MAR 20110010: FIREBAG RIVER

Firebag River - A report on gypsum exploration in the Ft. McKay area, northeast Alberta.

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PART B

ATHABASCA MINERALS INC.

2009-2011 EXPLORATION
FIREBAG RIVER PROJECT, NORTHEAST ALBERTA

Mineral Assessment Report

Part B

Technical Report

Metallic and Industrial Minerals Permits
9308120744
9308120745
9308120746
9309040361
9309040362

Geographic Coordinates
57° 33' 19"N to 57° 43' 46"N
111° 09' 15"W to 111° 38'46"W

NTS 74E6, 74E11 and 74E12

May 2011

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CERTIFICATE of AUTHOR

I, Darrell Cotterill, P. Geol., do hereby certify that:

1. I am president of:
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2. I graduated with a Bachelor of Science (with Distinction) degree in geology from the University of Alberta in 1989. In addition, I have obtained a technical diploma in Petroleum Technology from the Northern Institute of Technology in 1977.
3. I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta and a "Qualified Person" in relation to the subject matter of this report.
4. I have worked continuously as a geologist for a total of twenty-two years since my graduation from university.
5. I am responsible for the preparation of the entire mineral assessment report titled "Firebag River Project, Northeast Alberta".
6. I am not aware of any material fact or material change with respect to the subject matter of the Report that is not reflected in the Report, or the omission to disclose which makes the Report misleading.
7. I have visited the properties that are the subject of this report during 2009, 2010 and 2011.

Dated this 10th Day of May, 2011.

[redacted]

Darrell Cotterill, P. Geol

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APPENDICE

SUMMARY

Athabasca Minerals Inc. (ABM), a mineral exploration company based in Edmonton, was formed in April of 2006. ABM has a 100% interest in more than 512,000 hectares of Metallic and Industrial Mineral Permits in the Athabasca region of northeast Alberta. The Firebag River Property assessment report evaluates work completed on five adjoining permits totaling 41,064 hectares. The mineral permits are located south and west of the lower reaches of the Firebag River and straddle the north flowing Athabasca River in the west. The permits are roughly centered about 90 km north of Fort McMurray (**Figures 1-1, 1-2, and 1-3**).

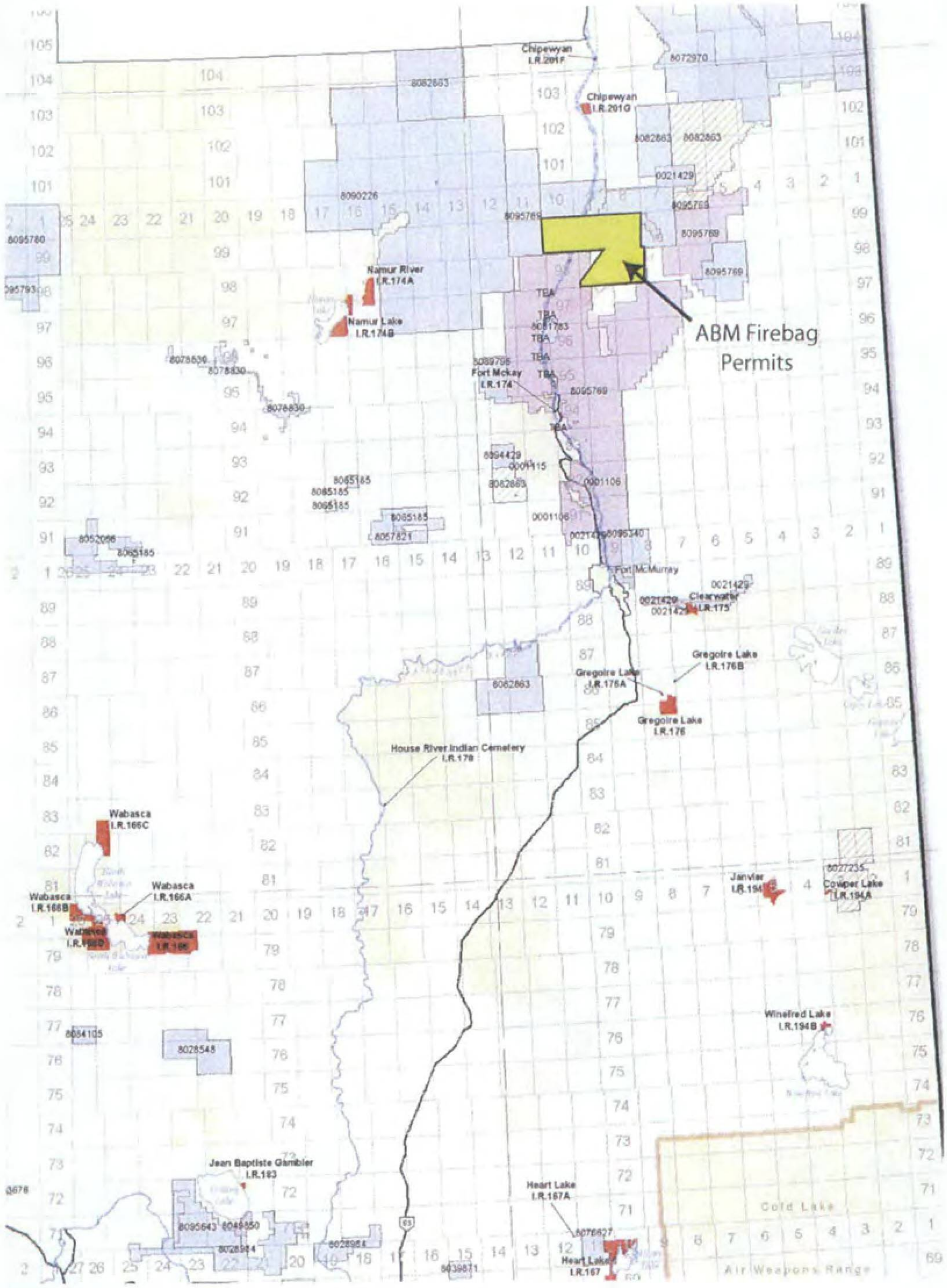
Exploration activities on the five contiguous permits date back to the summer of 2009. Athabasca Minerals initial exploration activities were focused on potential subsurface gypsum deposits contained within the Prairie Evaporite Formation and on near-surface magnesium enriched dolomite deposits of the Winnipegosis Formation. Gypsum deposits were identified in the Athabasca region as early as 1920 (Hamilton, 1969). Regional evaporite studies in the 60's and 70's defined the Devonian stratigraphic framework and mapped the broad lithologic variability within the Prairie Evaporite Formation (mainly salt, anhydrite and gypsum). It was speculated that potential gypsum deposits of significant thickness and purity were likely present along a northwest trending fairway positioned east of Fort McMurray and continuing northwest, near the confluence of the Firebag and Athabasca rivers. The geologic setting was assumed to be optimal for the conversion of anhydrite to gypsum under known conditions of heat, pressure and the presence of water.

Two test holes were drilled along the Clearwater River and both intersected gypsum. In 2000, two deep Devonian wells were drilled to the northwest of the Clearwater River discovery, along the interpreted gypsum trend. The wells were drilled to assess the injectivity potential of the Winnipegosis and La Loche formations. Both wells also intersected gypsum-rich strata. Recent drilling south of the Firebag River, along the Athabasca River, has also confirmed the occurrence of significant gypsum bearing intervals within the Prairie Evaporite Formation. It is highly probable that the gypsum deposits identified in the subsurface do extend into ABM's Firebag River Property. At present, gypsum exploration at Firebag remains a secondary target as ABM is now focused on the development of a large, high grade silica sand deposit.

Athabasca Minerals has been actively exploring for high quality silica sand in the Athabasca region since 2006. ABM currently retains mineral permits on a four square township parcel located along the northeast flank of the Birch Mountains (McIvor River Property). In this area thick Cretaceous bedrock is exposed at surface along the erosional flank of the Birch Mountains and within incised tributary valleys that empty into the McIvor River. An assessment report for the Property was submitted for the McIvor River Property in 2009. The report documents thick, laterally extensive, sand intervals within the Pelican Formation. Sand samples containing silica greater than 98% silica are common.

With the rapid growth of shale gas exploration in Western Canada and the northern United States, the demand for high quality frac sand has risen exponentially over the last few years. In some cases frac sand shortages have forced shale gas companies to use poorer grades of sand for well frac programs. In late 2010, a small set of sand samples were collected on the Firebag River

Figure 1-1: Map showing the location of the Firebag River permits (Athabasca Oil Sands region).



