Calcareous Dolomite	MS	WIN	LA	m	med brn			CN	v.mnr		interbedded WS and FS.
14RLD-007	66.69	69.01	N-DOL	Nodular dolostone	MS	WIN	DIS	m	med gry	dolomite	10	SF	v.mnr		large white to beige irregular porous nodules.
14RLD-007	69.01	75.32	N-DOL	Nodular dolostone	MS	WIN	DIS	m	med gry	dolomite	20	SF			2-5cm well rounded porous dolomitic mud nodules. Some contain a minor amount of fossil fragments
14RLD-007	75.32	78.78	C-DOL	Calcareous Dolomite	WS	WIN	DIS	m	med gry			CN			erratic wavy dark organic rich laminae. Disseminated mm scale crinoid ossicles
14RLD-007	78.78	81.14	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	drk gry			CN			irregular erratic WS interbeds. Mnr mottling. Rare calcite lined vugs
14RLD-007	81.14	83.60	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	pinky gry						mottled pinky grey mudstone.
14RLD-007	83.60	84.00	D-sltsh	Dolomitic silty shale		WIN	LA	s	grey						fine grained tightly laminated shale.
14RLD-007	84.00	85.70	C-DOL	Calcareous Dolomite		WIN	BX	s	lt gry			TC	mnr		broken blocky section of core with poor recovery
14RLD-007	85.70	90.00	LST	Limestone	SS	CR	MS	s	grn gry						medium grained poorly cemented calcareous sandstone and mudstone
14RLD-007	90.00	92.67	D-slst	Dolomitic siltstone	SS	CR	BD	m	lt gry						interbeded laminated dolomitic siltstone with dolomitic SS
14RLD-007	92.67	95.06	D-shslst	Dolomitic shaly siltstone	SS	CR	BD	m	lt gry						interbedded shale, siltstone and sandstone. Bottom of interval is marked by a 5cm fault gouge zone
14RLD-007	95.06	97.96	D-sltsh	Dolomitic silty shale	MS	CR	LA	m	pinky gry to brn						Laminae at 60 degrees to CA. Large 1-2cm pink grains.
14RLD-007	97.96	98.65	Gr-tran	Granite Wash - Transitional	SS	LL	CGL	S	brn to ble gry						matrix supported cgl transitioning into clast supported cgl downhole. Matrix is lt brn mud, clasts are granite
14RLD-007	98.63	99.27	GR	Granite		BSM	FX	m	blue gry						fractured and partially weathered granite.
14RLD-007	99.27	105.23	GR	Granite		BSM	MS	s	blue gry						fresh granite. 0.5 - 1cm feldspar and quartz phenos with fine grained mica rich groundmass. Rare 1-2cm dark chl clots
14RLD-007	105.23	118.78	gr	Granite		BSM	FOL	w	blue gry					albite	weakly foliated to massive granite - foliation defined by micas (chl and bio). 2-5% large dark chl clots. Minor albite alteration along fracture selvages
14RLD-007	118.78	119.21	gr	Granite		BSM	Fol	vw	lt pink					Potassic	weak pervasive potassic alteration. 2-5% dark chl clots.
14RLD-007	119.21	122.23	gr	Granite		BSM	FOL	w	blue gry					albite	weakly foliated to massive granite - foliation defined by micas (chl and bio). 2-5% large dark chl clots. Minor albite alteration along fracture selvages
14RLD-007	122.23	126.19	gr	Granite		BSM	MS	m	blue gry to pink					Potassic	variable patchy potassic alteration of massive to weakly foliated granite. Coarse plag evident throughout along with large dark chl clots
14RLD-007	126.19	128.68	gr	Granite		BSM	fol	w	pale to salmon pink					Potassic	moderate to intense k-alt throughout.
14RLD-007	128.68	134.75	gr	Granite		BSM	fol	m	pale to salmon pink					Potassic	variably potassic altered.
14RLD-007	134.75	136.67	gr	Granite		BSM	PEG	m	blue gry to pink					Potassic	variably k-alt'd pegmatite - coarse feldspar and quartz. Bio along healed fractures
14RLD-007	136.67	141.54	gr	Granite		BSM	PEG	m	pale to salmon pink					Potassic	intense k-alt'd pegmatite.
14RLD-007	141.54	145.24	gr	Granite		BSM	FOL	m	drk gry to salmon pink					Potassic	drk gry fine grained foliated granite with feldspar phenos. Cross cutting k-alt's pegmatite bands up to 1m in size
14RLD-007	145.24	147.00	gr	Granite		BSM	FOL	s	drk gry to pink					Potassic	patchy potassic alteration of feldspar phenos in a dark gry fine grained ground mass

Samples

DDH	From	To	Sample ID	Sample Int	Type	Weight	Colour
14RLD-007	46.00	47.00	263189	1.00	HC		
14RLD-007	57.00	58.00	263190	1.00	HC		
14RLD-007	65.00	66.00	263191	1.00	HC		
14RLD-007	79.00	80.00	263192	1.00	HC		
14RLD-007	98.85	99.27	263193	0.42	HC		
14RLD-007	99.27	101.25	263194	1.98	HC		
14RLD-007	101.25	103.25	263195	2.00	HC		
14RLD-007	103.25	105.23	263196	1.98	HC		
14RLD-007	105.23	107.25	263197	2.02	HC		
14RLD-007	107.25	109.25	263198	2.00	HC		
14RLD-007	109.25	111.25	263199	2.00	HC		
14RLD-007	111.25	113.25	263200	2.00	HC		
14RLD-007	113.25	115.25	263201	2.00	HC		
14RLD-007	115.25	117.25	263202	2.00	HC		
14RLD-007	117.25	118.78	263203	1.53	HC		
14RLD-007	118.78	119.21	263204	0.43	HC		
14RLD-007	119.21	120.75	263205	1.54	HC		
14RLD-007	120.75	122.23	263206	1.48	HC		
14RLD-007	122.23	124.20	263207	1.97	HC		
14RLD-007	124.20	126.19	263208	1.99	HC		
14RLD-007	126.19	128.68	263209	2.49	HC		
14RLD-007	128.68	130.75	263210	2.07	HC		
14RLD-007	130.75	132.75	263211	2.00	HC		
14RLD-007	132.75	134.75	263212	2.00	HC		
14RLD-007	134.75	136.67	263213	1.92	HC		
14RLD-007	136.67	138.50	263214	1.83	HC		
14RLD-007	138.50	140.50	263215	2.00	HC		
14RLD-007	140.50	141.54	263216	1.04	HC		
14RLD-007	141.54	143.50	263217	1.96	HC		
14RLD-007	143.50	145.24	263218	1.74	HC		
14RLD-007	145.24	147.00	263219	1.76	HC		

Hole ID	Easting (UTM)	Northing (UTM)	Azimuth	Dip	Total Depth	Elevation	Target Area	Target	Contractor	Drill Rig	Drilling Start Date	Drilling End Date
14RLD-008	497361.0	6414972.0	0.0	-90.0	89.00	294.00	Richardson	Richardson	Lone Peak	1	22-Feb-2014	23-Feb-2014

Logged By	Logging Start Date	Logging End Date	Casing	Core Size	Collar Survey Type	Collar Survey Date	Logged By	Downhole Survey Date	Downhole Survey By
BA	17-Apr-2014	17-Apr-2014	33.00	NQ	GPS			NA	NA

DDH	From	To	Lith Code	Lith Name	Lith2	Formation	Texutre Type	Texture Intensity	Lith Colour Code	Nodules	Nodule %	Fossil Type	Bitumen	Alteration	Description
14RLD-008	0.00	33.00	CAS	Casing		OVB									Casing - no recovery.
14RLD-008	33.00	38.00	OB	Overburden	MS	OVB									consists of mixed quartzite, dolomite and granite boulers. Dolomite is most abundant with boulders up to 60cm.
14RLD-008	38.00	41.46	OB	Overburden	SS	OVB	cgl	s	med gry						medium to light gry sandy conglomerate. Beige brown dolomitic mud component.
14RLD-008	41.46	44.90	C-Dol	Calcareous Dolomite	MS	OVB	BX	s	med gry						Cemented dolomitic breccia. Dolostone clasts and dolomite mud.
14RLD-008	44.90	64.92	OS	oilsand	SS	OVB	BD	m	white to gray to black				mod		Variably bitumen saturated medium quartz sand.
14RLD-008	64.92	65.77	N-Dol	Nodular dolostone	WS	WIN	DIS	m	med brn	Dolomite	10	CN	tr		2-5cm muddy porous dolomitic nodules. Large gastropod fossil. CN range from 2-5mm.
14RLD-008	65.77	67.95	C-Dol	Calcareous Dolomite	WS	WIN	DIS	m	med brn				tr		Trace bitumen along fractures. Abundant CN and SF.
14RLD-008	67.95	71.32	C-Dol	Calcareous Dolomite	MS	WIN	DIS	M	gry brn			SF			Disrupted dark organic rich layers. Rare 2-5mm SF.
14RLD-008	71.32	72.94	C-DOL	Calcareous Dolomite	MS	WIN	DIS	m	pinky gry						mottled pinky grey mudstone.
14RLD-008	72.94	73.22	D-slstsh	Dolomitic silty shale		WIN	LA	s	grey						fine grained tightly laminated shale.
14RLD-008	73.22	73.39	D-slstsh	Dolomitic silty shale	WS	CR	BX	m	brn gry						moderately brecciated dolomitic silty shale.
14RLD-008	73.39	76.56	LST	Limestone	MS	CR	LA	m	med gry						Shale with minor laminated siltstone interbeds up to 10cm. SS component at end of interval.
14RLD-008	76.56	80.26	D-slstsh	Dolomitic silty shale	MS	CR	BD	m	gry						Minor laminated siltstone interbeds.
14RLD-008	80.26	81.18	B-ss	Basal Sandstone	SS	LL	MS	m	lt gry						medium grained massive calcareous sandstone.
14RLD-008	81.18	83.00	Gr-tran	Granite Wash - Transitional	SS	LL	CGL	m	lt gry						broken to blocky matrix supported conglomerate.
14RLD-008	83.00	89.00	gr	Granite		BSM	MS	m	blue gry						blue grey massive granite. Minor beige mud infilling fractures to 84.36m. Spotted with 1-2cm chl clots. Mnr replacement of chl with Py.

Samples:

DDH	From	To	Sample ID	Sample Int	Type	Weight	Colour							
14RLD-008	64.92	65.77	263220	0.85	HC									
14RLD-008	69.00	70.00	263221	1.00	HC									
14RLD-008	83.00	85.00	263222	2.00	HC									
14RLD-008	85.00	87.00	263223	2.00	HC									
14RLD-008	87.00	89.00	263224	2.00	HC									

Appendix 3 – Geochemical Results

Appendix 3a – XRF Results

Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD-008	84.13	3.359713249	-1.90648	17.999	0.014906	0.328882185	4.178634	-4.26003	0.119199	-0.07888	0.174502	Basement	4	-0.90032	-1.26797
14RLD-008	85.2	-0.134012138	4.345411	35.83718	0.017119	0.377223252	3.514489	-2.02862	0.091052	-0.06307	0.700691	Basement	4	-2.16264	15.13761
14RLD-008	85.95	-1.936249668	4.268374	37.68329	0.012358	0.385239822	4.067011	-3.55647	0.077292	-0.00918	0.05128	Basement	4	-5.49272	1.83678
14RLD-008	87.07	6.02396521	-9.66379	-4.86775	0.012935	0.293021448	3.809535	-4.53193	0.215493	-0.15997	0.061243	Basement	4	1.49204	-0.75232
14RLD-008	88.05	5.466131851	-8.20503	0.520424	0.01463	0.312378726	3.920268	-4.57842	0.121179	-0.17053	0.102616	Basement	4	0.887708	-0.8376
14RLD-008	88.9	8.143418943	-15.768	-32.0712	0.009086	0.25924667	2.724774	-1.85926	0.559054	-0.08711	0.592053	Basement	4	6.284157	-0.22831
14RLD-007	99.11	7.827496289	-15.3566	-40.8711	0.000775	0.252446031	1.919364	-1.59394	0.27709	-0.21424	0.217398	Basement	4	6.233555	-0.20363
14RLD-007	99.91	4.731916638	-0.95313	14.35609	0.021853	0.332584439	5.69619	-6.89364	0.175584	-0.12326	0.058253	Basement	4	-2.16173	-1.45684
14RLD-007	100.96	8.206081731	-10.6945	-9.78266	0.01701	0.304401361	5.028351	-6.64188	0.224985	-0.15501	0.165464	Basement	4	1.564205	-0.80938
14RLD-007	102.05	3.641472686	2.57016	20.00993	0.016007	0.352264257	4.974124	-4.35808	0.154865	-0.2412	0.087367	Basement	4	-0.71661	-1.19679
14RLD-007	102.93	3.850001815	-2.98224	14.46245	0.014111	0.319277607	3.984853	-3.08176	0.333226	-0.03465	0.352364	Basement	4	0.768241	-0.80046
14RLD-007	103.94	6.854581975	-4.40114	4.134433	0.025725	0.325066623	5.398805	-6.42548	0.253523	-0.13604	0.119168	Basement	4	0.4291	-0.9374
14RLD-007	104.89	-28.59688558	10.99901	29.80692	0.031727	0.487754507	2.630523	-0.01989	-0.10464	0.028038	-0.08195	Basement	4	-28.6168	0.000696
14RLD-007	105.89	5.578002543	-4.64042	8.586726	0.019372	0.336330916	2.972551	-1.6932	0.105646	-0.00727	1.453094	Basement	4	3.884802	-0.30355
14RLD-007	106.87	8.40716282	-15.3912	-23.2192	0.012036	0.300514901	3.646919	-4.51108	0.272145	-0.10114	0.129099	Basement	4	3.896081	-0.53658
14RLD-007	108.18	8.207132527	-11.3302	-11.9777	0.020737	0.301876609	4.792657	-6.27682	0.202945	-0.1476	0.209164	Basement	4	1.93031	-0.7648
14RLD-007	108.94	6.259031182	-4.12555	5.775806	0.016656	0.319875429	4.245277	-3.90182	0.203848	-0.12074	0.188514	Basement	4	2.357214	-0.62339
14RLD-007	109.87	9.5136334	-21.8236	-55.6369	0.010536	0.26523101	2.816468	-3.89743	0.277916	-0.47817	0.401814	Basement	4	5.616206	-0.40967
14RLD-007	110.94	7.500600251	-7.22455	-2.11296	0.022372	0.315701547	3.903336	-2.64602	0.205242	-0.14031	0.300575	Basement	4	4.85458	-0.35277
14RLD-007	111.92	8.177689679	-15.4439	-33.3179	0.000713	0.272665897	2.158596	-1.10908	0.284994	-0.09653	0.615911	Basement	4	7.068614	-0.13562
14RLD-007	112.87	8.353807309	-15.0159	-22.6821	0.007329	0.293151293	3.479889	-3.70063	0.341881	-0.09543	0.121943	Basement	4	4.653175	-0.44299
14RLD-007	113.94	8.88475701	-18.0854	-37.583	0.026877	0.290446569	3.012446	-2.98437	0.184399	-0.1201	0.287442	Basement	4	5.900383	-0.3359
14RLD-007	115.13	6.241707891	-5.01231	5.095222	0.019021	0.335933458	4.81486	-5.26136	0.213949	-0.07473	0.07881	Basement	4	0.980349	-0.84294
14RLD-007	115.81	6.91082898	3.379522	19.11095	0.055561	0.388479041	3.769621	-2.21594	-0.0826	-0.21921	4.022639	Basement	4	4.694891	-0.32065
14RLD-007	116.86	4.474051799	4.217308	18.835	0.031662	0.366768621	6.416933	-7.21894	0.306082	0.032284	0.21	Basement	4	-2.74489	-1.61351
14RLD-007	118.1	7.681363555	-4.42124	2.886872	0.029299	0.330835294	3.794858	-2.54964	0.104293	-0.13848	2.155246	Basement	4	5.131724	-0.33193
14RLD-007	119.13	7.634855288	-13.1204	-16.4544	0.012085	0.304232219	3.987009	-4.99934	0.389751	-0.1824	0.208501	Basement	4	2.635514	-0.6548
14RLD-007	119.94	6.281492695	-3.36931	7.365387	0.025505	0.331471781	5.425885	-6.10981	0.260933	-0.04656	0.434278	Basement	4	0.171683	-0.97267
14RLD-007	120.94	8.535156833	-13.3756	-16.1622	0.02026	0.309201163	4.34956	-5.47769	0.295166	-0.1321	0.431318	Basement	4	3.057466	-0.64178
14RLD-007	121.87	5.575188006	-3.18709	9.031903	0.020973	0.342130221	5.15794	-5.96979	0.22	-0.06411	0.208766	Basement	4	-0.3946	-1.07078
14RLD-007	123.11	-1.466802502	9.724475	36.8451	0.018907	0.401335778	5.40396	-5.10	0.117333	-0.03457	0.124326	Basement	4	-6.56313	3.474446
14RLD-007	124.11	7.347483704	-15.2098	-33.3915	0.00	0.290190151	1.893794	-1.76728	0.234821	-0.11346	0.099393	Basement	4	5.580202	-0.24053
14RLD-007	124.89	6.9883959	-10.3245	-6.48753	0.01	0.311343717	3.70957	-3.84324	0.188283	-0.11173	0.198917	Basement	4	3.145159	-0.54995
14RLD-007	126.05	7.962162406	-10.0938	-14.3717	0.03	0.338576354	2.039719	-1.02318	0.083613	-1.14647	2.339739	Basement	4	6.938983	-0.12851
14RLD-007	126.84	6.153867701	-8.91693	-1.94	0.010689	0.322183688	3.613877	-3.73863	0.216089	-0.07943	0.069752	Basement	4	2.415239	-0.60752
14RLD-007	127.93	7.871764515	-12.81	-14.5223	0.008958	0.313831704	2.515172	-1.12185	0.160191	-0.38214	0.15118	Basement	4	6.749915	-0.14252
14RLD-007	129.04	9.432856037	-20.0295	-90.5453	-0.00936	0.223524159	0.987285	0.192521	0.269735	-0.13952	0.246191	Basement	4	9.625377	0.02041

Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD-007	130.11	9.009202156	-17.7558	-37.2353	0.018438	0.281938551	3.190089	-4.077	0.230231	-0.16583	1.117878	Basement	4	4.932202	-0.45254
14RLD-007	131.09	6.767035741	-11.7535	-11.6697	0.012142	0.307775611	3.18301	-3.51506	0.225269	-0.06083	0.123822	Basement	4	3.25198	-0.51944
14RLD-007	132.05	5.322860327	-0.734	13.44639	0.028118	0.352540846	5.641579	-6.51451	-0.06463	-0.05662	0.294371	Basement	4	-1.19165	-1.22387
14RLD-007	133.14	5.257015141	0.913819	16.40707	0.031543	0.351489395	5.781824	-5.87854	0.192076	-0.11194	0.770985	Basement	4	-0.62152	-1.11823
14RLD-007	134.11	6.563401375	-3.11476	7.09254	0.0192	0.352401892	3.988384	-3.3763	0.177438	-0.14371	0.600005	Basement	4	3.1871	-0.51441
14RLD-007	134.96	6.132896541	-3.93208	7.136759	0.038772	0.323748114	5.324309	-6.36227	0.239295	-0.06397	0.408051	Basement	4	-0.22937	-1.0374
14RLD-007	135.94	8.29085747	-15.4804	-23.4453	0.008241	0.290813696	3.891223	-4.8364	0.253266	-0.03555	0.262458	Basement	4	3.454459	-0.58334
14RLD-007	136.91	6.040225786	-4.17128	7.477337	0.024781	0.341927587	4.753454	-5.01698	0.204866	-0.07153	0.687708	Basement	4	1.02325	-0.83059
14RLD-007	138.07	8.319431025	-13.1918	-16.2262	0.0158	0.310577255	4.692344	-6.78294	0.241981	-0.12915	0.17244	Basement	4	1.53649	-0.81531
14RLD-007	139.1	9.716364956	-22.669	-71.9573	-0.0025	0.260845065	1.814149	-2.10849	0.195791	-0.39935	0.16561	Basement	4	7.607874	-0.217
14RLD-007	140.09	2.247593045	-1.97131	20.25879	0.006843	0.357847578	3.444662	-3.14241	-0.03009	-0.06943	0.007742	Basement	4	-0.89482	-1.39812
14RLD-007	140.95	6.57516358	-9.18154	-3.26426	0.015866	0.321205134	3.814056	-4.2262	0.322883	-0.11977	0.174388	Basement	4	2.348961	-0.64275
14RLD-007	141.93	9.579866452	-19.1121	-134.473	-0.0211	0.160484046	0.071521	2.082055	0.236599	-0.86317	0.201285	Basement	4	11.66192	0.217337
14RLD-007	142.89	9.219127841	0.613903	5.773338	0.159626	0.393101897	2.089705	2.595389	0.657522	-0.02139	9.193632	Basement	4	11.81452	0.281522
14RLD-007	143.93	8.228053907	6.879386	15.24891	0.407051	0.398990198	3.042028	4.616442	0.695513	0.077211	6.522849	Basement	4	12.8445	0.561061
14RLD-007	144.94	10.06641388	8.092738	12.38725	0.212103	0.430363223	3.964864	0.568734	0.196973	-0.0183	8.557526	Basement	4	10.63515	0.056498
14RLD-007	146.11	9.732266608	3.248859	8.161808	0.148937	0.391573728	4.111824	5.514859	0.594034	0.095091	5.66185	Basement	4	15.24713	0.566657
14RLD-007	146.83	9.892804892	4.852086	10.08332	0.342049	0.41934201	2.94753	3.033509	0.481845	0.098662	10.27784	Basement	4	12.92631	0.306638
14RLD005	87.08	5.678722106	-4.79801	7.70955	0.017443	0.315050632	2.623992	-1.06201	0.142685	-0.10237	0.214092	Basement	4	4.616708	-0.18702
14RLD005	87.88	-4.358189902	12.3331	42.06095	0.007817	0.420476816	1.359508	1.128644	0.064314	-0.1212	0.25366	Basement	4	-3.22955	-0.25897
14RLD005	88.95	3.38001263	1.46008	20.62394	0.007422	0.336069996	0.479451	2.279584	0.09968	-0.22873	0.234007	Basement	4	5.659597	0.674431
14RLD005	90.07	4.546020461	-3.08126	12.54623	0.005461	0.324556558	0.586809	2.011785	0.127353	-0.20312	0.203353	Basement	4	6.557806	0.442538
14RLD005	91.18	6.913487792	0.190359	10.40328	0.032225	0.341440287	3.698697	-1.73817	0.236721	-0.11494	0.491456	Basement	4	5.175314	-0.25142
14RLD005	92.05	4.295992568	6.937641	22.9324	0.019539	0.366560076	1.977433	1.386929	0.067391	-0.20543	0.877873	Basement	4	5.682922	0.322842
14RLD005	92.92	7.615645645	1.550736	9.960565	0.028056	0.350414824	1.625497	2.998717	0.138525	-0.20225	0.710305	Basement	4	10.61436	0.393757
14RLD005	94.17	6.380604089	-8.08731	-1.08489	0.021539	0.312797589	1.122553	1.725276	0.19489	-0.26019	0.33542	Basement	4	8.10588	0.270394
14RLD005	94.97	3.463258496	4.273946	22.30182	0.034956	0.359194054	1.17036	2.858348	0.119792	-0.17862	0.554479	Basement	4	6.321607	0.825335
14RLD005	95.95	5.02265885	5.100747	18.57671	0.020864	0.372577542	0.651302	5.801504	-0.00484	-0.06663	1.849439	Basement	4	10.82416	1.155066
14RLD005	97.13	6.57526909	1.644576	11.96422	0.022126	0.354919085	0.803281	5.610503	0.041479	-0.20178	1.731279	Basement	4	12.18577	0.853273
14RLD005	98.04	5.720103627	6.131207	17.1946	0.034715	0.368517629	0.891946	5.195525	0.04295	-0.13366	1.638778	Basement	4	10.91563	0.908292
14RLD005	99.11	7.261916844	4.416765	14.10187	0.06907	0.379860469	0.97261	3.991109	0.085332	-0.19936	2.138835	Basement	4	11.25303	0.549594
14RLD005	99.88	4.938835086	6.546535	19.09733	0.018604	0.366678667	0.860525	4.134087	0.012221	-0.12173	1.201363	Basement	4	9.072923	0.837057
14RLD005	100.94	6.676294889	3.509378	13.40754	0.021634	0.362634593	2.828669	0.835551	0.146997	-0.03688	1.39535	Basement	4	7.511846	0.125152
14RLD005	102.1	5.47312658	6.734099	15.29812	0.305458	0.364717704	2.646306	5.073104	0.170082	-0.07808	1.727217	Basement	4	10.54623	0.926911
14RLD005	103.16	4.171114338	7.423216	19.83528	0.018204	0.372449805	1.024656	4.908081	0.051538	-0.17116	1.090109	Basement	4	9.079195	1.176683
14RLD005	103.83	5.334336809	7.183022	19.31365	0.022334	0.372466571	0.794613	4.946078	0.030634	-0.13342	1.450885	Basement	4	10.28041	0.927215
14RLD005	105.08	6.694450985	-9.5119	-6.1932	0.003743	0.319634747	0.159072	4.537881	0.161592	-0.15952	0.848969	Basement	4	11.23233	0.677857

Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD005	105.87	3.749686861	9.731914	22.40482	0.024373	0.379165493	0.727096	5.785413	-0.01806	-0.04598	1.845318	Basement	4	9.5351	1.542906
14RLD005	106.97	7.108465689	8.233476	13.60495	0.051875	0.380138384	0.614049	9.9246	0.066886	0.264059	6.075174	Basement	4	17.03307	1.396166
14RLD005	107.82	7.10217612	8.26705	15.94718	0.029247	0.39005453	2.557645	1.675605	0.03427	-0.07768	1.520762	Basement	4	8.777781	0.235928
14RLD005	109.05	8.062648527	2.616745	9.720307	0.046525	0.373791749	1.762753	2.577963	0.058095	-0.0794	1.645998	Basement	4	10.64061	0.319741
14RLD005	109.93	3.627182365	13.08966	27.78641	0.036893	0.409396169	8.08191	-8.35538	0.060338	0.021532	1.040778	Basement	4	-4.72819	-2.30354
14RLD005	111.18	3.604980351	9.485263	22.66642	0.028417	0.385740496	0.218006	6.778816	-0.05616	-0.06932	2.015741	Basement	4	10.3838	1.880403
14RLD005	112.15	1.887042373	8.364453	23.8475	0.063047	0.374033103	0.151886	9.359139	-0.05198	-0.03387	3.083533	Basement	4	11.24618	4.959687
14RLD005	112.95	5.323187288	-2.59932	12.31223	0.027914	0.346425616	4.627285	-4.29893	0.316936	-0.15365	0.614675	Basement	4	1.024261	-0.80759
14RLD005	114.05	4.458017264	0.595397	20.59855	0.143572	0.36420584	1.542059	3.574533	0.164991	0.018105	5.281817	Basement	4	8.03255	0.801821
14RLD005	114.95	4.119469798	2.663404	22.02853	0.025782	0.373813522	5.397473	-4.91952	0.163835	-0.08638	0.885395	Basement	4	-0.80005	-1.19421
14RLD005	116.06	2.883824753	2.660937	27.34298	0.062564	0.373035546	4.345788	-2.459	0.202484	-0.01328	2.765676	Basement	4	0.424828	-0.85269
14RLD005	116.99	3.235421543	-0.68567	21.68317	0.024462	0.36784226	3.789565	-2.74501	0.095373	-0.06661	0.882183	Basement	4	0.490413	-0.84842
14RLD004	85.1	6.585036882	0.777497	17.02396	0.072036	0.387698609	3.811782	-1.38998	0.148339	-0.01007	3.610804	Basement	4	5.195061	-0.21108
14RLD004	85.94	6.248871186	-6.57706	2.330809	0.009782	0.331813869	5.091751	-6.49306	0.082579	-0.07713	0.08174	Basement	4	-0.24419	-1.03908
14RLD004	87.05	8.014628879	-13.1875	-17.1734	0.002904	0.277371295	4.277274	-5.81176	0.228919	-0.14734	0.143994	Basement	4	2.202872	-0.72514
14RLD004	87.9	4.639355258	2.350544	19.87349	0.016307	0.349624673	4.854451	-4.09194	0.513802	-0.04177	0.765544	Basement	4	0.547412	-0.88201
14RLD004	88.93	8.247079968	-7.07841	-3.54265	0.067811	0.32152812	2.090147	0.452793	0.416952	-0.06804	2.542234	Basement	4	8.699873	0.054903
14RLD004	89.82	6.083575846	-5.8143	4.697128	0.029263	0.314454358	5.190951	-6.72763	0.126699	-0.08403	0.234489	Basement	4	-0.64405	-1.10587
14RLD004	91.1	1.554697797	-4.36817	19.32544	-0.00032	0.340616338	2.521733	-2.13371	0.038851	-0.00566	0.027564	Basement	4	-0.57901	-1.37243
14RLD004	92.1	8.445033866	-13.9853	-20.9226	0.009644	0.293895199	3.884293	-5.00902	0.172373	-0.14788	0.092164	Basement	4	3.436014	-0.59313
14RLD004	92.8	6.624481142	-3.10961	8.223516	0.024215	0.330056404	5.095887	-5.3547	0.519608	-0.06074	0.788906	Basement	4	1.269784	-0.80832
14RLD004	94.12	7.685007318	5.366386	17.09082	0.057879	0.406273636	7.046811	-6.47889	0.360917	0.07444	2.29845	Basement	4	1.206117	-0.84306
14RLD004	95.13	5.880657346	4.850014	22.48909	0.05081	0.384003721	2.935831	-0.44197	0.074666	0.036579	2.987766	Basement	4	5.438684	-0.07516
14RLD004	95.95	7.603721245	-1.0284	9.364463	0.054214	0.363971253	3.612498	-1.78987	0.262496	-0.08076	2.566373	Basement	4	5.81385	-0.23539
14RLD003	87.12	5.221665924	12.2798	24.31972	0.020025	0.685108316	8.626496	-9.29403	0.156102	-0.06348	0.456986	Basement	4	-4.07237	-1.7799
14RLD003	87.78	3.683650354	12.73704	27.61851	0.035731	0.403815118	8.672245	-8.67242	0.112456	-0.01736	0.913324	Basement	4	-4.98877	-2.3543
14RLD003	88.89	6.945172522	11.80312	20.33602	0.025095	0.845978821	8.290869	-8.0205	0.021525	0.055713	1.295498	Basement	4	-1.07533	-1.15483
14RLD003	89.92	7.781463028	13.4033	18.15254	0.016818	0.636954849	7.654233	-7.22489	0.128261	-0.01372	0.896479	Basement	4	0.556577	-0.92847
14RLD003	90.93	8.00285689	6.799825	14.5588	0.030069	0.447748855	7.997065	-6.85782	0.169066	-0.04373	0.645696	Basement	4	1.145037	-0.85692
14RLD003	92.21	5.538127086	2.404803	19.67782	0.015144	0.436700897	6.161307	-6.51795	0.134246	-0.04534	0.370077	Basement	4	-0.97983	-1.17692
14RLD003	93.25	6.100061886	1.477759	15.70462	0.028489	0.352039855	7.31566	-9.32486	0.270946	-0.04486	0.208116	Basement	4	-3.2248	-1.52865
14RLD003	94.12	8.713332408	11.29414	15.57587	0.041718	0.47734928	7.454463	-7.05186	0.139515	-0.04907	0.769292	Basement	4	1.661473	-0.80932
14RLD003	94.88	7.843898231	9.63812	17.00227	0.024771	0.397201812	7.894961	-8.13566	0.124021	-0.03932	0.516579	Basement	4	-0.29176	-1.0372
14RLD003	95.88	7.758817517	11.57492	17.46684	0.036827	0.401518501	8.263818	-8.64505	0.12667	-0.02908	0.57581	Basement	4	-0.88623	-1.11422
14RLD002	92.93	7.360827752	-8.47562	-4.00275	0.014489	0.323981757	5.086725	-6.45792	0.159965	-0.12066	0.125814	Basement	4	0.902904	-0.87734
14RLD002	93.87	7.234729699	-9.84052	-7.01056	0.013519	0.31614307	5.021673	-7.24638	0.204574	-0.15674	0.114376	Basement	4	-0.01165	-1.00161
14RLD002	94.92	7.095749477	-9.60025	-5.8847	0.018936	0.317226647	5.088287	-7.31486	0.110416	-0.1366	0.117003	Basement	4	-0.21911	-1.03088

Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD002	96.05	8.490893798	-16.1454	-35.8356	0.01752	0.301113177	3.067529	-3.83904	0.161471	-0.26687	0.439194	Basement	4	4.65185	-0.45214
14RLD002	97.07	6.179858352	-9.75084	-7.9738	0.00841	0.30721162	2.78654	-2.6098	0.162392	-0.22887	0.631941	Basement	4	3.570058	-0.42231
14RLD002	97.91	7.244634616	-9.10341	-10.2972	0.032743	0.314364239	2.659043	-1.8801	0.157468	-0.22794	2.242314	Basement	4	5.364536	-0.25952
14RLD002	98.94	7.085936519	-12.0491	-20.1381	0.003933	0.310850222	2.8275	-2.91937	0.20401	-0.17565	0.44163	Basement	4	4.166568	-0.41199
14RLD001	95.2	-0.457183827	3.373369	20.1091	0.014659	0.40527563	0.703363	10.94616	-0.01083	0.032967	0.221927	Basement	4	10.48897	-23.9426
14RLD001	95.89	2.145411317	3.205976	26.14147	0.023514	0.376267983	2.8543	6.163115	0.097519	-0.09602	0.507125	Basement	4	8.308526	2.872696
14RLD001	97.2	7.441697495	7.161885	19.27167	0.038801	0.397074833	5.112469	-2.89743	0.014353	0.121057	4.546821	Basement	4	4.54427	-0.38935
14RLD001	98.2	7.300003188	-10.3991	-11.1285	0.009524	0.319215446	3.816348	-4.57865	0.288767	-0.14142	0.344111	Basement	4	2.721352	-0.62721
14RLD001	98.79	8.817828295	-1.35554	3.078109	0.104517	0.381380263	3.160342	0.838246	0.12	-0.04715	4.186167	Basement	4	9.656074	0.095063
14RLD001	100.18	7.183017897	-6.69565	-0.63474	0.017214	0.323426003	3.494212	-2.03846	0.06432	-0.06935	0.909593	Basement	4	5.144558	-0.28379
14RLD001	100.93	8.440482797	-17.6296	-43.6224	0.000904	0.25721831	2.491339	-3.09496	0.260474	-0.21571	0.231779	Basement	4	5.345518	-0.36668
14RLD001	101.85	6.446358686	-10.4545	-11.282	0.002483	0.31722041	3.465324	-3.39221	0.174781	-0.08992	0.120603	Basement	4	3.054151	-0.52622
14RLD001	103.11	5.569369229	-2.8499	10.46957	0.177603	0.341339937	5.936586	-7.2854	0.712707	-0.05986	0.143795	Basement	4	-1.71603	-1.30812
14RLD001	104.06	8.596565739	-3.53357	2.012315	0.065851	0.363157938	3.863854	-2.34462	0.215467	-0.00963	3.292371	Basement	4	6.251949	-0.27274
14RLD001	105.11	3.563549815	5.115644	25.20297	0.029492	0.371715214	6.238402	-6.63853	0.263	-0.01702	0.305669	Basement	4	-3.07498	-1.8629
14RLD001	105.91	5.248882485	5.851695	19.88827	0.038515	0.370351078	7.847205	-9.32315	0.253337	-0.08294	0.126242	Basement	4	-4.07427	-1.77622
14RLD-008	74.06	3.49829348	0.586715	7.282438	0.022238	0.575563601	0.929623	25.78931	0.082014	0.03295	1.346627	Contact Rapids	2	29.2876	7.371968
14RLD-008	75.17	5.303300699	-2.41264	7.987989	0.033666	1.495966203	1.496577	13.03347	0.16215	0.007136	1.168145	Contact Rapids	2	18.33677	2.457614
14RLD-008	75.95	8.235480695	-0.17215	7.515026	0.03103	0.599793353	1.566669	13.4514	0.032832	0.014835	0.744126	Contact Rapids	2	21.68688	1.633347
14RLD-008	77.08	7.604613623	1.249908	12.35801	0.006988	2.207257652	2.175464	8.60811	0.008048	0.010837	0.934028	Contact Rapids	2	16.21272	1.131959
14RLD-008	77.95	9.533757058	0.873625	5.188625	0.060821	0.693113621	2.06839	11.26626	0.001184	0.02206	1.418938	Contact Rapids	2	20.80002	1.181723
14RLD-008	78.96	9.684400243	2.630598	7.153521	0.051763	0.738972996	2.201729	9.841556	-0.00807	0.043328	1.733881	Contact Rapids	2	19.52596	1.016228
14RLD-008	79.96	9.426039461	2.596926	8.57189	0.032949	0.472643764	1.868374	11.76746	0.013074	0.022918	1.244905	Contact Rapids	2	21.19349	1.248399
14RLD-007	90.12	8.074141946	4.430677	14.54133	0.028279	0.545226302	1.651174	8.382118	-0.10078	0.008682	1.016049	Contact Rapids	2	16.45626	1.038143
14RLD-007	91.11	0.784152474	-0.65334	26.46748	0.008967	0.323937693	1.029368	8.522359	0.07706	-0.07132	0.398366	Contact Rapids	2	9.306511	10.86824
14RLD-007	92.17	7.930911584	1.512201	12.69269	0.026971	0.748786769	3.485452	4.536929	-0.03459	0.003001	1.565459	Contact Rapids	2	12.46784	0.572056
14RLD-007	92.9	9.140875513	-0.10702	4.626604	0.038348	0.394924387	3.271062	8.646652	-0.01387	0.008229	0.953859	Contact Rapids	2	17.78753	0.945933
14RLD-007	94.11	7.266959916	5.191964	13.14395	0.050113	0.461162849	3.164487	9.523202	-0.03248	0.04395	1.694771	Contact Rapids	2	16.79016	1.31048
14RLD-007	95.12	8.739661431	-0.84047	4.757402	0.025854	0.355054451	2.577658	10.7377	0.058297	-0.004	0.734336	Contact Rapids	2	19.47736	1.228617
14RLD-007	95.83	10.31561175	2.172431	5.536889	0.029585	0.400779379	1.493716	15.81381	-0.03251	0.025724	0.774541	Contact Rapids	2	26.12943	1.532998
14RLD-007	96.9	10.7236745	1.752207	4.405974	0.024331	0.386877367	2.01732	14.80342	-0.04384	0.02881	1.131277	Contact Rapids	2	25.5271	1.380443
14RLD006	84	8.120984405	4.556229	12.72769	0.016666	1.534442683	2.046385	10.06257	-0.085	0.032955	1.925129	Contact Rapids	2	18.18356	1.239083
14RLD006	85	5.758763125	0.392629	6.305265	0.037946	0.92856111	0.926432	24.52708	0.019076	0.031269	1.313587	Contact Rapids	2	30.28584	4.259087
14RLD006	86.09	9.975650363	3.076157	6.818322	0.041969	0.921298944	1.437202	13.61064	-0.06399	0.026234	1.657176	Contact Rapids	2	23.5863	1.364387
14RLD006	86.9	10.43478057	2.318764	4.962738	0.015583	0.585196224	1.354394	16.3337	-0.02055	0.035068	1.223996	Contact Rapids	2	26.76848	1.565313
14RLD006	88.06	5.23538114	3.617184	20.51543	0.027383	0.821936751	2.258528	7.427347	-0.02198	-0.0152	1.361283	Contact Rapids	2	12.66273	1.418683
14RLD006	90.1	10.30723564	1.813438	5.7519	0.03434	4.502573943	1.447187	13.63626	-0.00334	0.085748	2.908049	Contact Rapids	2	23.9435	1.32298

Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD006	91.06	7.909031049	0.16511	10.67014	0.030396	1.060270237	2.232515	8.89527	0.018238	-0.01011	1.271833	Contact Rapids	2	16.8043	1.124698
14RLD006	92.05	9.088181555	2.813834	9.559821	0.042004	0.609322948	2.242026	10.9443	-0.06554	0.037536	1.618051	Contact Rapids	2	20.03248	1.204234
14RLD006	93	9.479081695	1.087057	6.93627	0.030841	0.446247937	2.261227	12.03785	-0.0761	0.010452	1.114251	Contact Rapids	2	21.51693	1.269939
14RLD005	77.08	6.947220753	0.688209	4.458244	0.001752	1.231690041	0.66965	26.27491	0.020684	0.032683	1.076328	Contact Rapids	2	33.22213	3.782074
14RLD005	77.95	3.269731516	0.4338	11.58775	0.067569	1.28605564	1.377828	18.38463	0.058061	0.003396	1.712145	Contact Rapids	2	21.65436	5.622673
14RLD005	78.9	3.52719804	0.4499	8.36176	0.034374	0.609042265	1.351605	22.95692	0.073923	0.014372	1.338163	Contact Rapids	2	26.48412	6.508544
14RLD005	79.9	9.506229431	0.450212	4.709451	0.041764	0.496306169	1.39047	14.98013	-0.0241	0.028524	1.471402	Contact Rapids	2	24.48636	1.575823
14RLD005	81.07	8.543953236	0.57335	7.911081	0.045129	0.409061675	1.691283	15.27456	-0.01586	-0.00176	1.046232	Contact Rapids	2	23.81852	1.787763
14RLD005	81.87	7.460739221	-0.50199	3.099401	0.01554	0.321037377	1.33295	25.80725	0.114798	0.016008	0.837383	Contact Rapids	2	33.26799	3.459075
14RLD005	83.09	8.241504212	1.156811	10.48951	0.031475	0.386972927	2.962744	6.672995	0.000665	0.009611	1.538414	Contact Rapids	2	14.9145	0.809682
14RLD005	83.9	8.925727215	-0.21061	5.744527	0.030035	0.39068964	1.716868	10.91565	-0.00706	0.012619	1.509292	Contact Rapids	2	19.84137	1.222942
14RLD004	73.8	3.50567441	-0.89175	5.689616	0.047093	0.357452621	1.051084	27.41294	0.068885	0.029894	1.111384	Contact Rapids	2	30.91861	7.81959
14RLD004	75.05	8.180362275	0.088766	8.662511	0.010133	1.321247262	1.784795	12.40728	-0.00035	0.008736	0.953189	Contact Rapids	2	20.58764	1.516715
14RLD004	76.18	7.918542238	1.314732	8.170497	0.037843	0.771074076	1.895881	15.49145	-0.00939	0.028531	1.544944	Contact Rapids	2	23.40999	1.956351
14RLD004	77.08	9.351579051	0.201085	4.534329	0.027176	0.471868333	1.550335	17.06611	-0.046	0.020465	1.087595	Contact Rapids	2	26.41769	1.824944
14RLD004	77.95	6.761534587	0.124761	5.560777	0.039564	0.383019114	1.458548	23.48101	0.470145	0.030539	1.215668	Contact Rapids	2	30.24255	3.472734
14RLD004	78.93	8.464513336	1.043711	9.0305	0.05615	0.539983558	2.441211	9.810011	-0.03812	0.012953	1.653834	Contact Rapids	2	18.27452	1.158957
14RLD004	80.08	9.349669211	1.797838	7.607913	0.025662	0.777767346	3.220465	6.637154	-0.04396	0.040072	1.984181	Contact Rapids	2	15.98682	0.709881
14RLD004	81.21	7.864354458	2.035505	11.82051	0.027081	0.497300583	2.873102	6.500738	0.0429	-0.00992	1.768941	Contact Rapids	2	14.36509	0.826608
14RLD004	82.1	9.204494137	0.707266	6.234055	0.030466	0.63398314	3.473719	6.729782	0.010334	0.032778	1.80438	Contact Rapids	2	15.93428	0.731141
14RLD004	83.1	9.457948686	-0.42304	2.7104	0.027552	0.351094845	2.363889	12.59348	-0.06111	0.017577	1.025167	Contact Rapids	2	22.05143	1.331523
14RLD003	74.21	10.12439623	1.140573	4.782742	0.055341	0.531197539	1.360703	14.72891	0.011021	0.040392	1.671127	Contact Rapids	2	24.85331	1.454794
14RLD003	76	6.492334258	0.134368	11.70948	0.043189	0.415693381	1.851799	12.01263	0.054942	-0.00194	1.568129	Contact Rapids	2	18.50496	1.850279
14RLD003	76.95	4.230934666	0.625547	12.01524	0.041988	0.433510995	1.78096	15.91932	0.069293	0.011131	1.596305	Contact Rapids	2	20.15026	3.762602
14RLD003	77.05	4.826597911	0.547437	9.207138	0.062696	0.352896599	2.563493	16.55192	0.061494	-0.01204	1.151506	Contact Rapids	2	21.37852	3.429314
14RLD003	77.94	9.43404059	2.27552	7.871434	0.041813	0.436452085	2.112723	11.71124	-0.02338	0.031339	1.746981	Contact Rapids	2	21.14528	1.241381
14RLD003	78.92	7.788153341	-1.50731	6.643912	0.006498	0.337766654	1.205684	11.56054	0.037198	-0.01862	0.826941	Contact Rapids	2	19.3487	1.484375
14RLD003	80.11	8.363638369	2.622147	11.47591	0.052201	0.435982783	2.966623	7.195652	-0.00436	0.045487	2.095323	Contact Rapids	2	15.55929	0.860349
14RLD003	81.12	8.734574658	3.486099	10.60066	0.050086	0.387427284	2.736012	9.851207	-0.04715	0.028083	1.688472	Contact Rapids	2	18.58578	1.127841
14RLD002	78.19	9.090419921	2.047399	8.522754	0.053376	0.568441593	1.757864	13.63545	0.018395	0.032186	1.650191	Contact Rapids	2	22.72587	1.49998
14RLD002	79.04	8.324704853	0.997228	6.463377	0.044302	0.525852568	1.072282	19.43699	0.040977	0.035557	1.594145	Contact Rapids	2	27.7617	2.334857
14RLD002	79.9	6.138340583	-1.87389	10.39074	0.034499	0.619681576	1.644336	8.43423	0.110114	-0.00185	1.814655	Contact Rapids	2	14.57257	1.374025
14RLD002	81.13	0.66506324	1.613126	12.32868	0.007754	0.322744233	1.230399	22.90238	0.069515	0.012399	0.648423	Contact Rapids	2	23.56744	34.43639
14RLD002	82.11	3.749242526	-2.51447	9.640038	0.022772	0.321969352	1.372728	14.89821	0.101268	-0.01492	0.89598	Contact Rapids	2	18.64745	3.973659
14RLD002	83.04	8.85885672	1.048497	7.588032	0.034711	0.401940137	2.119967	11.61518	0.032994	0.016872	1.390346	Contact Rapids	2	20.47403	1.311137
14RLD002	84.06	4.988465421	1.312514	18.23478	0.02047	0.359846207	1.197238	11.94148	0.021138	-0.00406	1.025199	Contact Rapids	2	16.92995	2.393819
14RLD002	85.19	8.121178884	3.03956	12.59968	0.045888	0.439175062	3.331123	5.675721	0.057668	0.020605	1.661429	Contact Rapids	2	13.7969	0.698879

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14RLD002	86.06	2.858809691	4.46388	28.59578	0.026664	0.376744239	2.947217	1.573185	0.004708	-0.04544	0.82446	Contact Rapids	2	4.431995	0.550294
14RLD002	87.13	9.281320361	2.251467	7.897927	0.044238	0.362475589	2.987873	11.07572	-0.01777	0.015204	1.152541	Contact Rapids	2	20.35704	1.193335
14RLD002	88.15	9.930859824	2.863476	6.832469	0.038302	0.411257243	2.997743	10.89709	-0.05621	0.036148	1.62656	Contact Rapids	2	20.82795	1.097296
14RLD002	89.22	8.241408145	5.084095	13.16252	0.045802	0.482017077	4.356399	4.540979	-0.05502	0.037463	1.92104	Contact Rapids	2	12.78239	0.550996
14RLD002	89.97	7.399205354	4.953644	14.44136	0.029925	0.447736178	3.544452	7.314374	0.045884	0.020385	2.173369	Contact Rapids	2	14.71358	0.988535
14RLD001	77.87	10.2396054	0.647256	3.476469	0.03941	0.375271119	0.955181	19.9737	-0.01357	0.020225	0.79007	Contact Rapids	2	30.21331	1.950632
14RLD001	79.15	6.285196479	0.521289	9.441647	0.029146	0.385922216	1.678203	16.67802	0.038692	-0.01857	1.544297	Contact Rapids	2	22.96322	2.65354
14RLD001	79.84	6.736647542	-0.83422	9.382189	0.059131	0.558515272	2.057923	11.35683	0.039661	0.004602	1.486374	Contact Rapids	2	18.09348	1.685829
14RLD001	80.94	4.078229387	-6.84024	-9.51916	-0.01395	0.214523944	0.200854	12.50364	0.145958	-0.14654	0.386034	Contact Rapids	2	16.58187	3.065949
14RLD001	81.97	7.354473536	1.296077	12.96618	0.028822	0.433784483	2.746083	8.039834	0.046388	-0.02758	1.657518	Contact Rapids	2	15.39431	1.09319
14RLD001	82.92	9.283857932	4.685384	10.14573	0.060048	0.408931646	2.732016	8.701707	-0.04186	0.049178	1.936064	Contact Rapids	2	17.98557	0.937294
14RLD001	84.21	9.075568647	2.936484	10.16556	0.042543	0.446807735	2.676444	8.70031	-0.0834	0.038578	1.747541	Contact Rapids	2	17.77588	0.958652
14RLD001	85.22	6.890847829	-2.65826	7.19925	0.022988	0.333677252	1.662414	6.415725	0.065593	-0.06574	0.837196	Contact Rapids	2	13.30657	0.93105
14RLD001	85.89	1.095884838	0.463741	31.84556	0.018958	0.358517398	2.132219	1.703152	0.031925	-0.10353	0.426443	Contact Rapids	2	2.799037	1.554134
14RLD001	86.92	7.794305094	3.125833	14.98799	0.037408	0.386023217	3.676032	4.856656	0.050769	-0.00833	1.321039	Contact Rapids	2	12.65096	0.623103
14RLD001	88.22	8.786831383	5.826523	12.98629	0.046469	0.800532749	4.116541	4.732325	-0.12206	0.056794	2.455416	Contact Rapids	2	13.51916	0.53857
14RLD001	89.86	9.445588512	3.757711	9.106115	0.048979	0.407953765	3.735627	7.388419	-0.0838	0.048191	1.780885	Contact Rapids	2	16.83401	0.782208
14RLD001	90.07	10.22213256	3.079904	6.147316	0.030197	0.380725695	2.797368	11.63432	-0.04489	0.036713	1.313194	Contact Rapids	2	21.85646	1.13815
14RLD001	90.94	10.18769315	3.153343	6.259118	0.04281	0.387945276	3.315541	10.09694	-0.02326	0.037959	1.469636	Contact Rapids	2	20.28464	0.991092
14RLD001	91.9	10.39236464	1.831569	4.154273	0.028729	0.391752895	2.574757	12.4315	-0.01346	0.033078	1.263303	Contact Rapids	2	22.82387	1.196215
14RLD-008	81.17	6.564795434	2.270939	17.2422	0.036584	0.4132897	1.743242	8.712548	-0.01838	-0.01376	1.010828	La Loche	3	15.27734	1.327162
14RLD-008	83	3.986701077	0.205378	18.22039	0.013656	0.332633828	4.691973	-4.43819	0.221605	-0.12709	0.177113	La Loche	3	-0.45149	-1.11325
14RLD-007	98.13	9.433072793	0.234443	3.808352	0.039111	0.364401665	3.698295	7.559595	0.000587	0.003285	1.075266	La Loche	3	16.99267	0.801393
14RLD006	94.06	7.871766811	3.41919	14.10395	0.027845	0.639854422	2.014105	9.149774	-0.06292	0.011337	1.474924	La Loche	3	17.02154	1.162353
14RLD006	94.9	4.922706676	-0.12843	20.15478	0.006151	0.383593074	2.397096	4.214865	0.107176	-0.06858	0.581278	La Loche	3	9.137572	0.856209
14RLD006	96.15	9.453893403	2.155759	7.697184	0.018963	0.441983572	2.10442	13.72728	-0.0025	0.016738	0.885677	La Loche	3	23.18117	1.452024
14RLD005	85	5.195997012	-3.18269	11.23432	0.006791	0.319599949	1.717415	4.769294	0.119514	-0.19122	0.311252	La Loche	3	9.965291	0.917878
14RLD005	86.05	10.2625593	2.090937	4.697283	0.029517	0.372042452	3.067109	11.38398	-0.03072	0.035626	1.433139	La Loche	3	21.64654	1.109273
14RLD004	84.12	9.513462072	-0.51293	1.790797	0.028649	0.353814959	2.542316	12.37153	-0.01555	-0.01048	1.059673	La Loche	3	21.88499	1.300423
14RLD003	82.17	5.458957518	-0.77279	16.26483	0.02063	0.34029469	1.784992	6.651312	0.033554	-0.05242	0.748926	La Loche	3	12.11027	1.218422
14RLD003	83.18	7.735694734	-0.7082	8.307865	0.027463	0.359268325	3.357161	6.796922	0.010325	-0.03942	0.632302	La Loche	3	14.53262	0.878644
14RLD003	84.07	9.354669756	2.419842	7.082674	0.032569	0.370971015	5.269256	4.226396	0.114169	-0.00688	0.709385	La Loche	3	13.58107	0.451795
14RLD003	84.81	5.356067805	10.43523	22.97508	0.039477	0.389343472	8.776314	-10.0672	0.119751	-0.04648	0.415032	La Loche	3	-4.71112	-1.87958
14RLD003	85.84	5.717953151	13.33732	22.93275	0.028077	0.488201877	8.287191	-7.99662	0.129851	-0.04856	0.558068	La Loche	3	-2.27867	-1.39851
14RLD002	90.91	6.789366385	0.910796	13.60229	0.025165	0.351239309	3.064177	7.733576	0.06063	-0.04401	0.89621	La Loche	3	14.52294	1.139072
14RLD002	92.15	6.548980401	-0.39404	12.51498	0.023301	0.359662607	4.625918	0.576124	0.06196	-0.0518	0.314406	La Loche	3	7.125105	0.087972
14RLD001	93.11	10.28199882	1.84173	4.309888	0.0292	0.491435481	3.085781	10.55436	-0.03245	0.041812	1.655675	La Loche	3	20.83636	1.026489

Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD001	94.19	9.55216237	1.723945	6.652077	0.040888	0.366164565	2.79699	11.0711	0.035814	-0.01111	1.550516	La Loche	3	20.62326	1.159015
14RLD-008	65	10.5875036	-0.33716	0.629165	0.036112	0.414139837	0.331874	20.91828	-0.00876	0.027533	0.604199	Winnepegosis	1	31.50578	1.975752
14RLD-008	65.87	10.85241725	0.447936	1.956544	0.073572	0.817086592	0.628245	18.79377	-0.04544	0.031297	0.954347	Winnepegosis	1	29.64619	1.731759
14RLD-008	67	11.14128872	0.184113	0.114634	0.029707	0.502814364	0.28353	21.2098	-0.04681	0.027089	0.471824	Winnepegosis	1	32.35109	1.903712
14RLD-008	68.17	11.65723515	1.176349	2.023857	0.007783	0.451590193	0.301178	19.12847	-0.05859	0.029642	0.368215	Winnepegosis	1	30.78571	1.64091
14RLD-008	69	11.78069519	0.519917	0.805309	0.002349	0.39626974	0.187558	21.3762	-0.02641	0.020477	0.371343	Winnepegosis	1	33.1569	1.814511
14RLD-008	69.95	10.68622577	-0.09604	0.002667	0.003603	0.364635982	0.194079	22.25785	-0.01596	0.015155	0.299607	Winnepegosis	1	32.94408	2.082855
14RLD-008	71.08	7.28259091	-1.56226	-2.2286	0.014247	0.357924981	0.144584	23.27331	0.005432	0.004466	0.268246	Winnepegosis	1	30.5559	3.195746
14RLD-008	71.92	10.02200138	-0.25343	-0.05715	-0.00064	0.340874174	0.106595	22.91509	0.010542	0.012867	0.146733	Winnepegosis	1	32.93709	2.286479
14RLD-008	73.06	10.74852152	0.661159	1.019117	0.00817	2.192142912	0.962237	17.16113	-0.02505	0.048074	1.483929	Winnepegosis	1	27.90965	1.596603
14RLD-007	39.15	10.84174707	-0.32337	-0.16313	-0.00858	0.317745043	0.100623	24.72405	-0.00666	-0.01265	0.107975	Winnepegosis	1	35.5658	2.280449
14RLD-007	39.89	11.904664	0.308935	0.678933	-0.0039	0.337307342	0.060421	22.82732	-0.01209	0.005568	0.058679	Winnepegosis	1	34.73198	1.91751
14RLD-007	40.93	11.490793	0.059501	0.28305	0.008124	0.331852548	0.065642	23.65362	-0.0122	0.00576	0.057338	Winnepegosis	1	35.14441	2.058485
14RLD-007	42.12	12.14169002	0.800924	1.017911	-0.01513	0.346202459	0.064689	21.9652	-0.0055	0.010009	0.053585	Winnepegosis	1	34.10689	1.809073
14RLD-007	43.12	12.10159075	0.469934	0.608163	0.00058	0.339553113	0.073934	22.72709	0.00693	0.007135	0.055407	Winnepegosis	1	34.82868	1.878025
14RLD-007	44.12	11.96446331	0.308997	0.394722	-0.02341	0.336526659	0.068729	23.18636	0.019185	0.000333	0.045188	Winnepegosis	1	35.15083	1.937936
14RLD-007	44.85	12.19123381	0.695918	0.956774	-0.02207	0.347669002	0.048131	22.06439	-0.01211	0.000211	0.031678	Winnepegosis	1	34.25563	1.809857
14RLD-007	45.91	11.88336331	0.358008	0.725888	-0.0142	0.329881335	0.069033	23.34217	-0.01152	0.000523	0.156199	Winnepegosis	1	35.22553	1.964273
14RLD-007	47.13	12.01972132	0.429351	0.697971	0.000723	0.340169218	0.053056	22.59768	-0.01647	0.007951	0.067095	Winnepegosis	1	34.61741	1.880051
14RLD-007	48.17	11.79172623	0.212445	0.445743	0.004235	0.336488858	0.059614	23.23219	0.021962	0.011079	0.067125	Winnepegosis	1	35.02391	1.970211
14RLD-007	49.13	11.8459928	0.229216	0.502005	-0.02124	0.333491183	0.065304	23.29054	0.002129	0.003355	0.09283	Winnepegosis	1	35.13653	1.966111
14RLD-007	50.2	11.63874553	0.152391	0.652489	-0.01408	0.381820493	0.098215	23.03175	-0.00025	0.015114	0.182826	Winnepegosis	1	34.67049	1.978886
14RLD-007	50.96	11.95873715	0.390538	0.608986	-0.00245	0.352235697	0.060491	22.42193	0.001837	0.012385	0.078615	Winnepegosis	1	34.38067	1.874941
14RLD-007	51.91	10.24274887	-0.38586	-0.09731	-0.00417	0.32141742	0.077094	24.6918	-0.02656	-0.00301	0.073583	Winnepegosis	1	34.93455	2.410662
14RLD-007	53.14	11.7906269	0.382751	1.280175	-0.01452	0.345049609	0.062034	21.82458	-0.00175	0.006306	0.091519	Winnepegosis	1	33.6152	1.851011
14RLD-007	53.86	4.724093595	-3.53291	-11.3218	-0.00626	0.280097842	-0.02642	19.83981	0.068838	-0.05229	0.156563	Winnepegosis	1	24.5639	4.199707
14RLD-007	54.89	12.00641615	0.609425	1.282179	-0.00488	0.346126045	0.072386	21.72725	-0.01466	0.005722	0.085662	Winnepegosis	1	33.73367	1.809637
14RLD-007	56.12	11.26380046	-0.12229	1.206013	-0.02253	0.327200335	0.080424	23.29234	0.020126	0.007003	0.14811	Winnepegosis	1	34.55614	2.067893
14RLD-007	56.89	8.275946027	-1.6941	-0.04745	-0.01923	0.31168056	-0.00526	19.22277	0.000571	-0.02899	0.11949	Winnepegosis	1	27.49872	2.322728
14RLD-007	58.12	11.07916728	-0.14024	0.398181	-0.0142	0.327334999	0.081385	23.26106	0.002339	0.008425	0.131547	Winnepegosis	1	34.34023	2.099532
14RLD-007	58.94	11.13008702	-0.03509	0.767706	-0.00207	0.360304621	0.127631	22.4044	0.013907	0.011043	0.213385	Winnepegosis	1	33.53449	2.012959
14RLD-007	60.14	11.82420481	0.559214	1.409526	5.43E-05	0.655547331	0.124312	21.16676	-0.00834	0.017697	0.362125	Winnepegosis	1	32.99096	1.790121
14RLD-007	60.91	11.50636433	0.112184	0.65299	0.033149	0.380979175	0.17247	22.79934	0.014439	0.005037	0.25367	Winnepegosis	1	34.3057	1.981455
14RLD-007	61.9	11.48054313	0.137118	0.411705	0.007818	0.35402016	0.114888	22.79791	-0.02146	0.009172	0.146923	Winnepegosis	1	34.27846	1.985787
14RLD-007	62.95	11.95795823	0.997551	1.425	0.004951	0.355383529	0.069704	20.89597	-0.03137	0.011406	0.070559	Winnepegosis	1	32.85393	1.747453
14RLD-007	64.16	11.14116152	-0.01054	0.261513	-0.00798	0.367959969	0.154427	22.92447	-0.02882	0.012018	0.197734	Winnepegosis	1	34.06563	2.057638
14RLD-007	65.15	11.80042873	0.339407	0.559836	-0.02244	0.359226404	0.15691	22.56344	-0.02181	0.012406	0.227794	Winnepegosis	1	34.36387	1.912087

Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD-007	65.89	11.61202987	0.228537	0.662477	-0.00364	0.341149562	0.117619	22.33753	0.002283	0.009926	0.120151	Winnepegosis	1	33.94956	1.923654
14RLD-007	66.91	10.97373235	-0.41987	0.178166	0.009338	0.319872942	0.222233	23.2868	0.027042	0.003617	0.276159	Winnepegosis	1	34.26053	2.122049
14RLD-007	67.93	11.48954415	0.227592	1.120442	0.023968	0.366659893	0.182775	21.83025	-0.00418	0.010759	0.240475	Winnepegosis	1	33.3198	1.90001
14RLD-007	68.95	11.64468876	0.459759	1.017144	0.018013	0.408690617	0.260023	21.25867	0.005883	0.015	0.315837	Winnepegosis	1	32.90336	1.825611
14RLD-007	69.92	10.41748938	-0.16726	0.202814	0.014726	0.483450716	0.290445	21.30149	-0.02796	0.016032	0.393469	Winnepegosis	1	31.71898	2.044782
14RLD-007	70.92	9.804598592	-0.41205	0.019673	0.015674	0.421844578	0.239703	21.38602	-0.0181	0.016296	0.367743	Winnepegosis	1	31.19062	2.181223
14RLD-007	72.05	9.95599637	-0.32113	-0.26403	0.055435	0.637659051	0.499926	20.48867	-0.03539	0.026355	0.571496	Winnepegosis	1	30.44467	2.057923
14RLD-007	73.09	5.871181273	-5.7699	-16.6109	-0.00055	0.287029222	0.140726	14.71814	0.049101	-0.06744	0.400768	Winnepegosis	1	20.58932	2.506844
14RLD-007	74.05	9.312525668	-0.74684	-0.77253	0.029269	0.403976803	0.346763	22.02979	-0.01594	0.019747	0.436808	Winnepegosis	1	31.34232	2.365609
14RLD-007	75.12	11.18734351	0.356294	2.40377	0.013508	0.403131933	0.165572	19.7575	-0.0097	0.009319	0.23268	Winnepegosis	1	30.94485	1.766058
14RLD-007	75.87	11.59522755	0.629564	1.534647	0.002201	0.383772882	0.298508	20.1171	-0.01638	0.022922	0.342316	Winnepegosis	1	31.71233	1.734946
14RLD-007	77.13	11.09136826	0.292883	0.64458	0.018436	0.432334691	0.453926	20.29868	-0.03907	0.028314	0.468643	Winnepegosis	1	31.39005	1.830133
14RLD-007	78.12	11.5309212	0.339316	0.77512	0.008973	0.370678037	0.315878	21.45456	-0.03175	0.016472	0.304505	Winnepegosis	1	32.98548	1.860611
14RLD-007	78.84	9.824149918	-0.2681	-0.36478	0.022175	0.353387007	0.261335	21.72074	-0.02284	0.015948	0.278025	Winnepegosis	1	31.54489	2.210953
14RLD-007	80.11	9.398636042	-0.48722	-0.39547	0.008647	0.343582783	0.162668	23.18061	0.016651	0.008575	0.240847	Winnepegosis	1	32.57925	2.46638
14RLD-007	81.12	8.762108406	-0.57993	-0.46393	-0.01324	0.348082991	0.188303	22.66876	0.002452	0.010504	0.188237	Winnepegosis	1	31.43087	2.587136
14RLD-007	81.91	10.22354788	-0.22838	0.104354	-0.0211	0.33895238	0.154702	22.62835	-0.03099	0.011045	0.158724	Winnepegosis	1	32.8519	2.213356
14RLD-007	83.09	10.37902183	-0.12498	0.261178	-0.00773	0.340788453	0.109644	22.27524	0.009929	0.009064	0.100463	Winnepegosis	1	32.65426	2.146179
14RLD-007	83.92	10.54691317	0.419495	1.300819	0.001724	0.580666285	1.165112	16.94022	-0.02929	0.036256	0.937852	Winnepegosis	1	27.48713	1.606178
14RLD006	41.9	6.855174821	2.612684	3.316754	-0.0214	2.43309555	0.112267	14.5961	-0.07496	0.038826	0.380164	Winnepegosis	1	21.45128	2.129209
14RLD006	43.09	11.28825004	0.711095	2.362812	0.003019	0.393871825	0.097802	21.80695	0.002866	0.00597	0.20079	Winnepegosis	1	33.0952	1.931827
14RLD006	43.9	12.14810052	0.63323	0.718184	-0.01237	0.347844346	0.083174	21.86812	-0.01381	0.013073	0.056253	Winnepegosis	1	34.01622	1.800127
14RLD006	44.91	11.66750504	0.663482	1.811759	-0.03435	0.347313476	0.086182	22.29334	0.002019	0.010547	0.188844	Winnepegosis	1	33.96085	1.910721
14RLD006	46.16	11.77877337	0.24769	0.589078	-0.00018	0.339725739	0.056711	22.8476	-0.0176	0.003645	0.037458	Winnepegosis	1	34.62638	1.939727
14RLD006	46.96	10.28140375	1.706944	2.817427	-0.01022	0.370733664	0.048294	19.75496	0.008332	0.023484	0.08469	Winnepegosis	1	30.03636	1.921426
14RLD006	48.1	9.429171951	3.026939	3.654051	-0.02415	2.910915066	0.155456	17.54988	-0.00986	0.035646	0.896091	Winnepegosis	1	26.97905	1.861232
14RLD006	49.19	12.17991924	0.758717	0.953202	-0.00974	0.348687653	0.059086	22.16812	-0.00427	0.010146	0.107182	Winnepegosis	1	34.34804	1.820055
14RLD006	49.83	11.72076461	1.066953	1.637236	-0.00206	0.348427921	0.065947	21.48209	-0.01036	0.007768	0.136187	Winnepegosis	1	33.20285	1.832823
14RLD006	51.16	11.57627246	0.151369	0.285136	-0.01838	0.536306782	0.081327	23.19302	0.014634	0.008595	0.310577	Winnepegosis	1	34.76929	2.003496
14RLD006	52.13	11.92961149	0.3436	0.518788	-0.01934	0.343755558	0.059458	22.62799	-0.01439	0.012412	0.07985	Winnepegosis	1	34.55761	1.896792
14RLD006	52.84	11.7107851	0.247263	0.615762	-0.01122	0.339751772	0.056039	22.64663	0.050498	0.009238	0.098365	Winnepegosis	1	34.35742	1.933827
14RLD006	54.15	11.85335019	0.234753	0.497777	0.011036	0.345999286	0.092905	23.58106	0.003993	0.003772	0.254783	Winnepegosis	1	35.43441	1.989401
14RLD006	55.06	11.43660687	0.831612	1.591091	-0.01349	1.53250647	0.167689	21.3402	0.011191	0.019503	0.709758	Winnepegosis	1	32.77681	1.865956
14RLD006	55.94	11.85962046	0.327964	0.512107	-0.0197	0.339947083	0.075458	22.64917	0.018698	0.006156	0.074517	Winnepegosis	1	34.50879	1.909772
14RLD006	56.9	11.76382413	0.230117	0.447483	-0.01447	0.342643625	0.073763	23.0239	-0.00305	0.004665	0.142523	Winnepegosis	1	34.78772	1.957178
14RLD006	57.93	11.8949551	0.290446	0.55855	-0.01703	0.336491435	0.070748	23.03108	-0.00251	0.009611	0.11888	Winnepegosis	1	34.92603	1.936206
14RLD006	58.89	11.39284296	0.828303	2.513102	0.011838	0.4133638	0.107006	21.31344	0.030464	0.018732	0.716041	Winnepegosis	1	32.70628	1.870774

Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD006	61.82	11.99990379	0.492648	0.943399	0.000855	0.381143869	0.117994	23.41833	-0.02047	0.003828	0.188925	Winnepegosis	1	35.41824	1.951544
14RLD006	62.86	8.864724486	1.936735	3.663012	0.004067	0.705119334	0.121917	20.07267	-0.00278	0.006871	0.364172	Winnepegosis	1	28.93739	2.26433
14RLD006	64.14	10.55414414	1.223049	3.108585	0.013342	0.447136952	0.069509	21.29048	0.009128	0.010125	0.250417	Winnepegosis	1	31.84463	2.017263
14RLD006	64.93	11.6849294	0.280469	0.723845	0.015019	0.463310918	0.118484	22.67527	0.008697	0.012812	0.211569	Winnepegosis	1	34.36019	1.940556
14RLD006	65.95	11.92707706	0.509741	0.977276	0.022122	0.392883902	0.11876	22.16792	0.000278	0.013184	0.201429	Winnepegosis	1	34.095	1.858621
14RLD006	66.88	11.6578659	0.416809	1.42044	0.006078	0.44145645	0.149757	22.13973	-0.00065	0.01201	0.278083	Winnepegosis	1	33.79759	1.899123
14RLD006	67.98	11.47877379	0.270746	1.452424	0.006684	0.392687218	0.153063	21.97166	0.027802	0.009862	0.255083	Winnepegosis	1	33.45044	1.914112
14RLD006	69.13	11.61342895	0.425576	1.206799	0.008139	0.396782975	0.131593	21.36478	0.006049	0.015271	0.216581	Winnepegosis	1	32.97821	1.839661
14RLD006	69.83	11.24557565	0.104787	1.191989	0.015959	0.425120258	0.220076	21.71234	0.013085	0.012793	0.331835	Winnepegosis	1	32.95792	1.930745
14RLD006	71.1	11.44518302	0.192556	0.517609	-0.00099	0.397207066	0.20607	22.22039	0.003176	0.012448	0.293501	Winnepegosis	1	33.66558	1.941462
14RLD006	71.85	11.35983492	0.033739	0.293007	0.006063	0.335279014	0.129104	23.27118	0.00253	0.000551	0.146505	Winnepegosis	1	34.63101	2.048549
14RLD006	72.9	11.71043472	0.347141	0.590747	0.012729	0.34315838	0.180971	22.05574	-0.00485	0.011817	0.13792	Winnepegosis	1	33.76617	1.883426
14RLD006	74.05	11.06606688	0.014317	0.119318	0.026873	0.405126915	0.264973	22.36632	-0.01748	0.012424	0.303775	Winnepegosis	1	33.43239	2.021163
14RLD006	75.16	11.40232279	0.225028	0.12337	0.003126	0.342650898	0.23324	22.1441	-0.00386	0.013207	0.211726	Winnepegosis	1	33.54642	1.942069
14RLD006	76.18	11.69556471	0.443238	0.654147	-0.00423	0.360679203	0.243616	21.62872	-0.01043	0.015888	0.252449	Winnepegosis	1	33.32428	1.849309
14RLD006	77.1	11.21283356	0.007094	-0.07893	0.018322	0.367908642	0.237601	22.9421	0.01345	0.013157	0.28723	Winnepegosis	1	34.15494	2.046058
14RLD006	78.13	11.69838041	0.574011	0.844783	0.016097	0.390926267	0.41879	21.0684	-0.03025	0.018566	0.404041	Winnepegosis	1	32.76678	1.800967
14RLD006	79.12	11.73340051	0.495352	0.820667	-0.00601	0.378946124	0.318884	21.28476	-0.0265	0.016656	0.328649	Winnepegosis	1	33.01816	1.814032
14RLD006	79.95	11.53458152	0.271486	1.012675	0.171135	0.349495971	0.142321	22.2482	0.052245	0.003725	0.212318	Winnepegosis	1	33.78278	1.928826
14RLD006	80.88	11.87306188	1.042905	1.534276	0.012622	0.377813361	0.226547	20.93969	-0.00776	0.013447	0.273711	Winnepegosis	1	32.81276	1.763631
14RLD006	82.15	12.05763486	0.815478	1.233775	-0.01502	0.349832998	0.084133	21.41021	-0.01745	0.013422	0.063432	Winnepegosis	1	33.46784	1.775655
14RLD006	83.08	11.25448515	1.100195	2.405891	0.035122	0.554370638	0.930495	18.71166	-0.02934	0.021949	0.71762	Winnepegosis	1	29.96614	1.662595
14RLD005	35.13	10.41181193	-0.34405	-0.08888	0.004369	0.321849016	0.071988	24.53133	-0.00696	0.002375	0.115052	Winnepegosis	1	34.94314	2.356106
14RLD005	36.15	11.56392848	0.126	0.795546	-0.01075	0.338576699	0.079093	22.94113	-0.00297	0.008526	0.166591	Winnepegosis	1	34.50506	1.983852
14RLD005	37.05	11.33993794	0.181544	0.670182	0.014144	0.729919634	0.075746	21.88908	0.024141	-0.00018	0.136094	Winnepegosis	1	33.22902	1.930264
14RLD005	38.1	11.5387198	0.160641	0.402013	0.004672	0.357665153	0.080733	22.89437	-0.00914	0.009043	0.17211	Winnepegosis	1	34.43309	1.984134
14RLD005	38.94	12.0233565	0.576837	0.742834	-0.00348	0.359657286	0.057327	21.06202	-0.02626	0.008182	0.076036	Winnepegosis	1	33.08538	1.751759
14RLD005	39.97	11.7651098	1.030391	1.820866	0.002248	0.38391989	0.088043	20.87397	-0.01987	0.012625	0.154259	Winnepegosis	1	32.63908	1.774227
14RLD005	40.95	12.06674272	0.54867	0.85971	-0.00892	0.344956891	0.07149	22.65308	0.009345	0.008779	0.144458	Winnepegosis	1	34.71982	1.877315
14RLD005	41.75	11.9444815	0.378922	0.622941	-0.00884	0.351946668	0.069736	22.42324	-0.01026	0.011007	0.110062	Winnepegosis	1	34.36773	1.877289
14RLD005	42.75	11.80460433	0.329572	0.597375	-0.01269	0.35728791	0.061841	22.29811	-0.0018	0.012101	0.093971	Winnepegosis	1	34.10272	1.888934
14RLD005	43.94	11.9679514	0.730328	1.479168	-0.02262	0.382347926	0.065478	21.46068	-0.02638	0.017157	0.151245	Winnepegosis	1	33.42863	1.793179
14RLD005	44.99	11.29336567	2.569057	1.629457	-0.01471	4.094491148	0.085524	20.80365	-0.0024	0.022555	0.380415	Winnepegosis	1	32.09701	1.842112
14RLD005	46.12	11.6292523	1.276833	1.802369	0.005418	0.696485961	0.114098	20.80752	-0.01682	0.014382	0.231112	Winnepegosis	1	32.43678	1.78924
14RLD005	47.16	11.85404949	0.427847	0.574006	0.026858	1.070316156	0.086931	22.04256	0.003712	0.012264	0.278759	Winnepegosis	1	33.89661	1.859496
14RLD005	47.93	11.8947665	0.738427	1.34518	0.025432	1.34106224	0.120033	21.36765	-0.03826	0.012199	0.485748	Winnepegosis	1	33.26242	1.796391
14RLD005	49.05	11.736865	0.420837	0.863235	-0.00948	0.739290347	0.16141	21.89388	-0.01673	0.01503	0.272712	Winnepegosis	1	33.63074	1.865394

Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD005	49.95	11.76346934	0.29256	0.539164	-0.00104	0.436087205	0.095269	22.53811	-0.00904	0.009485	0.141275	Winnepegosis	1	34.30158	1.915941
14RLD005	50.89	11.17865861	0.014724	0.367326	0.023213	0.362450699	0.082153	22.97652	0.010145	0.009957	0.137874	Winnepegosis	1	34.15518	2.055392
14RLD005	52.06	11.50462197	0.190109	0.445133	-0.00692	0.395017208	0.086145	22.53646	-0.0149	0.014959	0.179022	Winnepegosis	1	34.04108	1.958905
14RLD005	53.13	11.34801541	0.209222	0.741156	0.046304	0.64148959	0.14365	21.63088	-0.00625	0.01231	0.244421	Winnepegosis	1	32.9789	1.906138
14RLD005	54.16	11.94096844	0.676894	1.178302	0.019169	0.79062417	0.12717	21.62815	-0.00466	0.01961	0.278211	Winnepegosis	1	33.56912	1.811256
14RLD005	54.93	10.96506401	0.053652	0.169483	0.009003	0.935009348	0.185458	22.08272	-0.02659	0.014889	0.2493	Winnepegosis	1	33.04778	2.013916
14RLD005	56.05	11.86563911	0.572523	0.981555	0.012614	1.159069743	0.183031	21.23867	-0.01767	0.017808	0.359077	Winnepegosis	1	33.1043	1.78993
14RLD005	57.09	10.82963617	-0.066	0.090494	0.013138	0.406890918	0.105547	22.94361	-0.00517	0.015424	0.203159	Winnepegosis	1	33.77325	2.118595
14RLD005	58.08	11.62702042	0.36022	0.798454	0.008564	0.380955025	0.133482	21.4045	-0.03979	0.015636	0.111169	Winnepegosis	1	33.03152	1.840927
14RLD005	58.88	9.848277151	-0.40246	-0.14172	0.00579	0.351836229	0.162481	23.34504	0.023267	0.008224	0.154978	Winnepegosis	1	33.19332	2.37047
14RLD005	59.96	11.21881792	1.13272	2.203112	0.016366	0.391482429	0.12787	21.75639	0.065795	0.004538	0.366713	Winnepegosis	1	32.97521	1.939277
14RLD005	60.93	11.07703202	-0.03084	0.500576	0.016234	0.349920374	0.122776	22.66192	0.01537	0.011483	0.251958	Winnepegosis	1	33.73896	2.045848
14RLD005	62.13	11.86963954	0.549774	1.227373	0.01852	0.360310711	0.173964	21.20511	-0.01921	0.018022	0.24475	Winnepegosis	1	33.07475	1.7865
14RLD005	63.06	11.66306233	1.122507	2.229336	0.031528	0.849368771	0.354926	19.44617	-0.00285	0.036769	1.360966	Winnepegosis	1	31.10923	1.667329
14RLD005	63.93	11.23533821	0.246917	1.492691	0.022509	0.377542276	0.269659	20.97624	-0.00325	0.015454	0.356695	Winnepegosis	1	32.21158	1.866988
14RLD005	65.13	11.08387082	0.121312	0.770945	0.023848	0.366771038	0.286774	21.17602	0.021193	0.019334	0.337634	Winnepegosis	1	32.25989	1.910526
14RLD005	65.93	10.82877096	-0.16893	1.070748	0.033122	0.361502068	0.262244	21.55928	0.001172	0.004286	0.393891	Winnepegosis	1	32.38806	1.990926
14RLD005	67.08	10.6167237	-0.24814	0.778223	0.030135	0.439573294	0.280523	21.41395	0.029403	0.013332	0.391112	Winnepegosis	1	32.03072	2.016992
14RLD005	68.14	10.87385619	0.060401	1.650551	0.031609	0.422755381	0.214687	20.36492	0.064	0.023228	0.435174	Winnepegosis	1	31.23878	1.872834
14RLD005	69.11	10.81251182	-0.01311	0.762011	0.041435	0.358758894	0.237405	21.13702	0.01496	0.017486	0.297069	Winnepegosis	1	31.94953	1.954867
14RLD005	70.13	11.43216311	0.356001	1.53123	0.019886	0.35400109	0.165538	20.80404	-0.0033	0.023953	0.282056	Winnepegosis	1	32.2362	1.819781
14RLD005	70.95	11.08014532	0.15447	0.42408	0.048492	0.509210514	0.255925	21.38425	0.013889	0.027811	0.429132	Winnepegosis	1	32.46439	1.929961
14RLD005	72.21	11.49109533	0.38465	0.791279	0.008468	0.478111147	0.276398	21.08174	0.013872	0.022501	0.373413	Winnepegosis	1	32.57284	1.834615
14RLD005	73.1	10.81942939	-0.31589	-1.21595	0.108141	0.364369106	0.208584	23.58814	0.008546	0.008337	0.291374	Winnepegosis	1	34.40756	2.180164
14RLD005	73.95	11.15801203	0.128174	0.018149	0.006183	0.368186282	0.281143	22.023	0.023572	0.014007	0.270355	Winnepegosis	1	33.18101	1.973739
14RLD005	74.93	10.71027061	-0.13916	-0.56423	0.002981	0.349787865	0.135489	23.11226	0.004923	0.010318	0.443482	Winnepegosis	1	33.82253	2.157953
14RLD005	75.96	10.94812543	-0.00988	0.444037	-0.01188	0.341895031	0.168491	22.14581	-0.00953	0.011428	0.155006	Winnepegosis	1	33.09394	2.022795
14RLD004	30.13	9.529227531	-0.55707	-0.46014	-0.0238	0.325823087	0.077189	23.98803	-0.02213	0.004572	0.111593	Winnepegosis	1	33.51726	2.517311
14RLD004	31.09	11.46294598	0.161276	0.344164	-0.01713	0.336824796	0.061474	22.68938	0.009696	0.011352	0.105821	Winnepegosis	1	34.15233	1.979367
14RLD004	33.06	9.225346469	1.608365	3.141668	0.005008	0.346289698	0.068073	21.4594	0.066651	0.00102	0.132975	Winnepegosis	1	30.68475	2.326135
14RLD004	34.09	9.785596856	-0.38102	-0.09349	0.0022	0.327384892	0.05916	23.98877	0.007043	0.01307	0.074549	Winnepegosis	1	33.77436	2.451436
14RLD004	35.1	8.986646172	-0.58882	-0.24496	0.002212	0.324426346	0.074878	24.21601	0.020487	0.00942	0.09293	Winnepegosis	1	33.20265	2.694666
14RLD004	36.22	11.21236462	0.059176	0.387127	-0.01086	0.338565271	0.095392	22.74205	0.001039	0.008701	0.097932	Winnepegosis	1	33.95441	2.028301
14RLD004	37.22	11.82202425	0.346264	0.492585	0.005224	0.33779965	0.105721	22.77945	0.017259	0.007228	0.145088	Winnepegosis	1	34.60148	1.926866
14RLD004	37.94	12.05248004	0.514624	0.843926	0.008312	0.352334958	0.048567	21.47019	-0.00575	0.010984	0.022191	Winnepegosis	1	33.52267	1.781392
14RLD004	39.07	10.66896804	-0.24633	-0.00491	-0.00023	0.324202323	0.082763	24.26889	0.018031	0.007212	0.111907	Winnepegosis	1	34.93786	2.274718
14RLD004	40.06	11.7410576	0.426634	0.800462	0.01593	0.57210573	0.080411	21.46367	-0.01713	0.011533	0.193608	Winnepegosis	1	33.20473	1.828087

