



Athabasca Minerals announces Inferred Resource at the Firebag Silica Sand Project

September 23, 2014, EDMONTON, ALBERTA. Athabasca Minerals Inc. (“Athabasca” or the “Corporation”) (TSX Venture: ABM) is pleased to announce the completion of a National Instrument 43-101 (“NI 43-101”) Technical Report (“Firebag Resource Report”) for the Corporation’s Firebag Silica Sand Project (“Firebag Project”) located approximately 95 kilometres (“km”) north of Fort McMurray Alberta. The Firebag Resource Report has been prepared by Mr. Roy Eccles, MSc. P. Geol. and Mr. Steven Nicholls, BA. Sc., MAIG of APEX Geoscience Ltd. headquartered in Edmonton, Alberta and Mr. Mark Zdunczyk, CPG, a New York based consulting geologist specializing in sand and aggregates; qualified persons as defined under NI 43-101. A full copy of the Firebag Resource Report is available at www.sedar.com and on the Corporation’s website at www.athabascaminerals.com.

The Corporation has also engaged NorWest Corporation of Calgary, Alberta to complete a Preliminary Economic Assessment (“PEA”) to demonstrate the viability of the Firebag Project. The Corporation is expecting the PEA to be completed during 2014.

The Firebag Project is part of the Corporation’s Firebag Property which comprises seven contiguous Alberta Metallic and Industrial Minerals Leases totalling 32,565 acres, and four Alberta Public Land Dispositions totalling 542 acres, of which Athabasca Minerals holds a 100% working interest. The Firebag Project has little to no overburden, is accessible via Highway 63, is near a major rail line and has local sources of power and water.

The Firebag Resource Report covers a portion of the total leased area and consists of two contiguous Surface Material Leases (“SML”).

Firebag Phase One

The Firebag Phase One project area consists of an 80 acres parcel of land which has demonstrated consistent quality of silica sand throughout depths tested by the Corporation and independent consultants. The Corporation has received approval from Alberta Environmental and Sustainable Resource Development for the right to work and remove surface materials from Firebag Phase One for a term of 10 years commencing on August 25, 2014.

Firebag Phase Two

The Firebag Phase Two project area consists of a 420 acre parcel of land lying contiguous to the Firebag Phase One project area. This project area is still in an application stage that is subject to Alberta government approval.

The initial Firebag inferred mineral resource estimate has determined that approximately 45 million tonnes of silica sand is present within the Firebag Project resource area (7.296 million tonnes in Firebag Phase One and 38.027 million tonnes in Firebag Phase Two). The sieve size test work and the resulting grain size distribution was used and estimated across the resource area. The estimated total tonnages of the individual fractions are illustrated in the following table:

Size Fraction	Tonnes	Percentage
+20	419,000	0.9%
20/40	4,402,000	9.7%
40/70	21,231,000	46.8%
70/140	16,244,000	35.8%
-140	3,027,000	6.8%

Table 1: Firebag Inferred Resource Size Fraction and Tonnage distribution

Tonnages and Percentages represent total values that combine the inferred mineral resource estimates for all five depth groups from both Firebag Phase One and Two. In addition, the percentages of the size fractions between the groups are similar and a complete breakdown of the resource estimates is reported in the Firebag Resource Report.

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 reported inferred resource in these 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.

Note 4: Numbers may not add up due to rounding of the inferred resource values and due to estimating the size fractions from average estimated percentages. Total volume and tonnes are estimated on a global basis and represent the main Firebag Inferred Frac Sand Resource.

“The confirmation of a 45 million tonne inferred resource confirms the presence of a major silica sand deposit at Athabasca’s Firebag Project” said Dom Kriangkum, President and CEO of the Corporation. “The test results by Stim-Lab Inc. and PropTester Inc. also confirm that this deposit has a potential maximum yield of frac sand grade up to approximately 92% of final product with only 8% waste.”

Mr. Kriangkum added; “We will continue to meet with various frac sand customers as our project progresses to establish Athabasca as an industry leader by supplying high quality local frac sand to a growing Canadian market on a long term basis.”

The Firebag Resource Report is based on the results of a twenty six back hoe test pit and six auger hole program completed during 2011, of which only twenty one test pits and six auger

holes were used in the estimation process. The back hoe test pit locations were systematically spaced on a regular 200 m x 200 m grid, whereas the six auger hole program spacing varied from 220 m to 1.15 km. The six auger holes were drilled to a maximum depth of 24.4 m and the back hoe test pits were dug to a depth of approximately 5 m. All of the test pit and auger hole locations were either on or near (within 250 m) the lease boundaries of Firebag Phase One and Two.