Metallic and Industrial Minerals Permits

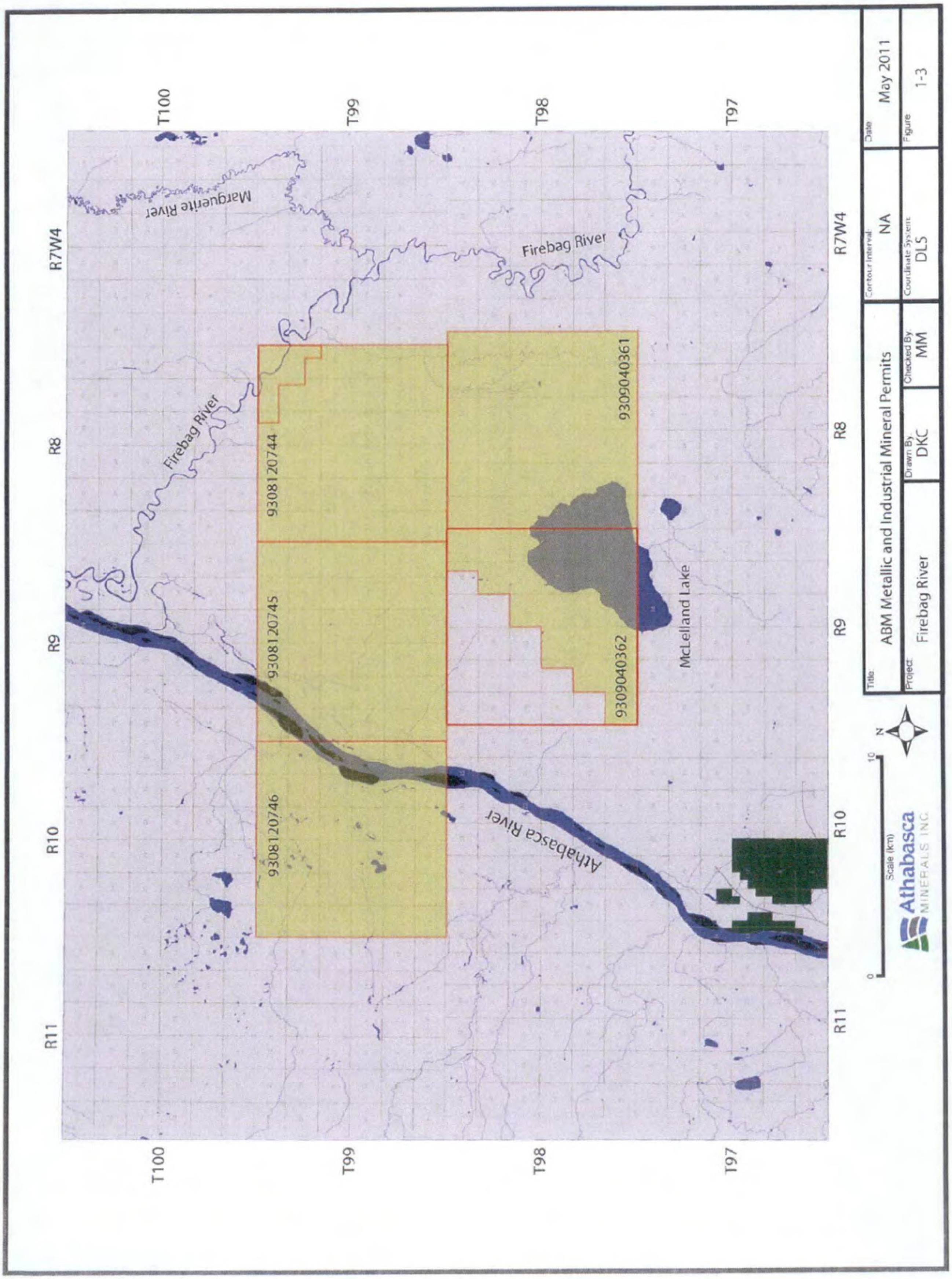
Metallic and Industrial Minerals Leases

Minerals Reserved or Withdrawn from Disposition

0 50 Scale (km)

Athabasca MINERALS INC.

Title: Metallic and Industrial Mineral Activity			Map Source: Alberta Department of Energy (March 15, 2011)	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 1-2


T100
T99
T98
T97
R7W4
R8
R9
R10
R11
Marguerite River
Firebag River
Firebag River
Athabasca River
McLelland Lake
9308120744
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9308120746
9309040361
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Scale (km)
0
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N
Athabasca
MINERALS INC.
Title: ABM Metallic and Industrial Mineral Permits
Project: Firebag River
Drawn By: DKC
Checked By: MM
Contour Interval: NA
Coordinate System: DLS
Date: May 2011
Figure: 1-3

Property and were evaluated for silica content and grain size. Encouraging results were followed up by a shallow auger drill program in January of 2011. All drillholes were sampled at regular intervals to a depth of roughly 15 m. Analysis of the sand samples collected from the drill program again proved to be encouraging. Samples are currently undergoing additional tests for suitability in the frac sand market. Preliminary results from three established labs in Canada and the United States indicate the sand is of high quality and meets or exceeds common standards set for frac sand. The primary sand targeted by Athabasca Minerals is very light brown to white sand that is laterally extensive and ranges from 0 to 12 m on the Property. The thickest sand deposits roughly align with a northwest trending ridge that extends through the center of the Property. Silica content in tested samples commonly exceeds 95% and grain size fractions fall in line with common usage in the frac sand industry. The potential sand resource is considerably large and Athabasca Minerals is currently planning additional drill programs and preliminary market studies are underway.

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

Athabasca Minerals Inc. (ABM) holds Metallic and Industrial Mineral Permits on more than 1.2 million acres (512,000 hectares) within the Athabasca region of northeast Alberta. These permits convey rights to all industrial and metallic minerals exclusive of coal, oil, gas and oil sands. Regional studies conducted by the Alberta Geological Survey suggest the Athabasca region contains a rich variety of industrial minerals that include salt, silica sand, limestone, dolomite and gypsum. Mineral exploration programs over the past 10 years have also identified diamondiferous kimberlite intrusives proximal to mineral permits currently held by ABM.

Mineral permit lands evaluated within this report were acquired in December of 2008 and April of 2009 (**Figure 1-3, Appendix 1-1 and Appendix 1-2**). ABM also holds the adjoining Metallic and Industrial Mineral permits located directly to the north and east. The neighboring permits are currently being evaluated and are set to expire in June of 2012.

The Firebag River assessment report covers exploration activities dating back to the summer of 2009. The Property documented in this report was evaluated for subsurface gypsum and industrial grade silica sand. The assessment report has been divided into two sections, one for silica sand and the second for potential subsurface gypsum deposits. Exploration activities for industrial grade silica sand include aerial reconnaissance and two field sampling programs. Exploration for potential gypsum deposits entailed geophysical well log evaluation supplemented by preliminary core logging.

ABM has a vision to become a major supplier of minerals and chemicals to the oil sands industry. The Company's aim is to explore for and develop local sources of minerals that are essential to the economic development of northeast Alberta (i.e., minerals used in oil sand processing, construction, and in the everyday requirements of community living).