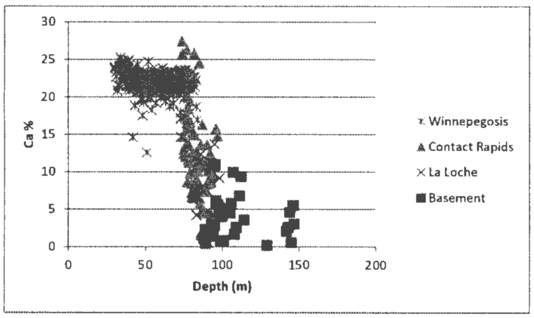
Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD004	40.88	10.09994022	-0.25261	0.077597	-0.00156	0.354964264	0.096076	22.91193	-0.01776	0.005292	0.1112	Winnepegosis	1	33.01187	2.268521
14RLD004	42.14	11.42990434	0.224081	1.57277	-0.002	0.367486277	0.051713	21.45109	0.026446	0.011664	0.1485	Winnepegosis	1	32.88099	1.876751
14RLD004	42.95	10.42909985	-0.15949	0.030479	0.012547	0.527725594	0.066614	23.00251	-0.01273	0.011099	0.077022	Winnepegosis	1	33.43161	2.205609
14RLD004	44.08	11.33217779	0.146616	0.602036	0.013183	0.733589371	0.085022	22.15983	-0.00868	0.008195	0.160608	Winnepegosis	1	33.49201	1.955478
14RLD004	45.11	11.87471053	0.631262	1.19654	0.014977	0.372738736	0.080632	21.55078	0.011622	0.01184	0.135829	Winnepegosis	1	33.42549	1.814847
14RLD004	45.86	11.62803914	0.327663	0.667746	-0.0128	0.428129179	0.081405	21.7717	0.008522	0.015579	0.114486	Winnepegosis	1	33.39974	1.872345
14RLD004	47.15	10.99512133	0.051007	0.399623	0.007459	0.41642203	0.101167	22.27739	-0.0035	0.008386	0.120755	Winnepegosis	1	33.27251	2.026116
14RLD004	48.05	11.53987602	0.347589	0.661264	0.002364	0.599927853	0.112658	21.35293	-0.02654	0.018736	0.193841	Winnepegosis	1	32.8928	1.85036
14RLD004	48.88	11.2893454	0.172975	0.526103	0.008324	0.433672846	0.120635	21.94899	-0.03507	0.013686	0.147023	Winnepegosis	1	33.23834	1.944222
14RLD004	49.92	11.34042506	0.115154	0.34988	0.006929	0.422193508	0.110958	22.67215	-0.02387	0.018706	0.225683	Winnepegosis	1	34.01257	1.999232
14RLD004	50.87	11.44989429	0.231882	0.223653	0.034021	1.550927973	0.178235	22.26672	0.011836	0.021463	0.273542	Winnepegosis	1	33.71661	1.94471
14RLD004	51.86	11.52030636	0.18943	0.450073	-0.01129	0.39292559	0.170114	22.54056	-0.02588	0.016762	0.210808	Winnepegosis	1	34.06087	1.956594
14RLD004	53.07	11.57573726	0.308894	0.677041	0.010449	0.372073011	0.113761	21.79654	0.000286	0.017834	0.206392	Winnepegosis	1	33.37228	1.88295
14RLD004	54.17	11.88770306	0.61758	1.31055	-0.0051	0.41311571	0.093432	20.83742	-0.00041	0.019948	0.255502	Winnepegosis	1	32.72512	1.752855
14RLD004	55.18	11.38980197	0.271746	0.978662	0.008705	0.375167785	0.066313	21.14425	0.005908	0.021831	0.196845	Winnepegosis	1	32.53405	1.856419
14RLD004	56.2	10.52928202	-0.10936	0.098442	0.016239	0.386511846	0.155242	22.40374	-0.00641	0.015865	0.227894	Winnepegosis	1	32.93302	2.127755
14RLD004	56.9	10.96219617	0.037532	0.477334	-0.00756	0.355398875	0.138862	21.81911	0.00783	0.015922	0.197353	Winnepegosis	1	32.78131	1.990396
14RLD004	58.05	10.25167331	-0.27636	-0.04772	-0.00916	0.359337524	0.174152	22.80918	-0.01449	0.013946	0.215396	Winnepegosis	1	33.06086	2.224923
14RLD004	59.08	9.970430469	-0.48534	-0.05743	0.027777	0.584192912	0.207683	22.272	0.024316	0.015568	0.362326	Winnepegosis	1	32.24243	2.233805
14RLD004	59.85	11.55334198	0.509738	1.911886	0.018614	0.374211796	0.110106	19.94741	-0.02877	0.016633	0.181721	Winnepegosis	1	31.50075	1.726549
14RLD004	60.86	11.38691872	0.376545	0.845292	0.018291	0.38565729	0.311052	20.70763	-0.01784	0.019031	0.284374	Winnepegosis	1	32.09455	1.818546
14RLD004	62.07	10.68270301	-0.01959	0.321779	0.020657	0.38040949	0.225763	21.28008	-0.00046	0.023993	0.351629	Winnepegosis	1	31.96278	1.992013
14RLD004	63.14	11.85910186	0.970919	1.947195	0.0207	0.369954865	0.174253	19.40251	-0.04723	0.018478	0.178672	Winnepegosis	1	31.26161	1.636086
14RLD004	64.18	10.30889209	-0.34026	0.210134	0.012406	0.454942143	0.337844	21.37048	0.003421	0.020729	0.50277	Winnepegosis	1	31.67937	2.073014
14RLD004	65.11	10.5317763	-0.26688	0.96415	0.02663	0.391564496	0.369133	20.49567	0.028173	0.009235	0.468516	Winnepegosis	1	31.02745	1.946079
14RLD004	65.95	10.88884061	-0.01079	1.219029	0.001392	0.37059358	0.225985	20.94245	0.022842	0.008713	0.395673	Winnepegosis	1	31.83129	1.923295
14RLD004	67.14	11.43364899	0.339871	0.980299	0.00729	0.358922215	0.266779	21.09318	-0.0337	0.013179	0.286116	Winnepegosis	1	32.52683	1.844834
14RLD004	68.1	11.03360049	-0.00694	0.03714	0.008434	0.348096582	0.20545	22.69047	0.001215	0.013294	0.255751	Winnepegosis	1	33.72407	2.056488
14RLD004	68.96	12.06062946	0.797057	1.111838	-0.01227	0.355580093	0.162672	20.86447	-0.03385	0.014621	0.162271	Winnepegosis	1	32.9251	1.729965
14RLD004	70.1	11.53404981	0.202685	0.481887	-0.00207	0.342508505	0.143543	22.47888	-0.00278	0.006488	0.262931	Winnepegosis	1	34.01292	1.948914
14RLD004	70.92	12.05692395	0.532986	0.728858	0.004505	0.345598518	0.081358	22.0467	0.001677	0.011559	0.107781	Winnepegosis	1	34.10362	1.828551
14RLD004	71.96	10.15423373	-0.25266	0.073751	-0.00013	0.356019255	0.345017	21.40733	0.025509	0.012244	0.346424	Winnepegosis	1	31.56156	2.108217
14RLD004	72.93	10.64444786	-0.08975	1.723229	0.033075	0.537785913	0.59811	22.43533	0.002143	0.031561	0.721121	Winnepegosis	1	33.07978	2.107703
14RLD003	39.06	10.71946812	-0.00177	0.285247	0.007989	0.345538075	0.065503	22.42261	-0.00149	0.012736	0.063772	Winnepegosis	1	33.14208	2.091765
14RLD003	40.11	12.0312255	0.652948	0.802104	-0.00541	0.682132612	0.054132	21.68795	-0.01691	0.016773	0.078903	Winnepegosis	1	33.71918	1.802639
14RLD003	41	11.07133502	0.655896	1.720797	0.014705	0.324192875	0.077999	22.69596	0.009883	0.002596	0.241846	Winnepegosis	1	33.76729	2.049975
14RLD003	42.1	11.98940735	0.745637	1.286935	0.010278	0.385900956	0.100086	21.47039	-0.02319	0.00944	0.144355	Winnepegosis	1	33.4598	1.79078

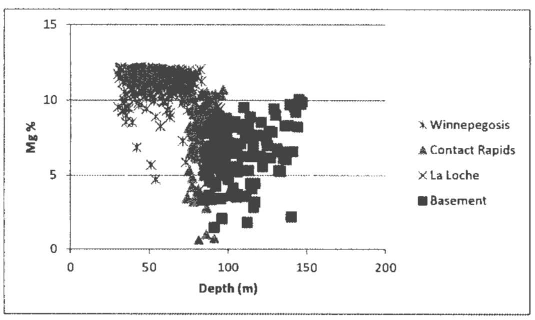
Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD003	43.09	9.836692031	0.063977	4.959055	-0.00521	0.342307056	0.024853	18.86191	0.014975	-0.01032	0.289006	Winnepegosis	1	28.6986	1.917505
14RLD003	44.15	11.37430437	0.259791	1.66307	-0.00177	0.406878892	0.106804	21.11506	0.017932	0.008581	0.202065	Winnepegosis	1	32.48937	1.856383
14RLD003	45.11	12.00766682	0.82989	1.256024	0.006078	0.982964193	0.09857	21.17247	-0.01053	0.018563	0.240386	Winnepegosis	1	33.18013	1.763246
14RLD003	45.97	11.83026324	0.547946	1.097373	0.007478	1.351889512	0.113822	21.7139	0.009575	0.003925	0.740815	Winnepegosis	1	33.54416	1.835453
14RLD003	46.92	11.80331075	0.501224	0.742392	0.018822	0.737423771	0.089638	21.77571	-0.01696	0.015337	0.362855	Winnepegosis	1	33.57902	1.844882
14RLD003	47.95	10.1376578	1.995739	3.628971	0.011526	0.752927565	0.103798	19.61236	-0.01617	0.016778	0.567468	Winnepegosis	1	29.75002	1.934604
14RLD003	48.92	11.95967861	0.466881	0.772284	-0.01292	0.357068198	0.048148	21.7301	-0.00523	0.011226	0.082577	Winnepegosis	1	33.68978	1.816947
14RLD003	49.87	11.98903712	0.40156	0.598615	0.016191	0.374856528	0.091904	22.93429	-0.01287	0.015589	0.18781	Winnepegosis	1	34.92333	1.912938
14RLD003	50.97	5.687620987	0.327279	18.08185	-0.00028	0.385481695	-0.05505	12.60015	0.017563	-0.02464	0.16777	Winnepegosis	1	18.28777	2.215363
14RLD003	51.05	11.9109021	0.366313	0.865572	0.105952	0.353463199	0.086677	22.87375	0.00708	0.01218	0.221063	Winnepegosis	1	34.78465	1.920404
14RLD003	52.87	9.94405336	1.797602	3.979639	-0.00232	0.59456505	0.065479	19.9211	-0.01371	0.016238	0.162898	Winnepegosis	1	29.86515	2.003318
14RLD003	53.94	8.908955168	0.717158	7.779158	0.100611	0.906821661	0.096381	18.2616	-0.003	-0.03018	0.640169	Winnepegosis	1	27.17056	2.049803
14RLD003	54.97	12.12192433	0.976699	1.091819	-0.00054	2.285729744	0.071792	20.89688	-0.0128	0.035668	0.546829	Winnepegosis	1	33.0188	1.723891
14RLD003	55.93	12.02563224	0.464692	0.608663	0.006821	0.482694091	0.071542	22.81092	0.032115	0.020695	0.203605	Winnepegosis	1	34.83655	1.896858
14RLD003	57.04	12.09095512	0.850272	1.032051	0.012526	0.808099406	0.126809	21.34106	-0.02012	0.024619	0.353397	Winnepegosis	1	33.43201	1.765043
14RLD003	58.16	12.04755444	0.585542	0.926497	0.014651	0.355488887	0.071684	21.40414	-0.00821	0.014177	0.113461	Winnepegosis	1	33.45169	1.776637
14RLD003	58.89	11.70711567	0.29088	0.649664	0.020879	0.356696318	0.143714	22.33402	-0.00686	0.019449	0.216672	Winnepegosis	1	34.04113	1.90773
14RLD003	60.95	11.67410061	0.241919	0.350707	0.031159	0.427244962	0.077427	22.79154	-0.03791	0.015567	0.236081	Winnepegosis	1	34.46565	1.952317
14RLD003	61.89	10.08822528	-0.3123	-0.11281	0.062023	0.410872652	0.126646	23.37827	-0.02952	0.014862	0.211286	Winnepegosis	1	33.46649	2.317382
14RLD003	62.95	9.147068123	-0.98248	0.272097	-0.0171	0.320485691	0.023427	21.43049	0.025506	-0.00601	0.083895	Winnepegosis	1	30.57755	2.34288
14RLD003	64.08	11.4567091	0.087438	0.243471	-0.01041	0.346066076	0.070365	23.31215	0.007405	-0.0016	0.143931	Winnepegosis	1	34.76886	2.034804
14RLD003	65.04	10.9668203	-0.00614	0.10443	0.0082	0.375983785	0.167585	22.64199	-0.01868	0.019307	0.253504	Winnepegosis	1	33.60881	2.064591
14RLD003	66.04	10.95260335	-0.0793	0.114176	0.018098	0.362125732	0.123217	23.30428	-0.02243	0.005862	0.246485	Winnepegosis	1	34.25688	2.127739
14RLD003	67.04	11.08632023	-0.00086	0.040622	0.120497	0.364853694	0.258473	22.592	0.026552	0.013762	0.336841	Winnepegosis	1	33.67832	2.037827
14RLD003	68.15	11.42103116	0.254772	0.611888	-0.00641	0.363240254	0.239632	21.62565	-0.0023	0.018706	0.258292	Winnepegosis	1	33.04668	1.893494
14RLD003	68.94	11.31764088	0.131401	0.270948	0.001491	0.355067922	0.163918	22.49973	0.00026	0.013235	0.228124	Winnepegosis	1	33.81737	1.988023
14RLD003	70.19	11.68963777	0.462255	0.848386	0.009316	0.359041854	0.186694	20.96218	0.013824	0.015495	0.172972	Winnepegosis	1	32.65182	1.793227
14RLD003	70.91	11.44498484	0.207337	0.460495	0.017852	0.375926445	0.170557	22.18208	0.004453	0.00888	0.176529	Winnepegosis	1	33.62706	1.938148
14RLD003	71.87	10.59536395	-0.18509	0.107798	0.005786	0.331202398	0.093241	23.4667	0.031261	0.010585	0.085225	Winnepegosis	1	34.06206	2.214808
14RLD003	72.89	11.06359826	0.827934	2.219165	0.02804	0.466843802	0.997261	17.92568	0.003211	0.027369	0.924053	Winnepegosis	1	28.98927	1.620239
14RLD002	30.15	11.72382151	0.12861	0.349232	0.006904	0.332153958	0.060681	23.74304	-0.00337	0.008925	0.129901	Winnepegosis	1	35.46686	2.025196
14RLD002	31.1	12.1104696	0.468406	0.705939	-0.03445	0.332501825	0.072449	23.31776	0.036264	0.006858	0.185565	Winnepegosis	1	35.42823	1.925421
14RLD002	32.05	12.18422112	0.824906	1.016636	-0.01137	0.351356061	0.037273	21.56175	-0.02188	0.012703	0.111924	Winnepegosis	1	33.74598	1.769646
14RLD002	33.08	11.20240861	-0.08835	-0.06492	-0.02302	0.326370598	0.087379	24.02317	0.022308	0.007787	0.146147	Winnepegosis	1	35.22558	2.144465
14RLD002	33.89	10.54703276	-0.55021	-0.45024	-0.02565	0.310651362	0.078264	25.26097	0.007655	-0.00109	0.106033	Winnepegosis	1	35.808	2.395079
14RLD002	35.1	11.85950477	0.167425	0.401262	-0.01764	0.328485607	0.064459	23.86395	0.00058	0.000419	0.092746	Winnepegosis	1	35.72345	2.012221
14RLD002	35.96	12.04511232	0.343432	0.599477	-0.00507	0.334960988	0.060892	23.22365	0.006287	0.010815	0.106554	Winnepegosis	1	35.26876	1.928056

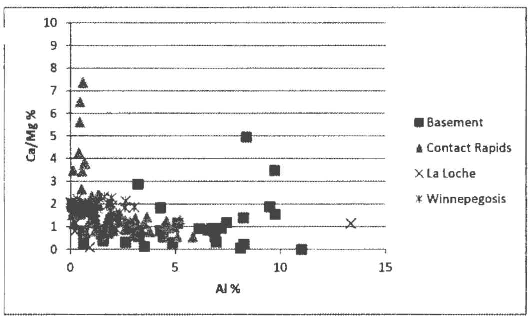
Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD002	37.07	11.45976907	0.05453	0.297086	-0.00779	0.331229002	0.060044	23.62917	-0.01946	0.010079	0.085896	Winnepegosis	1	35.08894	2.061924
14RLD002	38.11	11.58683688	0.116963	0.303813	0.000323	0.333470785	0.056217	23.48627	0.001114	0.007085	0.116326	Winnepegosis	1	35.07311	2.026979
14RLD002	39.11	8.536612759	-0.67652	-0.26619	-0.02036	0.318828939	0.064753	24.92544	-0.01272	-0.00311	0.092295	Winnepegosis	1	33.46205	2.919828
14RLD002	40.12	11.76841017	0.304338	0.535029	-0.00301	0.363773556	0.053917	22.34542	0.006478	0.009569	0.071407	Winnepegosis	1	34.11383	1.898763
14RLD002	40.95	11.8100558	0.338703	0.390135	0.005217	0.60132539	0.062299	22.51467	-0.00704	0.01424	0.23994	Winnepegosis	1	34.32472	1.906398
14RLD002	41.95	11.55371606	0.134202	0.398268	0.012229	0.33968976	0.072635	23.16053	-0.02713	0.013866	0.106119	Winnepegosis	1	34.71425	2.004596
14RLD002	42.9	11.96957243	0.43387	0.51928	0.009416	0.359550609	0.085943	22.55244	-0.00162	0.010047	0.141813	Winnepegosis	1	34.52201	1.884147
14RLD002	44.16	11.54374969	0.159632	0.372981	-0.0156	0.369501596	0.074822	22.96192	-0.03616	0.00483	0.113144	Winnepegosis	1	34.50567	1.989122
14RLD002	44.93	11.13019378	-0.12077	0.021989	-0.02119	0.32517866	0.060669	24.29636	-0.01094	0.004946	0.076739	Winnepegosis	1	35.42655	2.182923
14RLD002	45.81	11.09758024	-0.04138	0.587577	-0.01363	0.334270733	0.077914	22.68884	0.01199	0.004862	0.082629	Winnepegosis	1	33.78642	2.044485
14RLD002	47.09	10.93124184	-0.10342	0.328328	-0.00804	0.444181654	0.086739	22.83794	-0.02142	0.008711	0.177005	Winnepegosis	1	33.76918	2.089235
14RLD002	47.94	10.73925565	-0.2854	1.469273	0.002612	0.326546643	0.042233	22.01463	-0.00174	0.004815	0.159806	Winnepegosis	1	32.75388	2.049921
14RLD002	48.96	11.38834415	0.332653	2.059019	0.019033	0.465902327	0.101284	20.64945	-0.00725	0.007419	0.191337	Winnepegosis	1	32.03779	1.813209
14RLD002	49.85	11.35318557	0.252089	1.981445	-0.00037	0.47036848	0.104701	21.31847	0.001481	0.002811	0.238166	Winnepegosis	1	32.67166	1.877753
14RLD002	50.95	11.46183748	0.238489	0.732459	0.018284	0.406426277	0.10105	21.81078	-0.02183	0.013872	0.200247	Winnepegosis	1	33.27262	1.902904
14RLD002	52.19	11.18810151	0.026451	0.34611	-0.004	0.438770026	0.070719	22.94188	-0.01753	0.011927	0.208001	Winnepegosis	1	34.12998	2.050561
14RLD002	53.18	12.10639992	0.640443	0.931492	-0.00296	0.357941584	0.039746	20.98979	0.00483	0.013492	0.044222	Winnepegosis	1	33.09619	1.733776
14RLD002	54.14	11.08107699	0.073635	0.483525	0.012034	0.357147204	0.089696	22.14931	0.008663	0.013541	0.118493	Winnepegosis	1	33.23039	1.998841
14RLD002	55.11	11.11599089	0.026469	0.629942	-0.00698	0.359876473	0.074429	22.34455	0.005125	0.007305	0.090134	Winnepegosis	1	33.46054	2.010127
14RLD002	55.93	11.0767918	0.035171	0.589754	-0.01309	0.34657037	0.059139	22.29926	-0.00756	0.007715	0.08359	Winnepegosis	1	33.37605	2.013151
14RLD002	56.95	11.63962375	0.384958	1.470016	0.00046	0.346651748	0.060159	21.53823	-0.01301	0.004654	0.134175	Winnepegosis	1	33.17785	1.850423
14RLD002	57.86	11.53146778	0.296462	0.833644	0.017645	0.364193639	0.088053	21.51913	-0.02488	0.005771	0.076728	Winnepegosis	1	33.0506	1.866123
14RLD002	58.85	11.79626685	0.382729	0.892645	-0.02091	0.350731936	0.086812	22.01424	-0.00424	0.009015	0.163819	Winnepegosis	1	33.81051	1.866204
14RLD002	59.84	11.34752594	0.221723	1.130729	-0.01464	0.413902951	0.129815	21.24106	-0.00631	0.010372	0.146349	Winnepegosis	1	32.58858	1.871867
14RLD002	60.92	11.51269825	0.324205	1.170725	0.008448	0.405418358	0.140196	21.29878	-0.00368	0.017801	0.214799	Winnepegosis	1	32.81148	1.850025
14RLD002	62.07	10.59088145	-0.16469	0.193765	-0.00634	0.348223336	0.131845	22.69265	-0.01272	0.009129	0.124031	Winnepegosis	1	33.28353	2.142659
14RLD002	62.83	11.13789261	0.057903	0.300698	0.003257	0.342242963	0.079936	22.73672	-0.01971	0.008758	0.096509	Winnepegosis	1	33.87462	2.041385
14RLD002	63.89	10.68912139	-0.11701	0.175022	0.001395	0.38425912	0.188864	22.29761	-0.00155	0.014026	0.214309	Winnepegosis	1	32.98673	2.086009
14RLD002	65.13	11.56840861	0.302238	0.77938	0.002715	0.400236063	0.182543	21.9275	-0.01181	0.012077	0.217008	Winnepegosis	1	33.49591	1.895464
14RLD002	65.94	10.97279725	-0.00631	0.52605	0.007276	0.439633741	0.245397	21.74266	-0.00622	0.014155	0.263056	Winnepegosis	1	32.71545	1.981505
14RLD002	66.93	11.77664039	0.438525	0.801693	0.015554	0.363316695	0.185119	21.55207	0.001308	0.010143	0.17238	Winnepegosis	1	33.32871	1.83007
14RLD002	68.19	11.20838972	0.200464	0.533234	0.013991	0.373573613	0.196028	21.46083	-0.01296	0.013124	0.25568	Winnepegosis	1	32.66922	1.914711
14RLD002	69.12	11.15270195	0.072091	0.366528	0.004438	0.344615575	0.163275	22.30264	-0.02716	0.009142	0.178132	Winnepegosis	1	33.45535	1.999753
14RLD002	70.13	11.58256113	0.354498	0.665158	0.00367	0.379521743	0.310115	21.6433	-0.0061	-0.01385	0.325737	Winnepegosis	1	33.22586	1.868611
14RLD002	71.21	11.23034605	0.008754	0.134078	-0.00314	0.340935214	0.178027	23.17793	0.008541	0.013219	0.238609	Winnepegosis	1	34.40828	2.063866
14RLD002	71.97	11.84711988	0.356764	0.588865	-0.00436	0.346268125	0.157971	22.47715	-0.00947	0.016261	0.207686	Winnepegosis	1	34.32427	1.897267
14RLD002	72.9	11.73866451	0.267867	0.478882	-0.01564	0.34109205	0.079079	22.60646	-0.02371	0.01197	0.102889	Winnepegosis	1	34.34512	1.925812

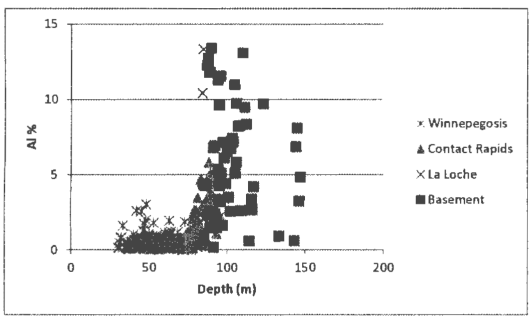
Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD002	74.11	11.22679833	-0.03012	0.222567	0.006643	0.331280628	0.14531	23.41378	0.005314	0.009216	0.160644	Winnepegosis	1	34.64058	2.085526
14RLD002	75.06	11.98338848	0.528287	0.834978	0.002252	0.348275718	0.153796	21.64054	-0.04508	0.011834	0.142363	Winnepegosis	1	33.62393	1.805878
14RLD002	76.08	10.14613535	-0.28207	0.021322	-0.00438	0.330885721	0.109927	23.54063	-0.00297	0.004773	0.09476	Winnepegosis	1	33.68676	2.320157
14RLD002	77.18	11.27346524	0.159539	0.51127	0.001258	0.390168855	0.465236	21.59428	-0.02479	0.016705	0.408986	Winnepegosis	1	32.86775	1.915496
14RLD001	31.81	11.95026828	0.778978	1.273136	-0.00069	0.35331591	0.041902	20.87673	-0.023	0.015597	0.041941	Winnepegosis	1	32.82699	1.746967
14RLD001	32.91	9.341770737	-0.75092	-0.74991	0.019309	0.319835755	0.062572	24.08627	-0.01539	0.00352	0.157238	Winnepegosis	1	33.42804	2.578341
14RLD001	34.17	9.970465839	-0.45179	-0.23182	-0.01657	0.327870233	0.071862	24.16553	0.002355	0.007534	0.141972	Winnepegosis	1	34.13599	2.423711
14RLD001	35.16	8.54245457	-0.78815	-0.57789	0.002226	0.317985969	0.074799	24.8274	0.008163	0.006384	0.108242	Winnepegosis	1	33.36986	2.906354
14RLD001	36.17	9.534639416	-0.39599	-0.10141	-0.00902	0.329749411	0.068909	23.73801	-0.00571	0.009048	0.060257	Winnepegosis	1	33.27265	2.48966
14RLD001	37.1	9.453737115	-0.35582	-0.04393	0.001189	0.333712808	0.058726	23.35176	0.010921	0.006055	0.04325	Winnepegosis	1	32.8055	2.470109
14RLD001	37.93	11.57679111	0.327179	0.601531	-0.00607	0.349447349	0.06451	21.63647	-0.02644	0.008388	0.043959	Winnepegosis	1	33.21326	1.868952
14RLD001	38.94	11.66144217	0.281698	0.537489	-0.00069	0.358239876	0.060011	22.29545	-0.01088	0.004859	0.069037	Winnepegosis	1	33.95689	1.911895
14RLD001	39.94	10.50055083	-0.12528	0.25909	-0.00802	0.33672199	0.069419	22.98428	0.005158	0.00775	0.04671	Winnepegosis	1	33.48483	2.188865
14RLD001	40.92	10.3543267	-0.1743	0.029784	0.001633	0.334873477	0.053995	23.23272	-0.01082	0.006663	0.062342	Winnepegosis	1	33.58705	2.24377
14RLD001	41.95	11.36842321	0.154117	0.399525	0.002563	0.341692328	0.039172	22.54349	0.006664	0.010138	0.079667	Winnepegosis	1	33.91191	1.982992
14RLD001	43.23	9.641562888	-0.40742	0.000587	0.00842	0.330022165	0.06051	23.38104	-0.00261	0.006744	0.053969	Winnepegosis	1	33.0226	2.425026
14RLD001	44.19	11.67910259	0.346314	0.574472	-0.0335	0.350494113	0.051766	21.75146	-0.0555	0.009273	0.02912	Winnepegosis	1	33.43056	1.862426
14RLD001	44.89	10.58150889	-0.04426	0.159579	-0.02565	0.389800507	0.074891	22.57063	-0.00892	0.01215	0.123035	Winnepegosis	1	33.15214	2.133026
14RLD001	45.93	11.40919678	0.237262	0.765859	0.00351	0.385279285	0.09866	21.56982	-0.00678	0.010071	0.078352	Winnepegosis	1	32.97901	1.890564
14RLD001	46.84	11.49594951	0.317866	0.995308	0.003095	0.404286771	0.11	21.21328	-0.00844	0.009481	0.098337	Winnepegosis	1	32.70923	1.845283
14RLD001	47.8	11.13742733	-0.04306	0.448647	0.002075	0.337037932	0.090048	23.00012	0.020757	0.003397	0.077817	Winnepegosis	1	34.13755	2.06512
14RLD001	48.95	12.08053578	0.89845	1.507179	0.000965	0.37079594	0.034818	19.33851	-0.05067	0.01297	-0.00776	Winnepegosis	1	31.41904	1.600799
14RLD001	50.08	10.44479692	-0.09519	0.294062	0.008674	0.341227397	0.058721	22.67655	0.010369	0.007225	0.049767	Winnepegosis	1	33.12134	2.171086
14RLD001	51.09	10.44479692	-0.09519	0.294062	0.008674	0.341227397	0.058721	22.67655	0.010369	0.007225	0.049767	Winnepegosis	1	33.12134	2.171086
14RLD001	52.13	11.26992429	0.283255	0.585975	-0.00675	0.621457575	0.188129	21.10829	0.00151	0.011445	0.197427	Winnepegosis	1	32.37821	1.872975
14RLD001	53.11	11.26830645	0.163104	0.38199	0.01238	0.464192907	0.177364	22.02132	-0.02868	0.010732	0.177558	Winnepegosis	1	33.28963	1.954271
14RLD001	54.15	11.26830645	0.163104	0.38199	0.01238	0.464192907	0.177364	22.02132	-0.02868	0.010732	0.177558	Winnepegosis	1	33.28963	1.954271
14RLD001	54.96	10.7736216	0.076859	0.315021	0.004354	0.408046972	0.115192	21.64904	-0.00293	0.013036	0.163408	Winnepegosis	1	32.42266	2.009449
14RLD001	56.06	10.96052883	0.144825	0.474907	-0.01143	0.370108794	0.148956	21.3391	-0.01003	0.012992	0.132178	Winnepegosis	1	32.29963	1.946904
14RLD001	56.9	11.52912586	0.381336	0.703168	0.004122	0.403445843	0.198567	21.21548	-0.01212	0.011253	0.19075	Winnepegosis	1	32.74461	1.840164
14RLD001	58.18	11.02464017	0.162329	2.528322	0.016934	0.350876903	0.102834	21.50458	0.012477	0.007448	0.136224	Winnepegosis	1	32.52922	1.950592
14RLD001	58.93	11.52539807	0.213079	0.861474	0.00971	0.364382841	0.125442	22.16801	-0.00231	0.004882	0.146852	Winnepegosis	1	33.69341	1.923405
14RLD001	60.13	11.4086905	0.17097	0.396632	0.024756	0.921919746	0.204233	22.31984	0.022396	0.017314	0.418566	Winnepegosis	1	33.72853	1.95639
14RLD001	61.15	9.327628651	-0.49362	-0.28064	0.019075	0.329200345	0.099925	23.86506	0.0092	0.009014	0.123418	Winnepegosis	1	33.19269	2.558535
14RLD001	61.87	11.76003321	0.37074	0.797185	-0.01223	0.356995512	0.14387	21.9216	0.009623	0.013236	0.191512	Winnepegosis	1	33.68164	1.864077
14RLD001	63.2	11.49378249	0.495672	1.1164	0.022476	0.650356441	0.415321	20.79271	-0.01719	0.016521	0.478711	Winnepegosis	1	32.28649	1.80904
14RLD001	63.92	11.5494093	0.360323	0.919715	0.012646	0.38843508	0.241839	21.60904	-0.0025	0.018629	0.34323	Winnepegosis	1	33.15845	1.871008

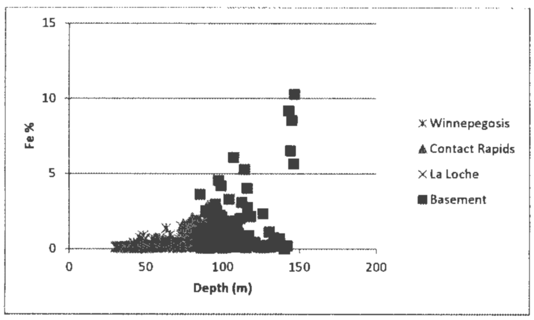
Hole ID	Depth (m)	MgKa1	AlKa1	SiKa1	P Ka1	S Ka1	K Ka1	CaKa1	BaLa1	MnKa1	FeKa1	Formation	FM_code	Ca+Mg	Ca/Mg
14RLD001	65.05	11.87845938	0.761803	1.76683	1.66E-05	0.356799585	0.061666	20.40121	0.005836	0.004866	0.064819	Winnepegosis	1	32.27967	1.717496
14RLD001	66.27	11.30996902	0.171789	1.316071	-0.00452	0.370757864	0.197605	21.47732	0.001896	0.015358	0.267567	Winnepegosis	1	32.78729	1.898973
14RLD001	67.25	11.06884252	0.141198	0.500748	0.017628	0.373684498	0.409419	21.09297	-0.01814	0.017604	0.372129	Winnepegosis	1	32.16181	1.905616
14RLD001	67.87	11.38808195	0.309459	1.003109	0.030494	0.361470151	0.353285	21.34547	-0.05731	0.011967	0.37419	Winnepegosis	1	32.73355	1.874369
14RLD001	68.85	11.27323709	0.30134	0.64396	0.0237	0.373413762	0.404071	20.90512	-0.02554	0.018174	0.351097	Winnepegosis	1	32.17836	1.854403
14RLD001	69.92	10.78684529	-0.09105	0.047795	0.016228	0.34397261	0.246993	22.1672	-0.01687	0.013962	0.266055	Winnepegosis	1	32.95405	2.055022
14RLD001	71.15	11.18095001	0.132877	0.846269	0.02354	0.355815741	0.189407	21.43672	-0.03401	0.01987	0.210596	Winnepegosis	1	32.61767	1.917254
14RLD001	72.12	11.00823248	0.001233	0.182151	-0.00528	0.339549041	0.135813	22.72238	-0.01623	0.010933	0.202971	Winnepegosis	1	33.73061	2.064126
14RLD001	72.96	10.02858051	1.875649	2.539911	0.002616	0.38974359	0.110785	17.10499	-0.06306	0.020559	0.036023	Winnepegosis	1	27.13357	1.705625
14RLD001	73.9	11.55568944	0.403059	0.621173	-0.00225	0.383721693	0.313336	21.23413	-0.01812	0.018637	0.2829	Winnepegosis	1	32.78982	1.837548
14RLD001	75.05	11.36106655	0.05739	0.114407	-0.00602	0.332699725	0.176799	22.99456	-0.00834	0.014357	0.169189	Winnepegosis	1	34.35562	2.023979
14RLD001	76.19	10.82113178	-0.20313	-0.15009	-0.02426	0.330843014	0.183028	22.55716	0.001351	0.006002	0.127222	Winnepegosis	1	33.3783	2.084548
14RLD001	77.1	10.42023827	0.125814	0.845984	0.02508	0.478578754	1.172027	17.69373	-0.03328	0.029928	1.06668	Winnepegosis	1	28.11397	1.698016
GNA-16	56.1	12.04749016	0.686774	1.037804	-0.003	0.395129904	0.064081	20.55748	-0.002	0.018966	0.05611	Winnepegosis	1	32.60497	1.706371
GNA-16	64.9	10.21550293	-0.58151	-0.65712	0.016561	0.391583564	0.285797	22.16904	0.004132	0.012661	0.324777	Winnepegosis	1	32.38455	2.170137
GNA-16	75.22	10.97206979	0.061331	0.254518	0.023315	0.39245272	0.238632	21.41688	-0.02359	0.016776	0.472268	Winnepegosis	1	32.38895	1.951946
GNA-10	26.5	10.15553866	0.684656	2.671279	-0.01133	0.416320062	0.166589	20.43459	0.023789	0.003318	0.466966	Winnepegosis	1	30.59013	2.012162
GNA-10	37.5	10.93274285	0.070126	0.25518	0.013737	0.481368622	0.157907	21.86681	0.010516	0.012141	0.14248	Winnepegosis	1	32.79956	2.000121
GNA-10	47.5	10.56387721	-0.02143	0.233798	0.012514	0.357877535	0.222896	21.27065	-0.01911	0.016042	0.159932	Winnepegosis	1	31.83453	2.013527
GNA-10	59.5	10.785971	0.045088	0.163832	0.026858	0.448577852	0.267123	21.43337	-0.00437	0.021575	0.470392	Winnepegosis	1	32.21934	1.987153
GNA-10	78	5.87347118	-1.23327	12.16231	0.03606	0.332831132	3.163068	-0.028	0.283523	0.024217	1.80551	Basement	4	5.845475	-0.00477
GNA-10	80	4.187162767	1.696535	19.98152	0.025576	0.347886295	3.805794	-1.82031	0.395882	-0.0259	0.740256	Basement	4	2.366849	-0.43474
GNA-10	82	6.610497946	-1.15881	9.428498	0.028722	0.337393757	6.48364	-7.48371	0.457731	-0.06501	0.455015	Basement	4	-0.87321	-1.13209
GNA-10	84	7.134459558	4.484481	15.50005	0.048149	0.376280975	5.584795	-3.41471	0.235711	0.09402	3.048572	Basement	4	3.719746	-0.47862
GNA-10	86	7.162698337	-9.94992	-8.41726	0.01185	0.313039474	2.436044	-0.35216	0.423778	-0.12363	1.279784	Basement	4	6.810536	-0.04917
GNA-10	88	6.640689755	-6.00048	2.086175	0.012067	0.327374645	2.571479	0.334925	0.404419	-0.16177	0.938834	Basement	4	6.975615	0.050435
GNA-10	90	4.404147042	2.905287	18.72901	0.026385	0.360210244	6.439437	-7.45911	0.565299	-0.07014	0.118168	Basement	4	-3.05496	-1.69366
GNA-10	91.5	6.739413417	-7.16869	0.064289	0.016129	0.318414959	3.561065	-2.31629	0.467411	-0.18654	0.882351	Basement	4	4.42312	-0.34369
GNA-10	93	7.297378867	-9.90694	-12.1246	0.018478	0.315453427	0.875665	2.036832	0.144823	0.002612	1.659493	Basement	4	9.334211	0.279118
GNA-10	94.5	3.726133023	-2.71544	15.96419	0.013985	0.345065842	3.188945	-1.67588	0.441237	-0.04415	0.453732	Basement	4	2.050252	-0.44976
GNA-10	95.5	5.818147945	0.77329	13.08489	0.045754	0.348089753	3.50928	-0.42896	0.300373	-0.04404	1.064014	Basement	4	5.389185	-0.07373
GNA-10	96.5	7.508458378	-13.6108	-29.2688	-0.00229	0.288622633	1.226071	0.873901	0.19889	0.004568	0.940922	Basement	4	8.382359	0.116389
GNA-10	97.5	7.020594533	-9.15577	-5.17441	0.010793	0.325650961	3.462554	-2.61639	0.452464	-0.03525	0.49196	Basement	4	4.404201	-0.37267
GNA-10	98.5	7.778132212	-12.5849	-18.5667	0.027285	0.302723265	2.328801	-1.15995	0.291645	-0.06738	1.029562	Basement	4	6.618178	-0.14913
GNA-10	99.5	6.624858683	-5.44981	3.777309	0.028373	0.339767796	1.978324	1.376586	0.422637	0.001689	3.125182	Basement	4	8.001445	0.207791


30
25
20
15
10
5
0
Ca %
0
50
100
150
200
Depth (m)
Winnepegosis
Contact Rapids
La Loche
Basement


15
10
5
0
Mg %
0
50
100
150
200
Depth (m)
Winnepegosis
Contact Rapids
La Loche
Basement


Ca/Mg %
Al %
Basement
Contact Rapids
La Loche
Winnepegosis


Al %
Depth (m)
Winnepegosis
Contact Rapids
La Loche
Basement


15
10
5
0
Fe %
0
50
100
150
200
Depth (m)
Winnepegosis
Contact Rapids
La Loche
Basement

Appendix 3b – Whole Rock Geochemical Results

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9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA
PHONE (604) 253-3158

Client: **Athabasca Minerals Inc.**
9524 27 Ave
Edmonton AB T6N 1B2 CANADA

Submitted By:	Bryan Atkinson
Receiving Lab:	Canada-Vancouver
Received:	May 06, 2014
Report Date:	May 29, 2014
Page:	1 of 6

CERTIFICATE OF ANALYSIS VAN14001455.1

CLIENT JOB INFORMATION

Project:	Athabasca Testing
Shipment ID:	ABM2014-001
P.O. Number	99211
Number of Samples:	124

SAMPLE DISPOSAL

DISP-PLP	Dispose of Pulp After 90 days
DISP-RJT	Dispose of Reject After 90 days

Acme does not accept responsibility for samples left at the laboratory after 90 days without prior written instructions for sample storage or return.