A computerised three dimensional geological model was used to constrain the volume used to calculate the tonnage, which incorporated the 2011 auger hole/test pit location data into five separate vertical groups (3.05 m thick/group to a maximum depth of 15.25 m). These groups were wireframed independently and cut to the outer surface material lease boundary. Given that the industrial mineral 'mineralization' is unconsolidated Quaternary silica sand, the densities were compiled from metallurgical test work completed and were composited to a single bulk density measurement per group (between 1.44 to 1.50 g/cm³). The Firebag estimation file comprised 42 samples from the five groups being estimated. Group 1 incorporated auger drillhole and back hoe test pit samples, and was therefore well sampled and provided a 400 m by 400 m systematic grid of data. However, the number of samples collected by group dramatically drops off below Group 1 (0-3.05 m) and only three to five samples were included for Groups 2 to 5. This is purely related to the limited number of auger holes (n=6) and the back hoe being unable to excavate the lower sand to depth. Due to the small number of composites available for estimation it was decided to use the nearest neighbor estimation technique in the resource calculations.

The silica sand at the Firebag Project is situated within Quaternary eolian and glacial outwash deposits that unconformably lie on Cretaceous/Devonian bedrock. These deposits have been reworked by glacial and weathering process, and comprise mature quartz-rich grains that are rounded and sorted with few impurities. The twenty six test pit and six auger program testing showed that an area roughly 2000 m x 1600 m area was consistent in depositional composition. The uppermost 10 m comprises fine to medium grained, clean and moderately to well-sorted sand. At approximately 10 m depth, the quartz sand is slightly darker, but is still relatively clean and well-sorted. At a depth of about 15 m, the sand is coarser and remains this way to 24 m total depth. X-ray diffractions results show that quartz dominates the sand with silica contents ranging from 93 wt. % to 97 wt. % SiO₂ with the highest silica occurring in uppermost Groups 1 and 2 (94% to 97% SiO₂; 0-6.10 m) and is slightly lower towards the bottom of the sand unit (93% and 94% SiO₂ in Groups 4 and 5 at depths of 9.15 m to 15.25 m). For the purposes of this NI 43-101 resource study, the depth was limited to 15 m; however Athabasca will continue further testing to depth to determine if further sand meets API and ISO proppant specifications.

Athabasca completed initial testing of unprocessed and washed silica sand samples from the Firebag Project beginning in 2011 and most recently in July of 2014. All testing to date has indicated the Athabasca Firebag Project silica sand meets API and ISO standards for frac sand for use in hydraulic fracking. All samples tested by Stim-Lab Inc. and PropTester Inc. were conducted on raw sand collected from the testing program. None of the samples were

scrubbed and cleaned by mechanical means prior to testing. The Corporation anticipates that the quality can be improved further with mechanical scrubbing and cleaning in the processing plant.

The results of these analytical works are summarized in the following table:

Laboratory	PropTester	PropTester	StimLab	StimLab
Size Fraction	20/40	40/70	20/40	40/70
Bulk Density (g/cm ³)	1.50	1.45-1.48	1.47-1.51	1.41-1.48
Specific Density (g/cm ³)	2.61	2.61-2.65	2.61-2.64	2.63-2.64
Krumbein Roundness (minimum recommended values of 0.6 or more as per ISO 13503-2)	0.9	0.8-0.9	0.6-0.9	0.6-0.7
Krumbein Sphericity (minimum recommended values of 0.6 or more as per ISO 13503-2)	0.8	0.7-0.8	0.7-0.8	0.6-0.7
Acid Solubility (maximum recommended values of 2.0% for 20/40 and 3.0% for 40/70 as per ISO 13503-2)	4.3%	3.6%-4.6%	2.7%-4.3%	2.2%-3.9%
Turbidity (recommended values of less than 250 NTU as per ISO 13503-2)	16	12-31	10-16	6-12
Crush Resistance (maximum stress K Value without exceeding 10% crush)	5K	5K-7K	3K-5K	5K-7K

Table 2: Firebag Sand Test Data

The next steps for Athabasca include finalizing the PEA, and engineering and project planning related to the associated infrastructure for the Firebag Project. The Corporation is in active discussions with a major railway company and the local municipalities to develop a private switch and trans-loading facilities in Fort McMurray and in the Edson area. With the recent issuance of the Firebag Phase One permit, completion of the processing plant design and trans-loading facilities can be finalized. Athabasca has also initiated additional testing of the silica sand located within the Firebag Project with the introduction of attrition scrubbing, a standard processing stage prior to delivery of frac sand to customers.

The frac sand resource estimate of the Quaternary sand on Athabasca Minerals Firebag Project 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.

Roy Eccles, MSc. P.Geol. of Apex Geoscience Ltd., in accordance with NI 43-101, is the Qualified Person responsible for the technical content of this release and has reviewed and approved it accordingly. Mr. Eccles is an independent consultant contracted by the Corporation.

About Athabasca Minerals

The Corporation is a resource company involved in the management, exploration and development of aggregate and silica sand projects. These activities include contracts works, aggregate pit management, aggregate production and sales from corporate-owned pits, new aggregate development and acquisitions of sand and gravel operations, and development and supply of frac sand for Western Canada. The Corporation also has industrial mineral land holdings for the purpose of locating and developing sources of industrial minerals and aggregates essential to high growth economic development.

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