1.2 ACCESSIBILITY, CLIMATE AND PHYSIOGRAPHY

1.2.1 Topography, Elevation and Vegetation

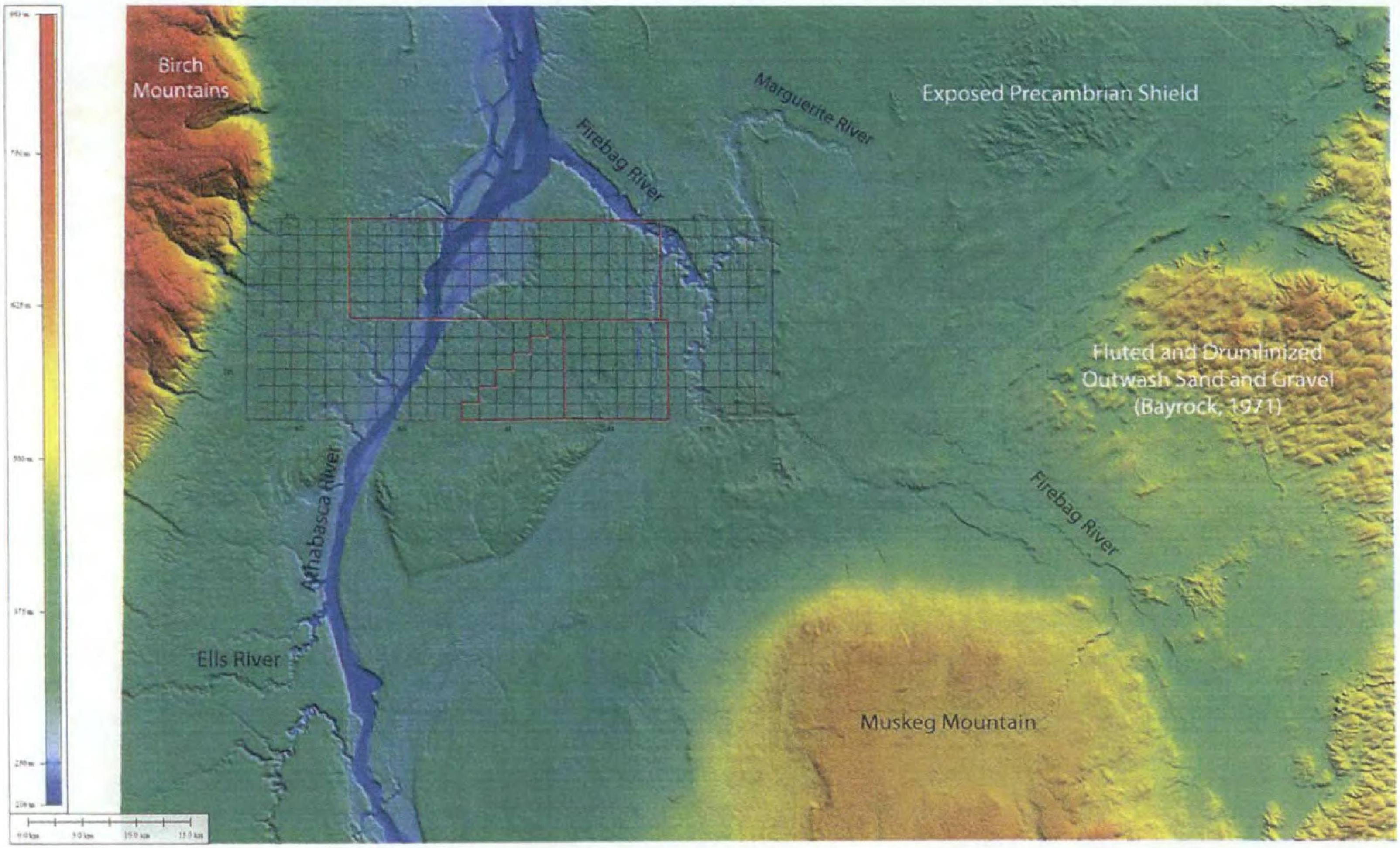
The Firebag River Property is located within a regional, low-lying area occupied by several converging drainage systems and is roughly centered about 90 km north of Fort McMurray. Post-Cretaceous erosional events, the last significant event being glaciation, has modified the Athabasca region into a series of highlands and high plains that are dissected by a well-established drainage network that collects and transports water north to Lake Athabasca (**Figure 1-4**). ABM's mineral permits are bound to the north and east by the lower reaches of the Firebag River and are dissected in the west by the north flowing Athabasca River. Prominent topographic highlands include the Fort Hills and the Birch and Muskeg mountains.

Regionally, the assessment area is situated at the eastward thinning margin of the Western Canada Sedimentary Basin (WCSB). Within this region two converging wedges of Devonian and Cretaceous strata unconformably overlie the Precambrian basement. The Devonian and Cretaceous successions are, in turn, separated by a long standing erosional unconformity that has been mapped in detail within the subsurface and is exposed at the surface in many parts of the Athabasca region. The Precambrian Shield is exposed (Pana, 2010) at the surface just northeast of the project area (**Figure 1-4**) and Devonian and Cretaceous bedrock crop out locally within the permit boundary. Bedrock units within the Devonian Waterways Formation and the Lower Cretaceous McMurray Formation are locally exposed along the Athabasca River. The Firebag River valley also exposes the McMurray Formation in the east and strata within the Devonian Winnipegosis Formation just north of the permit boundary. Most of the permit area is covered by a variably thick succession of unconsolidated Quaternary sediments consisting primarily of sand and preserved till deposits.

Surface elevations within the permit block range from less than 225m, within the Athabasca River valley, to greater than 350m outside the river valley and associated tributary drainage network. A pre-existing drainage system can be recognized within and around the permit area. The Athabasca River currently occupies one arm of the system and the second arm diverts eastward around the Fort Hills highland. The pre-existing drainage network surrounds a subdued topographic high that runs through the center of the Property.

McClelland Lake, a large, shallow body of water, straddles the two southern permits. A number of small, often round, nested lakes are situated just north and west of McClelland Lake. Many of circular lakes are considered to be water filled sinkholes resulting from localized collapse from the active dissolution of underlying evaporite deposits within the Devonian Prairie Evaporite Formation.

A subtle, northwest trending ridge extends through the permit area starting from just east of McClelland Lake and terminates to the north, near the confluence of the Athabasca and Firebag rivers (**Figure 1-5**). The ridge is approximately 5 km wide in the south and continuously narrows to the north to less than 1.5 km wide. The east flank of the linear ridge drops in elevation relatively steeply in

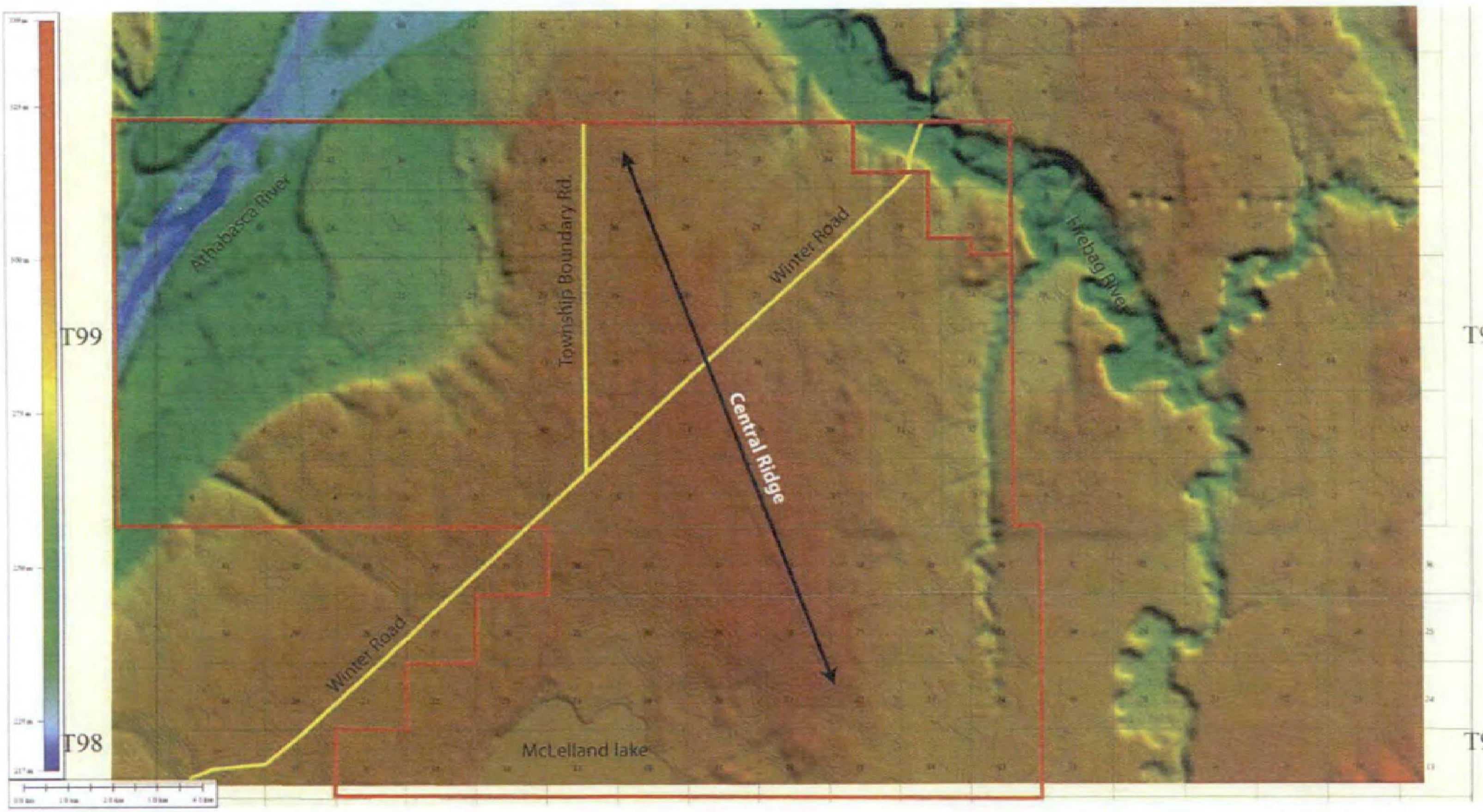


ABM Mineral Permits

Athabasca MINERALS INC.