SAMPLE PREPARATION AND ANALYTICAL PROCEDURES

Procedure Code	Number of Samples	Code Description	Test Wgt (g)	Report Status	Lab
PRP70-250	124	Crush, split and pulverize 250 g rock to 200 mesh			VAN
LF202	124	Total Whole Rock Characterization with AQ200	0.2	Completed	VAN
DRPLP	124	Warehouse handling / disposition of pulps			VAN
DRRJT	124	Warehouse handling / Disposition of reject			VAN

ADDITIONAL COMMENTS

Invoice To: Athabasca Minerals Inc.
9524 27 Ave
Edmonton AB T6N 1B2
CANADA

CC: Heather Budney

BRITISH COLUMBIA CERTIFIED ASSAYER
Marcus Lau
MARCUS LAU

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Client: **Athabasca Minerals Inc.**
9524 27 Ave
Edmonton AB T6N 1B2 CANADA

Project: Athabasca Testing
Report Date: May 29, 2014

CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs
	Unit	kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm
	MDL	0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1
263101	Drill Core	1.81	1.37	0.14	0.27	20.19	29.91	0.02	0.04	<0.01	0.01	0.02	<0.002	<20	<1	47.7	99.65	10	<1	<0.2	<0.1
263102	Drill Core	1.15	1.43	0.24	0.27	20.01	29.02	0.01	0.05	0.01	0.01	0.02	<0.002	<20	<1	48.6	99.66	9	<1	<0.2	<0.1
263103	Drill Core	1.14	3.06	0.49	0.35	19.81	29.41	0.01	0.11	0.02	0.03	0.02	0.003	<20	<1	46.3	99.66	17	<1	0.8	0.2
263104	Drill Core	1.32	3.45	0.67	0.50	19.78	29.40	0.02	0.19	0.03	0.07	0.03	<0.002	<20	<1	45.5	99.65	20	<1	7.1	0.2
263105	Drill Core	2.19	69.22	14.77	2.89	1.16	1.94	3.08	5.13	0.35	0.14	0.04	0.003	<20	4	1.1	99.64	1946	5	4.5	0.4
263106	Drill Core	2.30	68.88	14.51	2.83	1.26	2.01	2.75	5.27	0.34	0.17	0.04	0.003	<20	5	1.6	99.65	1826	2	4.4	0.3
263107	Drill Core	2.35	69.09	14.77	2.99	1.31	1.85	2.99	5.07	0.37	0.15	0.04	0.003	<20	5	1.0	99.64	1850	3	4.4	0.5
263108	Drill Core	2.07	68.89	14.62	3.17	1.33	1.83	2.81	5.33	0.39	0.18	0.05	0.003	<20	6	1.0	99.62	1876	8	5.2	0.6
263109	Drill Core	2.01	69.85	14.63	2.62	1.19	1.62	3.16	4.98	0.32	0.13	0.04	0.003	<20	4	1.1	99.66	1846	2	4.6	0.3
263110	Drill Core	2.19	69.32	14.79	2.75	1.20	1.64	3.01	5.13	0.34	0.13	0.04	0.003	<20	4	1.3	99.66	1748	6	4.0	0.7
263111	Drill Core	2.15	68.93	14.85	3.29	0.86	1.48	3.18	5.70	0.39	0.16	0.03	0.003	<20	3	0.8	99.68	1462	5	3.9	0.8
263112	Drill Core	1.29	69.87	14.75	2.51	1.04	1.77	3.21	4.93	0.32	0.15	0.04	0.002	<20	4	1.1	99.69	1605	2	4.2	0.6
263113	Drill Core	1.85	71.47	13.85	1.16	0.51	2.19	3.01	5.82	0.12	0.91	0.02	<0.002	<20	2	0.7	99.76	1186	5	0.9	0.5
263114	Drill Core	2.33	69.79	14.72	2.70	1.15	1.89	3.27	4.62	0.34	0.17	0.04	0.003	<20	4	1.0	99.66	1702	5	4.0	0.6
263115	Drill Core	2.33	68.66	15.21	2.88	1.27	1.78	3.20	5.14	0.36	0.14	0.04	0.003	<20	4	1.0	99.68	1586	2	4.0	0.4
263116	Drill Core	2.95	68.75	15.03	2.98	1.49	1.24	2.67	5.52	0.37	0.15	0.04	0.003	<20	5	1.4	99.65	1823	3	5.2	0.7
263117	Drill Core	0.92	1.66	0.09	0.43	20.57	29.90	0.02	0.03	<0.01	<0.01	0.02	<0.002	<20	<1	46.9	99.64	6	<1	0.3	<0.1
263118	Drill Core	0.93	7.62	0.64	0.29	18.99	27.75	0.02	0.16	0.03	0.04	0.02	<0.002	<20	<1	44.1	99.67	22	2	0.9	0.2
263119	Drill Core	1.46	2.29	0.60	0.34	20.11	29.64	0.01	0.15	0.03	0.01	0.03	<0.002	<20	<1	46.4	99.65	14	<1	0.4	0.2
263120	Drill Core	1.45	0.28	0.03	0.11	20.87	30.60	0.01	<0.01	<0.01	<0.01	0.02	<0.002	<20	<1	47.7	99.65	4	<1	<0.2	<0.1
263121	Drill Core	1.14	1.32	0.15	0.24	20.37	29.69	0.01	0.04	<0.01	<0.01	0.01	<0.002	<20	<1	47.8	99.65	7	<1	<0.2	<0.1
263122	Drill Core	1.09	1.99	0.40	0.26	20.30	29.47	0.03	0.09	0.02	0.03	0.01	<0.002	<20	<1	47.1	99.65	13	<1	<0.2	0.1
263123	Drill Core	1.13	6.18	0.60	0.39	19.39	28.19	0.01	0.13	0.03	0.05	0.02	<0.002	<20	<1	44.7	99.67	17	<1	3.3	0.2
263124	Drill Core	1.13	2.30	0.54	0.31	20.33	29.49	0.01	0.14	0.03	0.02	0.02	<0.002	<20	<1	46.5	99.65	17	<1	0.5	0.3
263125	Drill Core	0.84	71.20	12.51	3.57	2.74	0.66	0.18	5.35	0.34	0.10	0.05	0.004	<20	6	3.1	99.84	651	2	4.6	0.7
263126	Drill Core	2.45	67.90	14.49	3.56	2.62	0.78	0.90	5.86	0.36	0.13	0.05	0.003	<20	7	3.2	99.81	790	4	4.8	0.7
263127	Drill Core	2.00	70.38	13.23	2.21	2.05	0.96	0.94	6.75	0.27	0.06	0.02	0.002	<20	4	3.0	99.85	761	3	3.4	0.5
263128	Drill Core	1.77	64.99	15.16	4.59	3.43	0.59	0.76	6.05	0.49	0.18	0.07	0.006	<20	10	3.4	99.75	1023	4	9.0	0.9
263129	Drill Core	1.14	69.20	14.92	2.70	1.63	0.45	1.83	6.81	0.30	0.16	0.04	0.004	<20	5	1.8	99.83	842	1	4.3	0.5
263130	Drill Core	1.19	0.14	0.03	0.15	20.98	30.57	0.01	0.02	<0.01	<0.01	0.01	<0.002	<20	<1	47.7	99.64	5	<1	<0.2	<0.1

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CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
263101	Drill Core	<0.5	<0.1	0.3	1.4	<1	55.8	<0.1	<0.2	0.8	<8	<0.5	3.3	2.1	1.5	1.5	0.24	1.0	0.13	0.03	0.19
263102	Drill Core	<0.5	0.1	0.4	1.8	<1	53.9	<0.1	<0.2	1.0	11	<0.5	6.0	2.6	1.9	2.4	0.35	1.7	0.26	0.09	0.36
263103	Drill Core	<0.5	0.1	0.5	3.6	<1	49.4	<0.1	0.3	1.8	<8	<0.5	4.8	2.6	2.8	3.4	0.43	1.6	0.30	0.06	0.37
263104	Drill Core	<0.5	0.2	0.7	5.6	<1	58.5	<0.1	0.6	1.4	<8	<0.5	7.7	5.7	4.1	5.7	0.75	3.3	0.53	0.17	0.88
263105	Drill Core	19.2	5.9	8.9	207.9	3	537.1	0.3	46.0	5.4	32	<0.5	206.3	11.5	66.3	116.1	12.02	40.6	5.66	1.18	4.38
263106	Drill Core	18.8	6.6	8.2	196.6	3	507.9	0.4	45.4	5.0	35	<0.5	222.0	12.3	65.3	115.2	11.44	38.7	5.67	1.08	4.33
263107	Drill Core	17.4	6.0	10.3	190.3	3	505.3	0.5	46.8	4.2	36	<0.5	211.9	11.6	69.3	124.8	12.12	41.1	5.99	1.19	4.09
263108	Drill Core	18.9	7.4	10.6	218.9	3	507.9	0.5	51.6	4.5	42	<0.5	250.4	14.0	75.8	134.2	13.68	44.8	6.80	1.30	5.01
263109	Drill Core	18.1	5.3	8.9	183.2	3	451.2	0.5	40.5	5.0	31	<0.5	181.2	10.2	62.5	106.4	10.70	34.8	4.97	1.09	3.79
263110	Drill Core	19.2	6.2	18.6	210.1	4	459.9	1.3	49.8	6.6	35	0.6	202.9	18.0	71.1	128.3	13.25	46.9	7.21	1.17	5.58
263111	Drill Core	22.3	6.0	13.1	226.8	5	394.0	0.8	74.3	6.0	33	<0.5	187.0	17.1	101.1	207.6	23.27	80.2	12.48	0.92	7.78
263112	Drill Core	19.2	6.2	9.0	209.1	3	457.9	0.5	38.5	4.9	31	<0.5	201.9	11.1	59.8	107.5	10.54	34.9	5.14	1.18	3.86
263113	Drill Core	17.3	2.0	12.9	221.0	4	352.0	1.0	34.3	11.0	11	0.6	64.8	53.0	73.0	166.8	20.70	78.1	15.80	1.27	12.72
263114	Drill Core	18.4	6.8	13.3	195.1	4	485.1	0.6	44.0	6.1	36	<0.5	217.5	15.4	66.1	117.9	12.21	42.6	6.53	1.15	4.79
263115	Drill Core	18.3	7.1	8.6	186.7	3	491.7	0.8	30.3	2.8	42	<0.5	235.6	9.3	59.3	108.9	10.62	35.2	4.76	1.06	3.68
263116	Drill Core	18.2	6.9	9.5	189.1	4	391.7	0.6	55.8	5.8	45	<0.5	234.7	15.2	74.6	124.9	13.86	46.7	6.98	1.19	4.81
263117	Drill Core	<0.5	<0.1	0.1	0.8	<1	55.0	0.1	0.2	0.9	11	<0.5	2.1	2.3	1.8	2.7	0.32	1.3	0.23	0.05	0.31
263118	Drill Core	<0.5	0.2	0.5	4.7	<1	56.5	<0.1	0.6	1.7	12	<0.5	8.4	4.4	3.8	5.2	0.67	2.6	0.49	0.16	0.66
263119	Drill Core	<0.5	0.1	0.5	4.4	<1	46.3	<0.1	0.5	1.1	8	<0.5	6.0	4.1	3.5	5.1	0.58	2.5	0.46	0.12	0.61
263120	Drill Core	<0.5	<0.1	<0.1	0.2	<1	45.8	<0.1	<0.2	0.7	<8	<0.5	1.2	1.9	1.3	1.7	0.18	0.9	0.09	0.03	0.17
263121	Drill Core	<0.5	<0.1	<0.1	1.0	<1	52.9	<0.1	<0.2	1.3	11	<0.5	2.7	1.5	1.5	1.3	0.18	0.4	0.10	0.04	0.16
263122	Drill Core	<0.5	<0.1	0.3	2.5	<1	50.7	<0.1	0.3	1.8	<8	<0.5	3.6	2.3	2.2	2.6	0.34	1.5	0.24	0.06	0.26
263123	Drill Core	<0.5	0.1	0.2	4.1	<1	50.8	<0.1	0.3	2.0	12	<0.5	6.0	3.6	3.0	3.8	0.46	1.7	0.30	0.08	0.44
263124	Drill Core	<0.5	0.3	3.4	4.2	<1	48.7	1.7	0.5	2.8	11	<0.5	9.8	4.2	2.7	4.2	0.50	2.3	0.45	0.10	0.50
263125	Drill Core	15.8	3.4	7.3	90.8	3	30.2	0.7	23.5	2.3	43	1.5	117.2	9.7	30.5	58.1	6.56	22.4	3.35	0.47	2.42
263126	Drill Core	20.0	3.5	12.6	135.3	4	50.8	2.5	19.3	2.2	45	0.9	125.6	19.5	37.8	70.1	7.53	25.8	4.33	0.75	3.79
263127	Drill Core	15.2	2.5	9.2	138.8	2	73.6	1.3	10.7	1.2	28	<0.5	86.0	10.8	32.1	56.8	6.25	20.8	3.57	0.66	2.59
263128	Drill Core	18.4	5.1	10.8	151.4	2	99.4	1.0	30.4	2.4	65	0.7	190.1	13.0	52.7	98.4	10.51	34.0	5.48	0.80	4.03
263129	Drill Core	18.0	2.9	12.2	166.6	7	108.7	6.2	17.9	2.4	35	1.1	105.2	10.4	32.5	63.0	6.72	23.4	3.81	0.65	2.72
263130	Drill Core	<0.5	<0.1	3.2	0.2	<1	48.1	5.2	<0.2	0.6	<8	<0.5	3.2	1.2	0.8	1.1	0.13	0.5	<0.05	0.03	0.11

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	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200
	Analyte	Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
	MDL	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
263101	Drill Core	0.03	0.19	0.04	0.13	0.02	0.13	0.01	14.28	0.17	0.4	3.3	6.4	1	3.9	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263102	Drill Core	0.05	0.28	0.06	0.23	0.02	0.16	0.02	15.65	0.30	1.2	8.0	2.7	2	9.4	<0.5	<0.1	<0.1	<0.1	<0.1	0.9
263103	Drill Core	0.05	0.33	0.08	0.17	0.02	0.13	0.03	12.98	0.18	0.8	8.6	5.3	3	8.9	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263104	Drill Core	0.12	0.78	0.14	0.42	0.06	0.27	0.05	12.56	0.25	0.3	4.8	6.2	2	6.6	1.1	<0.1	<0.1	<0.1	<0.1	0.7
263105	Drill Core	0.49	2.21	0.43	1.03	0.15	0.80	0.12	0.04	0.20	0.8	5.1	16.9	43	5.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263106	Drill Core	0.52	2.31	0.40	1.07	0.15	0.93	0.14	0.05	0.30	3.5	5.4	15.8	46	6.0	<0.5	<0.1	<0.1	<0.1	<0.1	1.1
263107	Drill Core	0.49	2.46	0.41	1.06	0.14	0.98	0.14	0.04	0.06	2.0	4.4	14.9	50	6.5	<0.5	<0.1	<0.1	<0.1	<0.1	0.5
263108	Drill Core	0.59	2.94	0.44	1.30	0.16	1.08	0.16	0.04	<0.02	1.2	7.0	16.9	65	7.3	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263109	Drill Core	0.47	2.29	0.37	0.95	0.13	0.78	0.11	0.04	<0.02	2.4	6.1	13.5	51	5.3	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263110	Drill Core	0.77	3.99	0.74	1.84	0.27	1.68	0.21	0.03	0.03	2.9	4.9	13.1	55	5.7	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263111	Drill Core	0.82	3.85	0.59	1.40	0.21	1.25	0.16	0.02	<0.02	1.1	5.7	17.7	47	4.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263112	Drill Core	0.46	2.23	0.33	0.97	0.14	0.84	0.12	0.03	<0.02	0.4	6.8	19.4	56	4.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263113	Drill Core	1.99	10.62	1.84	5.18	0.75	4.20	0.53	0.04	<0.02	1.3	2.1	9.6	22	1.3	<0.5	<0.1	<0.1	<0.1	0.1	<0.5
263114	Drill Core	0.61	3.29	0.56	1.54	0.22	1.41	0.19	0.03	<0.02	1.5	7.6	11.7	52	5.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263115	Drill Core	0.42	2.07	0.33	0.95	0.14	0.85	0.12	0.03	0.02	0.5	5.0	9.9	54	5.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263116	Drill Core	0.60	2.93	0.53	1.44	0.20	1.18	0.16	0.03	<0.02	1.4	4.8	10.3	49	5.7	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263117	Drill Core	0.05	0.28	0.04	0.15	0.02	0.11	0.01	13.37	0.22	0.5	2.1	0.7	1	2.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263118	Drill Core	0.10	0.59	0.11	0.33	0.04	0.23	0.03	12.41	0.18	0.5	10.0	4.2	2	8.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263119	Drill Core	0.09	0.56	0.09	0.30	0.04	0.21	0.03	13.20	0.17	0.6	4.5	3.3	2	5.3	0.7	<0.1	<0.1	<0.1	<0.1	<0.5
263120	Drill Core	0.03	0.20	0.04	0.10	0.02	0.09	<0.01	13.49	0.03	0.3	1.4	0.4	<1	2.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263121	Drill Core	0.03	0.14	0.03	0.13	0.01	0.07	0.01	14.28	0.15	1.2	7.8	2.2	1	11.3	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263122	Drill Core	0.04	0.23	0.05	0.16	0.02	0.13	0.01	13.83	0.13	0.9	8.7	2.9	2	9.4	<0.5	<0.1	0.1	<0.1	<0.1	<0.5
263123	Drill Core	0.06	0.42	0.07	0.23	0.02	0.18	0.03	12.69	0.23	0.6	10.5	5.7	3	11.2	0.8	<0.1	<0.1	<0.1	<0.1	<0.5
263124	Drill Core	0.08	0.52	0.10	0.30	0.05	0.29	0.04	12.99	0.09	1.3	3.5	1.8	7	9.5	<0.5	<0.1	0.1	<0.1	<0.1	<0.5
263125	Drill Core	0.32	1.76	0.33	1.02	0.15	1.04	0.15	0.16	0.06	0.1	3.6	3.0	63	8.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263126	Drill Core	0.59	3.32	0.61	1.82	0.29	1.90	0.26	0.25	0.06	0.3	3.2	32.0	64	6.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263127	Drill Core	0.36	1.89	0.36	1.05	0.16	1.22	0.17	0.37	0.06	<0.1	3.7	3.0	38	4.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263128	Drill Core	0.53	2.63	0.46	1.34	0.20	1.30	0.18	0.14	0.10	0.2	9.8	3.5	90	11.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263129	Drill Core	0.38	2.06	0.36	1.13	0.15	1.06	0.15	0.07	0.08	0.1	4.1	4.3	51	5.2	0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263130	Drill Core	0.01	0.11	<0.02	0.06	<0.01	<0.05	<0.01	13.08	<0.02	3.5	1.0	0.3	<1	1.9	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5

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Project: Athabasca Testing
Report Date: May 29, 2014

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CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	AQ200	AQ200	AQ200
	Analyte	Hg	Tl	Se
	Unit	ppm	ppm	ppm
	MDL	0.01	0.1	0.5
263101	Drill Core	<0.01	<0.1	<0.5
263102	Drill Core	<0.01	<0.1	<0.5
263103	Drill Core	<0.01	<0.1	<0.5
263104	Drill Core	<0.01	<0.1	<0.5
263105	Drill Core	<0.01	0.6	<0.5
263106	Drill Core	<0.01	0.5	<0.5
263107	Drill Core	<0.01	0.5	<0.5
263108	Drill Core	<0.01	0.7	<0.5
263109	Drill Core	<0.01	0.3	<0.5
263110	Drill Core	<0.01	0.5	<0.5
263111	Drill Core	<0.01	0.4	<0.5
263112	Drill Core	<0.01	0.5	<0.5
263113	Drill Core	<0.01	0.2	<0.5
263114	Drill Core	<0.01	0.6	<0.5
263115	Drill Core	<0.01	0.5	<0.5
263116	Drill Core	<0.01	0.4	<0.5
263117	Drill Core	<0.01	<0.1	<0.5
263118	Drill Core	<0.01	<0.1	<0.5
263119	Drill Core	<0.01	<0.1	<0.5
263120	Drill Core	<0.01	<0.1	<0.5
263121	Drill Core	<0.01	<0.1	<0.5
263122	Drill Core	<0.01	<0.1	<0.5
263123	Drill Core	<0.01	<0.1	<0.5
263124	Drill Core	<0.01	<0.1	<0.5
263125	Drill Core	<0.01	<0.1	<0.5
263126	Drill Core	<0.01	<0.1	<0.5
263127	Drill Core	<0.01	<0.1	<0.5
263128	Drill Core	<0.01	<0.1	<0.5
263129	Drill Core	<0.01	<0.1	<0.5
263130	Drill Core	<0.01	<0.1	<0.5

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CERTIFICATE OF ANALYSIS VAN14001455.1

Method		WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
Analyte		Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs
Unit		kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm
MDL		0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1
263131	Drill Core	0.83	3.39	0.19	0.24	20.16	29.20	0.01	0.05	0.01	0.02	0.02	<0.002	<20	<1	46.4	99.65	8	<1	0.9	<0.1
263132	Drill Core	1.07	2.22	0.29	0.32	20.39	29.67	0.01	0.06	0.02	0.03	0.02	<0.002	<20	<1	46.6	99.65	7	<1	<0.2	<0.1
263133	Drill Core	1.09	2.57	0.47	0.34	20.08	29.42	0.01	0.12	0.03	0.04	0.02	<0.002	<20	<1	46.5	99.65	13	<1	1.5	0.2
263134	Drill Core	1.10	2.41	0.60	0.32	19.79	29.52	0.01	0.16	0.03	0.02	0.02	<0.002	<20	<1	46.8	99.66	16	<1	1.6	0.2
263135	Drill Core	1.99	72.99	13.42	1.26	0.90	0.45	0.59	8.14	0.13	0.05	0.01	<0.002	<20	3	2.0	99.92	348	<1	0.8	0.3
263136	Drill Core	2.50	73.33	13.53	1.42	0.77	0.29	1.05	7.91	0.11	0.06	0.02	<0.002	<20	3	1.4	99.91	378	<1	0.7	0.3
263137	Drill Core	1.93	74.00	13.50	1.24	0.59	0.28	1.56	7.65	0.14	0.06	0.01	<0.002	<20	3	0.9	99.93	373	<1	0.6	0.4
263138	Drill Core	1.10	2.46	0.30	0.27	19.91	29.25	0.02	0.09	0.01	0.02	0.02	<0.002	<20	<1	47.3	99.66	10	<1	<0.2	0.3
263139	Drill Core	1.11	1.10	0.10	0.32	20.14	29.74	0.02	0.03	<0.01	0.05	0.02	<0.002	<20	<1	48.1	99.66	6	<1	0.3	<0.1
263140	Drill Core	1.07	2.49	0.62	0.57	19.56	29.59	0.02	0.18	0.04	0.06	0.02	<0.002	<20	1	46.5	99.66	16	<1	3.4	0.2
263141	Drill Core	3.53	51.13	10.53	1.76	6.39	7.83	0.12	6.46	0.22	0.10	0.02	<0.002	<20	3	15.2	99.74	564	2	3.0	0.8
263142	Drill Core	3.06	50.86	18.35	2.35	4.27	3.46	0.25	11.04	0.25	0.09	0.02	<0.002	<20	6	8.8	99.73	940	2	2.2	1.0
263143	Drill Core	1.55	55.02	21.81	2.63	2.80	0.60	0.16	12.24	0.22	0.11	<0.01	<0.002	<20	8	4.1	99.74	1133	3	1.5	1.4
263144	Drill Core	1.17	57.04	20.26	2.71	2.42	0.50	0.18	12.57	0.27	0.09	0.01	<0.002	<20	6	3.7	99.78	950	2	1.8	1.1
263145	Drill Core	0.67	56.56	20.83	2.78	2.23	0.27	0.19	12.61	0.26	0.10	<0.01	<0.002	<20	6	3.9	99.76	1124	2	1.2	1.8
263146	Drill Core	2.16	55.78	20.24	2.55	2.86	1.06	0.20	12.26	0.25	0.11	0.01	<0.002	<20	9	4.4	99.74	1070	2	2.1	1.2
263147	Drill Core	1.78	66.03	16.13	1.65	1.71	0.69	0.17	10.25	0.20	0.08	<0.01	<0.002	<20	4	2.9	99.83	854	<1	0.8	0.7
263148	Drill Core	2.43	59.52	19.29	1.87	2.52	0.55	0.21	12.13	0.21	0.09	<0.01	<0.002	<20	5	3.4	99.77	1004	2	1.4	1.0
263149	Drill Core	1.33	57.44	21.08	1.92	2.54	0.34	0.33	12.51	0.19	0.10	<0.01	<0.002	<20	7	3.3	99.76	1086	3	1.8	1.5
263150	Drill Core	1.28	0.20	0.04	0.09	20.71	30.52	0.01	0.03	<0.01	0.01	0.02	<0.002	<20	<1	48.0	99.65	4	<1	<0.2	<0.1
263151	Drill Core	1.05	3.31	0.10	0.26	19.58	28.93	0.01	0.03	<0.01	0.01	0.02	<0.002	<20	<1	47.4	99.67	8	<1	<0.2	<0.1
263152	Drill Core	1.22	3.00	0.32	0.30	19.83	29.19	0.01	0.08	0.02	0.05	0.02	<0.002	<20	<1	46.8	99.66	11	<1	0.8	0.1
263153	Drill Core	1.01	14.48	1.39	0.72	16.75	24.76	0.02	0.38	0.07	0.07	0.03	<0.002	23	1	41.1	99.71	46	<1	10.2	0.5
263154	Drill Core	1.10	2.03	0.41	0.27	19.97	29.53	0.01	0.11	0.02	0.02	0.03	<0.002	<20	<1	47.3	99.66	15	<1	0.9	0.1
263155	Drill Core	0.70	59.45	12.49	2.76	3.84	5.02	0.76	6.77	0.37	0.17	0.04	0.004	<20	6	8.0	99.70	1539	<1	6.1	0.5
263156	Drill Core	2.39	69.51	12.74	1.58	1.25	2.36	1.39	7.66	0.18	0.14	0.02	<0.002	<20	3	2.9	99.74	1813	2	2.2	0.5
263157	Drill Core	2.29	67.95	14.81	3.44	2.06	0.70	3.29	4.69	0.45	0.22	0.05	0.005	<20	7	2.0	99.65	1907	5	6.3	0.5
263158	Drill Core	1.24	71.71	13.95	0.94	0.57	0.56	1.34	9.51	0.09	0.09	<0.01	<0.002	<20	1	1.2	99.95	358	<1	<0.2	1.0
263159	Drill Core	1.28	77.12	11.26	0.88	0.54	0.25	0.81	7.87	0.08	0.08	<0.01	<0.002	<20	<1	1.1	99.96	261	<1	0.4	0.8
263160	Drill Core	0.95	75.91	12.49	0.73	0.28	0.20	1.84	7.77	0.07	0.06	<0.01	<0.002	<20	<1	0.6	99.95	462	<1	<0.2	1.0

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Project: Athabasca Testing
Report Date: May 29, 2014

CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
263131	Drill Core	<0.5	0.1	2.7	1.1	2	53.7	3.9	0.3	2.1	<8	<0.5	4.6	2.0	2.0	2.3	0.25	1.2	0.15	0.05	0.23
263132	Drill Core	<0.5	0.1	0.7	1.9	<1	48.3	0.9	0.3	1.8	<8	<0.5	4.6	2.8	1.9	2.4	0.33	1.4	0.30	0.06	0.32
263133	Drill Core	<0.5	0.2	1.7	3.4	1	56.9	2.4	0.4	1.8	9	<0.5	8.5	3.6	3.1	3.8	0.44	1.8	0.34	0.08	0.50
263134	Drill Core	0.6	0.1	0.4	4.8	<1	47.7	<0.1	0.5	3.3	14	<0.5	6.0	3.9	3.0	4.2	0.53	2.0	0.37	0.09	0.49
263135	Drill Core	15.1	3.2	4.3	211.5	2	57.0	0.3	20.2	3.1	<8	<0.5	98.4	11.6	32.0	69.7	7.68	26.6	4.65	0.43	3.34
263136	Drill Core	15.2	3.4	3.3	208.0	<1	62.1	0.1	31.5	4.8	<8	0.6	95.2	13.3	44.0	92.1	10.57	36.1	6.48	0.42	4.26
263137	Drill Core	14.1	2.9	3.6	204.9	<1	68.0	0.5	19.7	5.2	<6	<0.5	81.8	12.0	26.9	56.1	6.49	21.9	4.49	0.42	3.62
263138	Drill Core	<0.5	<0.1	0.2	2.6	2	44.9	0.2	0.3	1.2	<8	<0.5	3.5	1.9	1.5	2.6	0.29	1.5	0.16	0.04	0.25
263139	Drill Core	<0.5	<0.1	0.3	1.1	2	49.5	0.3	<0.2	1.0	<8	<0.5	2.6	3.6	2.7	4.5	0.56	2.1	0.48	0.10	0.57
263140	Drill Core	<0.5	0.2	0.5	5.3	<1	68.0	<0.1	0.7	1.8	12	<0.5	7.6	6.3	4.1	7.6	0.94	4.2	0.79	0.19	1.04
263141	Drill Core	13.6	5.5	8.0	135.7	3	89.0	0.5	49.2	6.9	19	0.5	191.1	13.7	93.2	209.8	23.68	80.6	11.20	0.78	6.35
263142	Drill Core	22.5	5.8	8.6	269.4	3	105.2	0.4	44.5	6.9	24	<0.5	175.4	19.1	80.1	158.4	19.38	66.1	10.89	0.84	7.09
263143	Drill Core	35.4	7.1	8.3	400.5	2	81.2	0.3	54.1	6.5	37	<0.5	209.8	20.2	74.5	156.7	17.70	59.6	11.03	0.86	7.31
263144	Drill Core	25.0	6.2	9.0	301.1	2	79.6	0.3	46.7	4.9	24	<0.5	182.9	19.5	60.8	116.7	14.98	52.1	9.21	0.66	6.19
263145	Drill Core	31.2	6.5	9.9	377.1	3	87.1	0.5	49.2	7.5	30	<0.5	194.9	17.7	67.7	129.8	15.75	56.5	10.65	0.91	7.57
263146	Drill Core	27.1	7.5	8.0	333.5	2	79.7	0.6	54.9	6.4	28	<0.5	232.0	24.2	78.9	169.7	19.33	66.8	11.63	0.90	7.86
263147	Drill Core	19.9	4.1	6.6	254.2	2	70.6	0.2	29.6	5.2	25	<0.5	130.8	14.3	44.9	87.2	10.21	34.8	6.35	0.54	4.37
263148	Drill Core	24.9	7.5	7.0	319.7	2	72.7	0.3	28.6	4.2	24	<0.5	235.6	19.5	50.4	103.2	11.25	39.8	7.44	0.68	5.36
263149	Drill Core	30.4	6.1	7.1	366.6	4	76.9	0.9	52.3	7.0	29	<0.5	187.5	16.2	70.4	144.5	16.43	55.8	9.71	0.72	6.43
263150	Drill Core	<0.5	<0.1	<0.1	1.0	<1	45.7	<0.1	<0.2	0.6	<8	<0.5	0.8	0.9	1.2	1.3	0.15	0.5	0.06	0.02	0.11
263151	Drill Core	<0.5	<0.1	<0.1	1.0	<1	47.9	<0.1	<0.2	0.9	11	<0.5	1.9	2.4	1.7	2.2	0.25	1.0	0.16	0.05	0.23
263152	Drill Core	<0.5	0.1	<0.1	2.7	<1	46.0	<0.1	0.2	1.5	8	<0.5	3.9	3.3	2.3	3.2	0.39	1.5	0.31	0.06	0.41
263153	Drill Core	<0.5	0.3	1.0	11.2	<1	61.2	0.6	0.9	1.6	17	<0.5	12.4	6.6	6.0	8.5	0.97	3.8	0.71	0.17	0.82
263154	Drill Core	<0.5	0.1	0.1	3.0	<1	43.0	<0.1	0.3	2.1	12	<0.5	4.5	3.9	3.1	5.5	0.60	2.3	0.44	0.10	0.58
263155	Drill Core	15.3	5.5	14.8	145.0	5	130.4	1.5	43.1	3.4	45	<0.5	196.2	16.4	29.7	49.6	7.23	25.1	4.48	0.62	3.46
263156	Drill Core	14.0	2.5	7.1	203.9	3	154.0	0.9	20.9	2.5	23	<0.5	84.0	9.1	20.4	31.6	4.31	15.0	2.64	0.47	2.04
263157	Drill Core	16.1	7.2	15.9	140.1	9	248.3	1.6	56.7	5.1	49	<0.5	252.9	18.0	52.2	87.3	10.66	36.7	5.92	1.07	4.67
263158	Drill Core	17.2	0.3	3.3	255.8	1	60.9	0.2	4.4	1.3	8	<0.5	8.6	3.6	17.8	15.1	2.96	8.8	1.16	0.19	0.78
263159	Drill Core	12.2	0.5	2.6	189.3	3	41.8	0.5	3.5	1.5	12	<0.5	11.0	3.6	7.4	8.7	1.28	4.4	0.64	0.13	0.54
263160	Drill Core	11.5	0.1	2.0	204.7	1	54.9	0.3	2.2	0.6	<8	<0.5	3.0	2.2	6.7	9.9	1.16	4.1	0.54	0.14	0.40

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	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200
	Analyte	Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
	MDL	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
263131	Drill Core	0.04	0.16	0.05	0.12	0.02	0.10	0.01	13.15	0.07	0.8	8.5	2.1	2	8.2	0.7	<0.1	0.1	<0.1	<0.1	<0.5
263132	Drill Core	0.04	0.30	0.05	0.14	0.02	0.11	0.02	13.65	0.15	0.6	5.5	3.3	2	6.6	0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263133	Drill Core	0.06	0.34	0.08	0.25	0.03	0.22	0.03	13.76	0.15	0.5	7.5	4.1	2	9.6	0.7	<0.1	<0.1	<0.1	<0.1	<0.5
263134	Drill Core	0.08	0.43	0.08	0.23	0.04	0.22	0.03	12.83	0.15	1.1	4.5	2.1	8	8.7	1.0	0.1	0.1	<0.1	<0.1	2.0
263135	Drill Core	0.42	2.03	0.34	1.02	0.14	0.81	0.11	0.16	0.04	0.3	1.9	3.4	15	2.0	<0.5	<0.1	<0.1	<0.1	<0.1	0.9
263136	Drill Core	0.53	2.52	0.49	1.25	0.18	1.00	0.12	0.13	0.04	0.2	1.3	3.7	16	0.7	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263137	Drill Core	0.48	2.32	0.45	1.13	0.17	0.92	0.12	0.04	0.03	0.2	1.4	3.0	13	0.3	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263138	Drill Core	0.04	0.21	0.04	0.12	0.02	0.16	0.01	13.32	0.12	0.3	2.8	3.2	1	2.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
283139	Drill Core	0.07	0.40	0.07	0.22	0.03	0.16	0.02	13.77	0.20	1.2	4.4	1.4	2	3.9	1.0	<0.1	<0.1	<0.1	<0.1	0.7
263140	Drill Core	0.15	0.78	0.15	0.48	0.06	0.31	0.05	12.93	0.33	0.7	5.7	4.7	3	6.4	1.1	<0.1	<0.1	<0.1	<0.1	0.7
263141	Drill Core	0.75	3.39	0.48	1.19	0.14	0.96	0.13	3.30	0.45	11.1	12.2	20.6	20	5.8	7.4	<0.1	<0.1	2.2	<0.1	<0.5
263142	Drill Core	0.95	4.27	0.81	1.46	0.20	1.13	0.15	1.43	0.58	0.4	2.2	2.3	34	3.1	1.0	<0.1	<0.1	<0.1	<0.1	<0.5
263143	Drill Core	1.00	4.95	0.76	1.77	0.25	1.38	0.18	0.11	0.92	0.8	2.4	2.9	20	1.9	1.3	<0.1	<0.1	<0.1	<0.1	<0.5
263144	Drill Core	0.90	4.73	0.72	1.59	0.22	1.17	0.17	0.07	0.64	0.3	5.0	3.0	46	1.5	1.0	<0.1	<0.1	<0.1	<0.1	<0.5
263145	Drill Core	0.97	4.43	0.64	1.42	0.20	1.10	0.16	0.03	1.13	0.3	3.5	3.0	18	1.9	0.9	<0.1	<0.1	<0.1	<0.1	<0.5
263146	Drill Core	1.11	5.81	0.94	2.24	0.26	1.45	0.19	0.33	0.69	0.3	2.6	3.6	33	2.2	2.0	<0.1	<0.1	<0.1	<0.1	<0.5
263147	Drill Core	0.65	3.14	0.48	1.18	0.15	0.81	0.11	0.14	0.39	0.2	3.6	3.2	21	1.9	0.8	<0.1	<0.1	<0.1	<0.1	<0.5
263148	Drill Core	0.83	4.26	0.70	1.63	0.21	1.08	0.14	0.14	0.39	0.2	2.4	2.7	33	1.6	0.8	<0.1	<0.1	<0.1	<0.1	<0.5
263149	Drill Core	0.89	4.34	0.67	1.55	0.18	1.10	0.15	0.09	0.13	0.2	2.9	3.0	21	1.1	2.1	<0.1	<0.1	0.2	<0.1	<0.5
263150	Drill Core	0.02	0.11	<0.02	0.04	<0.01	<0.05	<0.01	13.38	0.02	0.2	1.6	0.5	<1	1.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263151	Drill Core	0.03	0.22	0.04	0.13	0.02	0.09	0.02	13.97	0.18	1.2	4.6	3.2	1	5.4	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263152	Drill Core	0.05	0.34	0.05	0.21	0.03	0.14	0.02	13.51	0.16	0.5	7.1	4.2	2	6.4	0.8	<0.1	<0.1	<0.1	<0.1	0.5
263153	Drill Core	0.12	0.81	0.17	0.50	0.06	0.37	0.05	11.35	0.49	0.6	14.2	9.8	5	19.6	1.3	<0.1	0.1	<0.1	<0.1	<0.5
263154	Drill Core	0.08	0.48	0.10	0.29	0.03	0.18	0.02	13.08	0.12	1.6	4.8	1.8	6	9.0	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263155	Drill Core	0.50	2.75	0.49	1.45	0.21	1.41	0.18	1.56	0.23	0.1	4.6	3.6	54	8.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263156	Drill Core	0.30	1.67	0.29	0.85	0.11	0.78	0.10	0.55	0.24	0.3	4.6	2.7	23	3.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263157	Drill Core	0.62	3.30	0.57	1.65	0.25	1.54	0.21	0.06	0.28	0.2	7.7	5.1	61	9.9	0.8	<0.1	<0.1	<0.1	<0.1	<0.5
263158	Drill Core	0.12	0.69	0.13	0.34	0.04	0.29	0.03	0.11	0.18	0.2	5.5	3.3	16	0.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263159	Drill Core	0.10	0.61	0.10	0.27	0.04	0.24	0.03	0.05	0.16	0.2	5.1	3.0	14	0.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263160	Drill Core	0.06	0.30	0.06	0.20	0.03	0.16	0.02	<0.02	0.14	<0.1	4.5	2.3	8	0.4	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5

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Project: Athabasca Testing
Report Date: May 29, 2014

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CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	AQ200	AQ200	AQ200
	Analyte	Hg	Tl	Se
	Unit	ppm	ppm	ppm
	MDL	0.01	0.1	0.5
263131	Drill Core	<0.01	<0.1	<0.5
263132	Drill Core	<0.01	<0.1	<0.5
263133	Drill Core	<0.01	<0.1	<0.5
263134	Drill Core	0.01	<0.1	<0.5
263135	Drill Core	<0.01	<0.1	<0.5
263136	Drill Core	<0.01	<0.1	<0.5
263137	Drill Core	<0.01	<0.1	<0.5
263136	Drill Core	<0.01	<0.1	<0.5
263139	Drill Core	<0.01	0.1	0.6
263140	Drill Core	<0.01	<0.1	<0.5
263141	Drill Core	<0.01	0.3	<0.5
263142	Drill Core	<0.01	<0.1	<0.5
263143	Drill Core	<0.01	<0.1	<0.5
263144	Drill Core	<0.01	<0.1	<0.5
263145	Drill Core	<0.01	<0.1	<0.5
263146	Drill Core	<0.01	<0.1	<0.5
263147	Drill Core	<0.01	<0.1	<0.5
263148	Drill Core	<0.01	<0.1	<0.5
263149	Drill Core	<0.01	<0.1	<0.5
263150	Drill Core	<0.01	<0.1	<0.5
263151	Drill Core	<0.01	<0.1	<0.5
263152	Drill Core	<0.01	<0.1	<0.5
263153	Drill Core	0.01	<0.1	<0.5
263154	Drill Core	<0.01	<0.1	<0.5
263155	Drill Core	<0.01	<0.1	<0.5
263156	Drill Core	<0.01	<0.1	<0.5
263157	Drill Core	<0.01	<0.1	<0.5
263158	Drill Core	<0.01	<0.1	<0.5
263159	Drill Core	<0.01	<0.1	<0.5
263160	Drill Core	<0.01	<0.1	<0.5

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Project: Athabasca Testing
Report Date: May 29, 2014

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CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs
	Unit	kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm
	MDL	0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1
263161	Drill Core	1.96	69.23	13.88	3.12	2.07	0.33	2.37	6.39	0.34	0.14	0.03	0.003	<20	4	1.8	99.71	1718	2	4.6	0.4
263162	Drill Core	1.08	69.02	14.04	3.26	1.97	0.37	2.68	6.01	0.35	0.17	0.04	0.005	<20	5	1.8	99.71	1662	<1	5.2	0.4
263163	Drill Core	0.77	69.65	14.31	2.80	1.58	0.49	3.01	5.75	0.31	0.15	0.05	0.003	<20	10	1.6	99.71	1462	5	4.2	0.8
263164	Drill Core	0.67	0.45	0.07	0.20	20.40	30.68	0.01	0.03	<0.01	<0.01	0.02	<0.002	<20	<1	47.8	99.65	6	<1	<0.2	0.1
263165	Drill Core	1.17	1.16	0.14	0.42	19.95	30.08	0.02	0.03	<0.01	0.04	0.02	<0.002	<20	<1	47.8	99.66	9	<1	1.0	<0.1
263166	Drill Core	1.10	2.20	0.38	0.32	19.82	29.36	0.01	0.09	0.02	0.05	0.02	<0.002	<20	<1	47.6	99.67	16	<1	0.6	0.2
263167	Drill Core	1.30	6.33	0.96	0.48	18.49	27.82	0.02	0.24	0.05	0.08	0.03	<0.002	<20	<1	45.2	99.68	24	<1	2.7	0.3
263168	Drill Core	2.45	2.21	0.52	0.28	19.55	29.75	0.01	0.14	0.03	0.03	0.03	<0.002	<20	<1	47.1	99.67	14	<1	1.2	0.2
263169	Drill Core	2.32	64.47	15.07	1.21	1.56	3.73	4.88	4.31	0.24	0.07	0.01	<0.002	<20	3	4.3	99.85	506	2	1.6	0.3
263170	Drill Core	2.39	66.87	17.49	1.14	0.72	1.82	7.32	2.76	0.18	0.07	0.01	0.002	<20	2	1.7	99.91	333	1	1.1	0.1
263171	Drill Core	2.29	63.56	19.49	1.47	1.00	1.53	7.88	3.25	0.16	0.08	0.02	<0.002	<20	2	1.4	99.88	411	2	1.4	0.1
263172	Drill Core	2.56	62.87	19.11	2.11	1.03	2.90	7.21	2.53	0.20	0.08	0.03	<0.002	<20	3	1.8	99.83	540	2	1.5	0.3
263173	Drill Core	1.14	59.86	19.91	3.30	1.52	4.51	6.74	1.83	0.30	0.08	0.04	0.003	<20	4	1.7	99.83	369	2	2.9	0.2
263174	Drill Core	2.49	60.95	19.54	3.14	1.44	4.29	7.26	1.32	0.33	0.08	0.04	0.006	<20	4	1.4	99.84	183	2	1.8	0.1
263175	Drill Core	1.60	61.19	19.78	2.82	1.33	3.82	7.72	1.38	0.32	0.07	0.04	0.004	<20	4	1.4	99.85	210	2	2.0	0.2
263176	Drill Core	1.09	59.22	20.60	3.12	1.87	3.76	7.46	1.66	0.28	0.08	0.04	0.002	<20	3	1.7	99.83	313	<1	2.6	0.2
263177	Drill Core	1.96	58.87	20.13	3.37	1.58	4.68	6.23	2.84	0.34	0.19	0.04	0.003	<20	4	1.5	99.79	526	3	2.1	0.2
263178	Drill Core	2.57	58.12	20.58	3.62	1.58	5.21	7.17	1.29	0.35	0.10	0.04	<0.002	<20	5	1.8	99.83	190	1	2.2	0.1
263179	Drill Core	2.73	62.25	18.69	3.16	1.18	4.91	6.70	1.03	0.32	0.11	0.04	0.003	<20	3	1.5	99.88	103	3	1.5	0.2
263180	Drill Core	2.46	59.21	19.99	3.61	1.60	5.36	8.33	1.53	0.35	0.18	0.04	0.002	<20	4	1.7	99.87	185	3	1.7	0.2
263181	Drill Core	2.76	58.93	19.63	2.96	2.73	2.15	4.37	5.51	0.34	0.17	0.02	<0.002	<20	3	3.0	99.78	539	5	1.8	0.5
263182	Drill Core	2.15	57.89	19.09	3.94	1.32	5.96	6.14	1.02	0.43	0.16	0.03	<0.002	<20	4	3.8	99.74	95	1	0.7	0.2
263183	Drill Core	2.16	70.34	13.92	2.96	0.94	1.72	2.94	5.21	0.43	0.19	0.03	<0.002	<20	4	1.0	99.67	699	2	3.2	0.2
263184	Drill Core	2.13	69.46	14.02	4.13	0.82	1.20	2.01	5.61	0.56	0.23	0.03	0.002	<20	4	1.5	99.61	608	3	2.8	0.4
263185	Drill Core	1.13	1.41	0.02	0.14	20.60	30.16	0.02	0.01	<0.01	<0.01	0.01	0.020	<20	<1	47.3	99.65	4	<1	<0.2	<0.1
263186	Drill Core	1.10	7.70	0.10	0.28	19.14	27.77	0.02	0.03	<0.01	<0.01	0.02	0.037	<20	<1	44.6	99.67	6	<1	0.2	<0.1
263187	Drill Core	1.11	10.92	0.39	0.32	17.75	26.02	0.02	0.08	0.02	0.04	0.02	0.087	<20	<1	44.0	99.70	11	<1	1.4	0.1
263188	Drill Core	1.11	4.05	1.05	0.69	19.39	28.43	0.02	0.26	0.05	0.07	0.02	0.151	<20	1	45.5	99.66	28	<1	6.2	0.3
263189	Drill Core	1.02	0.37	0.03	0.09	20.77	30.20	0.01	0.01	<0.01	<0.01	0.01	<0.002	<20	<1	48.2	99.65	2	<1	<0.2	<0.1
263190	Drill Core	1.20	12.29	0.15	0.17	17.75	25.69	0.01	0.04	<0.01	0.02	0.02	<0.002	<20	<1	43.6	99.70	6	<1	<0.2	<0.1

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Project: Athabasca Testing
Report Date: May 29, 2014

CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
263161	Drill Core	13.0	5.4	10.3	130.7	5	149.2	0.9	44.6	4.3	38	<0.5	177.6	14.4	49.6	53.6	8.90	30.4	4.71	0.74	3.54
263162	Drill Core	14.7	5.9	10.7	153.3	6	154.4	0.7	35.2	4.0	42	<0.5	194.9	14.4	45.3	59.1	9.59	32.2	4.98	0.81	3.37
263163	Drill Core	21.0	10.0	33.0	189.6	16	162.8	4.1	51.0	7.2	43	0.6	250.5	31.6	56.2	85.5	11.70	43.1	8.11	1.07	6.43
263164	Drill Core	<0.5	<0.1	<0.1	0.7	6	44.3	0.3	<0.2	1.1	10	<0.5	1.5	1.5	1.7	2.4	0.22	0.9	0.16	0.03	0.21
263165	Drill Core	<0.5	<0.1	0.2	0.9	2	53.9	0.4	0.2	1.7	13	<0.5	2.2	3.1	2.7	4.5	0.56	2.4	0.38	0.09	0.49
263166	Drill Core	<0.5	0.2	<0.1	2.5	<1	52.1	<0.1	0.4	1.8	13	<0.5	5.3	2.8	2.6	3.8	0.46	2.0	0.37	0.07	0.40
263167	Drill Core	<0.5	0.2	0.7	6.5	<1	52.7	0.2	0.7	1.7	12	<0.5	8.7	4.6	3.8	6.8	0.78	3.1	0.68	0.12	0.69
263168	Drill Core	<0.5	0.1	<0.1	3.7	<1	45.7	<0.1	0.3	2.6	16	<0.5	5.5	4.7	3.3	4.6	0.54	2.3	0.40	0.10	0.53
263169	Drill Core	14.8	6.8	10.0	66.5	1	110.0	1.6	75.2	6.8	11	0.6	175.7	15.9	47.3	94.4	11.76	40.2	7.18	0.70	5.42
263170	Drill Core	17.8	4.1	7.0	42.5	1	128.9	0.6	37.5	4.2	9	<0.5	116.1	7.0	37.3	70.4	7.91	27.3	4.53	0.60	2.78
263171	Drill Core	21.1	4.5	4.3	74.5	<1	161.2	0.3	52.4	3.5	11	<0.5	146.9	5.2	43.7	81.7	9.14	30.7	4.47	0.71	2.74
263172	Drill Core	26.5	5.9	5.8	60.1	2	289.3	0.5	50.4	5.8	20	<0.5	180.0	5.9	81.3	112.9	11.83	38.8	5.89	1.03	3.46
263173	Drill Core	39.9	6.6	8.4	69.4	2	350.1	0.4	52.0	6.5	36	2.6	190.0	8.4	67.5	121.1	12.35	38.9	6.18	1.13	3.78
263174	Drill Core	35.4	7.1	8.8	38.9	2	344.0	0.5	66.3	5.6	32	<0.5	227.9	9.2	63.5	115.5	11.48	36.8	5.16	1.02	3.65
263175	Drill Core	34.4	6.4	7.5	46.8	2	329.8	0.4	49.1	4.4	29	<0.5	210.1	7.2	80.7	106.8	10.66	34.9	4.67	0.92	3.07
263176	Drill Core	34.4	6.7	5.6	57.5	1	369.6	0.2	49.1	5.0	30	<0.5	222.0	7.5	52.6	89.9	9.51	30.8	4.19	0.80	2.96
283177	Drill Core	38.6	6.0	7.8	83.2	2	507.4	0.5	43.8	5.5	28	<0.5	194.4	13.5	61.5	109.2	11.86	39.5	6.28	1.16	4.94
263178	Drill Core	39.9	7.1	7.5	50.1	2	417.7	0.5	67.9	5.6	36	<0.5	239.7	9.3	85.3	151.3	15.68	51.7	7.72	1.17	4.89
263179	Drill Core	34.3	4.8	8.2	33.8	2	303.2	0.7	59.6	5.5	33	<0.5	154.7	9.2	66.5	124.0	13.33	42.9	7.02	0.93	5.02
263180	Drill Core	39.4	5.2	10.2	55.9	2	298.3	0.5	29.9	4.1	36	<0.5	175.6	11.5	42.9	83.8	8.97	29.4	5.40	0.88	3.81
263181	Drill Core	32.7	8.0	12.5	107.4	2	173.7	0.4	85.9	4.6	27	0.6	270.7	13.8	101.0	171.6	22.58	80.2	11.48	1.06	6.39
263182	Drill Core	42.0	12.8	23.9	26.5	3	412.3	0.8	166.5	8.8	31	<0.5	390.1	23.0	207.9	422.4	50.50	174.5	25.47	1.29	14.45
263183	Drill Core	19.3	13.0	21.1	132.7	2	224.7	0.7	167.9	7.1	18	<0.5	444.0	20.4	251.4	524.0	61.04	200.7	27.10	1.03	13.88
263184	Drill Core	23.0	16.6	22.7	196.7	2	135.7	0.5	233.2	6.3	15	<0.5	569.5	20.9	371.0	795.1	90.76	307.2	38.67	1.22	20.00
263185	Drill Core	<0.5	<0.1	1.1	0.3	<1	43.2	<0.1	0.3	0.6	<8	<0.5	2.2	1.7	1.7	2.1	0.27	1.0	0.15	0.03	0.19
263186	Drill Core	<0.5	<0.1	<0.1	0.6	<1	41.9	<0.1	0.3	0.7	<8	<0.5	3.0	1.4	1.6	2.2	0.24	1.0	0.20	0.04	0.19
263187	Drill Core	<0.5	<0.1	<0.1	2.6	<1	55.0	<0.1	0.4	2.0	8	<0.5	4.6	4.2	3.4	4.6	0.60	2.4	0.40	0.10	0.52
263188	Drill Core	0.5	0.3	0.7	7.7	<1	59.3	<0.1	0.8	1.7	9	<0.5	10.5	6.2	4.8	7.1	0.89	3.1	0.71	0.17	0.84
263189	Drill Core	<0.5	0.3	<0.1	0.1	<1	49.5	<0.1	<0.2	0.4	<8	<0.5	13.1	0.5	0.8	0.8	0.10	0.4	<0.05	<0.02	0.09
263190	Drill Core	<0.5	0.2	0.1	1.2	<1	40.7	<0.1	<0.2	1.7	<8	<0.5	13.5	1.8	1.2	1.6	0.20	0.7	0.14	0.03	0.21

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Project: Athabasca Testing
Report Date: May 29, 2014

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CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200
	Analyte	Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
	MDL	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
263161	Drill Core	0.49	2.61	0.49	1.40	0.22	1.40	0.19	0.02	0.40	0.2	4.6	3.7	51	6.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263162	Drill Core	0.48	2.78	0.47	1.44	0.23	1.49	0.21	0.03	0.48	1.2	4.2	3.3	51	7.0	0.8	<0.1	<0.1	<0.1	<0.1	<0.5
263163	Drill Core	1.08	6.02	1.11	3.35	0.58	3.68	0.54	0.04	0.02	0.3	9.5	6.2	58	6.1	2.6	<0.1	<0.1	0.2	<0.1	<0.5
263164	Drill Core	0.02	0.18	0.03	0.13	<0.01	0.09	0.01	13.89	0.09	0.5	1.7	2.0	2	3.0	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263165	Drill Core	0.07	0.34	0.07	0.22	0.03	0.15	0.03	14.50	0.25	0.8	7.2	2.0	4	5.7	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263166	Drill Core	0.06	0.32	0.07	0.19	0.03	0.18	0.02	14.14	0.20	0.8	7.4	4.0	3	8.4	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263167	Drill Core	0.10	0.53	0.12	0.29	0.05	0.28	0.04	12.74	0.28	0.9	9.3	5.5	3	12.1	1.0	<0.1	<0.1	<0.1	<0.1	<0.5
263168	Drill Core	0.08	0.43	0.11	0.27	0.03	0.25	0.04	12.94	0.13	1.3	3.7	1.8	7	9.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263169	Drill Core	0.76	3.66	0.62	1.72	0.26	1.61	0.21	0.99	0.26	0.2	1.2	7.0	14	2.8	0.5	<0.1	<0.1	<0.1	<0.1	1.2
263170	Drill Core	0.35	1.58	0.25	0.52	0.08	0.55	0.09	0.19	0.19	0.2	0.6	3.9	10	1.5	<0.5	<0.1	<0.1	<0.1	<0.1	2.3
263171	Drill Core	0.29	1.16	0.16	0.34	0.06	0.33	0.06	0.09	0.18	0.2	0.4	5.8	16	1.7	0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263172	Drill Core	0.37	1.49	0.22	0.57	0.07	0.53	0.08	0.04	0.03	<0.1	0.4	6.3	20	1.8	<0.5	<0.1	<0.1	<0.1	<0.1	0.9
263173	Drill Core	0.43	2.04	0.26	0.62	0.10	0.66	0.10	0.03	<0.02	<0.1	0.3	7.6	31	3.3	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263174	Drill Core	0.43	2.04	0.29	0.71	0.13	0.66	0.10	0.03	<0.02	0.1	0.4	6.7	24	3.1	<0.5	<0.1	<0.1	<0.1	<0.1	1.2
263175	Drill Core	0.33	1.40	0.25	0.54	0.10	0.65	0.09	0.03	<0.02	<0.1	0.4	5.8	25	2.7	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263176	Drill Core	0.36	1.67	0.24	0.68	0.09	0.68	0.10	0.03	<0.02	<0.1	0.3	4.5	31	3.2	<0.5	<0.1	<0.1	<0.1	<0.1	0.9
263177	Drill Core	0.62	2.67	0.43	1.06	0.17	0.94	0.14	0.04	<0.02	<0.1	0.5	4.2	26	3.9	<0.5	<0.1	<0.1	<0.1	<0.1	0.7
263178	Drill Core	0.54	2.07	0.30	0.85	0.11	0.65	0.11	0.03	<0.02	<0.1	2.0	6.0	31	3.0	<0.5	<0.1	<0.1	<0.1	<0.1	0.6
263179	Drill Core	0.53	2.08	0.30	0.77	0.10	0.57	0.09	0.02	<0.02	<0.1	0.5	5.8	21	2.3	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263180	Drill Core	0.50	2.36	0.36	1.04	0.13	0.84	0.13	0.02	<0.02	<0.1	0.4	3.2	21	2.4	<0.5	<0.1	<0.1	<0.1	<0.1	0.8
263181	Drill Core	0.70	2.91	0.47	1.14	0.15	0.85	0.13	0.08	0.02	0.2	1.0	4.3	24	1.9	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263182	Drill Core	1.47	5.75	0.77	1.66	0.21	1.26	0.15	0.06	<0.02	0.2	0.9	12.8	10	0.5	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263163	Drill Core	1.39	5.28	0.69	1.35	0.19	1.10	0.14	0.03	<0.02	1.0	1.9	18.1	38	1.4	<0.5	<0.1	<0.1	<0.1	<0.1	1.1
263184	Drill Core	1.62	5.60	0.61	1.28	0.17	0.97	0.13	0.03	<0.02	0.6	2.2	20.7	55	0.7	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263185	Drill Core	0.02	0.14	0.03	0.09	<0.01	0.06	0.01	13.59	<0.02	<0.1	0.3	<0.1	<1	0.6	<0.5	<0.1	<0.1	<0.1	<0.1	0.8
263186	Drill Core	0.03	0.13	0.03	0.09	0.01	0.06	0.01	13.15	0.11	0.7	3.3	1.1	2	3.0	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
283187	Drill Core	0.07	0.37	0.09	0.25	0.03	0.17	0.03	13.03	0.19	0.6	7.5	3.4	2	8.3	<0.5	<0.1	0.2	<0.1	<0.1	0.9
263188	Drill Core	0.12	0.81	0.14	0.48	0.06	0.38	0.05	13.13	0.36	0.3	6.4	6.5	2	9.9	1.2	<0.1	<0.1	<0.1	<0.1	<0.5
263189	Drill Core	0.01	0.10	<0.02	0.06	<0.01	<0.05	<0.01	14.01	<0.02	0.4	0.6	0.3	<1	1.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263190	Drill Core	0.03	0.16	0.03	0.08	0.02	0.08	0.01	12.60	0.05	0.5	4.0	1.4	1	4.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5

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Project: Athabasca Testing
Report Date: May 29, 2014

CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	AQ200	AQ200	AQ200
	Analyte	Hg	Tl	Se
	Unit	ppm	ppm	ppm
	MDL	0.01	0.1	0.5
263161	Drill Core	<0.01	<0.1	<0.5
263162	Drill Core	<0.01	<0.1	<0.5
263163	Drill Core	<0.01	<0.1	<0.5
263164	Drill Core	<0.01	<0.1	<0.5
263165	Drill Core	<0.01	<0.1	<0.5
263166	Drill Core	<0.01	<0.1	<0.5
263167	Drill Core	<0.01	<0.1	<0.5
263168	Drill Core	<0.01	<0.1	<0.5
263169	Drill Core	<0.01	<0.1	<0.5
263170	Drill Core	<0.01	<0.1	<0.5
263171	Drill Core	<0.01	<0.1	<0.5
283172	Drill Core	<0.01	<0.1	<0.5
263173	Drill Core	<0.01	0.2	<0.5
283174	Drill Core	<0.01	<0.1	<0.5
263175	Drill Core	<0.01	<0.1	<0.5
263176	Drill Core	<0.01	<0.1	<0.5
263177	Drill Core	<0.01	<0.1	<0.5
263178	Drill Core	<0.01	<0.1	<0.5
263179	Drill Core	<0.01	<0.1	<0.5
263180	Drill Core	<0.01	<0.1	<0.5
263181	Drill Core	<0.01	<0.1	<0.5
283182	Drill Core	<0.01	<0.1	<0.5
263183	Drill Core	<0.01	0.1	<0.5
283184	Drill Core	<0.01	0.3	<0.5
263185	Drill Core	<0.01	<0.1	<0.5
263186	Drill Core	<0.01	<0.1	<0.5
263187	Drill Core	<0.01	<0.1	<0.5
263188	Drill Core	<0.01	<0.1	<0.5
263189	Drill Core	<0.01	<0.1	<0.5
263190	Drill Core	<0.01	<0.1	0.8

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Project: Athabasca Testing
Report Date: May 29, 2014

CERTIFICATE OF ANALYSIS VAN14001455.1

Method		WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
Analyte		Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs
Unit		kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm
MDL		0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1
263191	Drill Core	1.14	2.34	0.33	0.24	19.86	29.08	0.01	0.08	0.02	0.02	0.02	<0.002	<20	<1	47.7	99.66	8	<1	0.7	<0.1
263192	Drill Core	1.31	2.53	0.57	0.31	19.90	29.19	0.01	0.17	0.03	0.02	0.03	<0.002	<20	<1	46.9	99.66	15	<1	1.0	0.3
263193	Drill Core	0.63	61.70	12.33	1.85	3.83	4.24	0.73	7.00	0.18	0.07	0.04	0.003	<20	5	7.9	99.82	482	<1	1.6	0.8
263194	Drill Core	2.10	70.02	13.71	1.95	1.27	1.30	1.52	7.44	0.14	0.07	0.03	0.002	<20	5	2.4	99.86	587	<1	1.1	0.6
263195	Drill Core	2.24	72.58	14.03	1.81	0.50	0.80	2.83	6.33	0.18	0.07	0.03	0.003	<20	4	0.9	99.88	565	<1	0.8	0.2
263196	Drill Core	2.10	72.83	14.28	1.45	0.51	0.54	2.48	6.81	0.18	0.07	0.02	0.005	<20	3	0.7	99.88	607	<1	0.7	0.3
263197	Drill Core	2.03	72.43	13.99	1.78	0.57	0.64	2.45	6.62	0.21	0.06	0.02	<0.002	<20	4	1.1	99.86	631	1	1.1	0.3
263198	Drill Core	1.98	69.43	13.49	1.62	1.13	2.18	2.12	6.56	0.19	0.07	0.02	<0.002	<20	3	3.1	99.85	578	<1	1.2	0.3
263199	Drill Core	2.24	72.29	14.09	1.88	0.60	0.72	2.38	6.60	0.18	0.06	0.02	<0.002	<20	3	1.2	99.86	623	<1	0.9	0.3
263200	Drill Core	2.26	72.64	13.95	1.59	0.57	0.57	2.55	6.62	0.19	0.06	0.02	<0.002	<20	3	1.1	99.86	639	<1	0.8	0.2
263201	Drill Core	2.36	72.34	14.26	1.58	0.55	0.59	2.58	6.58	0.20	0.06	0.01	0.002	<20	3	1.1	99.86	637	<1	0.8	0.5
263202	Drill Core	2.08	71.68	14.50	1.69	0.54	0.56	2.31	7.12	0.24	0.07	0.01	<0.002	<20	3	1.1	99.84	657	<1	1.0	0.3
263203	Drill Core	1.71	71.56	14.36	1.66	0.63	0.43	1.57	8.02	0.22	0.07	0.01	<0.002	<20	3	1.3	99.84	654	<1	1.0	0.5
263204	Drill Core	0.40	73.28	14.00	1.49	0.39	0.88	2.66	6.41	0.21	0.06	<0.01	<0.002	<20	3	0.5	99.87	596	<1	0.9	0.3
263205	Drill Core	1.91	72.56	14.20	1.61	0.51	0.61	2.23	6.85	0.21	0.07	<0.01	<0.002	<20	3	1.0	99.86	612	<1	0.8	0.4
263206	Drill Core	1.48	72.26	14.18	1.71	0.56	0.51	2.37	6.84	0.22	0.07	0.01	<0.002	<20	3	1.1	99.85	621	1	0.8	0.4
263207	Drill Core	2.09	73.75	13.44	1.58	0.54	0.37	1.91	7.18	0.17	0.07	<0.01	<0.002	<20	3	0.9	99.88	589	<1	0.6	0.6
263208	Drill Core	2.16	73.32	13.53	1.58	0.46	0.38	2.32	6.72	0.18	0.06	<0.01	<0.002	<20	3	1.3	99.87	569	2	0.7	0.3
263209	Drill Core	2.76	73.05	14.10	1.45	0.49	0.58	2.71	6.43	0.20	0.06	<0.01	<0.002	<20	2	0.8	99.87	570	<1	0.8	0.2
263210	Drill Core	2.60	72.76	13.87	1.81	0.55	0.46	2.50	6.47	0.18	0.07	0.01	<0.002	<20	3	1.2	99.88	552	<1	0.9	0.3
263211	Drill Core	2.37	72.81	13.93	1.43	0.53	0.49	2.78	6.39	0.20	0.06	<0.01	<0.002	<20	2	1.3	99.88	539	<1	0.4	0.2
263212	Drill Core	2.17	73.17	13.88	1.38	0.53	0.41	2.71	6.44	0.19	0.06	<0.01	<0.002	<20	2	1.1	99.88	540	2	0.5	0.2
263213	Drill Core	2.01	73.60	13.76	1.29	0.65	0.44	2.86	6.21	0.19	0.06	<0.01	<0.002	<20	1	0.8	99.88	503	<1	0.7	0.2
263214	Drill Core	1.67	73.89	13.71	0.90	0.41	0.38	2.80	6.68	0.15	0.06	<0.01	<0.002	<20	<1	0.9	99.90	451	2	0.3	0.2
263215	Drill Core	2.56	74.90	13.28	0.76	0.41	0.49	2.54	6.67	0.10	0.06	<0.01	<0.002	<20	<1	0.7	99.91	394	1	<0.2	0.1
263216	Drill Core	1.14	74.41	13.10	1.60	0.66	0.49	3.09	5.22	0.27	0.04	0.01	<0.002	<20	2	1.0	99.89	408	<1	1.2	0.4
263217	Drill Core	2.20	65.83	13.89	4.73	3.39	2.05	2.09	4.45	0.53	0.42	0.08	0.015	<20	15	2.1	99.54	2358	2	10.6	0.9
263218	Drill Core	1.76	52.69	16.28	7.19	6.17	4.48	1.67	5.06	0.86	0.96	0.12	0.025	26	17	3.7	99.21	4485	3	19.1	1.4
263219	Drill Core	2.47	50.94	15.20	6.10	7.81	3.56	0.84	4.88	0.94	0.79	0.13	0.028	30	23	6.0	99.26	4047	<1	21.6	1.6
263220	Drill Core	0.65	11.31	1.35	0.91	17.64	25.82	0.02	0.35	0.07	0.12	0.05	<0.002	<20	6	42.0	99.66	47	<1	9.4	0.5

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Client: **Athabasca Minerals Inc.**
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Project: Athabasca Testing
Report Date: May 29, 2014

CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
263191	Drill Core	<0.5	0.3	<0.1	2.1	<1	46.5	<0.1	0.3	1.3	<8	<0.5	13.6	2.2	1.8	2.3	0.28	1.4	0.22	0.06	0.28
263192	Drill Core	<0.5	0.3	0.3	4.8	<1	45.2	<0.1	0.5	2.0	<8	<0.5	10.9	5.3	3.4	5.3	0.64	2.7	0.57	0.14	0.81
263193	Drill Core	14.1	3.8	6.2	157.2	<1	113.5	0.3	19.4	3.8	13	<0.5	118.0	18.1	52.9	148.2	12.23	42.3	6.62	0.86	4.70
263194	Drill Core	16.5	4.2	3.8	181.1	<1	116.3	0.2	28.2	4.4	<8	6.3	132.0	19.0	45.8	95.1	10.41	35.8	6.41	0.70	4.49
263195	Drill Core	17.9	4.1	5.4	191.8	<1	121.3	0.3	27.9	4.8	<8	<0.5	128.4	15.9	43.3	86.1	9.55	33.8	6.33	0.61	4.37
263196	Drill Core	17.1	4.4	5.2	193.5	<1	113.6	0.2	27.5	4.6	<8	<0.5	134.6	12.4	44.1	82.1	9.00	31.9	6.04	0.65	4.14
263197	Drill Core	17.1	4.9	6.0	192.0	<1	114.6	0.2	34.1	4.9	<8	<0.5	149.1	14.2	50.3	102.6	11.22	40.1	7.28	0.65	5.06
263198	Drill Core	16.7	4.4	5.8	182.9	<1	135.6	0.2	31.5	4.5	<8	26.5	126.8	12.6	45.8	92.5	10.40	37.9	6.63	0.66	4.64
263199	Drill Core	16.9	4.8	5.4	188.8	<1	121.0	0.2	32.5	3.9	<8	1.9	141.5	14.7	51.1	101.8	11.09	38.3	6.93	0.68	4.63
263200	Drill Core	16.8	4.6	5.2	185.4	<1	118.8	0.1	33.0	3.8	<8	<0.5	141.5	12.5	47.5	93.8	10.28	35.6	6.55	0.68	4.59
263201	Drill Core	17.2	4.5	6.1	179.1	<1	125.7	0.2	32.6	4.2	<8	0.7	138.2	11.4	49.9	99.0	11.03	39.6	7.20	0.72	4.79
263202	Drill Core	16.1	4.7	7.4	200.1	<1	126.7	0.2	53.1	4.1	<8	<0.5	141.0	11.7	76.1	160.2	18.08	62.4	10.53	0.74	6.75
263203	Drill Core	17.1	4.9	6.6	199.3	<1	109.4	0.2	42.4	4.4	<8	<0.5	145.8	13.3	70.7	139.7	15.92	55.0	9.70	0.76	5.95
283204	Drill Core	18.6	4.7	6.7	185.9	<1	127.7	0.2	33.6	4.5	8	<0.5	152.4	10.6	50.6	103.2	11.23	37.9	6.61	0.60	4.81
263205	Drill Core	16.5	4.8	7.4	191.5	2	117.4	0.2	38.8	4.0	<8	<0.5	149.1	10.9	59.1	117.6	13.55	46.5	8.26	0.69	5.12
263206	Drill Core	16.9	4.7	7.4	186.5	<1	121.3	0.5	49.1	3.8	<8	<0.5	152.0	10.7	66.8	147.1	18.70	55.9	9.08	0.62	5.61
263207	Drill Core	16.0	4.5	6.1	184.4	<1	98.9	0.2	34.2	4.2	<8	<0.5	139.5	9.2	45.5	84.8	10.40	36.1	6.81	0.60	4.41
263208	Drill Core	16.7	4.2	6.0	191.2	3	104.6	0.3	40.7	3.8	<8	<0.5	135.6	12.2	51.5	105.7	12.23	42.2	6.91	0.57	4.72
263209	Drill Core	18.0	4.6	7.3	186.4	<1	117.1	0.1	36.8	4.9	17	<0.5	132.0	11.3	50.7	102.3	11.61	41.4	7.56	0.62	5.09
263210	Drill Core	16.4	4.1	6.5	184.2	<1	104.4	0.3	38.2	3.9	9	<0.5	127.1	12.2	50.0	103.6	11.49	38.2	7.04	0.52	4.80
263211	Drill Core	16.9	4.3	7.7	183.3	1	112.0	0.2	38.1	4.3	<8	<0.5	135.4	10.2	49.9	102.7	10.94	39.1	7.32	0.56	5.30
263212	Drill Core	15.9	3.7	6.6	183.6	1	111.0	0.2	37.7	4.0	8	<0.5	115.0	6.2	49.4	102.7	11.02	38.3	7.17	0.53	4.46
263213	Drill Core	17.3	4.5	7.8	191.4	<1	111.2	0.3	35.3	4.2	10	<0.5	137.3	6.4	47.9	97.3	10.64	37.2	6.87	0.55	4.98
263214	Drill Core	16.5	2.1	4.7	207.0	<1	113.1	0.2	32.2	2.9	<8	<0.5	60.0	4.2	49.0	112.6	12.21	42.3	6.68	0.45	3.56
263215	Drill Core	14.7	1.9	3.1	191.7	<1	118.8	<0.1	21.0	2.8	<8	<0.5	49.2	4.1	47.9	117.2	11.36	40.3	5.99	0.44	3.33
263216	Drill Core	17.2	2.6	11.5	165.1	<1	162.9	1.1	39.2	4.3	12	<0.5	59.4	6.0	39.5	87.9	9.49	34.2	6.08	0.44	4.05
263217	Drill Core	19.3	5.8	14.5	193.7	2	433.9	0.8	54.2	5.2	78	<0.5	200.6	25.3	79.3	160.9	19.14	72.4	13.81	1.32	9.93
263218	Drill Core	20.9	7.0	13.2	206.6	<1	803.5	0.7	1.8	2.0	127	<0.5	267.4	23.6	54.3	116.4	14.52	57.7	10.24	2.04	8.05
263219	Drill Core	21.3	8.7	10.6	207.0	<1	465.5	0.5	2.3	2.7	148	<0.5	336.1	22.4	55.6	118.9	14.95	60.3	10.63	2.19	7.10
263220	Drill Core	0.7	0.4	1.0	10.7	1	57.0	0.1	0.9	1.6	20	<0.5	14.3	17.4	8.5	11.6	1.48	6.5	1.27	0.33	1.92

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Project: Athabasca Testing
Report Date: May 29, 2014

CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200
	Analyte	Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
	MDL	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
263191	Drill Core	0.04	0.24	0.07	0.13	0.02	0.13	0.01	13.62	0.08	0.6	4.8	2.9	2	6.3	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263192	Drill Core	0.11	0.66	0.10	0.36	0.05	0.25	0.04	13.42	0.11	0.8	3.4	2.1	2	7.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263193	Drill Core	0.56	2.90	0.58	1.85	0.27	1.78	0.26	1.84	0.11	1.1	3.6	3.8	19	5.0	0.5	<0.1	<0.1	<0.1	<0.1	0.6
263194	Drill Core	0.54	3.14	0.71	2.20	0.37	2.25	0.29	0.43	0.05	0.2	2.2	5.5	18	1.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263195	Drill Core	0.60	3.19	0.61	1.62	0.26	1.62	0.20	0.10	0.03	1.0	1.1	6.7	21	0.7	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263196	Drill Core	0.50	2.52	0.44	1.45	0.23	1.39	0.18	0.07	0.06	0.2	0.5	5.1	15	0.5	<0.5	<0.1	<0.1	<0.1	<0.1	1.1
263197	Drill Core	0.61	3.08	0.57	1.43	0.23	1.46	0.19	0.08	0.04	0.3	0.6	6.6	23	0.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263198	Drill Core	0.52	2.49	0.46	1.40	0.21	1.31	0.20	0.78	0.10	1.3	19.4	7.2	26	2.6	<0.5	<0.1	<0.1	<0.1	12.0	1.4
263199	Drill Core	0.58	2.73	0.52	1.68	0.26	1.64	0.25	0.22	0.06	0.6	1.4	6.0	19	0.7	<0.5	<0.1	<0.1	<0.1	0.5	<0.5
263200	Drill Core	0.57	2.65	0.44	1.36	0.25	1.55	0.24	0.08	0.06	0.2	0.8	5.4	20	0.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263201	Drill Core	0.58	2.62	0.40	1.00	0.13	0.92	0.13	0.07	0.04	0.3	0.5	5.8	20	0.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263202	Drill Core	0.67	2.87	0.45	0.94	0.14	0.78	0.10	0.04	0.04	0.8	1.2	7.6	25	0.7	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263203	Drill Core	0.69	3.18	0.49	1.14	0.16	0.94	0.13	0.03	0.05	0.4	2.3	6.8	30	0.9	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263204	Drill Core	0.56	2.44	0.31	0.75	0.09	0.58	0.08	0.05	<0.02	0.3	0.7	8.2	28	0.7	<0.5	<0.1	<0.1	<0.1	<0.1	1.6
263205	Drill Core	0.58	2.64	0.38	0.82	0.12	0.67	0.09	0.05	0.03	0.5	0.9	7.2	25	0.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263206	Drill Core	0.64	2.62	0.36	0.96	0.12	0.70	0.10	0.06	0.06	0.2	0.5	7.6	17	0.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263207	Drill Core	0.50	2.27	0.30	0.71	0.09	0.67	0.10	0.03	0.11	0.1	1.0	5.0	18	0.7	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263208	Drill Core	0.60	2.69	0.38	0.90	0.13	0.85	0.12	0.04	0.04	0.2	1.4	5.4	13	0.4	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263209	Drill Core	0.58	2.64	0.42	1.01	0.15	0.89	0.13	0.05	<0.02	0.2	0.8	6.5	20	0.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263210	Drill Core	0.59	2.85	0.44	1.25	0.21	1.32	0.19	0.07	0.04	<0.1	0.8	6.3	16	0.7	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263211	Drill Core	0.59	2.23	0.33	0.83	0.14	0.93	0.16	0.06	<0.02	<0.1	0.6	7.1	23	0.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263212	Drill Core	0.51	2.21	0.28	0.67	0.11	0.66	0.11	0.04	<0.02	<0.1	0.7	6.4	18	0.2	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263213	Drill Core	0.50	1.83	0.21	0.48	0.06	0.43	0.07	0.05	<0.02	<0.1	1.3	5.9	15	0.4	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263214	Drill Core	0.32	1.14	0.11	0.30	0.04	0.29	0.04	0.04	<0.02	0.2	1.5	5.8	10	0.9	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263215	Drill Core	0.28	1.00	0.09	0.26	0.05	0.22	0.03	0.06	<0.02	0.3	2.8	4.7	9	0.9	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263216	Drill Core	0.40	1.38	0.15	0.39	0.06	0.39	0.05	0.06	<0.02	<0.1	5.4	8.3	31	2.9	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263217	Drill Core	1.20	5.36	0.87	2.30	0.33	2.03	0.30	0.13	<0.02	0.2	4.8	9.0	82	14.9	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263218	Drill Core	1.00	4.67	0.70	1.94	0.26	1.73	0.27	0.28	0.04	0.5	5.8	7.0	68	26.4	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263219	Drill Core	0.92	4.56	0.76	2.12	0.32	1.99	0.31	0.63	<0.02	<0.1	5.9	4.2	78	31.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263220	Drill Core	0.31	1.90	0.44	1.24	0.17	1.01	0.15	11.79	0.65	0.5	9.8	8.8	2	14.4	1.7	<0.1	<0.1	<0.1	<0.1	<0.5

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Project: Athabasca Testing
Report Date: May 29, 2014

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CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	AQ200	AQ200	AQ200
	Analyte	Hg	Tl	Se
	Unit	ppm	ppm	ppm
	MDL	0.01	0.1	0.5
263191	Drill Core	<0.01	<0.1	<0.5
263192	Drill Core	<0.01	<0.1	<0.5
263193	Drill Core	<0.01	<0.1	<0.5
263194	Drill Core	<0.01	<0.1	<0.5
263195	Drill Core	<0.01	0.1	<0.5
263196	Drill Core	<0.01	<0.1	<0.5
263197	Drill Core	<0.01	0.2	<0.5
263198	Drill Core	0.01	0.1	<0.5
263199	Drill Core	<0.01	<0.1	<0.5
263200	Drill Core	<0.01	<0.1	<0.5
263201	Drill Core	<0.01	<0.1	<0.5
263202	Drill Core	<0.01	0.2	<0.5
263203	Drill Core	<0.01	0.2	<0.5
263204	Drill Core	<0.01	0.2	<0.5
263205	Drill Core	<0.01	0.2	<0.5
263206	Drill Core	<0.01	<0.1	<0.5
263207	Drill Core	<0.01	<0.1	<0.5
263208	Drill Core	<0.01	<0.1	<0.5
263209	Drill Core	<0.01	<0.1	<0.5
263210	Drill Core	<0.01	<0.1	<0.5
263211	Drill Core	<0.01	<0.1	<0.5
263212	Drill Core	<0.01	<0.1	<0.5
263213	Drill Core	<0.01	<0.1	<0.5
263214	Drill Core	<0.01	<0.1	<0.5
263215	Drill Core	<0.01	<0.1	<0.5
263216	Drill Core	<0.01	<0.1	<0.5
263217	Drill Core	<0.01	0.2	<0.5
263218	Drill Core	<0.01	0.6	<0.5
263219	Drill Core	<0.01	0.3	<0.5
263220	Drill Core	0.01	<0.1	<0.5

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Project: Athabasca Testing
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CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs
	Unit	kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm
	MDL	0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1
263221	Drill Core	1.07	1.89	0.42	0.51	20.24	29.61	0.01	0.12	0.02	0.05	0.03	<0.002	<20	1	46.7	99.65	13	<1	1.0	0.3
263222	Drill Core	2.31	71.23	14.18	1.13	0.59	1.15	2.20	7.42	0.16	0.07	<0.01	<0.002	<20	2	1.7	99.87	650	<1	0.7	0.3
263223	Drill Core	2.17	75.50	12.86	0.82	0.31	0.60	2.51	5.97	0.09	0.05	<0.01	<0.002	<20	2	1.2	99.92	474	1	0.3	0.4
263224	Drill Core	1.73	73.51	14.05	1.86	0.61	0.62	2.26	6.73	0.15	0.06	0.01	<0.002	<20	4	0.0	99.89	483	2	0.4	0.3

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Project: Athabasca Testing
Report Date: May 29, 2014

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CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
263221	Drill Core	<0.5	0.2	0.8	3.8	3	42.6	<0.1	0.4	1.9	10	<0.5	5.1	6.4	3.3	4.9	0.61	2.3	0.50	0.14	0.74
263222	Drill Core	17.3	3.0	6.8	230.0	1	138.2	0.3	34.3	5.9	9	<0.5	92.9	8.1	43.5	88.5	9.88	33.6	6.33	0.50	4.35
263223	Drill Core	15.1	3.3	3.8	205.5	1	100.7	0.2	10.5	8.0	<8	<0.5	83.6	6.8	24.2	42.9	4.58	14.7	2.79	0.43	1.95
263224	Drill Core	16.5	4.3	4.9	199.3	<1	95.0	0.1	26.1	5.1	<8	<0.5	123.3	12.1	43.2	88.1	10.08	32.9	5.43	0.53	3.88

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CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200
	Analyte	Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
	MDL	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
263221	Drill Core	0.11	0.73	0.14	0.47	0.07	0.45	0.06	13.06	0.32	0.7	2.7	1.5	6	8.1	0.7	<0.1	<0.1	<0.1	<0.1	<0.5
263222	Drill Core	0.49	2.07	0.27	0.69	0.10	0.74	0.10	0.27	0.08	1.3	4.2	8.9	17	1.4	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263223	Drill Core	0.27	1.48	0.22	0.65	0.09	0.50	0.08	0.06	0.06	1.6	2.8	5.8	9	0.7	<0.5	<0.1	<0.1	<0.1	<0.1	1.1
263224	Drill Core	0.56	2.62	0.38	0.93	0.11	0.65	0.11	0.08	0.06	0.6	0.7	5.7	15	0.9	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5

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CERTIFICATE OF ANALYSIS VAN14001455.1

	Method	AQ200	AQ200	AQ200
	Analyte	Hg	Tl	Se
	Unit	ppm	ppm	ppm
	MDL	0.01	0.1	0.5
263221	Drill Core	<0.01	<0.1	<0.5
263222	Drill Core	<0.01	<0.1	<0.5
263223	Drill Core	<0.01	<0.1	<0.5
263224	Drill Core	<0.01	<0.1	<0.5

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QUALITY CONTROL REPORT VAN14001455.1

	Method	WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Wgt	SiO_2	Al_2O_3	Fe_2O_3	MgO	CaO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	Cr_2O_3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs
	Unit	kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm
	MDL	0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1
263142	Drill Core	3.06	50.86	18.35	2.35	4.27	3.46	0.25	11.04	0.25	0.09	0.02	<0.002	<20	6	8.8	99.73	940	2	2.2	1.0
263194	Drill Core	2.10	70.02	13.71	1.95	1.27	1.30	1.52	7.44	0.14	0.07	0.03	0.002	<20	5	2.4	99.86	587	<1	1.1	0.6
263223	Drill Core	2.17	75.50	12.86	0.82	0.31	0.60	2.51	5.97	0.09	0.05	<0.01	<0.002	<20	2	1.2	99.92	474	1	0.3	0.4
Pulp Duplicates																					
263107	Drill Core	2.35	69.09	14.77	2.99	1.31	1.85	2.99	5.07	0.37	0.15	0.04	0.003	<20	5	1.0	99.64	1850	3	4.4	0.5
REP 263107	QC		69.10	14.73	2.98	1.31	1.86	2.98	5.11	0.37	0.15	0.04	0.003	<20	5	1.0	99.64	1853	4	4.2	0.4
263118	Drill Core	0.93	7.62	0.64	0.29	18.99	27.75	0.02	0.16	0.03	0.04	0.02	<0.002	<20	<1	44.1	99.67	22	2	0.9	0.2
REP 263118	QC																				
263160	Drill Core	0.95	75.91	12.49	0.73	0.28	0.20	1.84	7.77	0.07	0.06	<0.01	<0.002	<20	<1	0.6	99.95	462	<1	<0.2	1.0
REP 263160	QC		75.94	12.52	0.72	0.29	0.20	1.84	7.72	0.06	0.06	<0.01	<0.002	<20	<1	0.6	99.95	451	1	<0.2	0.9
263163	Drill Core	0.77	69.65	14.31	2.80	1.58	0.49	3.01	5.75	0.31	0.15	0.05	0.003	<20	10	1.6	99.71	1462	5	4.2	0.8
REP 263163	QC																				
263164	Drill Core	0.67	0.45	0.07	0.20	20.40	30.68	0.01	0.03	<0.01	<0.01	0.02	<0.002	<20	<1	47.8	99.65	6	<1	<0.2	0.1
REP 263164	QC																				
263167	Drill Core	1.30	6.33	0.96	0.48	18.49	27.82	0.02	0.24	0.05	0.08	0.03	<0.002	<20	<1	45.2	99.68	24	<1	2.7	0.3
REP 263167	QC																				
263174	Drill Core	2.49	60.95	19.54	3.14	1.44	4.29	7.26	1.32	0.33	0.08	0.04	0.006	<20	4	1.4	99.84	183	2	1.8	0.1
REP 263174	QC																				
263178	Drill Core	2.57	58.12	20.58	3.62	1.58	5.21	7.17	1.29	0.35	0.10	0.04	<0.002	<20	5	1.6	99.83	190	1	2.2	0.1
REP 263178	QC		58.23	20.49	3.62	1.57	5.18	7.19	1.30	0.35	0.09	0.04	0.002	<20	4	1.8	99.82	190	3	2.1	0.1
263199	Drill Core	2.24	72.29	14.09	1.68	0.60	0.72	2.38	6.60	0.18	0.06	0.02	<0.002	<20	3	1.2	99.86	623	<1	0.9	0.3
REP 263199	QC																				
263209	Drill Core	2.76	73.05	14.10	1.45	0.49	0.58	2.71	6.43	0.20	0.06	<0.01	<0.002	<20	2	0.8	99.87	570	<1	0.8	0.2
REP 263209	QC																				
263213	Drill Core	2.01	73.60	13.76	1.29	0.65	0.44	2.86	6.21	0.19	0.06	<0.01	<0.002	<20	1	0.8	99.88	503	<1	0.7	0.2
REP 263213	QC		73.20	14.01	1.28	0.66	0.44	2.92	6.31	0.19	0.06	<0.01	<0.002	<20	1	0.8	99.89	498	<1	0.7	0.2
263224	Drill Core	1.73	73.51	14.05	1.86	0.61	0.62	2.28	6.73	0.15	0.06	0.01	<0.002	<20	4	0.0	99.89	483	2	0.4	0.3
REP 263224	QC																				
Core Reject Duplicates																					

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QUALITY CONTROL REPORT VAN14001455.1