Title: Regional Topography (DEM Data)			Contour Interval: NA	Date: May 2011
Project: Firebag Project	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 1-4

Athabasca MINERALS INC.



Athabasca MINERALS INC

N

Title			Contour Interval	Date
Local Topography and Property Access			NA	May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 1-5

comparison to the western flank that dips gradually to the west. From north to south, the ridge roughly rises from 12 to 23 m above the adjacent eastern plain.

Vegetation within the Firebag River Property and surrounding area consists of a mix of deciduous and evergreen trees that include species of poplar, spruce and pine. Evergreen growth in the region varies from small, poorly developed spruce in low lying wet areas to blocks of large spruce and pine commonly present in well-drained, sandy regions. Marsh prone areas are located along the eastern edge of the Athabasca River and along the northern tip of McClelland Lake. The ground cover ranges from thin moss covered areas to clean sand exposed directly at surface. Soil horizons, within areas thus far explored, are rare. In areas with larger stands of forest the trees are often evenly spaced and underbrush is minimal.

1.2.2 Property Access

The Firebag River Property is located 90 km north of Fort McMurray and is roughly 130 km southwest of Fort Chipewyan. Athabasca Minerals Firebag permits are accessible from the northern extension of Highway 63 that runs north of Fort McMurray and services the active oilsand minesites and subsurface gas and oilsand exploration programs within the northern Athabasca region. Highway 63 is paved to the entrance of the Susan Lake Gravel Pit (currently operated by Athabasca Minerals) and Syncrude's Aurora oilsand mine. From the Susan Lake intersection Highway 63 continues as an all-weather gravel road for 40 km. At this point the Highway ends, but a seasonal road continues, locally termed the Winter Road.

The Winter Road provides access to Fort Chipewyan during the winter months (mid-December-mid March). During the spring and summer months the Winter Road is closed to vehicle traffic, but is commonly utilized by ATV's to access a number of recreational areas north of the Firebag River. Within the permit area the Winter Road runs southwest-northeast for approximately 24 km where the road intersects the Firebag River at the northern boundary of the Property (**Figure 1-5**). Roughly within the center of the permit area, a north-south road intersects the Winter Road. The road extends for 9 km to the north, also terminating at the Firebag River and is coincident with the township boundary (T98R8W4 and T98R9W4).

Both the Winter Road and the township boundary road are comprised of thick, unconsolidated sand. A number of east-west cutlines intersect the two roads, providing additional access to the mineral permits. Unlike much of the northern Athabasca region, areas within the Firebag River Property are dominated by thick sand intervals that provide adequate drainage. Sustained drainage commonly allows year round access to the central portion of the permit area via ATV. There is limited access to the two permit blocks that are dissected by the Athabasca River (930120745 and 930120746). A significant portion of the two permits lie within the Athabasca River valley and adjoining lowlands. These may be accessible by boat along the river or cutlines that are likely limited to winter access only.

1.2.3 Proximity and Transport

The Firebag River mineral permits are located north of Fort McMurray (108 km via Highway 63 and the Winter Road). Highway 63 is paved from Fort McMurray to the entrance to Syncrude's Aurora mine (approximately 65 km) and continues north for an additional 40 km as an all-weather gravel road to the Winter Road gate, near the current focus of exploration activities. Mineral commodities would be transported via Highway 63 to Fort McMurray and would continue on to central Alberta or be transferred to rail car and be moved south via existing railway line networks.

A less viable transportation method would involve shipping raw mineral commodities by barge on the Athabasca River to Fort McMurray and then transferred to truck or rail systems. This transportation route would involve constructing an all-weather road from the source of the mineral deposit to the Athabasca River.

1.2.4 Climate and Operating Season

The climate in the region is classified as subarctic. The area is frost free for approximately 70 days per year and has a mean annual temperature of -1.2 degrees Celsius. Mean annual precipitation in the region is around 45 mm (Carrigy, 1973). The lengthy frozen season allows for the mobilization of drilling rigs into a region that would otherwise be impassable due to expansive regions of poorly drained muskeg. Most oil sand drilling programs take place from mid-December through to mid-March. The drilling season can be extended somewhat in elevated regions dominated by well drained surface sand rather than the typical muskeg cover. ABM's current exploration activity is focused in areas that allow summer access to elevated regions dominated by thick, well-drained sand deposits.

1.3 REGIONAL BEDROCK GEOLOGY

1.3.1 Devonian Stratigraphy

Geologically, the Athabasca Region is located within the Western Canada Sedimentary Basin (WCSB), an extensive northwest-southeast trending basin covering Alberta and parts of British Columbia and Saskatchewan. The Athabasca Region lies along the passive, eastward thinning margin of the basin where sediments onlap the southwest dipping Precambrian Shield. Along the eastern margin of the WCSB a relatively thick wedge (up to 900 m thick) of Devonian age strata unconformably overlies and onlaps to a zero edge against the Precambrian basement (Cotterill and Hamilton, 1995). The Devonian succession is, in turn, overlain by a thinner succession of Cretaceous age sediments (exceeding 500 m thick). The Devonian and Cretaceous sedimentary sequences form two eastwardly converging sedimentary wedges separated by a long standing unconformity.

Lower, Middle and Upper Devonian strata are preserved within the region. The Devonian succession is bound at the base by the Precambrian basement and at the top by a regional erosional unconformity. The upper bounding unconformity is comprised of an erosionally beveled block of west dipping Middle and Upper Devonian strata that results in a series of northwest trending subcrop belts that increase in age to the east (Cotterill and Hamilton, 1995). Lower and Middle Devonian strata have been subdivided into the Lower and Upper Elk Point subgroups. Regionally, the Lower Elk Point succession, from oldest to youngest, consists of the Basal Red Beds (locally referred to as the La Loche), Lotsberg, Ernestina Lake, Cold Lake and Contact Rapids (also referred to as the McLean River) formations. The Upper Elk Point succession is made up of the Methy (regionally referred to as the Winnipegosis), Prairie Evaporite, and Watt Mountain formations (Norris, 1973). Uppermost Middle Devonian and the Upper Devonian successions consist of the Fort Vermilion, Slave Point, Waterways, Cooking Lake, Ireton and Grosmont formations (**Figure 1-6**).

1.3.1.1 Lower Elk Point Group

The basal Devonian La Loche Formation consists primarily of thin arkosic, feldspathic, gritty sandstones that unconformably overlie the Precambrian basement. Minor lithologies include sandy dolomite, mudstone, shale, and traces of anhydrite and gypsum (Norris, 1973). The overlying Lotsberg and Cold Lake formations (Lower Elk Point Group) are dominated by salt and anhydrite with minor shale and carbonate beds. Thick salt accumulations within these two formations were largely controlled by pre-Devonian paleotopography (Hamilton, 1971 and Grobe, 2000).

The Lotsberg Formation has been subdivided into a Lower and Upper unit. The Lower Lotsberg is confined to a somewhat circular sub-basin in east-central Alberta attaining a maximum thickness of 60m at the depocenter and thinning to a zero edge around the perimeter of the basin (Hamilton, 1971 and Grobe, 2000). The more extensive Upper Lotsberg is similar in many aspects to the underlying salt, but is thicker and more widespread. The depocenter lies in approximately the same location as the lower salt, but the salt accumulation covers a much larger area and attains thicknesses of up to 150 m (Hamilton, 1971 and Grobe, 2000). The two salts are separated by red shale that ranges from 30 to 70m thick.

The younger, salt bearing Cold Lake Formation is separated from the Lotsberg salts by shale, limestone and anhydrite of the Ernestina Lake, a widespread formation ranging from 10-20 m thick (Hamilton, 1971). Salt within the Cold Lake Formation was deposited within two isolated sub-basins, with the smaller basin located in the same geographic region as the Lotsberg salts and a more extensive, irregularly shaped basin to the north. In the southern basin, Cold Lake salts reach a maximum thickness of 60 m while in the northern basin salt thicknesses exceed 80 m (Grobe, 2000). Sediments overlying the Cold Lake evaporates are comprised of sandy to silty dolomite interbedded with shale and mudstone with minor anhydrite and gypsum beds (Contact Rapids Formation).

None of the sedimentary successions crop out within the region although insoluble remnants are exposed in upper reaches of the Clearwater River (in Saskatchewan). The thick salt units, owing to their high solubility, do not outcrop.

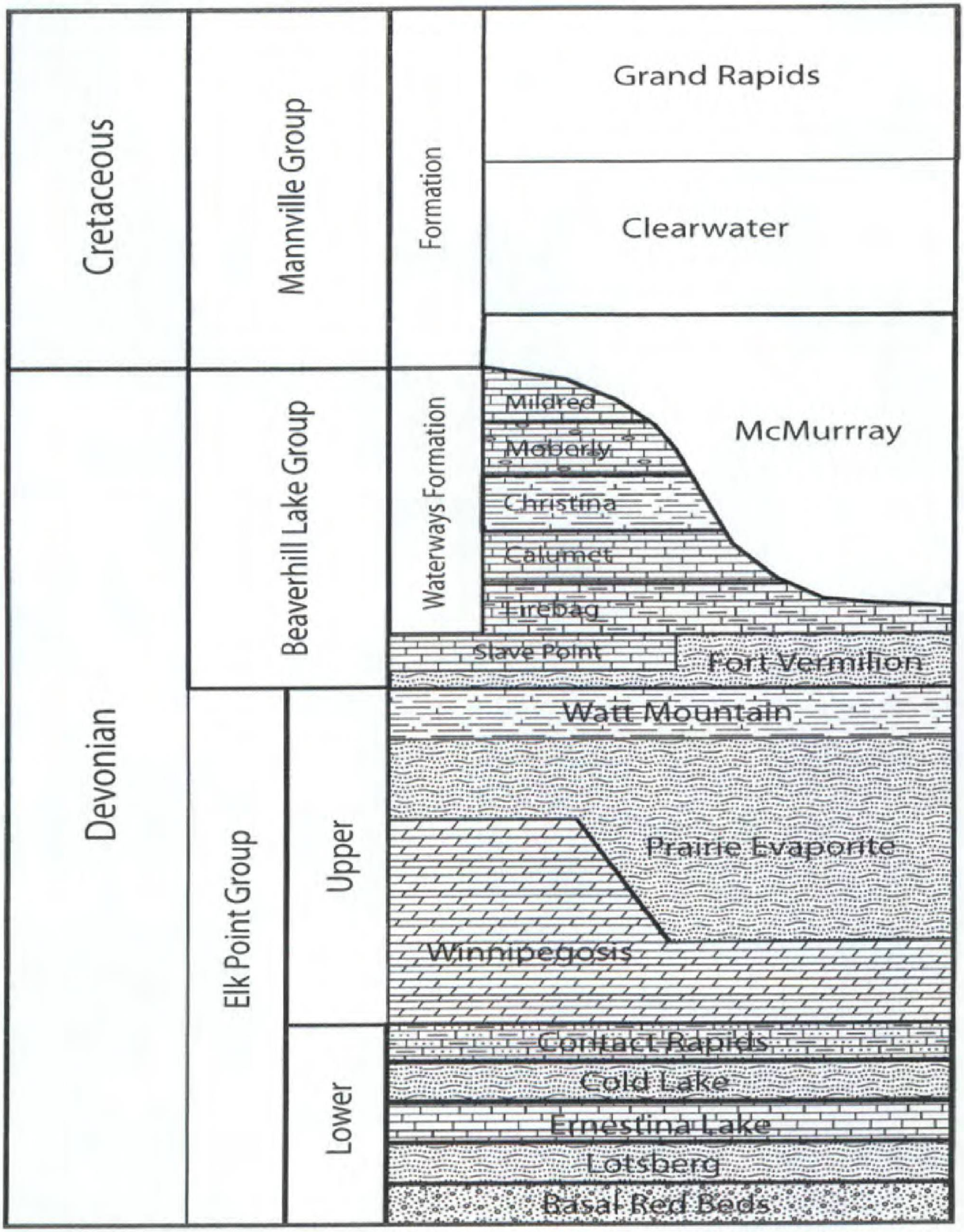


Figure 1-6: Regional Devonian Stratigraphy for the Athabasca Region.

1.3.1.2 Upper Elk Point Group

The Winnipegosis Formation, consisting primarily of dolomite, overlies the Contact Rapids Formation. In the subsurface the Winnipegosis Formation can be subdivided in three units. The basal unit is thin bedded, the middle unit containing reef and interreef beds and an upper bedded unit devoid of fossils (Norris, 1973). Thickness variations within the Winnipegosis Formation are often due to the middle unit thickening in areas of reef development and thinning within interreef areas. This formation crops out extensively at Whitemud Falls on the Clearwater River at the Alberta-Saskatchewan border.

Directly overlying the Winnipegosis is the most extensive evaporate deposit in Alberta, named the Prairie Evaporite Formation. The Prairie Evaporite Formation (Upper Elk Point) is by far the thickest and most extensive of all the Elk Point Group salt deposits (Hamilton, 1971). Salt deposition is situated along a well-defined northwest-southeast trending axis that extends from northern Alberta to southern Saskatchewan. In Alberta, the salt formation thins gradually to the west and terminates abruptly to the east along an extensive salt dissolution edge termed the Prairie Salt Scarp (Hamilton, 1971 and Grobe, 2000). The formation is thickest along the eastern boundary where salt exceeds 200 m. The same salt dissolution process forming the eastern boundary of the Prairie salt also affected the underlying Lotsberg and Cold Lake salt deposits (Hamilton, 1971). The Prairie Evaporite Formation contains other minor lithological components, namely shale, anhydrite, gypsum, and dolomite. These additional lithologies range from millimeters to several meters thick (Hamilton, 1971). Distinct, greenish colored mudstones, limestone breccias and terrigenous clastics cap the Elk Point Group (Watt Mountain Formation).

The Watt Mountain is, in turn, overlain by (Upper Devonian) units of anhydrite, mudstone, dolostone and limestone that make up the Fort Vermilion and Slave Point formations (Cotterill and Hamilton, 1995).

1.3.1.3 Beaverhill Lake Group

Variably argillaceous limestones of the Waterways Formation overlie the Slave Point Formation. The Waterways Formation has been subdivided in five distinctive members that are mappable over a wide area. These members, from oldest to youngest, are the Firebag, Calumet, Christina, Moberly and Mildred. Due to a low angle regional dip, these members progressively subcrop at the sub-Cretaceous unconformity, covering a large geographic area in northeast Alberta. To the west, limestones and shales of the Cooking Lake, Ireton and Grosmont formations (Woodbend Group) also subcrop at the sub-Cretaceous unconformity.

1.3.2 Cretaceous Stratigraphy

The overlying Cretaceous succession is variable in thickness throughout the Athabasca Region due primarily to post-Cretaceous erosional events and to a lesser extent the topography on the long standing, unconformity that separates Devonian from Cretaceous age sediments. Long standing erosion of Devonian carbonates combined with salt dissolution collapse (in the east) developed a ridge and valley type topography on the unconformity surface. The pre-existing paleotopography on the regional unconformity had a profound influence on the thickness of lowermost Cretaceous formations.

In some local areas, thick Upper and Lower Cretaceous strata is preserved (topographic highlands) while in other areas only the lowermost Cretaceous formations are preserved (high plains and lowlands). Lower Cretaceous formations within the Mannville Group include the McMurray, Clearwater and Grand Rapids. Successively younger Lower Cretaceous units include the Joli Fou, Pelican and Base Fish Scales (Colorado Group). The Upper Cretaceous Labiche Formation is sometimes preserved on localized topographic highs, an example being in the Birch Mountains (**Figure 1-7**).

1.3.2.1 Mannville Group

The basal Cretaceous McMurray Formation unconformably overlies eroded Devonian age carbonates throughout the oil sands area. The quartz-rich succession can attain thicknesses greater than 120 m, but generally ranges from 40 to 70 m thick. The McMurray succession contains the vast majority of the bitumen resources within the Athabasca Oil Sands area and is the most thoroughly studied in the region due to the enormous resource trapped within the succession. Several attempts have been made to characterize and subdivide the heterogeneous McMurray Formation. Some divide the succession into three units (Lower, Middle, Upper) while others prefer an Upper and Lower designation. Both have merit dependent on where in the deposit the stratigraphic study has taken place. The issue remains contentious.

Unconformably overlying the McMurray Formation are the Clearwater and Grand Rapids formations. The two formations do contain more localized but significant bitumen resources. The Clearwater Formation is dominated by muddy, coarsening upwards cycles, except for some well-developed sands at the base of the succession (Wabiskaw Member). Thick, clean sands are present within the Grand Rapids Formation in selected regions. Lithic sands and shales of the Clearwater and Grand Rapids formations were deposited primarily under marine conditions. The quartz-rich McMurray Formation was deposited under fluvial, estuarine and marginal marine conditions.