	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
	Analyte	Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	MDL	0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
263142	Drill Core	22.5	5.8	8.6	269.4	3	105.2	0.4	44.5	6.9	24	<0.5	175.4	19.1	80.1	158.4	19.38	66.1	10.89	0.84	7.09
263194	Drill Core	16.5	4.2	3.8	181.1	<1	116.3	0.2	28.2	4.4	<8	6.3	132.0	19.0	45.8	95.1	10.41	35.8	6.41	0.70	4.49
263223	Drill Core	15.1	3.3	3.8	205.5	1	100.7	0.2	10.5	8.0	<8	<0.5	83.6	6.8	24.2	42.9	4.58	14.7	2.79	0.43	1.95
Pulp Duplicates																					
263107	Drill Core	17.4	6.0	10.3	190.3	3	505.3	0.5	46.8	4.2	36	<0.5	211.9	11.6	69.3	124.8	12.12	41.1	5.99	1.19	4.09
REP 263107	QC	16.7	6.7	9.5	184.9	3	509.4	0.5	52.7	4.5	37	<0.5	228.7	12.5	71.1	127.1	12.59	41.3	5.99	1.10	4.30
263118	Drill Core	<0.5	0.2	0.5	4.7	<1	56.5	<0.1	0.6	1.7	12	<0.5	8.4	4.4	3.8	5.2	0.67	2.6	0.49	0.16	0.66
REP 263118	QC																				
263160	Drill Core	11.5	0.1	2.0	204.7	1	54.9	0.3	2.2	0.6	<8	<0.5	3.0	2.2	6.7	9.9	1.16	4.1	0.54	0.14	0.40
REP 263160	QC	11.9	0.2	1.8	214.0	3	55.4	0.1	1.9	0.6	<8	<0.5	3.6	1.9	6.7	10.3	1.11	3.7	0.53	0.11	0.43
263163	Drill Core	21.0	10.0	33.0	189.6	16	162.8	4.1	51.0	7.2	43	0.6	250.5	31.6	56.2	85.5	11.70	43.1	8.11	1.07	6.43
REP 263163	QC																				
263164	Drill Core	<0.5	<0.1	<0.1	0.7	6	44.3	0.3	<0.2	1.1	10	<0.5	1.5	1.5	1.7	2.4	0.22	0.9	0.16	0.03	0.21
REP 263164	QC																				
263167	Drill Core	<0.5	0.2	0.7	6.5	<1	52.7	0.2	0.7	1.7	12	<0.5	8.7	4.6	3.8	6.8	0.78	3.1	0.68	0.12	0.69
REP 263167	QC																				
263174	Drill Core	35.4	7.1	8.8	38.9	2	344.0	0.5	66.3	5.6	32	<0.5	227.9	9.2	63.5	115.5	11.48	36.8	5.16	1.02	3.65
REP 263174	QC																				
263178	Drill Core	39.9	7.1	7.5	50.1	2	417.7	0.5	67.9	5.6	36	<0.5	239.7	9.3	85.3	151.3	15.68	51.7	7.72	1.17	4.89
REP 263178	QC	39.7	7.6	7.5	51.4	2	444.8	0.6	67.7	5.7	38	<0.5	263.0	9.8	82.7	150.6	15.04	48.9	7.23	1.20	5.04
263199	Drill Core	16.9	4.8	5.4	188.8	<1	121.0	0.2	32.5	3.9	<8	1.9	141.5	14.7	51.1	101.8	11.09	38.3	6.93	0.68	4.63
REP 263199	QC																				
263209	Drill Core	18.0	4.6	7.3	186.4	<1	117.1	0.1	36.8	4.9	17	<0.5	132.0	11.3	50.7	102.3	11.61	41.4	7.56	0.62	5.09
REP 263209	QC																				
263213	Drill Core	17.3	4.5	7.8	191.4	<1	111.2	0.3	35.3	4.2	10	<0.5	137.3	6.4	47.9	97.3	10.64	37.2	6.87	0.55	4.98
REP 263213	QC	16.8	4.3	7.7	186.6	<1	109.4	0.1	34.5	4.1	<8	<0.5	130.7	6.7	46.4	94.0	10.43	36.6	6.97	0.54	4.46
263224	Drill Core	16.5	4.3	4.9	199.3	<1	95.0	0.1	26.1	5.1	<8	<0.5	123.3	12.1	43.2	88.1	10.08	32.9	5.43	0.53	3.88
REP 263224	QC																				
Core Reject Duplicates																					

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QUALITY CONTROL REPORT VAN14001455.1

	Method	LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200
	Analyte	Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au
	Unit	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
	MDL	0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
263142	Drill Core	0.95	4.27	0.61	1.46	0.20	1.13	0.15	1.43	0.58	0.4	2.2	2.3	34	3.1	1.0	<0.1	<0.1	<0.1	<0.1	<0.5
263194	Drill Core	0.54	3.14	0.71	2.20	0.37	2.25	0.29	0.43	0.05	0.2	2.2	5.5	18	1.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263223	Drill Core	0.27	1.48	0.22	0.65	0.09	0.50	0.08	0.06	0.06	1.6	2.8	5.8	9	0.7	<0.5	<0.1	<0.1	<0.1	<0.1	1.1
Pulp Duplicates																					
263107	Drill Core	0.49	2.46	0.41	1.06	0.14	0.98	0.14	0.04	0.06	2.0	4.4	14.9	50	6.5	<0.5	<0.1	<0.1	<0.1	<0.1	0.5
REP 263107	QC	0.53	2.37	0.39	1.05	0.15	0.95	0.14			1.8	4.7	14.6	51	6.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263118	Drill Core	0.10	0.59	0.11	0.33	0.04	0.23	0.03	12.41	0.18	0.5	10.0	4.2	2	8.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
REP 263118	QC								12.58	0.17											
263160	Drill Core	0.06	0.30	0.06	0.20	0.03	0.16	0.02	<0.02	0.14	<0.1	4.5	2.3	8	0.4	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
REP 263160	QC	0.06	0.32	0.04	0.20	0.03	0.18	0.02													
263163	Drill Core	1.08	6.02	1.11	3.35	0.58	3.68	0.54	0.04	0.02	0.3	9.5	6.2	58	6.1	2.6	<0.1	<0.1	0.2	<0.1	<0.5
REP 263163	QC								0.03	<0.02											
263164	Drill Core	0.02	0.18	0.03	0.13	<0.01	0.09	0.01	13.89	0.09	0.5	1.7	2.0	2	3.0	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
REP 263164	QC										0.5	1.8	2.1	3	3.7	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263167	Drill Core	0.10	0.53	0.12	0.29	0.05	0.28	0.04	12.74	0.28	0.9	9.3	5.5	3	12.1	1.0	<0.1	<0.1	<0.1	<0.1	<0.5
REP 263167	QC										0.9	9.4	5.5	3	12.1	1.0	<0.1	<0.1	<0.1	<0.1	1.2
263174	Drill Core	0.43	2.04	0.29	0.71	0.13	0.66	0.10	0.03	<0.02	0.1	0.4	6.7	24	3.1	<0.5	<0.1	<0.1	<0.1	<0.1	1.2
REP 263174	QC										<0.1	0.6	7.0	26	2.4	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263178	Drill Core	0.54	2.07	0.30	0.85	0.11	0.65	0.11	0.03	<0.02	<0.1	2.0	8.0	31	3.0	<0.5	<0.1	<0.1	<0.1	<0.1	0.6
REP 263178	QC	0.54	2.27	0.30	0.70	0.10	0.74	0.12													
263199	Drill Core	0.58	2.73	0.52	1.68	0.26	1.64	0.25	0.22	0.06	0.6	1.4	6.0	19	0.7	<0.5	<0.1	<0.1	<0.1	0.5	<0.5
REP 263199	QC								0.22	0.05											
263209	Drill Core	0.58	2.64	0.42	1.01	0.15	0.89	0.13	0.05	<0.02	0.2	0.8	6.5	20	0.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
REP 263209	QC										0.1	1.0	6.2	19	0.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263213	Drill Core	0.50	1.83	0.21	0.48	0.06	0.43	0.07	0.05	<0.02	<0.1	1.3	5.9	15	0.4	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
REP 263213	QC	0.48	1.63	0.21	0.41	0.07	0.49	0.07													
263224	Drill Core	0.56	2.62	0.38	0.93	0.11	0.65	0.11	0.08	0.06	0.6	0.7	5.7	15	0.9	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
REP 263224	QC								0.08	0.05											
Core Reject Duplicates																					

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Client: **Athabasca Minerals Inc.**
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Project: Athabasca Testing
Report Date: May 29, 2014

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QUALITY CONTROL REPORT VAN14001455.1

	Method	AQ200	AQ200	AQ200
	Analyte	Hg	Tl	Se
	Unit	ppm	ppm	ppm
	MDL	0.01	0.1	0.5
263142	Drill Core	<0.01	<0.1	<0.5
263194	Drill Core	<0.01	<0.1	<0.5
263223	Drill Core	<0.01	<0.1	<0.5
Pulp Duplicates				
263107	Drill Core	<0.01	0.5	<0.5
REP 263107	QC	<0.01	0.5	<0.5
263118	Drill Core	<0.01	<0.1	<0.5
REP 263118	QC			
263160	Drill Core	<0.01	<0.1	<0.5
REP 263160	QC			
263163	Drill Core	<0.01	<0.1	<0.5
REP 263163	QC			
263164	Drill Core	<0.01	<0.1	<0.5
REP 263164	QC	<0.01	<0.1	<0.5
263167	Drill Core	<0.01	<0.1	<0.5
REP 263167	QC	<0.01	<0.1	<0.5
263174	Drill Core	<0.01	<0.1	<0.5
REP 263174	QC	<0.01	<0.1	<0.5
263178	Drill Core	<0.01	<0.1	<0.5
REP 263178	QC			
263199	Drill Core	<0.01	<0.1	<0.5
REP 263199	QC			
263209	Drill Core	<0.01	<0.1	<0.5
REP 263209	QC	<0.01	<0.1	<0.5
263213	Drill Core	<0.01	<0.1	<0.5
REP 263213	QC			
263224	Drill Core	<0.01	<0.1	<0.5
REP 263224	QC			
Core Reject Duplicates				

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Project: Athabasca Testing
Report Date: May 29, 2014

Page: 2 of 3 Part: 1 of 4

QUALITY CONTROL REPORT VAN14001455.1

		WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
		Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs
		kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm
		0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1
263124	Drill Core	1.13	2.30	0.54	0.31	20.33	29.49	0.01	0.14	0.03	0.02	0.02	<0.002	<20	<1	46.5	99.65	17	<1	0.5	0.3
DUP 263124	QC		2.28	0.54	0.31	20.19	29.65	0.01	0.14	0.03	0.02	0.02	<0.002	<20	<1	46.5	99.65	17	<1	0.9	0.1
263162	Drill Core	1.08	69.02	14.04	3.26	1.97	0.37	2.68	6.01	0.35	0.17	0.04	0.005	<20	5	1.8	99.71	1662	<1	5.2	0.4
DUP 263162	QC		68.86	14.21	3.34	2.01	0.38	2.62	5.94	0.35	0.16	0.04	0.004	<20	5	1.8	99.72	1593	1	4.5	0.4
263200	Drill Core	2.26	72.64	13.95	1.59	0.57	0.57	2.55	6.62	0.19	0.06	0.02	<0.002	<20	3	1.1	99.86	639	<1	0.8	0.2
DUP 263200	QC		72.48	14.15	1.64	0.59	0.57	2.54	6.52	0.19	0.06	0.02	<0.002	<20	3	1.1	99.86	620	<1	0.5	0.2
Reference Materials																					
STD DS10	Standard																				
STD DS10	Standard																				
STD DS10	Standard																				
STD DS10	Standard																				
STD DS10	Standard																				
STD GS311-1	Standard																				
STD GS311-1	Standard																				
STD GS311-1	Standard																				
STD GS311-1	Standard																				
STD GS910-4	Standard																				
STD GS910-4	Standard																				
STD GS910-4	Standard																				
STD GS910-4	Standard																				
STD OREAS45EA	Standard																				
STD OREAS45EA	Standard																				
STD OREAS45EA	Standard																				
STD OREAS45EA	Standard																				
STD OREAS45EA	Standard																				
STD SO-18	Standard		58.45	13.96	7.59	3.38	6.26	3.64	2.13	0.68	0.79	0.40	0.545	40	24	1.9	99.75	481	<1	26.1	6.2
STD SO-18	Standard		58.18	14.03	7.61	3.39	6.35	3.69	2.14	0.70	0.79	0.39	0.553	45	25	1.9	99.75	490	<1	24.5	6.5
STD SO-18	Standard		58.10	14.14	7.59	3.39	6.30	3.73	2.17	0.69	0.78	0.40	0.553	42	24	1.9	99.74	482	<1	25.5	6.9
STD SO-18	Standard		58.26	14.09	7.54	3.38	6.30	3.70	2.16	0.69	0.78	0.39	0.548	42	24	1.9	99.75	474	<1	24.0	7.0

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Project: Athabasca Testing
Report Date: May 29, 2014

QUALITY CONTROL REPORT VAN14001455.1

		LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
		Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
		0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
263124	Drill Core	<0.5	0.3	3.4	4.2	<1	48.7	1.7	0.5	2.8	11	<0.5	9.8	4.2	2.7	4.2	0.50	2.3	0.45	0.10	0.50
DUP 263124	QC	<0.5	0.3	2.9	4.2	<1	49.5	2.0	0.4	2.8	14	<0.5	7.8	4.2	2.7	3.9	0.49	1.9	0.43	0.11	0.55
263162	Drill Core	14.7	5.9	10.7	153.3	6	154.4	0.7	35.2	4.0	42	<0.5	194.9	14.4	45.3	59.1	9.59	32.2	4.98	0.81	3.37
DUP 263162	QC	13.7	5.7	10.4	153.5	6	149.9	0.6	34.8	3.9	47	<0.5	185.1	13.6	44.5	57.3	8.88	31.0	4.73	0.72	3.48
263200	Drill Core	16.8	4.6	5.2	185.4	<1	116.8	0.1	33.0	3.8	<8	<0.5	141.5	12.5	47.5	93.8	10.28	35.6	6.55	0.68	4.59
DUP 263200	QC	16.6	4.7	5.6	181.0	<1	125.5	<0.1	31.5	3.9	<8	<0.5	138.2	14.0	48.1	97.4	10.32	35.6	6.23	0.69	4.58
Reference Materials																					
STD DS10	Standard																				
STD DS10	Standard																				
STD DS10	Standard																				
STD DS10	Standard																				
STD DS10	Standard																				
STD GS311-1	Standard																				
STD GS311-1	Standard																				
STD GS311-1	Standard																				
STD GS311-1	Standard																				
STD GS910-4	Standard																				
STD GS910-4	Standard																				
STD GS910-4	Standard																				
STD GS910-4	Standard																				
STD OREAS45EA	Standard																				
STD OREAS45EA	Standard																				
STD OREAS45EA	Standard																				
STD OREAS45EA	Standard																				
STD OREAS45EA	Standard																				
STD SO-18	Standard	17.0	9.1	18.3	26.7	15	390.6	6.7	9.9	15.0	182	13.2	277.5	28.2	11.7	25.6	3.37	13.0	2.67	0.79	2.89
STD SO-18	Standard	16.1	8.8	18.1	25.8	14	391.1	6.4	9.5	15.0	187	12.1	271.2	28.1	12.0	25.5	3.14	12.3	2.79	0.78	2.80
STD SO-18	Standard	15.7	9.2	18.5	26.5	14	400.6	6.7	9.6	15.2	178	12.5	284.3	30.2	12.3	26.3	3.11	12.3	2.73	0.84	2.84
STD SO-18	Standard	15.5	8.7	17.7	26.5	14	402.4	6.4	9.9	15.1	177	13.9	273.7	28.4	12.7	24.9	3.16	12.2	2.59	0.85	2.84

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Project: Athabasca Testing
Report Date: May 29, 2014

QUALITY CONTROL REPORT VAN14001455.1

		LF200 Tb ppm 0.01	LF200 Dy ppm 0.05	LF200 Ho ppm 0.02	LF200 Er ppm 0.03	LF200 Tm ppm 0.01	LF200 Yb ppm 0.05	LF200 Lu ppm 0.01	TC000 TOT/C % 0.02	TC000 TOT/S % 0.02	AQ200 Mo ppm 0.1	AQ200 Cu ppm 0.1	AQ200 Pb ppm 0.1	AQ200 Zn ppm 1	AQ200 Ni ppm 0.1	AQ200 As ppm 0.5	AQ200 Cd ppm 0.1	AQ200 Sb ppm 0.1	AQ200 Bi ppm 0.1	AQ200 Ag ppm 0.1	AQ200 Au ppb 0.5
263124	Drill Core	0.08	0.52	0.10	0.30	0.05	0.29	0.04	12.99	0.09	1.3	3.5	1.8	7	9.5	<0.5	<0.1	0.1	<0.1	<0.1	<0.5
DUP 263124	QC	0.06	0.44	0.09	0.29	0.04	0.24	0.03	13.00	0.11	1.2	3.6	1.8	7	10.0	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
263162	Drill Core	0.48	2.78	0.47	1.44	0.23	1.49	0.21	0.03	0.48	1.2	4.2	3.3	51	7.0	0.8	<0.1	<0.1	<0.1	<0.1	<0.5
DUP 263162	QC	0.48	2.49	0.47	1.37	0.24	1.57	0.23	0.03	0.47	1.0	4.0	3.4	51	6.6	0.8	<0.1	<0.1	<0.1	<0.1	<0.5
263200	Drill Core	0.57	2.65	0.44	1.36	0.25	1.55	0.24	0.08	0.06	0.2	0.8	5.4	20	0.6	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
DUP 263200	QC	0.58	2.83	0.49	1.53	0.25	1.65	0.27	0.08	0.07	0.2	0.8	5.2	20	0.8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
Reference Materials																					
STD DS10	Standard										12.8	153.6	144.8	346	72.8	43.6	2.7	7.2	11.8	2.1	61.4
STD DS10	Standard										14.1	166.9	166.4	390	81.8	51.1	2.7	8.3	13.8	2.4	66.1
STD DS10	Standard										15.1	161.8	149.6	365	78.7	46.5	2.8	9.4	11.8	2.1	73.9
STD DS10	Standard										11.1	157.6	145.4	361	74.5	41.6	2.4	8.0	11.8	1.9	47.5
STD DS10	Standard										13.2	158.4	143.1	352	74.8	43.0	2.5	7.3	11.9	1.8	51.0
STD GS311-1	Standard								1.03	2.37											
STD GS311-1	Standard								0.99	2.33											
STD GS311-1	Standard								1.05	2.41											
STD GS311-1	Standard								1.03	2.33											
STD GS910-4	Standard								2.60	8.05											
STD GS910-4	Standard								2.56	8.43											
STD GS910-4	Standard								2.68	8.03											
STD GS910-4	Standard								2.63	8.32											
STD OREAS45EA	Standard										1.5	662.2	16.0	29	367.9	8.8	<0.1	0.3	0.3	0.3	55.2
STD OREAS45EA	Standard										1.7	675.7	15.8	29	385.5	10.5	<0.1	0.4	0.3	0.3	50.1
STD OREAS45EA	Standard										1.9	736.6	15.9	33	409.0	12.3	<0.1	0.4	0.3	0.3	54.4
STD OREAS45EA	Standard										1.3	635.6	15.4	27	354.7	8.3	<0.1	0.3	0.3	0.3	58.1
STD OREAS45EA	Standard										1.3	664.3	14.8	26	365.3	9.1	<0.1	0.3	0.3	0.2	60.2
STD SO-18	Standard	0.47	2.70	0.59	1.63	0.24	1.75	0.27													
STD SO-18	Standard	0.48	2.81	0.59	1.62	0.25	1.61	0.24													
STD SO-18	Standard	0.49	3.08	0.53	1.74	0.25	1.67	0.28													
STD SO-16	Standard	0.47	2.65	0.59	1.69	0.26	1.75	0.26													

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QUALITY CONTROL REPORT VAN14001455.1

		AQ200 Hg ppm 0.01	AQ200 Tl ppm 0.1	AQ200 Se ppm 0.5
263124	Drill Core	<0.01	<0.1	<0.5
DUP 263124	QC	<0.01	<0.1	0.5
263162	Drill Core	<0.01	<0.1	<0.5
DUP 263162	QC	<0.01	<0.1	<0.5
263200	Drill Core	<0.01	<0.1	<0.5
DUP 263200	QC	<0.01	<0.1	<0.5
Reference Materials				
STD DS10	Standard	0.26	4.6	2.2
STD DS10	Standard	0.32	5.5	2.8
STD DS10	Standard	0.31	5.2	2.3
STD DS10	Standard	0.29	4.8	1.8
STD DS10	Standard	0.32	4.7	2.2
STD GS311-1	Standard			
STD GS311-1	Standard			
STD GS311-1	Standard			
STD GS311-1	Standard			
STD GS910-4	Standard			
STD GS910-4	Standard			
STD GS910-4	Standard			
STD GS910-4	Standard			
STD OREAS45EA	Standard	0.01	<0.1	<0.5
STD OREAS45EA	Standard	0.01	<0.1	0.9
STD OREAS45EA	Standard	0.01	<0.1	1.5
STD OREAS45EA	Standard	<0.01	<0.1	<0.5
STD OREAS45EA	Standard	<0.01	<0.1	<0.5
STD SO-18	Standard			
STD SO-18	Standard			
STD SO-18	Standard			
STD SO-18	Standard			

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Project: Athabasca Testing
Report Date: May 29, 2014

Page: 3 of 3 Part: 1 of 4

QUALITY CONTROL REPORT VAN14001455.1

		WGHT	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
		Wgt	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ni	Sc	LOI	Sum	Ba	Be	Co	Cs
		kg	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	%	%	ppm	ppm	ppm	ppm
		0.01	0.01	0.01	0.04	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	20	1	-5.1	0.01	1	1	0.2	0.1
STD SO-18	Standard		58.20	14.08	7.61	3.38	6.37	3.66	2.13	0.69	0.78	0.39	0.541	39	24	1.9	99.74	494	<1	23.4	6.6
STD SO-18	Standard		58.28	13.99	7.59	3.39	6.30	3.73	2.14	0.69	0.78	0.39	0.549	42	24	1.9	99.75	481	2	23.2	6.3
STD SO-18	Standard		58.32	14.03	7.56	3.36	6.31	3.72	2.13	0.69	0.77	0.39	0.541	41	24	1.9	99.74	501	2	26.1	6.9
STD SO-18	Standard		58.18	14.14	7.50	3.42	6.40	3.67	2.12	0.69	0.77	0.39	0.545	40	24	1.9	99.73	501	<1	26.2	7.5
STD GS311-1 Expected																					
STD GS910-4 Expected																					
STD DS10 Expected																					
STD OREAS45EA Expected																					
STD SO-18 Expected			58.47	14.23	7.67	3.35	6.42	3.71	2.17	0.69	0.83	0.39	0.55	44	25			514		26.2	7.1
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank		<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	0.0	<0.01	<1	<1	<0.2	<0.1
BLK	Blank		<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	0.0	0.01	<1	<1	<0.2	<0.1
BLK	Blank		0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	0.0	0.05	<1	<1	<0.2	<0.1
BLK	Blank																				
BLK	Blank																				
BLK	Blank		<0.01	<0.01	<0.04	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.002	<20	<1	0.0	<0.01	<1	<1	<0.2	<0.1
Prep Wash																					
G1	Prep Blank		67.31	15.89	3.28	1.06	3.52	3.57	3.61	0.38	0.15	0.09	<0.002	<20	5	0.9	99.74	975	3	4.0	4.9
G1	Prep Blank		67.15	15.99	3.32	1.08	3.57	3.57	3.53	0.38	0.16	0.09	<0.002	<20	5	0.9	99.74	977	3	3.9	5.3

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Acme Analytical Laboratories (Vancouver) Ltd.
9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA
PHONE (604) 253-3158

Client: Athabasca Minerals Inc.
9524 27 Ave
Edmonton AB T6N 1B2 CANADA

Project: Athabasca Testing
Report Date: May 29, 2014

Page: 3 of 3 Part: 2 of 4

QUALITY CONTROL REPORT VAN14001455.1

		LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200	LF200
		Ga	Hf	Nb	Rb	Sn	Sr	Ta	Th	U	V	W	Zr	Y	La	Ce	Pr	Nd	Sm	Eu	Gd
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
		0.5	0.1	0.1	0.1	1	0.5	0.1	0.2	0.1	8	0.5	0.1	0.1	0.1	0.1	0.02	0.3	0.05	0.02	0.05
STD SO-18	Standard	16.0	8.9	19.0	26.7	13	395.7	6.6	9.3	14.8	178	14.1	276.0	26.9	11.7	24.3	3.18	12.0	2.55	0.85	2.85
STD SO-18	Standard	15.7	8.9	18.0	26.1	13	409.7	6.2	9.1	14.8	179	14.8	272.8	27.0	12.0	24.5	3.03	13.3	2.55	0.81	2.80
STD SO-18	Standard	17.6	9.7	19.5	27.6	14	416.2	7.0	9.7	15.7	178	13.6	294.0	29.5	12.5	27.4	3.21	14.0	2.80	0.91	3.20
STD SO-18	Standard	18.0	9.6	19.6	28.3	14	418.2	7.0	9.8	15.8	177	14.4	289.2	30.9	13.9	26.7	3.30	12.9	2.99	0.85	3.23
STD GS311-1 Expected																					
STD GS910-4 Expected																					
STD DS10 Expected																					
STD OREAS45EA Expected																					
STD SO-18 Expected		17.6	9.8	19.3	28.7	15	407.4	7.4	9.9	16.4	200	14.8	290	29	12.3	27.1	3.45	14	3	0.89	2.93
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank																				
BLK	Blank	<0.5	<0.1	<0.1	0.2	2	<0.5	<0.1	<0.2	<0.1	<8	<0.5	<0.1	<0.1	<0.1	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05
BLK	Blank	<0.5	<0.1	<0.1	<0.1	<1	<0.5	<0.1	<0.2	<0.1	<8	<0.5	0.2	<0.1	<0.1	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05
BLK	Blank	<0.5	<0.1	<0.1	<0.1	<1	<0.5	<0.1	<0.2	<0.1	<8	<0.5	0.3	<0.1	0.1	0.1	<0.02	<0.3	<0.05	<0.02	<0.05
BLK	Blank																				
BLK	Blank																				
BLK	Blank	<0.5	<0.1	<0.1	<0.1	<1	<0.5	<0.1	<0.2	<0.1	<8	<0.5	1.0	<0.1	<0.1	<0.1	<0.02	<0.3	<0.05	<0.02	<0.05
Prep Wash																					
G1	Prep Blank	19.8	4.4	22.3	131.6	2	756.6	1.4	11.2	3.9	46	<0.5	150.8	15.7	35.9	66.7	7.16	26.5	4.45	1.09	3.82
G1	Prep Blank	19.3	4.1	21.3	132.1	1	759.6	1.3	10.6	3.4	46	<0.5	138.0	16.2	36.2	66.3	7.09	26.2	4.50	1.10	3.65

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9050 Shaughnessy St Vancouver BC V6P 6E5 CANADA
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Client: Athabasca Minerals Inc.
9524 27 Ave
Edmonton AB T6N 1B2 CANADA

Project: Athabasca Testing
Report Date: May 29, 2014

Page: 3 of 3 Part: 3 of 4

QUALITY CONTROL REPORT VAN14001455.1

		LF200	LF200	LF200	LF200	LF200	LF200	LF200	TC000	TC000	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200	AQ200
		Tb	Dy	Ho	Er	Tm	Yb	Lu	TOT/C	TOT/S	Mo	Cu	Pb	Zn	Ni	As	Cd	Sb	Bi	Ag	Au
		ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppb
		0.01	0.05	0.02	0.03	0.01	0.05	0.01	0.02	0.02	0.1	0.1	0.1	1	0.1	0.5	0.1	0.1	0.1	0.1	0.5
STD SO-18	Standard	0.46	2.78	0.56	1.69	0.25	1.53	0.25													
STD SO-18	Standard	0.47	2.80	0.59	1.70	0.27	1.65	0.27													
STD SO-18	Standard	0.51	3.01	0.64	1.88	0.28	1.77	0.27													
STD SO-18	Standard	0.52	2.99	0.61	1.78	0.28	1.81	0.27													
STD GS311-1 Expected									1.02	2.35											
STD GS910-4 Expected									2.65	8.27											
STD DS10 Expected											14.69	154.61	150.55	370	74.6	43.7	2.49	8.23	11.65	2.02	91.9
STD OREAS45EA Expected											1.39	709	14.3	28.9	381	9.1	0.02	0.2	0.26	0.26	53
STD SO-18 Expected		0.53	3	0.62	1.84	0.27	1.79	0.27													
BLK	Blank								<0.02	<0.02											
BLK	Blank								<0.02	<0.02											
BLK	Blank								<0.02	<0.02											
BLK	Blank								<0.02	<0.02											
BLK	Blank										<0.1	<0.1	<0.1	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
BLK	Blank										<0.1	<0.1	<0.1	<1	0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
BLK	Blank										<0.1	<0.1	<0.1	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
BLK	Blank	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01													
BLK	Blank	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01													
BLK	Blank	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01													
BLK	Blank										<0.1	<0.1	<0.1	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
BLK	Blank										<0.1	<0.1	<0.1	<1	<0.1	<0.5	<0.1	<0.1	<0.1	<0.1	<0.5
BLK	Blank	<0.01	<0.05	<0.02	<0.03	<0.01	<0.05	<0.01													
Prep Wash																					
G1	Prep Blank	0.52	3.07	0.58	1.79	0.30	1.87	0.32	0.04	<0.02	<0.1	3.1	3.5	44	2.9	<0.5	<0.1	<0.1	<0.1	<0.1	2.2
G1	Prep Blank	0.51	2.72	0.50	1.64	0.28	2.00	0.30	0.03	<0.02	<0.1	3.5	3.9	48	2.9	<0.5	<0.1	<0.1	<0.1	<0.1	1.6

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Client: **Athabasca Minerals Inc.**
9524 27 Ave
Edmonton AB T6N 1B2 CANADA

Project: Athabasca Testing
Report Date: May 29, 2014

Page: 3 of 3 Part: 4 of 4

QUALITY CONTROL REPORT VAN14001455.1

		AQ200 Hg ppm 0.01	AQ200 Tl ppm 0.1	AQ200 Se ppm 0.5
STD SO-18	Standard			
STD SO-18	Standard			
STD SO-18	Standard			
STD SO-18	Standard			
STD GS311-1 Expected				
STD GS910-4 Expected				
STD DS10 Expected		0.3	5.1	2.3
STD OREAS45EA Expected			0.072	0.6
STD SO-18 Expected				
BLK	Blank			
BLK	Blank			
BLK	Blank			
BLK	Blank			
BLK	Blank	<0.01	<0.1	<0.5
BLK	Blank	<0.01	<0.1	<0.5
BLK	Blank	<0.01	<0.1	<0.5
BLK	Blank			
BLK	Blank			
BLK	Blank			
BLK	Blank	<0.01	<0.1	<0.5
BLK	Blank	<0.01	<0.1	<0.5
BLK	Blank			
Prep Wash				
G1	Prep Blank	<0.01	0.3	<0.5
G1	Prep Blank	<0.01	0.3	<0.5

Appendix 4 – Aggregate Test Results

Appendix 4a – AMEC Aggregate Test Results

Aggregate Testing Sample List

Sample Number	Drillhole	From	To	Type	Size	Comments
288401	GNA-16	47.8	81.37	Aggregate	1/2 core	Winnepegosis
288402	GNA-10	21.34	64.17	Aggregate	1/4 core	Winnepegosis
288403	GNA-10	76.12	101	Aggregate	1/4 core	Granite
	14RLD001	96.63	106	Aggregate	1/4 core	Granite
	14RLD002	93.1	99	Aggregate	1/4 core	Granite
	14RLD003	85.96	96	Aggregate	1/4 core	Granite
288404	14RLD001	31.33	76.72	Aggregate	1/2 core	Winnepegosis
288405	14RLD002	30	76.96	Aggregate	1/2 core	Winnepegosis
288406	GNA-10	64.17	75.6	Aggregate	1/2 core	Contact Rapids
	14RLD001	76.72	92.48	Aggregate	1/2 core	Contact Rapids
	14RLD002	76.96	90.76	Aggregate	1/2 core	Contact Rapids
	14RLD003	72.66	82.45	Aggregate	1/2 core	Contact Rapids
	14RLD004	72.01	83.76	Aggregate	1/2 core	Contact Rapids
	14RLD005	76.3	84.39	Aggregate	1/2 core	Contact Rapids
	14RLD006	83.01	95.76	Aggregate	1/2 core	Contact Rapids
	14RLD007	83.6	97.96	Aggregate	1/2 core	Contact Rapids
	14RLD008	72.94	81.18	Aggregate	1/2 core	Contact Rapids
288407	14RLD003	39	72.66	Aggregate	1/2 core	Winnepegosis
288408	14RLD004	30	72.01	Aggregate	1/2 core	Winnepegosis
288409	14RLD004	84.98	96	Aggregate	1/4 core	Granite
	14RLD005	86.88	117.05	Aggregate	1/4 core	Granite
	14RLD007	98.65	147	Aggregate	1/4 core	Granite
	14RLD008	83	89	Aggregate	1/4 core	Granite
288410	14RLD005	35	76.3	Aggregate	1/2 core	Winnepegosis
288411	14RLD006	41.45	83.01	Aggregate	1/2 core	Winnepegosis
288412	14RLD007	39	83.6	Aggregate	1/2 core	Winnepegosis
288413	14RLD008	64.92	72.94	Aggregate	1/2 core	Winnepegosis
288414	GNA-10	21.34	64.17	Aggregate	1/4 core	Winnepegosis Duplicate

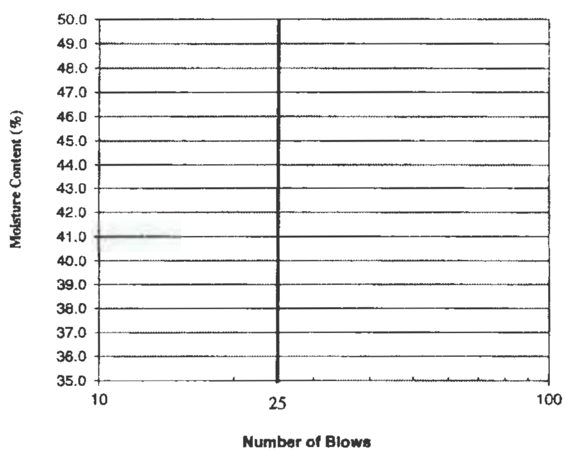
Atterberg Limits Test (ASTM D4318 - dry method)

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

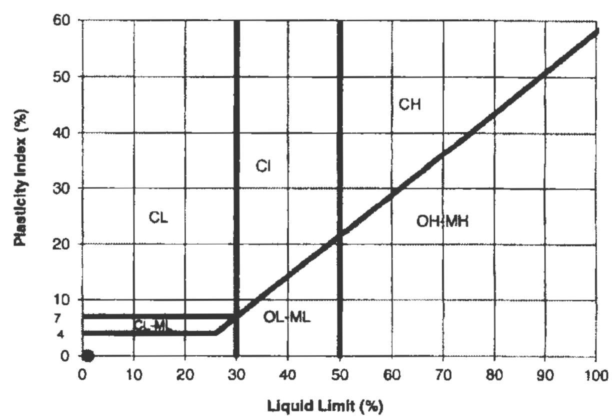
Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288401
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		

Liquid Limit Test



Plasticity chart for soil passing 425 um sieve



Liquid Limit : ______ **Plastic Limit :** ______ **Plasticity Index :** ______

Classification : NON-PLASTIC **Reviewed By :** [redacted]

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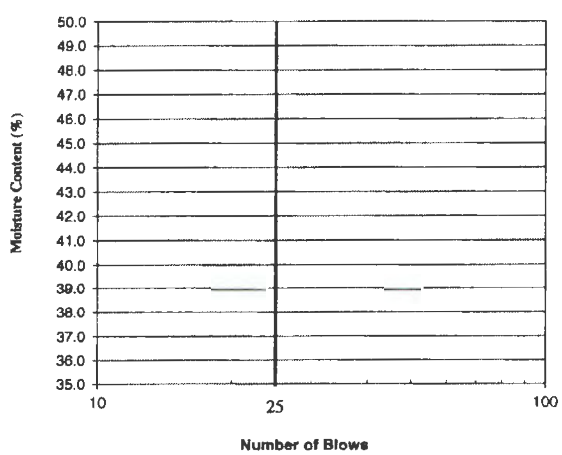
Atterberg Limits Test (ASTM D4318 - dry method)

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

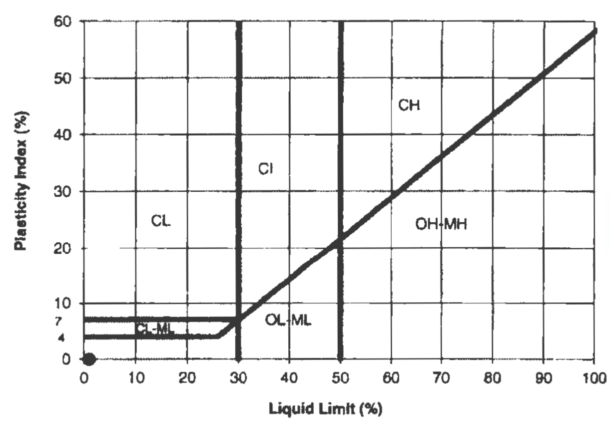
Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288402
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		

Liquid Limit Test



Plasticity chart for soil passing 425 um sieve



Liquid Limit : ________ **Plastic Limit :** ________ **Plasticity Index :** ________

Classification : NON-PLASTIC **Reviewed By :** [redacted]

Reporting of these test results constitutes a testing service only. Engineering interpretation or evaluation of the test results will be provided only upon written request. If you are not the intended recipient please notify us by telephone as soon as possible and either return the message by post or destroy it. If you are not the intended recipient, any use by you of its contents is prohibited.

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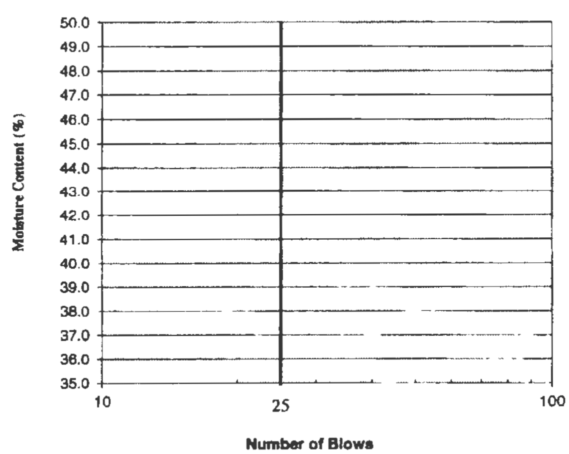
Atterberg Limits Test (ASTM D4318 - dry method)

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

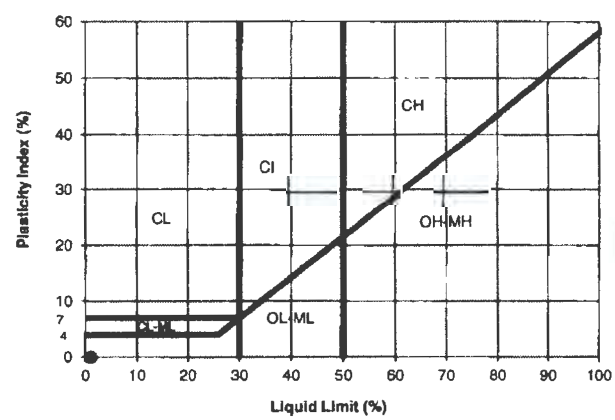
Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288403
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		

Liquid Limit Test



Plasticity chart for soil passing 425 um sieve



Liquid Limit : ______ **Plastic Limit :** ______ **Plasticity Index :** [redacted]

Classification : NON-PLASTIC **Reviewed By :** [redacted]

Atterberg Limits Test (ASTM D4318 - dry method)

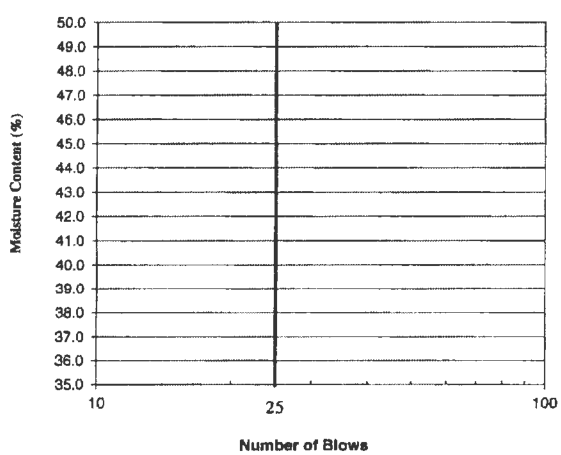
AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

amec

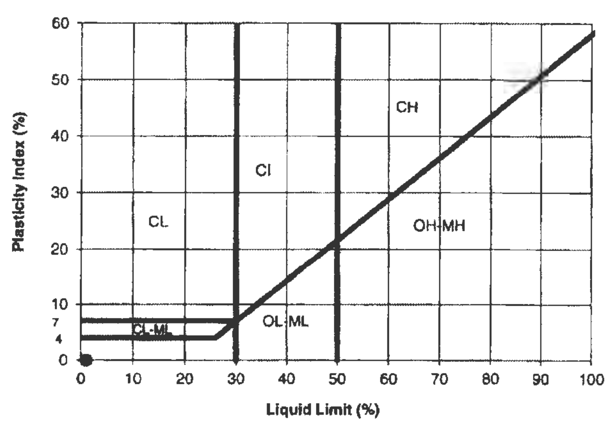
Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288404
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		

Liquid Limit Test



Plasticity chart for soil passing 425 um sieve



Liquid Limit : _______ **Plastic Limit :** _______ **Plasticity Index :** _______

Classification : NON-PLASTIC **Reviewed By :** [redacted]

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Atterberg Limits Test (ASTM D4318 - dry method)

AMEC Environment & Infrastructure
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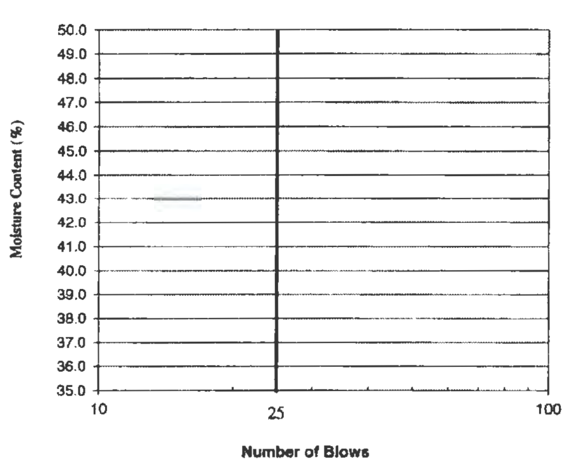
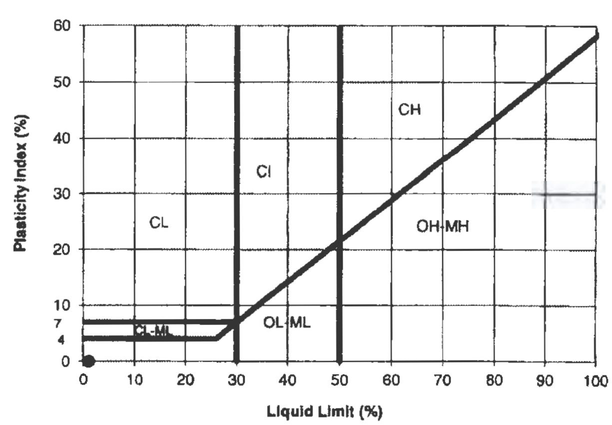
Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288405
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		

Liquid Limit Test



Plasticity chart for soil passing 425 um sieve



Liquid Limit : ________ **Plastic Limit :** ________ **Plasticity Index :** ________

Classification : NON-PLASTIC **Reviewed By :** [redacted]

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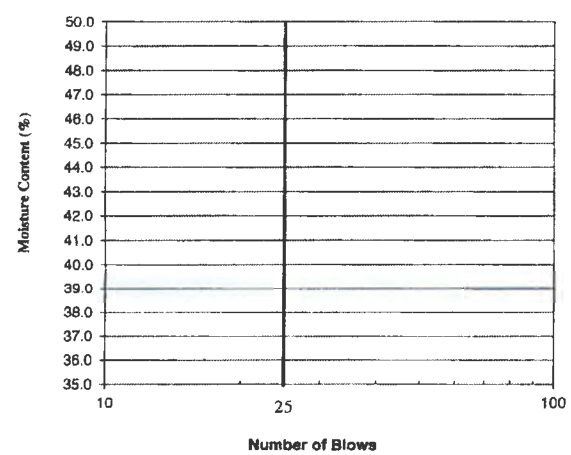
Atterberg Limits Test (ASTM D4318 - dry method)