1.3.2.2 Colorado Group

A low relief erosion surface separates the overlying Joli Fou and Pelican formations from the Grand Rapids Formation. The Joli Fou is dominated by marine shale ranging from 0 to greater than 30 m thick. Unconformably overlying the Joli Fou is the Pelican Formation, consisting of thick, clean, bitumen-free sand ranging from 10 to 70 m thick. The overlying Fish Scales and Labiche formations are dominated by marine shale. These stratigraphic successions are best preserved within elevated regions of the high plains and the well-defined highlands.

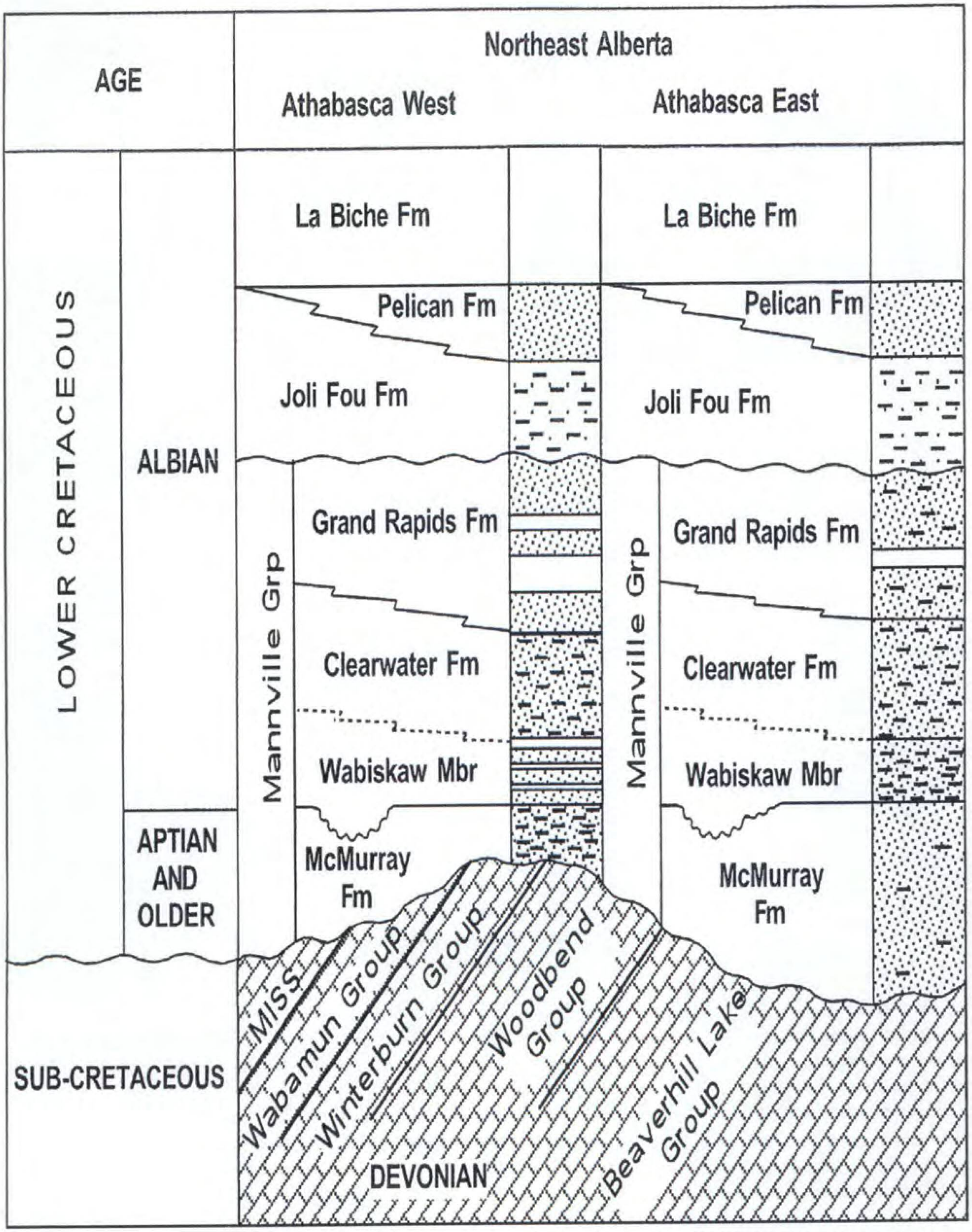


Figure 1-7: Schematic cross section outlining the Cretaceous stratigraphy within the Athabasca Region (modified after Wightman et. al 1995).

1.3.3 Post Cretaceous Erosion

Post-Cretaceous erosional events have progressively stripped away significant tracts of Devonian and Cretaceous bedrock in the region. Erosion combined with the gentle regional dip of the basin has exposed Devonian and Cretaceous formations at the surface. Deeply incised valleys of the Athabasca and Clearwater rivers (and associated tributaries) expose Upper Devonian limestone and shale. Lower Cretaceous formations, within Mannville Group, are also commonly exposed within the valleys. Outside the major valleys, extending into the high plains and the highlands, younger Cretaceous units progressively crop out at the surface. Recent kimberlite pipe discoveries in the Birch Mountains provide direct evidence for localized, small scale volcanic activity in northeast Alberta. The kimberlitic intrusives pierce both the Devonian and the Cretaceous successions and are commonly covered by thin to moderately thick Quaternary deposits.

Evidence for glacial reworking of exposed and near-surface bedrock is common throughout the region. Devonian and Cretaceous bedrock is typically covered by relatively thin sand and clay deposits of Quaternary age. In localized settings, sand filled Quaternary incised valleys erode deeply into Cretaceous bedrock and, in places, extend to the sub-Cretaceous unconformity.

1.3.4 Structural Elements

Although the entire Devonian and Cretaceous sedimentary sequences were deposited along the passive inner margin of the WCSB, some structural complexities do exist in the region. Structural features specific to the Devonian succession include regional tilting, unconformities, salt collapse, karsting and local faulting and folding. The major structural feature within the Athabasca Region is the presence of the Prairie Salt Scarp, an extensive, linear feature resulting from salt dissolution downdip within the Prairie Evaporite Formation. The salt scarp migrated from the northeast to the southwest as salt was progressively removed by infiltrating fresh water along the Precambrian basement. The overlying, more resistive limestone-rich formations within the Beaverhill Lake Group (Fort Vermilion, Slave Point and Waterways formations) coevally collapsed, forming the extensive, northwest trending low now reflected on the sub-Cretaceous unconformity. Other structures related to salt removal include karst features such as sinkholes, saline lakes, and larger depressed regions. Localized faulting is also a consequence of the salt dissolution process.

The Prairie Salt Scarp and other related structural features had a profound effect on the facies architecture, sediment dispersal patterns and thickness within the basal Cretaceous formations, particularly the McMurray Formation. Structural deformation due to salt dissolution is abundantly evident in outcrops of the Devonian Waterways and the Cretaceous McMurray formations exposed along the northern leg of the Athabasca River and associated tributaries. At Fort McMurray the Athabasca River turns from an east-west to a north-south orientation. The north-south leg roughly parallels the paleotopographic low resulting from salt dissolution and the subsequent collapse of the overlying Devonian carbonates.

It has been postulated that some deep-seated faults exist on the Precambrian basement. If so, these structural features may have influenced some of the older Devonian formations, an example being reef development within the Winnipegosis Formation. Few bore holes penetrate the Precambrian basement so the proposed deep faults remain speculative.

2.0 SILICA SAND

In Canada, industrial grade silica sand is principally produced in Quebec, Ontario and Alberta. Secondary sources of silica sand include locations in Saskatchewan, British Columbia and Nova Scotia. Commercial industrial grade sand operations are based in Bruderheim (central Alberta) and Peace River (northwest Alberta). Eolian dune deposits are the primary source of sand at Bruderheim and loosely consolidated Cretaceous bedrock is the sand source at Peace River. Other sources of industrial grade sand are locally mined near Redwater, a short distance from Edmonton.