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

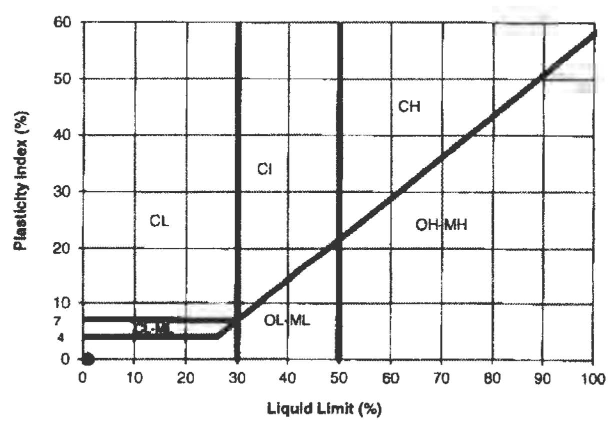
Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288406
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		

Liquid Limit Test



Plasticity chart for soil passing 425 um sieve



Liquid Limit : ______ **Plastic Limit :** ______ **Plasticity Index :** ______

Classification : NON-PLASTIC **Reviewed By :** [redacted]

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Atterberg Limits Test (ASTM D4318 - dry method)

AMEC Environment & Infrastructure
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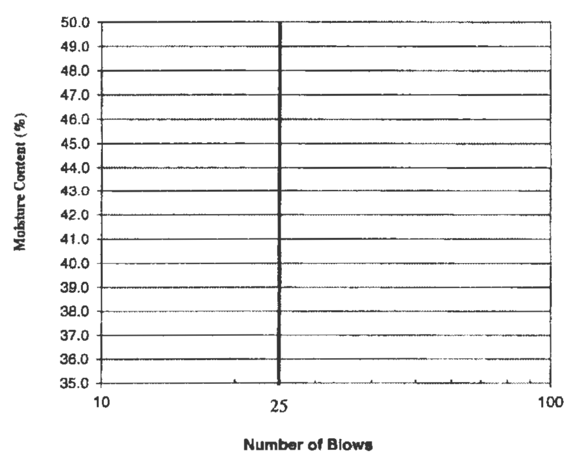
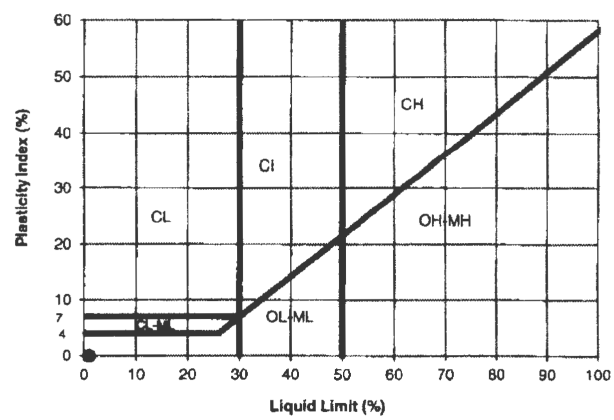
Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288407
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		

Liquid Limit Test



Plasticity chart for soil passing 425 um sieve



Liquid Limit : ______ **Plastic Limit :** ______ **Plasticity Index :** [redacted]

Classification : NON-PLASTIC **Reviewed By :** [redacted]

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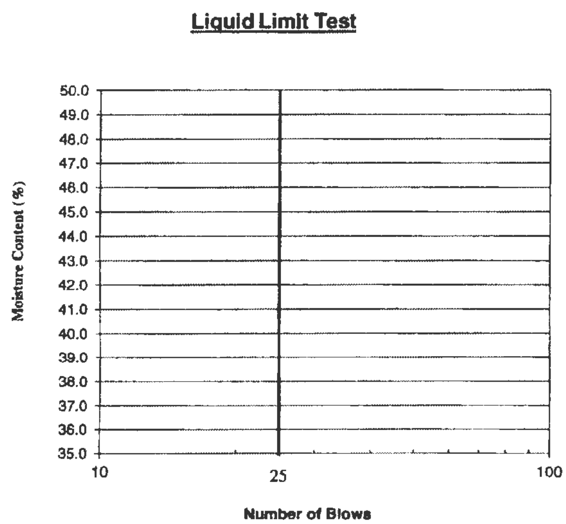
P:\Projects\CA18200\CA18239 Athabasca Minerals Testing\Lab Results\Att 288407.xlsx

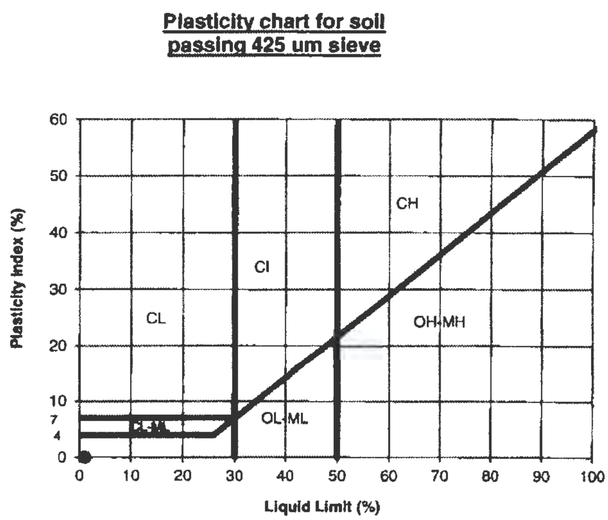
Atterberg Limits Test (ASTM D4318 - dry method)

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288408
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		





Liquid Limit : ________ **Plastic Limit :** ________ **Plasticity Index :** [redacted]

Classification : NON-PLASTIC **Reviewed By :** [redacted]

P:\Projects\CA18200\CA18239 Athabasca Minerals Testing\Lab Results\Att 288408.xlsx

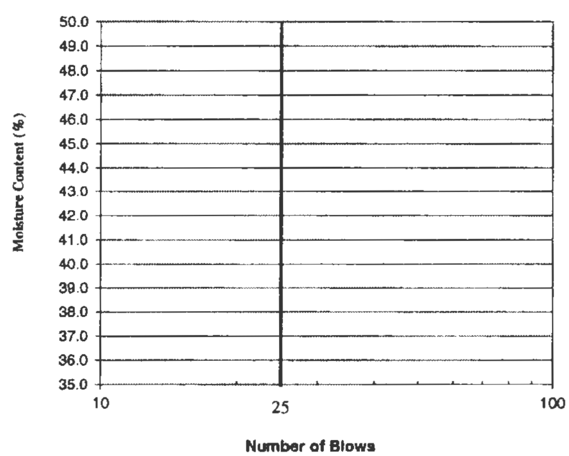
Atterberg Limits Test (ASTM D4318 - dry method)

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

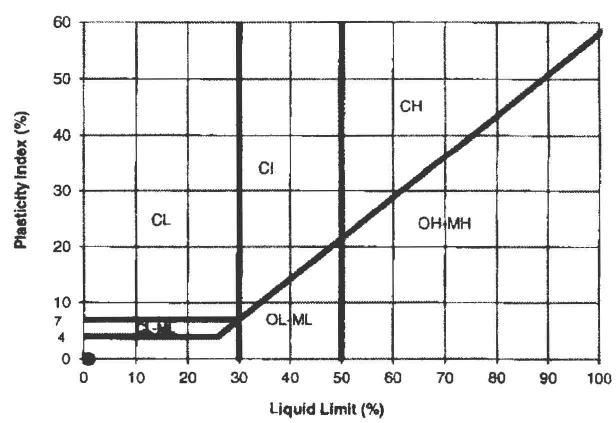
Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288409
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		

Liquid Limit Test



Plasticity chart for soil passing 425 um sieve



Liquid Limit : ______ **Plastic Limit :** ______ **Plasticity Index :** ______

Classification : NON-PLASTIC **Reviewed By** [redacted]

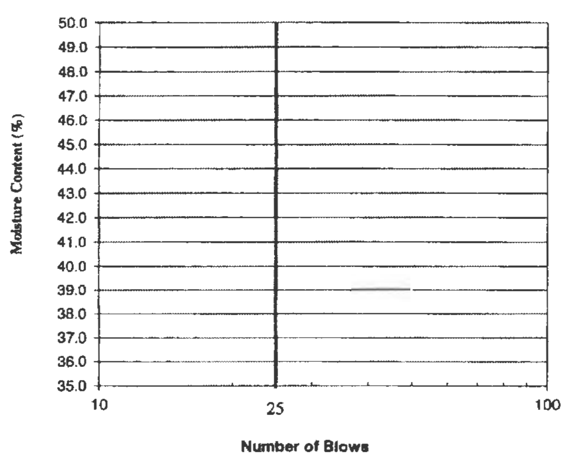
Atterberg Limits Test (ASTM D4318 - dry method)

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

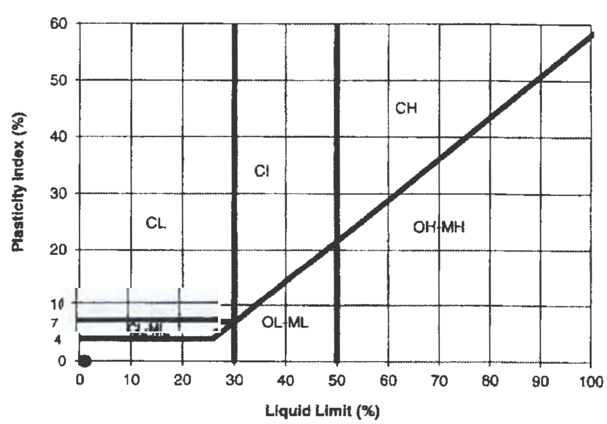
Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288410
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		

Liquid Limit Test



Plasticity chart for soil passing 425 um sieve



Liquid Limit : ______ **Plastic Limit :** ______ **Plasticity Index :** ______

Classification : NON-PLASTIC **Reviewed By :** [redacted]

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P:\Projects\CA18200\CA18239 Athabasca Minerals Testing\Lab Results\Att 288410.xlsx

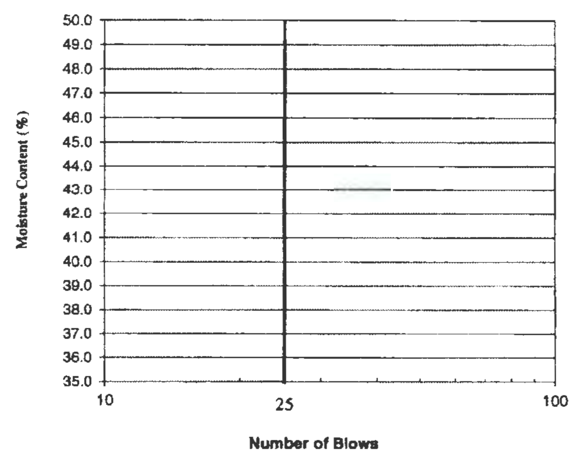
Atterberg Limits Test (ASTM D4318 - dry method)

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

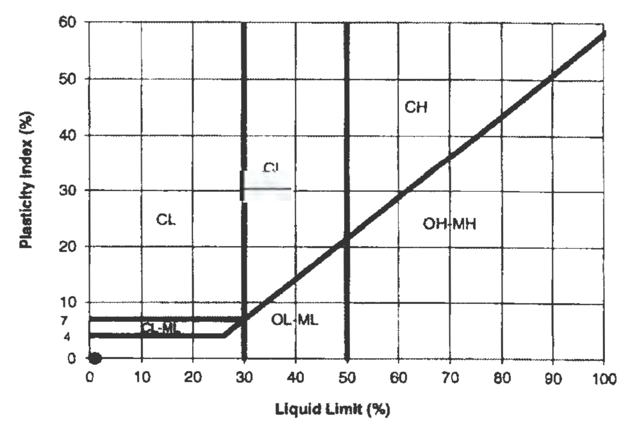
Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288411
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		

Liquid Limit Test



Plasticity chart for soil passing 425 um sieve



Liquid Limit : ______ **Plastic Limit :** ______ **Plasticity Index :** ______

Classification : NON-PLASTIC **Reviewed By :** [redacted]

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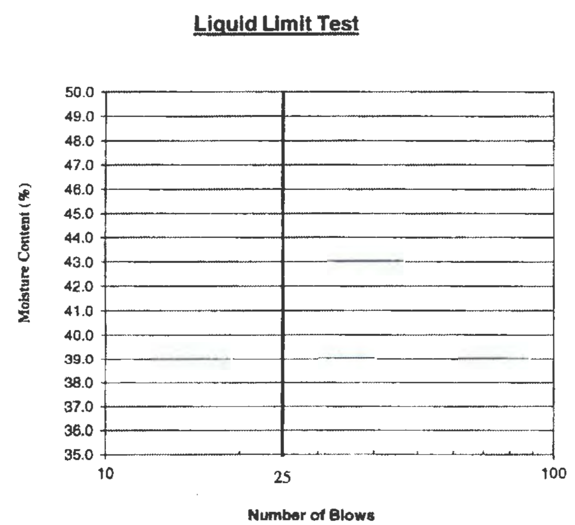
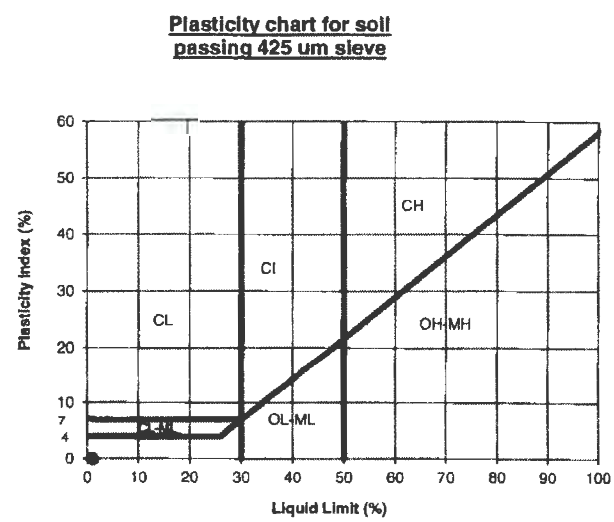
Atterberg Limits Test (ASTM D4318 - dry method)

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288412
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		





Liquid Limit : ______ **Plastic Limit :** ______ **Plasticity Index :** ______

Classification : NON-PLASTIC **Reviewed By :** [redacted]

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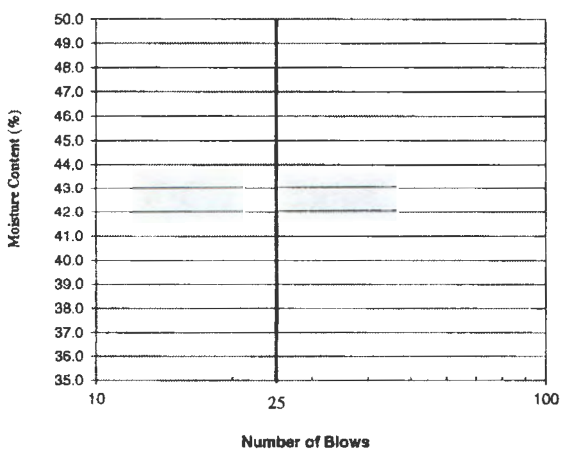
Atterberg Limits Test (ASTM D4318 - dry method)

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

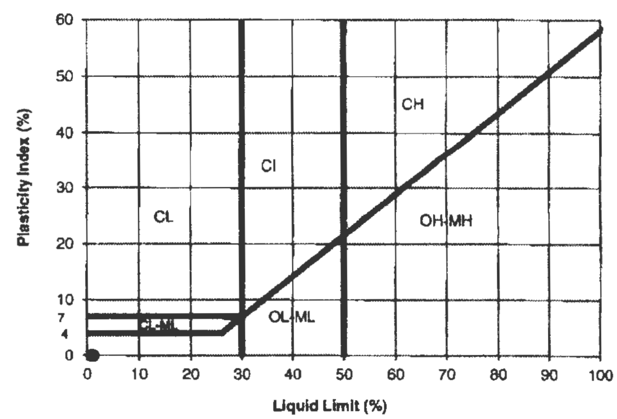
Client: Athabasca Minerals Inc
Project No: CA18239
Project: Aggregate Qualification Testing
Sample ID: 288413
Date: 20-May-14
Technician: JS

Liquid Limit Test				Plastic Limit Test		
# of Blows						
Tare #				Tare #		
Wet Wt + Tare				Wet Wt + Tare		
Dry Wt + Tare				Dry Wt + Tare		
Wt of Tare				Wt of Tare		
% Moisture				% Moisture		

Liquid Limit Test



Plasticity chart for soil passing 425 um sieve



Liquid Limit : ______ **Plastic Limit :** ______ **Plasticity Index :** ______

Classification : NON-PLASTIC **Reviewed By :** [redacted]

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AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

LOS ANGELES ABRASION TEST REPORT

amec

TO: Athabasca Minerals Inc.
9524 – 27 Ave
Edmonton , AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals
SAMPLED ID: 288401
SAMPLED BY: Client
DATE SAMPLED: April 30, 2014
DATE RECEIVED: May 8, 2014
DATE TESTED: May 13, 2014

MATERIAL GRADING: 2			
ACTUAL SIEVE SIZES		AMOUNT	
- 50 mm	+ 37.5 mm		5029.85 g
- 37.5 mm	+ 25 mm		5020.05 g
NO. OF REVOLUTIONS	1000	TOTAL SAMPLE	10049.9 g
NO. OF SPHERES	12	+ #12 MATERIAL AFTER	7212.7 g
WT. OF SPHERES	4979.25 g	- #12 MATERIAL AFTER	2837.2 g
LOSS AT 100 REVOLUTIONS	N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS	N/A	LOSS AT 1000 REVOLUTIONS	28.2 %

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

Per [redacted]

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

Reporting of these test results constitutes a testing service only. Engineering interpretation or evaluation of the test results is provided only on written request.

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

LOS ANGELES ABRASION TEST REPORT

TO: Athabasca Minerals Inc.
9524 – 27 Ave
Edmonton , AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals		SAMPLED ID:	288402	SAMPLED BY:	Client
DATE SAMPLED: April 30, 2014		DATE RECEIVED:	May 8, 2014	DATE TESTED:	May 13, 2014

MATERIAL GRADING: 3

ACTUAL SIEVE SIZES		AMOUNT	
- 37.5 mm	+ 25 mm		4969.4 g
- 25 mm	+ 19 mm		5044.5 g
NO. OF REVOLUTIONS	1000	TOTAL SAMPLE	10013.9 g
NO. OF SPHERES	12	+ #12 MATERIAL AFTER	7909.8 g
WT. OF SPHERES	4979.80 g	- #12 MATERIAL AFTER	2104.1 g
LOSS AT 100 REVOLUTIONS	N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS	N/A	LOSS AT 1000 REVOLUTIONS	21.0%

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

Per: [redacted]

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

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AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

LOS ANGELES ABRASION TEST REPORT

TO: Athabasca Minerals Inc.	OFFICE: Calgary
9524 – 27 Ave	PROJECT NO: CA18239
Edmonton , AB T6N 1B2	CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals		SAMPLED ID:	288403	SAMPLED BY:	Client
DATE SAMPLED: April 30, 2014		DATE RECEIVED:	May 8, 2014	DATE TESTED:	May 13, 2014

MATERIAL GRADING: 2

ACTUAL SIEVE SIZES		AMOUNT	
- 50 mm	+ 37.5 mm		5019.25 g
- 37.5 mm	+ 25 mm		5009.40 g
NO. OF REVOLUTIONS	1000	TOTAL SAMPLE	10028.65 g
NO. OF SPHERES	12	+ #12 MATERIAL AFTER	8257.75 g
WT. OF SPHERES	4979.35 g	- #12 MATERIAL AFTER	1770.90 g
LOSS AT 100 REVOLUTIONS	N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS	N/A	LOSS AT 1000 REVOLUTIONS	17.7 %

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

Per: [redacted]

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

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a Division of AMEC Americas Limited

LOS ANGELES ABRASION TEST REPORT

amec

TO: Athabasca Minerals Inc.
9524 – 27 Ave
Edmonton , AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals		SAMPLED ID:	288404	SAMPLED BY:	Client
DATE SAMPLED: April 30, 2014		DATE RECEIVED:	May 8, 2014	DATE TESTED:	May 14, 2014

MATERIAL GRADING: 2

ACTUAL SIEVE SIZES			AMOUNT	
- 50 mm	+ 37.5 mm			5007.35 g
- 37.5 mm	+ 25 mm			5007.55 g
NO. OF REVOLUTIONS		1000	TOTAL SAMPLE	10014.90 g
NO. OF SPHERES		12	+ #12 MATERIAL AFTER	7689.60 g
WT. OF SPHERES		4979.30 g	- #12 MATERIAL AFTER	2325.30 g
LOSS AT 100 REVOLUTIONS		N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS		N/A	LOSS AT 1000 REVOLUTIONS	23.2 %

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

Per: [redacted]

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

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AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

LOS ANGELES ABRASION TEST REPORT

TO: Athabasca Minerals Inc.
9524 – 27 Ave
Edmonton , AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals
DATE SAMPLED: April 30, 2014

SAMPLED ID: 288405
DATE RECEIVED: May 8, 2014

SAMPLED BY: Client
DATE TESTED: May 15, 2014

MATERIAL GRADING: 2			
ACTUAL SIEVE SIZES		AMOUNT	
- 50 mm	+ 37.5 mm		4969.05 g
- 37.5 mm	+ 25 mm		5015.35 g
NO. OF REVOLUTIONS	1000	TOTAL SAMPLE	9984.40 g
NO. OF SPHERES	12	+ #12 MATERIAL AFTER	7628.95 g
WT. OF SPHERES	4979.42 g	- #12 MATERIAL AFTER	2355.45 g
LOSS AT 100 REVOLUTIONS	N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS	N/A	LOSS AT 1000 REVOLUTIONS	23.6 %

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

Per: [redacted]

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

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AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

LOS ANGELES ABRASION TEST REPORT

TO: Athabasca Minerals Inc.
9524 – 27 Ave
Edmonton , AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals	SAMPLED ID:	288406	SAMPLED BY:	Client	
DATE SAMPLED: April 30, 2014	DATE RECEIVED:	May 8, 2014	DATE TESTED:	May 13, 2014	

MATERIAL GRADING: 2

ACTUAL SIEVE SIZES			AMOUNT	
- 50 mm	+ 37.5 mm			5022.60 g
- 37.5 mm	+ 25 mm			5015.65 g
NO. OF REVOLUTIONS		1000	TOTAL SAMPLE	10038.25 g
NO. OF SPHERES		12	+ #12 MATERIAL AFTER	5677.75 g
WT. OF SPHERES		4980.10 g	- #12 MATERIAL AFTER	4360.50 g
LOSS AT 100 REVOLUTIONS		N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS		N/A	LOSS AT 1000 REVOLUTIONS	43.4%

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

Per: [redacted]

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

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AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

LOS ANGELES ABRASION TEST REPORT

amec

TO: Athabasca Minerals Inc.
9524 – 27 Ave
Edmonton , AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals
DATE SAMPLED: April 30, 2014
SAMPLED ID: 288407
DATE RECEIVED: May 8, 2014
SAMPLED BY: Client
DATE TESTED: May 13, 2014

MATERIAL GRADING: 2			
ACTUAL SIEVE SIZES		AMOUNT	
- 50 mm	+ 37.5 mm		5030.65 g
- 37.5 mm	+ 25 mm		5018.15 g
NO. OF REVOLUTIONS	1000	TOTAL SAMPLE	10048.80 g
NO. OF SPHERES	12	+ #12 MATERIAL AFTER	7483.25 g
WT. OF SPHERES	4979.6 g	- #12 MATERIAL AFTER	2565.55 g
LOSS AT 100 REVOLUTIONS	N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS	N/A	LOSS AT 1000 REVOLUTIONS	25.5 %

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

Pe[redacted]

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

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AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

LOS ANGELES ABRASION TEST REPORT

TO: Athabasca Minerals Inc.
9524 – 27 Ave
Edmonton , AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals
DATE SAMPLED: April 30, 2014
SAMPLED ID: 288408
DATE RECEIVED: May 8, 2014
SAMPLED BY: Client
DATE TESTED: May 14, 2014

MATERIAL GRADING: 2			
ACTUAL SIEVE SIZES		AMOUNT	
- 50 mm	+ 37.5 mm		5002.90 g
- 37.5 mm	+ 25 mm		5015.65 g
NO. OF REVOLUTIONS	1000	TOTAL SAMPLE	10018.55 g
NO. OF SPHERES	12	+ #12 MATERIAL AFTER	7348.75 g
WT. OF SPHERES	4979.98 g	- #12 MATERIAL AFTER	2669.80 g
LOSS AT 100 REVOLUTIONS	N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS	N/A	LOSS AT 1000 REVOLUTIONS	26.6 %

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

Pe[redacted]

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

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AMEC Environment & Infrastructure
a Division of AMEC Americas Limited
LOS ANGELES ABRASION TEST REPORT

TO: Athabasca Minerals Inc.
9524 – 27 Ave
Edmonton , AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals | SAMPLED ID: 288409 | SAMPLED BY: Client
DATE SAMPLED: April 30, 2014 | DATE RECEIVED: May 8, 2014 | DATE TESTED: May 14, 2014

MATERIAL GRADING: 2

ACTUAL SIEVE SIZES		AMOUNT	
- 50 mm	+ 37.5 mm		5000.95 g
- 37.5 mm	+ 25 mm		5009.15 g
NO. OF REVOLUTIONS	1000	TOTAL SAMPLE	10010.10 g
NO. OF SPHERES	12	+ #12 MATERIAL AFTER	8132.10 g
WT. OF SPHERES	4979.96 g	- #12 MATERIAL AFTER	1878.0 g
LOSS AT 100 REVOLUTIONS	N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS	N/A	LOSS AT 1000 REVOLUTIONS	18.8 %

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

Per: [redacted]

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

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LOS ANGELES ABRASION TEST REPORT

TO: Athabasca Minerals Inc.
9524 – 27 Ave
Edmonton , AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals
DATE SAMPLED: April 30, 2014

SAMPLED ID: 288410
DATE RECEIVED: May 8, 2014

SAMPLED BY: Client
DATE TESTED: May 16, 2014

MATERIAL GRADING: 2

ACTUAL SIEVE SIZES		AMOUNT	
- 50 mm	+ 37.5 mm		5021.71 g
- 37.5 mm	+ 25 mm		5017.80 g
NO. OF REVOLUTIONS	1000	TOTAL SAMPLE	10039.51 g
NO. OF SPHERES	12	+ #12 MATERIAL AFTER	8152.95 g
WT. OF SPHERES	4979.5 g	- #12 MATERIAL AFTER	1886.56 g
LOSS AT 100 REVOLUTIONS	N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS	N/A	LOSS AT 1000 REVOLUTIONS	18.8 %

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

Per [redacted]

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

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AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

LOS ANGELES ABRASION TEST REPORT

TO: Athabasca Minerals Inc.
9524 – 27 Ave
Edmonton , AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals
DATE SAMPLED: April 30, 2014
SAMPLED ID: 288411
DATE RECEIVED: May 8, 2014
SAMPLED BY: Client
DATE TESTED: May 15, 2014

MATERIAL GRADING: 2

ACTUAL SIEVE SIZES			AMOUNT
- 50 mm	+ 37.5 mm		5002.05 g
- 37.5 mm	+ 25 mm		5001.25 g
NO. OF REVOLUTIONS	1000	TOTAL SAMPLE	10003.30 g
NO. OF SPHERES	12	+ #12 MATERIAL AFTER	7631.75 g
WT. OF SPHERES	4979.4 g	- #12 MATERIAL AFTER	2371.55 g
LOSS AT 100 REVOLUTIONS	N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS	N/A	LOSS AT 1000 REVOLUTIONS	23.7 %

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

Pe[redacted]

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

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AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

LOS ANGELES ABRASION TEST REPORT

TO: Athabasca Minerals Inc.
9524 – 27 Ave
Edmonton , AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals
DATE SAMPLED: April 30, 2014
SAMPLED ID: 288412
DATE RECEIVED: May 8, 2014
SAMPLED BY: Client
DATE TESTED: May 15, 2014

MATERIAL GRADING: 2			
ACTUAL SIEVE SIZES		AMOUNT	
- 50 mm	+ 37.5 mm		5021.60 g
- 37.5 mm	+ 25 mm		5015.00 g
NO. OF REVOLUTIONS	1000	TOTAL SAMPLE	10036.60 g
NO. OF SPHERES	12	+ #12 MATERIAL AFTER	7343.70 g
WT. OF SPHERES	4980.45 g	- #12 MATERIAL AFTER	2692.90 g
LOSS AT 100 REVOLUTIONS	N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS	N/A	LOSS AT 1000 REVOLUTIONS	26.8 %

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

[redacted]

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LOS ANGELES ABRASION TEST REPORT

TO: Athabasca Minerals Inc.
9524 – 27 Ave
Edmonton , AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
CC:

PROJECT: Aggregate Qualification Testing

SOURCE: Athabasca Minerals
DATE SAMPLED: April 30, 2014
SAMPLED ID: 288413
DATE RECEIVED: May 8, 2014
SAMPLED BY: Client
DATE TESTED: May 15, 2014

MATERIAL GRADING: 2			
ACTUAL SIEVE SIZES		AMOUNT	
- 50 mm	+ 37.5 mm		5026.55 g
- 37.5 mm	+ 25 mm		5017.90 g
NO. OF REVOLUTIONS	1000	TOTAL SAMPLE	10044.45 g
NO. OF SPHERES	12	+ #12 MATERIAL AFTER	7125.40 g
WT. OF SPHERES	4979.45 g	- #12 MATERIAL AFTER	2919.05 g
LOSS AT 100 REVOLUTIONS	N/A	LOSS AT 500 REVOLUTIONS	N/A
LOSS AT 200 REVOLUTIONS	N/A	LOSS AT 1000 REVOLUTIONS	29.1%

TESTED IN ACCORDANCE WITH CSA A23.2 – 17A (ASTM C535)

COMMENTS:

Per: [redacted]

AMEC Environment & Infrastructure
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Relative Density/ Absorption

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

Client: Athabasca Minerals Inc
Address: 9524 - 27 Ave
Edmonton, AB
T6N 1B2

Date Tested: 16-May-14

Attention: Mr. Dom Kriangkum
Project: Aggregate Qualification Testing
Date Sampled: 30-Apr-14

CC:
Project No: CA18239
Tech: JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288401

Nominal Maximum Aggregate Size (mm): 50

Oven Dry Weight (g): 8586.2 **SSD Weight (g):** 8708.9 **Immersed Weight (g):** 5533

Bulk Relative Density	2.70	**SSD Bulk Relative Density**	2.74
Absorption,(%)	1.43	**Apparent Relative Density**	2.81

[redacted]

Per [redacted]

Relative Density/ Absorption

AMEC Environment & Infrastructure
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Client: Athabasca Minerals Inc
Address: 9524 - 27 Ave
Edmonton, AB
T6N 1B2

Date Tested: 20-May-14

Attention: Mr. Dom Kriangkum
Project: Aggregate Qualification Testing
Date Sampled: 30-Apr-14

CC:
Project No: CA18239
Tech: JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288402

Nominal Maximum Aggregate Size (mm): 37.5 mm

Oven Dry Weight (g): 5371.4 **SSD Weight (g):** 5493.8 **Immersed Weight (g):** 3467.4

Bulk Relative Density	2.65	**SSD Bulk Relative Density**	2.71
Absorption,(%)	2.28	**Apparent Relative Density**	2.82

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Per: [redacted]

Relative Density/ Absorption
AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

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Client: Athabasca Minerals Inc
Address: 9524 - 27 Ave
Edmonton, AB
T6N 1B2

Date Tested: 20-May-14

Attention: Mr. Dom Kriangkum
Project: Aggregate Qualification Testing
Date Sampled: 30-Apr-14

CC:
Project No: CA18239
Tech: JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288403

Nominal Maximum Aggregate Size (mm): 50 mm

Oven Dry Weight (g): 8409.3 **SSD Weight (g):** 8436.8 **Immersed Weight (g):** 5226.7

Bulk Relative Density	2.62	**SSD Bulk Relative Density**	2.63
Absorption,(%)	0.33	**Apparent Relative Density**	2.64

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Per: [redacted]

Relative Density/ Absorption
AMEC Environment & Infrastructure
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Client:	Athabasca Minerals Inc	**Date Tested:**	20-May-14
Address:	9524 - 27 Ave Edmonton, AB T6N 1B2		
Attention:	Mr. Dom Kriangkum	**CC:**	
Project:	Aggregate Qualification Testing	**Project No:**	CA18239
Date Sampled:	30-Apr-14	**Tech:**	JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288404

Nominal Maximum Aggregate Size (mm): 50 mm

Oven Dry Weight (g): 8437 **SSD Weight (g):** 8661.6 **Immersed Weight (g):** 5440

Bulk Relative Density	2.62	**SSD Bulk Relative Density**	2.69
Absorption,(%)	2.66	**Apparent Relative Density**	2.82

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Per [redacted]

Relative Density/ Absorption

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Client:	Athabasca Minerals Inc	**Date Tested:**	20-May-14
Address:	9524 - 27 Ave Edmonton, AB T6N 1B2		
Attention:	Mr. Dom Kriangkum	**CC:**	
Project:	Aggregate Qualification Testing	**Project No:**	CA18239
Date Sampled:	30-Apr-14	**Tech:**	JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288405

Nominal Maximum Aggregate Size (mm): 50 mm

Oven Dry Weight (g): 8509.1 **SSD Weight (g):** 8585.5 **Immersed Weight (g):** 5510.3

Bulk Relative Density	2.77	**SSD Bulk Relative Density**	2.79
Absorption,(%)	0.90	**Apparent Relative Density**	2.84

[redacted]

Relative Density/ Absorption

AMEC Environment & Infrastructure
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Client: Athabasca Minerals Inc
Address: 9524 - 27 Ave
Edmonton, AB
T6N 1B2

Date Tested: 20-May-14

Attention: Mr. Dom Kriangkum
Project: Aggregate Qualification Testing
Date Sampled: 30-Apr-14

CC:
Project No: CA18239
Tech: JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288406

Nominal Maximum Aggregate Size (mm): 50 mm

Oven Dry Weight (g): 8267.2 **SSD Weight (g):** 8587.9 **Immersed Weight (g):** 5271.4

Bulk Relative Density	2.49	**SSD Bulk Relative Density**	2.59
Absorption,(%)	3.88	**Apparent Relative Density**	2.76

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Pe[redacted]

Relative Density/ Absorption

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Client: Athabasca Minerals Inc
Address: 9524 - 27 Ave
Edmonton, AB
T6N 1B2

Date Tested: 20-May-14

Attention: Mr. Dom Kriangkum
Project: Aggregate Qualification Testing
Date Sampled: 30-Apr-14

CC:
Project No: CA18239
Tech: JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288407

Nominal Maximum Aggregate Size (mm): 50 mm

Oven Dry Weight (g): 8377.1 **SSD Weight (g):** 8544.8 **Immersed Weight (g):** 5322.4

Bulk Relative Density	2.60	**SSD Bulk Relative Density**	2.65
Absorption,(%)	2.00	**Apparent Relative Density**	2.74

[redacted]

Per: [redacted]

Relative Density/ Absorption
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Client: Athabasca Minerals Inc
Address: 9524 - 27 Ave
Edmonton, AB
T6N 1B2

Date Tested: 20-May-14

Attention: Mr. Dom Kriangkum
Project: Aggregate Qualification Testing
Date Sampled: 30-Apr-14

CC:
Project No: CA18239
Tech: JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288408

Nominal Maximum Aggregate Size (mm): 50 mm

Oven Dry Weight (g): 8370.6 **SSD Weight (g):** 8524.9 **Immersed Weight (g):** 5327.5

Bulk Relative Density	2.62	**SSD Bulk Relative Density**	2.67
Absorption,(%)	1.84	**Apparent Relative Density**	2.75

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Per: [redacted]

Relative Density/ Absorption
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Client: Athabasca Minerals Inc
Address: 9524 - 27 Ave
Edmonton, AB
T6N 1B2

Date Tested: 20-May-14

Attention: Mr. Dom Kriangkum
Project: Aggregate Qualification Testing
Date Sampled: 30-Apr-14

CC:
Project No: CA18239
Tech: JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288409

Nominal Maximum Aggregate Size (mm): 50 mm

Oven Dry Weight (g): 8434.8 **SSD Weight (g):** 8450.6 **Immersed Weight (g):** 5366.8

Bulk Relative Density	2.74	**SSD Bulk Relative Density**	2.74
Absorption,(%)	0.19	**Apparent Relative Density**	2.75

[redacted]

Per [redacted]

Relative Density/ Absorption
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Client: Athabasca Minerals Inc
Address: 9524 - 27 Ave
Edmonton, AB
T6N 1B2

Date Tested: 20-May-14

Attention: Mr. Dom Kriangkum
Project: Aggregate Qualification Testing
Date Sampled: 30-Apr-14

CC:
Project No: CA18239
Tech: JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288410

Nominal Maximum Aggregate Size (mm): 50 mm

Oven Dry Weight (g): 8540 **SSD Weight (g):** 8773.6 **Immersed Weight (g):** 5497.8

Bulk Relative Density	2.61	**SSD Bulk Relative Density**	2.68
Absorption,(%)	2.74	**Apparent Relative Density**	2.81

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Per [redacted]

Relative Density/ Absorption

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Client: Athabasca Minerals Inc
Address: 9524 - 27 Ave
Edmonton, AB
T6N 1B2

Date Tested: 20-May-14

Attention: Mr. Dom Kriangkum
Project: Aggregate Qualification Testing
Date Sampled: 30-Apr-14

CC:
Project No: CA18239
Tech: JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288411

Nominal Maximum Aggregate Size (mm): 50 mm

Oven Dry Weight (g): 8743.7 **SSD Weight (g):** 8918 **Immersed Weight (g):** 5610.6

Bulk Relative Density	2.64	**SSD Bulk Relative Density**	2.70
Absorption,(%)	1.99	**Apparent Relative Density**	2.79

[redacted]

Relative Density/ Absorption
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Client: Athabasca Minerals Inc
Address: 9524 - 27 Ave
Edmonton, AB
T6N 1B2

Date Tested: 20-May-14

Attention: Mr. Dom Kriangkum
Project: Aggregate Qualification Testing
Date Sampled: 30-Apr-14

CC:
Project No: CA18239
Tech: JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288412

Nominal Maximum Aggregate Size (mm): 50 mm

Oven Dry Weight (g): 8392.1 **SSD Weight (g):** 8592.9 **Immersed Weight (g):** 5406.4

Bulk Relative Density	2.63	**SSD Bulk Relative Density**	2.70
Absorption,(%)	2.39	**Apparent Relative Density**	2.81

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Relative Density/ Absorption

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Client: Athabasca Minerals Inc
Address: 9524 - 27 Ave
Edmonton, AB
T6N 1B2

Date Tested: 20-May-14

Attention: Mr. Dom Kriangkum
Project: Aggregate Qualification Testing
Date Sampled: 30-Apr-14

CC:
Project No: CA18239
Tech: JCS/Will

Coarse Aggregate CSA A23.2 - 12A / ASTM C127-12

Sample ID: 288413

Nominal Maximum Aggregate Size (mm): 50 mm

Oven Dry Weight (g): 3815.7 **SSD Weight (g):** 3911.9 **Immersed Weight (g):** 2466.7

Bulk Relative Density	2.64	**SSD Bulk Relative Density**	2.71
Absorption,(%)	2.52	**Apparent Relative Density**	2.83

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Per: [redacted]

SOUNDNESS OF AGGREGATE SULPHATE TEST

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TO: Athabasca Minerals Inc.
9524 – 27th Ave
Edmonton, AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
COPIES TO:

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288401	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 16-23/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss				
		Mass Of Test Fraction (g)	Mass After Test (g)	% Loss
COARSE AGGREGATE				
Totals		1543.6	1381.7	**10.5**
VISUAL EXAMINATION				
Sieve Size		No. of Particles		
Passing	Retained	Original	Final	Comments
80 mm	40 mm			
40 mm	20 mm	46	41	Crumbling and cracking of most particles. Tar present in sample

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

AMEC Environment & Infrastructure
a Di[redacted] Americas Limited

[redacted]
Senior Lab Technologist / Supervisor
Materials Engineering Division

[redacted]
Project Engineer
Materials Engineering Division

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited
1003 53rd Ave. N.E.
Calgary, AB T2E 6X9
Phone: (403) 387 – 1737
Fax: (403) 569 – 0737
www.amec.com

SOUNDNESS OF AGGREGATE
SULPHATE TEST

amec

TO: Athabasca Minerals Inc.
9524 – 27th Ave
Edmonton, AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
COPIES TO:

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288402	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 16-23/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss					
		Mass Of Test Fraction (g)		Mass After Test (g)	% Loss
COARSE AGGREGATE					
Totals		1534.4		1504.0	**2.0**
VISUAL EXAMINATION					
Sieve Size		No. of Particles			
Passing	Retained	Original		Final	Comments
80 mm	40 mm				
40 mm	20 mm	36		39	Crumbling and cracking of most particles. Tar present in sample

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

AMEC Environment & Infrastructure
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[redacted]

Aaron Van Ham, B.Sc.
Senior Lab Technologist / Supervisor
Materials Engineering Division

[redacted]

Jesse Waddell, B.A.Sc., E.I.T.
Project Engineer
Materials Engineering Division

AMEC Environment & Infrastructure
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SOUNDNESS OF AGGREGATE SULPHATE TEST

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TO: Athabasca Minerals Inc.
9524 – 27th Ave
Edmonton, AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
COPIES TO:

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288403	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 16-23/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss				
		Mass Of Test Fraction (g)	Mass After Test (g)	% Loss
COARSE AGGREGATE				
Totals		1528.0	1389.9	**9.0**
VISUAL EXAMINATION				
Sieve Size		No. of Particles		
Passing	Retained	Original	Final	Comments
80 mm	40 mm			
40 mm	20 mm	38	40	Crumbling and cracking of most particles

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

AMEC Environment & Infrastructure
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[redacted]

Aaron Van Ham, B.Sc.
Senior Lab Technologist / Supervisor
Materials Engineering Division

[redacted]

Jesse Waddell, B.A.Sc., E.I.T.
Project Engineer
Materials Engineering Division

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Calgary, AB T2E 6X9
Phone: (403) 387 – 1737
Fax: (403) 569 – 0737
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SOUNDNESS OF AGGREGATE SULPHATE TEST

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TO: Athabasca Minerals Inc.
9524 – 27th Ave
Edmonton, AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
COPIES TO:

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288404	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 16-23/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss					
		Mass Of Test Fraction (g)		Mass After Test (g)	% Loss
COARSE AGGREGATE					
Totals		1522.0		1515.1	**0.5**
VISUAL EXAMINATION					
Sieve Size		No. of Particles			
Passing	Retained	Original		Final	Comments
80 mm	40 mm				
40 mm	20 mm	35		35	Crumbling and cracking of some particles. Tar present in sample.

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

[redacted]

Aaro[redacted] B.Sc.
Senior Lab Technologist / Supervisor
Materials Engineering Division

[redacted], B.A.Sc., E.I.T.
Project Engineer
Materials Engineering Division

AMEC Environment & Infrastructure
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Phone: (403) 387 – 1737
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SOUNDNESS OF AGGREGATE SULPHATE TEST

amec

TO: Athabasca Minerals Inc.
9524 – 27th Ave
Edmonton, AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
COPIES TO:

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288405	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 16-23/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss				
		Mass Of Test Fraction (g)	Mass After Test (g)	% Loss
COARSE AGGREGATE				
Totals		1525.1	1454.8	**4.6**
VISUAL EXAMINATION				
Sieve Size		No. of Particles		
Passing	Retained	Original	Final	Comments
80 mm	40 mm			
40 mm	20 mm	41	46	Crumbling and cracking of most particles. Tar present in sample.

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

AMEC Environment & Infrastructure
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[redacted]

Aaron Van Ham, B.Sc.
Senior Lab Technologist / Supervisor
Materials Engineering Division

[redacted]

Jesse Waddell, B.A.Sc., E.I.T.
Project Engineer
Materials Engineering Division

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SOUNDNESS OF AGGREGATE SULPHATE TEST

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TO: Athabasca Minerals Inc.
9524 – 27th Ave
Edmonton, AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
COPIES TO:

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288406	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 16-23/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss				
		Mass Of Test Fraction (g)	Mass After Test (g)	% Loss
COARSE AGGREGATE				
Totals		1513.0	272.3	**82.0**
VISUAL EXAMINATION				
Sieve Size		No. of Particles		
Passing	Retained	Original	Final	Comments
80 mm	40 mm			
40 mm	20 mm	38	23	Significant crumbling, cracking, and deterioration of most particles.

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

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Aaron Van Ham, B.Sc.
Senior Lab Technologist / Supervisor
Materials Engineering Division

[redacted]

Jesse Waddell, B.A.Sc., E.I.T.
Project Engineer
Materials Engineering Division

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SOUNDNESS OF AGGREGATE SULPHATE TEST

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TO:	Athabasca Minerals Inc. 9524 – 27th Ave Edmonton, AB T6N 1B2	**OFFICE:** **PROJECT NO:** **COPIES TO:**	Calgary CA18239

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288408	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 16-23/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss					
		Mass Of Test Fraction (g)	Mass After Test (g)	% Loss	
COARSE AGGREGATE					
Totals		1511.9	1328.6	**12.1**	
VISUAL EXAMINATION					
Sieve Size		No. of Particles			
Passing	Retained	Original	Final	Comments	
80 mm	40 mm				
40 mm	20 mm	47	51	Crumbling and cracking of most particles. Tar present in sample	

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

AMEC Environment & Infrastructure
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[redacted]

Aaron Van Ham, B.Sc.
Senior Lab Technologist / Supervisor
Materials Engineering Division

[redacted]
Project Engineer
Materials Engineering Division

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SOUNDNESS OF AGGREGATE
SULPHATE TEST

amec

TO: Athabasca Minerals Inc.
9524 – 27th Ave
Edmonton, AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
COPIES TO:

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288409	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 16-23/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss				
		Mass Of Test Fraction (g)	Mass After Test (g)	% Loss
COARSE AGGREGATE				
Totals		1535.2	1369.5	**10.8**
VISUAL EXAMINATION				
Sieve Size		No. of Particles		
Passing	Retained	Original	Final	Comments
80 mm	40 mm			
40 mm	20 mm	47	46	Crumbling and cracking of most particles.

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

[redacted]

Aaron Van Ham, B.Sc.
Senior Lab Technologist / Supervisor
Materials Engineering Division

[redacted]

Jesse Waddell, B.A.Sc., E.I.T.
Project Engineer
Materials Engineering Division

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Calgary, AB T2E 6X9
Phone: (403) 387 – 1737
Fax: (403) 569 – 0737
www.amec.com

SOUNDNESS OF AGGREGATE SULPHATE TEST

amec

TO:	Athabasca Minerals Inc. 9524 – 27th Ave Edmonton, AB T6N 1B2	**OFFICE:** **PROJECT NO:** **COPIES TO:**	Calgary CA18239

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288410	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 16-23/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss				
		Mass Of Test Fraction (g)	Mass After Test (g)	% Loss
COARSE AGGREGATE				
Totals		1501.7	1435.2	**4.4**
VISUAL EXAMINATION				
Sieve Size		No. of Particles		
Passing	Retained	Original	Final	Comments
80 mm	40 mm			
40 mm	20 mm	36	35	Crumbling and cracking of most particles. Tar present in sample.

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

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SOUNDNESS OF AGGREGATE
SULPHATE TEST

amec

TO: Athabasca Minerals Inc.
9524 – 27th Ave
Edmonton, AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
COPIES TO:

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288411	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 16-23/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss		Mass Of Test Fraction (g)	Mass After Test (g)	% Loss
COARSE AGGREGATE				
Totals		1511.8	1443.0	**4.6**
VISUAL EXAMINATION				
Sieve Size		No. of Particles		
Passing	Retained	Original	Final	Comments
80 mm	40 mm			
40 mm	20 mm	44	44	Crumbling and cracking of most particles. Tar present in sample.

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

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SOUNDNESS OF AGGREGATE SULPHATE TEST

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TO:	Athabasca Minerals Inc. 9524 – 27th Ave Edmonton, AB T6N 1B2	**OFFICE:** **PROJECT NO:** **COPIES TO:**	Calgary CA18239

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288412	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 16-23/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss				
		Mass Of Test Fraction (g)	Mass After Test (g)	% Loss
COARSE AGGREGATE				
Totals		1544.6	1392.1	**9.9**
VISUAL EXAMINATION				
Sieve Size		No. of Particles		
Passing	Retained	Original	Final	Comments
80 mm	40 mm			
40 mm	20 mm	43	46	Crumbling and cracking of most particles. Tar present in sample

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

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TO:	Athabasca Minerals Inc. 9524 – 27th Ave Edmonton, AB T6N 1B2	**OFFICE:** **PROJECT NO:** **COPIES TO:**	Calgary CA18239

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288413	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 30-JUN 6/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss				
		Mass Of Test Fraction (g)	Mass After Test (g)	% Loss
COARSE AGGREGATE				
Totals		1592.7	1312.6	**17.6**
VISUAL EXAMINATION				
Sieve Size		No. of Particles		
Passing	Retained	Original	Final	Comments
80 mm	40 mm			
40 mm	20 mm	44	46	Crumbling and cracking of most particles.

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

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SOUNDNESS OF AGGREGATE
SULPHATE TEST

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TO:	Athabasca Minerals Inc. 9524 – 27th Ave Edmonton, AB T6N 1B2	**OFFICE:** **PROJECT NO:** **COPIES TO:**	Calgary CA18239

PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288407	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 3, 2014	**DATE RECEIVED:**	MAY 8, 2014	**DATE TESTED:**	MAY 30-JUN 6/14
SOLUTION:	$MgSO_4$			**NUMBER OF CYCLES:**	5

Weight Loss				
		Mass Of Test Fraction (g)	Mass After Test (g)	% Loss
COARSE AGGREGATE				
Totals		1561.6	1285.4	17.7
VISUAL EXAMINATION				
Sieve Size		No. of Particles		
Passing	Retained	Original	Final	Comments
80 mm	40 mm			
40 mm	20 mm	47	43	Crumbling and cracking of most particles. Tar present in sample.

TESTED IN ACCORDANCE WITH CSA A23.2 – 9A (ASTM C88)

COMMENTS:

MAXIMUM ALLOWABLE % LOSS ACCORDING TO CSA A23.1 TABLE 12 =
12% (COARSE AGGREGATE EXPOSED TO FREEZE THAW)
18% (COASE AGGREGATE OTHER EXPOSURES)

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RESISTANCE OF UNCONFINED COARSE AGGREGATE TO FREEZING AND THAWING WORKSHEET

amec

TO: Athabasca Minerals Inc.
9525 – 27th Ave
Edmonton, AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
COPIES TO:

ATTN: Mr. Dom Kriangkum
PROJECT: Aggregate Qualification Testing

SOURCE:	ATHABASCA MINERALS	**SAMPLED ID:**	288405	**SAMPLED BY:**	CLIENT
DATE SAMPLED:	APRIL 03, 2014	**DATE RECEIVED:**	MAY 08, 2014	**DATE TESTED:**	MAY 30-JUN 06, 2014
SOLUTION:	SODIUM CHLORIDE			**NUMBER OF CYCLES:**	5

Weight Loss

SEIVE SIZE		Original Grading (%)	Start Weight	Finish Weight	% Loss	Weighted Loss
PASSING	RETAINED					
COARSE AGGREGATE						
40 mm	28 mm	100.0	5045.2	5035.7	0.19	0.19
Totals						**0.19 %**

TESTED IN ACCORDANCE WITH CSA A23.2 – 24A

COMMENTS:

Max allowable weighted loss according to CSA A23.1 Table 12 = 6%

AMEC Environment & Infrastructure
a [redacted] Americas Limited

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Aaron Van Ham, B.Sc.
Senior Lab Technologist
Materials Engineering Division

Reviewed by:

[redacted]

Jesse Waddell, B.A.Sc., E.I.T.
Project Engineer
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RESISTANCE OF UNCONFINED COARSE AGGREGATE TO FREEZING AND THAWING WORKSHEET

TO: Athabasca Minerals Inc.
9525 – 27th Ave
Edmonton, AB T6N 1B2

OFFICE: Calgary
PROJECT NO: CA18239
COPIES TO:

ATTN: Mr. Dom Kriangkum
PROJECT: Aggregate Qualification Testing

SOURCE: ATHABASCA MINERALS
SAMPLED ID: 288412
SAMPLED BY: CLIENT
DATE SAMPLED: APRIL 03, 2014
DATE RECEIVED: MAY 08, 2014
DATE TESTED: MAY 30-JUN 06, 2014
SOLUTION: SODIUM CHLORIDE
NUMBER OF CYCLES: 5

Weight Loss

SEIVE SIZE		Original Grading (%)	Start Weight	Finish Weight	% Loss	Weighted Loss
PASSING	RETAINED					
COARSE AGGREGATE						
40 mm	28 mm	100.0	5046.7	5036.0	0.21	0.21
Totals						**0.21 %**

TESTED IN ACCORDANCE WITH CSA A23.2 – 24A

COMMENTS:

Max allowable weighted loss according to CSA A23.1 Table 12 = 6%

AMEC Environment & Infrastructure
a Division of AMEC Americas Limited

[redacted]

Aaron Van Ham, B.Sc.
Senior Lab Technologist
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Reviewed by:

[redacted]

Jesse Waddell, B.A.Sc., E.I.T.
Project Engineer
Materials Engineering Division

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Appendix 4b – Tetra Tech Aggregate Test Results

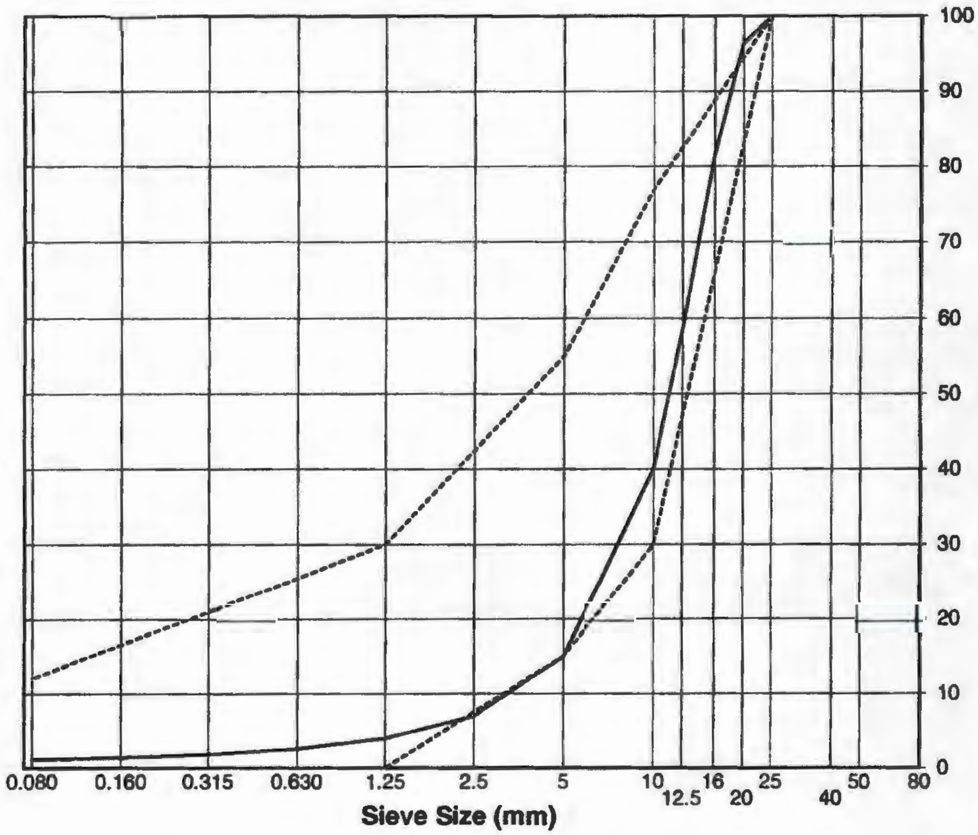
SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.: E12203560-01
Project: APEX Geoscience Aggregate Testing - 2014
Client: APEX GEOSCIENCE LTD.
Attention: Roy Eccles
Email: [redacted]
Description: NQ Core
Source: Drillhole
Supplier: APEX GEOSCIENCE LTD.
Sample Location: Sypplied by Client (Client Sa # 288414)
Specification: AT D4-C25 Gravel Surfacing Aggregate

Sample No.: 8636
Date Received: April 30, 2014
Sampled by: Client
Date Tested: May 2, 2014
Tested by: MA Office: Edmonton
Moisture Content (as received): 0.1%
No. Crushed Faces: Two (2) or Three (3)
By Particle Mass: 100%
ASTM D5821

Sieve Size	Percent Passing
25	100
20	96
16	82
12.5	59
10.0	40
5.00	15
2.5	7
1.25	4
0.630	3
0.315	2
0.160	1
0.080	1.2



Remarks: Lab Crush to -25mm

Reviewed By: [redacted] P.Eng.

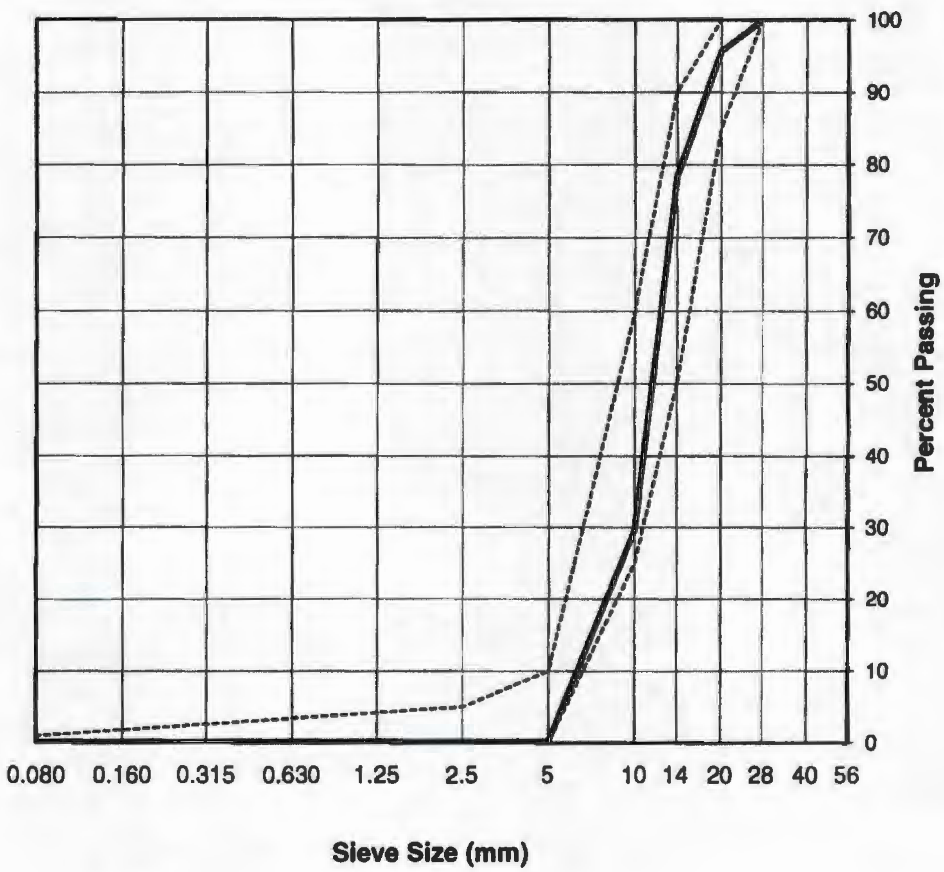
TETRA TECH

CONCRETE AGGREGATE ANALYSIS REPORT

CSA A23.2-2A, CSA A23.2-5A and CSA A23.2-12A

Project No.:	E12203560-01	**Sample No.:**	8636.C
Project:	APEX Geoscience Aggregate Testing - 20	**Date Received:**	April 30, 2014
Client:	APEX GEOSCIENCE LTD.	**Date Tested:**	
Attention:	Roy Eccles	**Tested by:** / **Office:**	Edmonton
Email:	[redacted]	**Moisture Content:**	0.0%
Description:	28-5mm Concrete Stone	**Colour Plate No.:**	
Source:	Drillhole	**Bulk Relative Density:**	2.62
Location:	Sypplied by Client (Client Sa # 288414)	**Bulk Relative Density (SSD):**	2.68
Supplier:	APEX GEOSCIENCE LTD.	**Apparent Relative Density:**	2.79
Specification:	CSA Group I 20-5 mm Coarse Aggregate	**Absorption:**	2.2%

Sieve Sizes	Percent Passing
28	100
20	96
14	78
10	30
5	0
2.5	0
1.25	0
0.630	0
0.315	0
0.160	0
0.080	0.2



Remarks:

CCIL

Reviewed By: [redacted] P.Eng.

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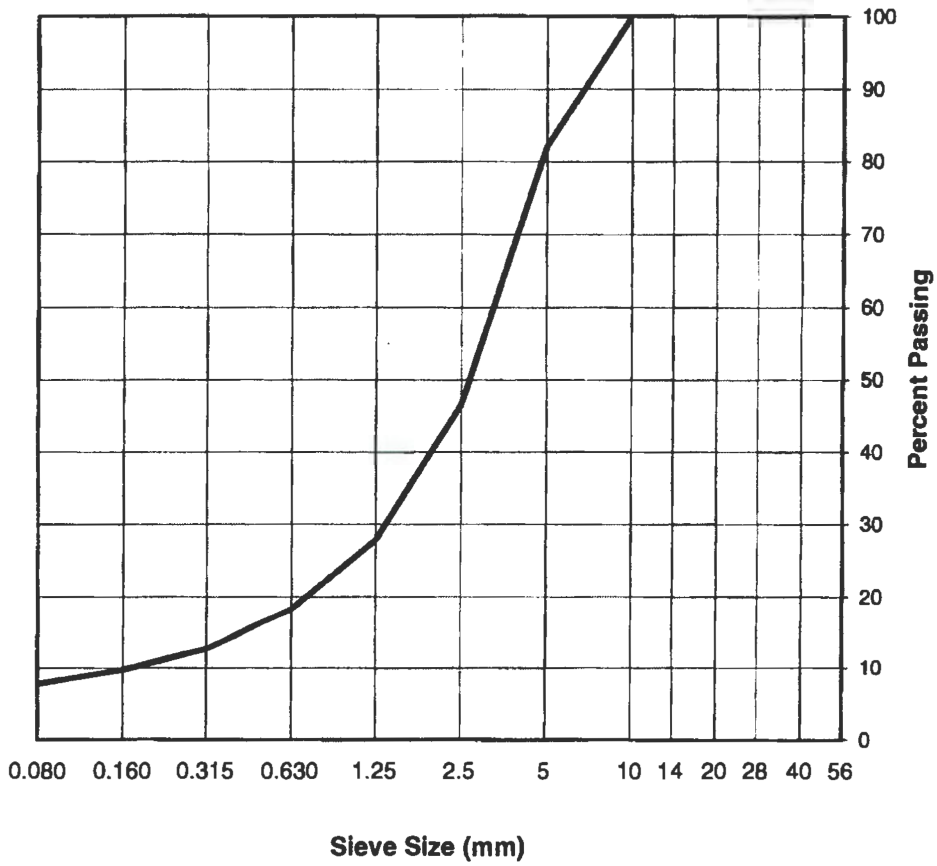
TETRA TECH

CONCRETE AGGREGATE ANALYSIS REPORT

CSA A23.2-2A, CSA A23.2-5A and CSA A23.2-7A

Project No.:	E12203560-01	**Sample No.:**	8636.F
Project:	APEX Geoscience Aggregate Testing - 20	**Date Received:**	April 30, 2014
Client:	APEX GEOSCIENCE LTD.	**Date Tested:**	May 5, 2014
Attention:	Roy Eccles	**Tested by:** MA	**Office:** Edmonton
Email:	[redacted]	**Moisture Content:**	3.8%
Description:	10-2.5mm Concrete Sand	**Colour Plate No.:**	
Source:	Drillhole	**Bulk Relative Density:**	2.49
Location:	Sypplied by Client (Client Sa #288414)	**Bulk Relative Density (SSD):**	2.58
Supplier:	APEX GEOSCIENCE LTD.	**Apparent Relative Density:**	2.73
Specification:		**Absorption:**	3.6%

Sieve Sizes	Percent Passing
10	100
5	82
2.5	47
1.25	28
0.630	18
0.315	13
0.160	10
0.080	7.7
FM	4.03



Remarks:

CCIL

Reviewed By: [redacted] P.Eng.

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TETRA TECH

SOUNDNESS OF FINE AGGREGATE BY USE OF MAGNESIUM SULPHATE

CSA A23.2-9A

Project No:	E12203560-01	**Sample No.:**	8636.F
Project:	APEX Geoscience Aggregate Testing - 2014	**Date Received:**	April 30, 2014
Client:	APEX GEOSCIENCE LTD.	**Sampled By:**	Client
		Date Tested:	May 14, 2014
Attention:	Roy Eccles **Fax:**	**Tested By:**	MA
Email:	[redacted]	**Office:**	Edmonton

Description: 10-2.5mm Concrete Sand

Source: Drillhole

Sample Location: Sypplied by Client (Client Sa #288414)

Supplier APEX GEOSCIENCE LTD.

Fine Aggregate

Sieve Size		Sample Grading, % Passing	Proportion of Sample in Size Fraction, %	Initial Mass (g)	Final Mass (g)	Loss (%)	Weighted Average (corrected (%) loss)
Passing	Retained						
	10 mm	100.0	#N/A				
10 mm	5 mm	82.2	17.8	119.5	107.7	9.9	1.8
5 mm	2.5 mm	46.6	35.6	119.5	116.2	2.8	1.0
2.5 mm	1.25 mm	27.8	18.8	114.0	112.7	1.1	0.2
1.25 mm	630 µm	18.3	9.5	114.6	113.0	1.4	0.1
630 µm	315 µm	12.6	5.7	107.6	105.2	2.2	0.1
315 µm	160 µm	9.7	2.9			--	--
160 µm	PAN		9.7			--	--
		Totals	100.0	575.2	554.8		3.2

Note: CSA A23.1-09, Table 12 (Alternative Requirement): Maximum Loss 16%

Remarks:

CCIL

Reviewed By: [redacted] P.Eng.

TETRA TECH

SOUNDNESS OF AGGREGATE BY USE OF MAGNESIUM SULPHATE

CSA A23.2-9A

Project No: E12203560-01
Project: APEX Geoscience Aggregate Testing - 2014
Client: APEX GEOSCIENCE LTD.
Attention: Roy Eccles **Fax:**
Email: [redacted]

Sample No.: 8636.C
Date Received: April 30, 2014
Sampled By: Client
Date Tested: May 14, 2014
Tested By: MA
Office: Edmonton

Description: 28-5mm Concrete Stone
Source: Drillhole
Sample Location: Sypplied by Client (Client Sa # 288414)
Supplier APEX GEOSCIENCE LTD.

Coarse Aggregate

Sieve Size		Sample Grading, % Passing	Proportion of Sample in Size Fraction, %	Initial Mass (g)	Final Mass (g)	Loss (%)	Weighted Average (corrected (%) loss)
Passing	Retained						
	80 mm	100.0	0.0				
80 mm	56 mm	100.0	0.0			--	--
56 mm	40 mm	100.0	0.0				
40 mm	28 mm	100.0	0.0			7.1	0.3
28 mm	20 mm	95.7	4.3				
20 mm	14 mm	78.3	17.4	1032.8	959.8	7.1	4.7
14 mm	10 mm	29.7	48.8				
10 mm	5 mm	0.2	29.6	350.0	332.3	5.1	1.5
		Totals	100.0	1382.8	1292.1		6.5

CSA A23.1-09, Table 12 (Alternative Requirement):

Maximum Loss 12% for concrete exposed to freezing and thawing

Remarks:

Reviewed By: [redacted] P.Eng.

TETRA TECH

Los Angeles Abrasion of Small-Size Coarse Aggregate

ASTM C131 / AASTHO T-96

Project No:	E12203560-01	**Sample No.:**	8636.C
Project:	APEX Geoscience Aggregate Testing 2014	**Date Received:**	30-Apr-14
Client:	APEX GEOSCIENCE LTD	**Sampled By:**	Client
		Date Tested:	May 6, 2014
Attention:	Roy Eccles **Fax:**	**Tested By:**	MA
Email:	[redacted]	**Office:**	Edmonton

Description:	25-10 mm Rock
Source:	Drillhole
Sample Location:	Supplied by Client (Client Sa #288414)
Supplier	APEX GEOSCIENCE LTD

Test Grading		Mass of Indicated Sizes , g				
Sieve Size (mm)		Grading A	Grading B	Grading C	Grading D	Sample 8636.C
Passing	Retained					
37.5	25	1250 ± 25	--	--	--	
25	19	1250 ± 25	--	--	--	
19	12.5	1250 ± 10	2500 ± 10	--	--	2501.6
12.5	9.5	1250 ± 10	2500 ± 10	--	--	2507.1
9.5	6.3	--	--	2500 ± 10	--	
6.3	4.75	--	--	2500 ± 10	--	
4.75	2.36	--	--	--	5,000 ± 10	
	Total:	5,000 ± 10				5,008.7

Test Grading	Initial Mass (g)	Final Mass (g)	Mass Loss (g)	Loss (%)
B	5,008.7	3,932.0	1,076.7	21

Remarks:

Reviewed By: [redacted] P. Eng.

TETRA TECH

BULK DENSITY OF AGGREGATE

CSA A23.2-10A

Project No: E12203560-01
Sample No.: 8636.C
Project: APEX Geoscience Aggregate Testing - 2014
Date Received: April 30, 2014
Client: APEX GEOSCIENCE LTD.
Sampled By: Client
Date Tested: May 6, 2014
Attention: Roy Eccles **Fax:**
Tested By: MA
Email: [redacted]
Office: Edmonton

Description: 28-5mm Concrete Stone
Source: Drillhole
Sample Location: Sypplied by Client (Client Sa # 288414)
Supplier APEX GEOSCIENCE LTD.

	Compacted Density*			Loose Density		
	Trial 1	Trial 2	Trial 3	Trial A	Trial B	Trial C
Mass of Mould and Aggregate, kg	11.120	11.118	11.116			
Mass of Mould, kg	6.648					
Mass of Aggregate, kg	4.472	4.470	4.468			
Mould Factor	333.550					
Density of Aggregate, kg/m³	1492	1491	1490			
Moisture Content, %	0.0					
Absorption, %	2.2					

*Jigging Procedure

Compacted Bulk Density (Oven Dry) 1491 kg/m³
Loose Bulk Density (Oven Dry) Not Tested

Remarks:

CCIL

Reviewed By: [redacted] P.Eng.

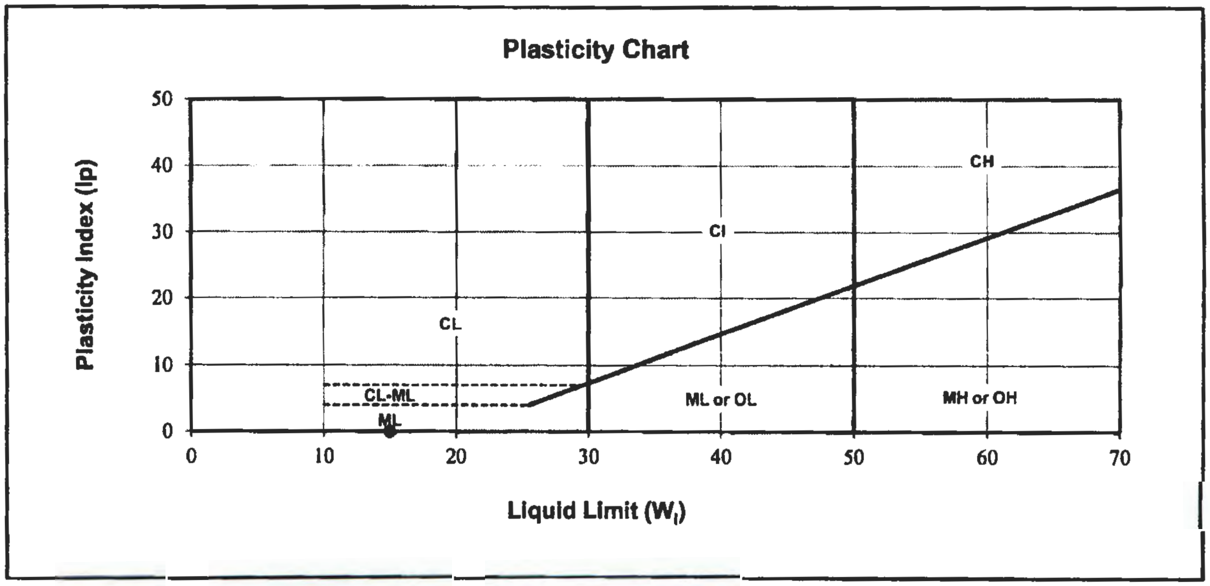
TETRA TECH

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project:	APEX Geoscience Aggregate Testing -2014	Sample Number:	8636 F
Project No:	E12203560-01	Sample Location:	Supplied by Client (Sa #288414)
Client:	APEX GEOSCIENCE LTD.	Source:	Drillhole
Attention:	Roy Eccles	Sampled By:	Client Tested By: KTP
Email:	[redacted]	Date Sampled:	April 30, 2014
		Date Tested:	May 8, 2014

Sample Description: 10-2.5mm Concrete Sand



Liquid Limit (W_1):	15	Natural Moisture (%)	
Plastic Limit :	15	Soil Plasticity:	Low
Plasticity Index (Ip) :	0	Mod.USCS Symbol:	ML

Remarks:

Reviewed By: [redacted] P.Eng.

TETRA TECH

Appendix 5 – 2014 Exploration Expenditures

No.	ITEM			2013 Expenses	2014 Expenses	Subtotal	TOTALS
1. APEX Geoscience Ltd. Detailed Costs - 2013-2014							
	Geological Field and Office Work						
	Principal Directly Involved Office - Michael Dufresne (Aug 22/13 July 21/14)	$850	11 2	$1 989 00	$7 522 50		
	Cook Services - Sean Hawkes (Jan 22-March 21/14)	$700	15 7		$11 000 00		
	Geological Services Performed Field - Bryan Atkinson (Jan 22-March 21/14)	$650	24 0		$15 600 00		
	Geological Services Performed Field - Cory Gunson (Jan 22-Jul 21/14)	$475	8 5		$4 037 50		
	Geological Services Performed Field - Mark Hanlo (Jan 22-Jul 21/14)	$525	9 5		$4 987 50		
	Geological Services Performed Field - Philo Schoeman (Jan 22-Feb 21/14)	$425	2 8		1 200 00		
	Geological Services Performed Office - Amelie Dufresne (Jan 22-Apr 21/14)	$325	21 0		$6 821 75		
	Geological Services Performed Office - Bryan Atkinson (Feb 22-Jun 21/14)	$650	35 6		$23 146 50		
	Geological Services Performed Office - Cory Gunson (Jan 22-Aug 21/14)	$325	38 4		$12 476 75		
	Geological Services Performed Office - Kyle McMillan (Sept 22-Oct 21/13)	$450	8 5	$3 825 00			
	Geological Services Performed Office Mark Hanlo (Aug 22/13-Sept 21/14)	$525	25 3	$1 643 25	$11 823 50		
	Geological Services Performed Office - Michelle Gabereau (Feb 22-May 21/14)	$325	23 0		$7 473 75		
	Geological Services Performed Office - Rachelle Hough (May 22-Sep 21/14)	$400	8 4		$3 378 00		
	Geological Services Performed Office - Roy Eccles (Aug 22-Dec 21/13)	$825	31 1	$3 573 00	$22 088 75		
	Geological Services Performed Office - Steven Nicholls (March 1-Jun21/14)	$850	8 7		$7 381 00		
	Human Resource and Safety Services Office Sean Hawkes (Jan 22-Mar 21/14)	$700	4 1		$2 900 00		
	Operator's overhead and management				$983 01	$153 588 78	
	3rd Party Costs						
	International Groundradar Consulting (LiDar)				$2 730 00		
	Rentals				$19 539 00		
	Analyses (Tetra Tech assay analysis Jun-Jul/14)				$2 761 25		
	Travel & Miscellaneous Office Costs				$11 477 95	$36 508 20	
				TOTAL APEX 2013 - 2014 COSTS			**$190,096.96**
2. Athabasca Minerals Inc. Detailed Costs - 2013 - 2014							
	Lone Peak Drilling						
	Drilling detail (core drilling) - 20 Feb/14				$75 980 00		
	Drill time - 20 Feb/14				$59 137 50		
	Chargeable materials - 20 Feb/14				$17 297 51		
	Misc oeprations (rentals and equipment transport) - 20 Feb/14				$1 950 00		
	Drilling detail (core drilling) - 12 Mar/14				$17 870 00		
	Drill time - 12 Mar/14				$31 087 50		
	Chargeable materials - 12 Mar/14				$5 590 84		
	Misc oeprations (rentals and equipment transport) - 12 Mar/14				$18 299 66	$227 213 01	
	Analytical Laboratory Costs						
	Acme Analytical Laboratories 16 May/14				$7 478 70		
	AMEC 24 June/14				$11 838 75		
	Tetra Tech EBA (APEX Geoscience Ltd paid - see Section 1 above in 3rd party costs)					$19,317 45	
	Room Charges for Drilling Personnel						
	Barge Landing Lodge - (drillers' rooms Feb 7-9 2014) 7 Feb/14				$2 090 00		
	Hotel - Mark M (Feb 11-15) 11 Feb/14				$1 225 34		
	Mark - return credit on hotel (did not stay as long) (Feb 11-15) 15 Feb/14				[illegible]		
	Hotel - Stella G (Feb 11 -13) 11 Feb/14				$300 34	$3 108 82	
	Fuel, Oil, Grease for Drilling						
	Chinook Fuels Ltd regular gas for drilling 11 Feb/14				$676 37		
	Chinook Fuels Ltd regular gas for drilling 17 Feb/14				$588 88		
	Chinook Fuels Ltd regular gas for drilling 20 Feb/14				$347 59		
	Imperial Oil regular gas bought on fuel cards during drilling 28 Feb/14				$15 98		
	Imperial Oil regular gas bought on fuel cards during drilling 13 Feb/14				$142 58		
	Imperial Oil regular gas bought on fuel cards during drilling 28 Feb/14				$177 02		
	Chinook Fuels Ltd clear low sulphur diesel and cartage for drilling 7 Feb/14				$3 478 67		
	Chinook Fuels Ltd clear low sulphur diesel and cartage for drilling 11 Feb/14				$4 146 39		
	Chinook Fuels Ltd clear low sulphur diesel and cartage for drilling 15 Feb/14				$3 148 74		
	Chinook Fuels Ltd clear low sulphur diesel and cartage for drilling 17 Feb/14				$2 703 99		
	Chinook Fuels Ltd clear low sulphur diesel and cartage for drilling 20 Feb/14				$3 993 88		
	Chinook Fuels Ltd oil for drilling equipment 10 Feb/14				$304 00		
	Chinook Fuels Ltd oil and grease for drilling equipment 10 Feb/14				$1 245 44		
	Chinook Fuels Ltd coolant for drilling equipment 10 Feb/14				$158 40		
	Chinook Fuels Ltd portable heater fuel for drilling 10 Feb/14				$356 40		
	Canwest Propane Ltd 1 propane bottle for drilling project 5 Feb/14				$620 00		
	Canwest Propane Ltd 2 propane bottles for thawing torches during drilling 11 Feb/14				$302 00		
	Canwest Propane Ltd propane for drilling site 6 Feb/14				$696 39		
	Delaney Exie fuel for running errands 12 Feb/14				$28 57	$23 129 27	
	Freight for Drilling Project Equipment						
	DB Kidd Transport Ltd moved cat to drilling site 5 Feb/14				$1 000 00		
	DB Kidd Transport Ltd moved AMI camp shack to drilling site 6 Feb/14				$1 200 00		
	DB Kidd Transport Ltd moved AMI camp shack to drilling site 6 Feb/14				$2 600 00		
	DB Kidd Transport Ltd moved 2 tanks and 1 heater to drilling site 7 Feb/14				$1 925 00		
	DB Kidd Transport Ltd moved rented dozer to drilling site 22 Feb/14				$1 400 00		
	DB Kidd Transport Ltd moved GNS wash car back to Edmonton 28 Feb/14				$4 000 00		
	DB Kidd Transport Ltd moved GNS sleeper shack back to Edmonton 28 Feb/14				$3 800 00		
	DB Kidd Transport Ltd moved rented dozer back 1 Mar/14				$1 300 00		
	K R Becker Trucking Services hauled GNS washcar to drilling site 28 Feb/14				$4 560 00		
	Manitoulin Transport hauled fuel tanks to drilling site 5 Feb/14				$1 498 00	$23 283 00	
	Rentals for Drilling Project						
	G N S Industrial Trailer Services sleeper rental 3 Feb/14				$4 500 00		
	G N S Industrial Trailer Services moved sleeper to Susan Lake for further transport 3 Feb/14				$2 640 00		
	G N S Industrial Trailer Services wash car rental for drilling 28 Feb/14				$4 500 00		
	G N S Industrial Trailer Services repairs to camp from drilling 12 Mar/14				$986 73		
	The Cat Rental Store generator rental for drilling 22 Feb/14				$5 488 19		
	The Cat Rental Store dozer rental for drilling 28 Feb/14				$4 802 37		
	The Cat Rental Store diesel charge for rented generator 5 Mar/14				$450 00		
	Young Motors (1971) Ltd snow mobile trailer rental 4 Feb/14				$120 00		
	Young Motors (1971) Ltd snow mobile rental for drilling planning 4 Feb/14				$390 00		
	Young Motors (1971) Ltd snow mobile rental for drilling planning 4 Feb/14				$390 00		
	Tanks Direct 2 fuel tanks rented 28 Feb/14				$2 217 96		
	United Rentals of Canada, Inc generator rental 18 Feb/14				$5 169 01		
	Wood Buffalo Helicopters to assess reclamation success of drill pads 29 Oct/13			$7 781 80		$39 456 08	
	Rentals for Geophysical Survey						
	Highland Helicopters Ltd moving geophysics equipment into site 9 Jul/14				$6 172 22		
	Highland Helicopters Ltd moving geophysics quipment out of site 15 Jul/14				$7 540 22	$13 712 44	
	Small Tools, Supplies and Parts for Drilling Project						
	Gregg Distributors propane bottle and methyl hydrate 11 Feb/14				$63 57		
	Gregg Distributors propane parts 18 Feb/14				$28 23		
	Gregg Distributors 55 gal spill kit 10 Feb/14				$728 23		
	Gregg Distributors extension cords utility heater battery clips 11 Feb/14				$609 90		
	Gregg Distributors power utility heaters for drilling 12 Feb/14				$200 82		
	Gregg Distributors tiger torch 12 Feb/14				$240 83		
	Gregg Distributors tiger torch parts 18 Feb/14				$69 56		
	Spruceland Lumber cement for drilled holes 19 Feb/14				$115 14		
	Spruceland Lumber grease gun 8 Feb/14				$44 99		
	Spruceland Lumber camp cleaning supplies 8 Feb/14				$66 52		
	Fort McMurray Home Hardware sewer parts for camp 7 Feb/14				$115 37		
	Fort McMurray Home Hardware ice auger 7 Feb/14				$459 99		
	Fort McMurray Home Hardware insulation for camp 8 Feb/14				$85 98		
	Fort McMurray Home Hardware tables/chairs for camp 8 Feb/14				$198 94		
	Fort McMurray Home Hardware camp furnace filter 10 Feb/14				$27 98		
	Fort McMurray Home Hardware grease 11 Feb/14				$38 85		
	Fort McMurray Home Hardware returned microwave 11 Feb/14				[illegible]		
	Fort McMurray Home Hardware microwave for camp 11 Feb/14				$89 99		
	Fort McMurray Home Hardware camp supplies 11 Feb/14				$986 92		
	Fort McMurray Home Hardware ratchet straps 11 Feb/14				$17 99		
	Fort McMurray Home Hardware extension cords for camp 11 Feb/14				$25 98		
	Fort McMurray Home Hardware pipe clamps valves for drilling 4 Mar/14				$80 46		
	RED-L Distr - 3in Bowie pump for WT-02 14 Feb/14				$1 256 00		
	RED-L Distr Restocking fee for return of pump WT-02 1 Sept/14				$364 91		
	Delaney, Exie stove plugs for camp 12 Feb/14				$25 28		
	Genge, Stella camp drinking water 18 Feb/14				$100 14		
	Genge, Stella camp plumbing supplies 18 Feb/14				$43 54	$5 924 07	
	Services for Drilling Project						
	Tuc's Contracting Ltd septic waste disposal service from drilling camp 28 Feb/14				$5,823 00		
	Tuc's Contracting Ltd potable water delivery to drilling site 28 Feb/14				$981 37		
	Beacon Hill - rewire generator & set voltage & travel time 21 Feb/14				$2 849 00	$9 653 37	
	Imagery						
	Air photos 24 Sept/13			$90 50			
	CLHB Exploration Svc Ltd C3191 LiDAR 24 Sept/13			$5 184 00			
	CLHB Exploration Svc Ltd C3191 LiDAR 30 Apr/14				$9 900 00	$15 174 50	
	Geophysics Consultation						
	Lyatsky Geoscience Research & Consulting Ltd 24 Oct/13			$475 00		$475 00	
	Air Travel						
	Flights for Dom K Pam Strand Bonnie Spence for reclamation assessment of drillholes 23 Oct/13			$1 182 50		$1 182 50	
	Ground Travel						
	For Bonnie Spence during drilling reclamation assessment 30 Oct/13			$43 81			
	For Allan Arsenault, Exie Delaney Glenn King Lisa White during drilling project 2014				$1 880 16	$1 923 97	
	Employee Subsistence						
	For Brian Foley Stella Genge Kevin MacFayden Kyle Kaiser during drilling project 2014				$1 372 30		
	Meals for Tim Sieben and Bonnie Spence during reclamation assessment 30&31 Oct/13			$92 44		$1 464 74	
				TOTAL ATHABASCA MINERALS INC. 2013 - 2014 COSTS			**$384,998.20**
3. Allowable Athabasca Minerals Administration Costs							
	10% Allowable Administration Cost						**$38,499.82**
	TOTAL APPLICABLE ASSESSMENT EXPENDITURES AT THE RICHARDSON PROJECT FOR 2013-2014						**$613,594.98**