In 1995 the Alberta Geological Survey identified high grade silica sand deposits in northeast Alberta (Cotterill and Berhane, 1996). The thick, clean sand deposits are contained within the Lower Cretaceous Pelican Formation (age equivalent to the Viking Formation of west central Alberta). Sand-dominated deposits of the Pelican Formation crop out along limited stretches of the Athabasca River southwest of Fort McMurray and along the Ells River to the northwest (exploration activity 2006-2009). The best and most widespread exposures of Pelican sand are located around the northeast rim of the Birch Mountains (McIvor River area). Analyses of sand samples from outcrop localities confirmed the presence of high-grade silica with grades exceeding 98% SiO_2 in raw, untreated form. The McIvor River deposit continues to be evaluated by ABM at this time.

Exploration for additional sources of silica sand is now focused within the Firebag River area. Thick, Quaternary sand deposits are preserved in the area and some sand units show significant potential for high grade silica. Targeted sands within the Quaternary succession are relatively thick and are laterally extensive over a large area. Initial sand sample analyses indicate sand intervals exceeding 95% silica.

2.1 SILICA SAND USES

Silica sand is used in many commercial processes and products such as glassmaking, metal casting, chemical production, building products, paint and coatings, ceramics and refractory, water filtration and enhanced oil recovery. One of the principal uses of silica sand in Alberta is frac sand - a proppant agent used in oil and gas well reservoir fracturing for enhanced recovery. Much of the frac sand consumption in the province is imported from sources as far away as Texas. There is currently a shortage of frac sand. With the recent surge in shale gas exploration and production in Saskatchewan and the northern United States the demand for high quality frac sand is expected to rise significantly.

2.2 PERMIT HOLDINGS

Athabasca Minerals Inc. currently holds a 100% interest in 512,000 hectares of Metallic and Industrial Mineral Permits in the Athabasca region of northeast Alberta. Of the total permit holdings approximately 78,000 hectares contain prospective, high grade silica sand deposits.

Athabasca Minerals is currently evaluating two high grade silica sand deposits. The McIvor River Property (Townships 103 and 104, Ranges 13 and 14 West of the Fourth Meridian) encompasses a four square township parcel that was acquired in February of 2007. The permits were acquired principally for high grade silica sand and secondly for prospective diamondiferous kimberlite intrusives. The McIvor River Property is 37,000 hectares in size, covering 400 square kilometers. An assessment report was submitted to the Alberta Department of Energy in 2009 and ABM currently retains a 100% interest in the McIvor River permits and continues to appraise the potential of the silica-rich sand deposit.

The Firebag River mineral permits were acquired in December of 2008 and April of 2009. The five permits exceed 41,000 hectares and are situated 90 km north of Fort McMurray. The permits were originally acquired for potential subsurface gypsum deposits and near surface deposits of dolomite. The Firebag River Property is bordered to the north and east by the Firebag River and is dissected by the north flowing Athabasca River to the west (**Figure 1-3**).

2.3 LOCAL GEOLOGY

Targeted silica sand deposits, within the Athabasca region, were deposited along the eastward thinning margin of the Western Canada Sedimentary Basin. In this area relatively thin successions of Devonian and Cretaceous sediment onlap the southwest dipping Precambrian basement. The two sedimentary successions are separated by a long standing erosional unconformity and together form an eastward converging wedge of sediment that progressively terminates along the unconformable granitic basement. The Devonian succession is dominated by carbonates and evaporites and the Cretaceous succession consists of repetitive siliciclastic sand and shale intervals. Post-Cretaceous (Tertiary and Quaternary) erosional events have progressively stripped away much of the Cretaceous sediment and lesser amounts of the Devonian strata, particularly within the eastern half of the Athabasca Oil Sands area.

The current drainage network in the Athabasca region consists of two major rivers, the Athabasca and Clearwater, and associated tributaries. Prominent tributaries to the Athabasca River include the Horse, Hangingstone, Steepbank, MacKay, Ells and Firebag rivers. Significant tributaries to the Clearwater River include the Christina and High Hill rivers. Some of the rivers expose Devonian bedrock in the valley bottoms, but all of the rivers expose Lower Cretaceous strata and younger unconsolidated Quaternary sediments. Devonian exposures include units within the Waterways and Winnipegosis formations: exposed Cretaceous sediment include intervals from within the McMurray, Wabiskaw and Clearwater formations.

Within the subsurface of the Firebag River Property, Devonian strata unconformably overlie the crystalline Precambrian basement. Preserved Devonian strata within northeast Alberta has been subdivided into the Elk Point Group and the Beaverhill Lake Group. Stratigraphic units present within the Elk Point Group include, from oldest to youngest, the Basal Red Beds, Lotsberg, Ernestina Lake, Cold Lake, Contact Rapids, Winnipegosis, Prairie Evaporite and Watt Mountain formations (**Figure 1-6**). The Lotsberg, Cold Lake and Ernestina Lake formations were not deposited or have been eroded within the Firebag River area. Formations within the overlying Beaverhill Lake Group include the Fort Vermilion, Slave Point and Waterways. Within the designated oilsands surface mineable area eroded members within the Waterways Formation subcrop at the sub-Cretaceous unconformity. Devonian strata are comprised of relatively thick intervals of carbonate and evaporite sedimentary rock. Carbonate rocks include limestone, shale and dolomite; evaporitic units are comprised of salt, anhydrite and gypsum. Stratigraphic delineation of the Devonian succession is limited to exposed carbonate sections on both the Athabasca and Firebag rivers (Waterways and Winnipegosis formations) and a number of deep wells located just south of the Firebag Property. A single deep well provides valuable stratigraphic information near the Property boundary. Due to the lack of deep stratigraphic well control within the mineral permit area, it is difficult to accurately characterize the lithologic and structural nature of the Devonian succession.

Lower Cretaceous formations commonly preserved in the region include the McMurray, Clearwater and Grand Rapids (**Figure 1-7**). Post Cretaceous erosional events within the Firebag River area have removed much of the Cretaceous sediment and it is common to have only the lowermost McMurray Formation preserved in the subsurface capped by unconsolidated Quaternary sand and till.

Topographic highlands within the area expose younger Cretaceous age bedrock and variably thick Quaternary sediment. Regional highlands include Stony Mountain, Muskeg Mountain, Pelican Mountain and the Birch Mountains. The highlands are typically heavily treed so bedrock exposures are often limited. Most topographic highlands are covered by a thin veneer of Quaternary sediment, and commonly show evidence of glaciation (**Figure 1-4**). Subsurface mapping indicates the highlands are commonly comprised of Lower and Upper Cretaceous bedrock.

The northeast flank of the Birch Mountains is located just west of the Firebag River Property.
Cretaceous bedrock is commonly exposed along this prominent erosional escarpment (**Figure 1-4**). Up to 500 m of topographic relief exists between the top of the Birch Mountains and the adjoining plains. The flanks of the Birch Mountains are commonly dissected by rivers and streams that drain into the lower plains some of which empty into the Athabasca River within the Firebag River Property. Muskeg Mountain is located just south of the Property. The circular highland is also generally comprised of Cretaceous bedrock, but does contain locally thickened, unconsolidated Quaternary sediment up to 200 m thick.

Within the Firebag River Property Devonian and Cretaceous bedrock is exposed at surface along the Athabasca and Firebag rivers. On the Athabasca River exposed Devonian bedrock is generally limited to thin, laterally discontinuous, river level units of fossiliferous limestone from lower members within the Waterways Formation. In contrast, Lower Cretaceous sediments of the McMurray Formation can be relatively thick (up to 40m) and continuous for hundreds of metres along the banks of the river. Bedrock exposures along the Firebag River are less abundant and are limited to isolated dolomite units within the Devonian Winnipegosis Formation and thin, discontinuous exposures of the Cretaceous McMurray Formation.

2.3.1 Local Devonian Geology

Within the Firebag River Property Devonian units intersecting the sub-Cretaceous unconformity are comprised of karstified and collapsed limestones of the Waterways and Slave Point formations and porous, often bitumen stained dolomite units within the Winnipegosis Formation. In a fully preserved Devonian succession a thick, evaporite bearing (salt, anhydrite and gypsum) formation

(Prairie Evaporite) is stratigraphically positioned between the between the Beaverhill Lake Group (Waterways and Slave Point formations) and the deeper Winnipegosis Formation. The mineral permits lie within a Devonian structural domain termed the Prairie Salt Scarp, an extensive salt dissolution/collapse zone that trends southeast to northwest through the entire Athabasca region. Along this scarp soluble evaporites have been dissolved and removed by up dip, infiltrating fresh water. The removal of evaporite has resulted in the subsequent collapse of overlying Devonian units (Beaverhill Lake Group). On the Firebag River Property a thin, insoluble remnant wedge of Prairie Evaporite Formation is assumed to be preserved between the Beaverhill Lake Group and the older Winnipegosis Formation. The less soluble evaporite deposits generally consist of gypsum and anhydrite. Sparse deep drilling in the area prevent the accurate mapping of the thickness and lithological composition of the residual evaporite wedge so drill data from distal areas must be utilized to roughly estimate the potential of targeted evaporite deposits that may exist on the ABM permits.

2.3.2 Local Cretaceous and Quaternary Geology

Bitumen saturated sediments of the McMurray Formation most commonly overlie the sub-Cretaceous unconformity on the Property. In places, post-Cretaceous erosional events have removed the Lower Cretaceous succession (McMurray, Clearwater and Grand Rapids formations). In these instances unconsolidated sand and intermixed sand- and clay-rich till directly overlie the erosional sub-Cretaceous unconformity comprised of Devonian carbonates.

Quaternary age depositional and erosional events are complex on the Firebag River Property and to date there is relatively little published documentation outlining the detailed stratigraphy of the succession (Bayrock, 1971; Anriashek and Atkinson, 2007). Preliminary subsurface mapping suggests the presence of a deep Quaternary channel up to 40m thick that trends southwest-northeast, roughly paralleling the Winter Road. Elsewhere on the Property, the Quaternary succession averages around 20m thick.

2.4 PREVIOUS WORK

2.4.1 Pre-2009 Exploration

Exploration for oilsand deposits, on the Firebag River Property, dates back to the 1950's and has continued to present day. The Property lies outside the limits of the currently defined oilsand mineable area with the exception of Township 99, Range10 (permit 9308120746). Mineral permits 9308120746 and 9309040361 (**Figure 1-3**) have been densely drilled for oilsand delineation while the remainder of the permits contain relatively few test holes (**Figure 2-1**). Subsurface data from oilsand drilling is valuable in defining the stratigraphic relationship between the Devonian Cretaceous and Quaternary successions.

Bayrock (1971) mapped the surficial geology of the region and Andriashek (2002) and Andriashek and Atkinson (2007) completed extensive regional reports outlining the Quaternary geology of northeast Alberta with emphasis on buried channel and glacial-drift aquifers.

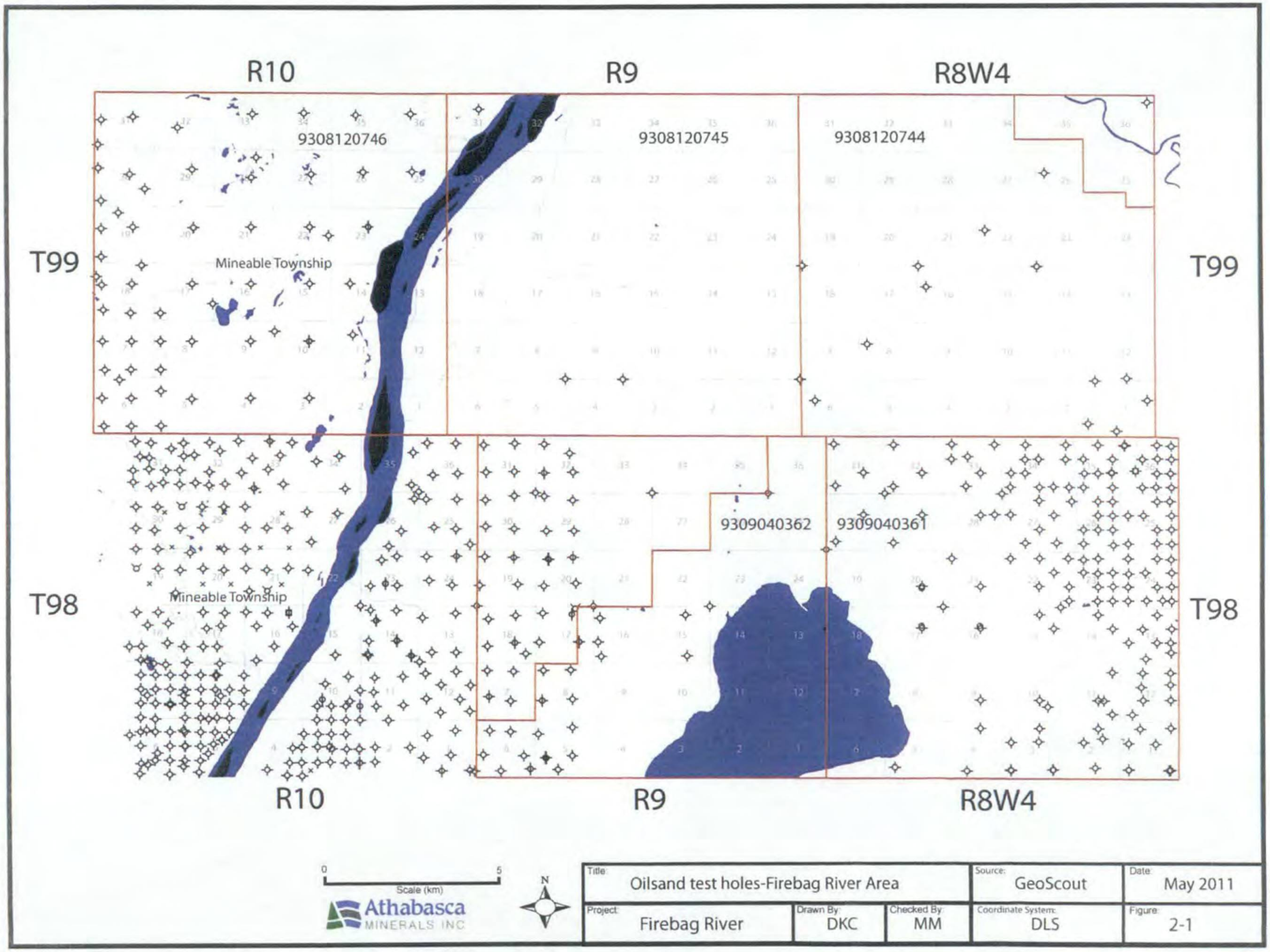
2.4.2 Initial Reconnaissance

The five mineral permits were initially acquired for potential subsurface gypsum deposits and dolomite exposed along the Firebag River. Subsurface borehole data and core were utilized to map the Devonian and Cretaceous stratigraphy. Digital elevation data was incorporated to characterize the surface topography of the area. The area was visited on two occasions to assess road and cutline access in the area for potential drill programs.

2.5 FIELD PROGRAM

2.5.1 Introduction

While evaluating Devonian exposures on the Firebag River Property, surface sand samples were collected for geochemical analysis as part of Athabasca Mineral's continued pursuit for high grade silica sand deposits within the Athabasca region. Test results from the sand samples indicated unusually high silica content along with grain size fractions suitable for frac sand usage. Based upon the positive results a shallow auger drill program was conducted on the Property in January of 2011. The program collected 135 samples from 19 drillholes. Wholerock ICP and sieve analysis were completed on all samples and additional tests are ongoing. A second drill program retrieved an additional 118 samples. Details of the second drill program and subsequent laboratory results will be released in a later assessment report.


R10
R9
R8W4
T99
T98
9308120746
9308120745
9308120744
Mineable Township
9309040362
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Mineable Township
R10
R9
R8W4
0
5
Scale (km)
Athabasca
MINERALS INC
N
Title: Oilsand test holes-Firebag River Area
Source: GeoScout
Date: May 2011
Project: Firebag River
Drawn By: DKC
Checked By: MM
Coordinate System: DLS
Figure: 2-1

2.5.2 Aerial Reconnaissance

Digital elevation data (DEM) and satellite imagery were used to establish detailed topography of the Property and to further define the primary drainage network and associated tributaries. Access routes to areas of interest were mapped and ground truthed. More importantly, the detailed topography in combination with subsurface data provided valuable information regarding the stratigraphic framework of the Devonian, Cretaceous and Quaternary sedimentary successions.

2.5.3 Subsurface Data Control

Subsurface information from oilsand exploration programs was utilized to map the sub-Cretaceous unconformity and to delineate the unconformable contact between the Cretaceous McMurray Formation and the overlying Quaternary sediment. ABM is currently focusing exploration activities on permits 9308120745, 9308120744 and the northeast corner of 9309040362. Most oilsand exploration has taken place on the two remaining permits so it was necessary to extrapolate the stratigraphic information from those areas into the mineral permits of current interest (**Figure 2-1**).

2.5.4 Drilling and Sampling

An application was submitted to Alberta Sustainable Resource Development to obtain permission to drill a number of shallow auger holes on the Firebag Property in September of 2010. Approval was granted in December of 2010 and the drill program was completed in early January 2011.

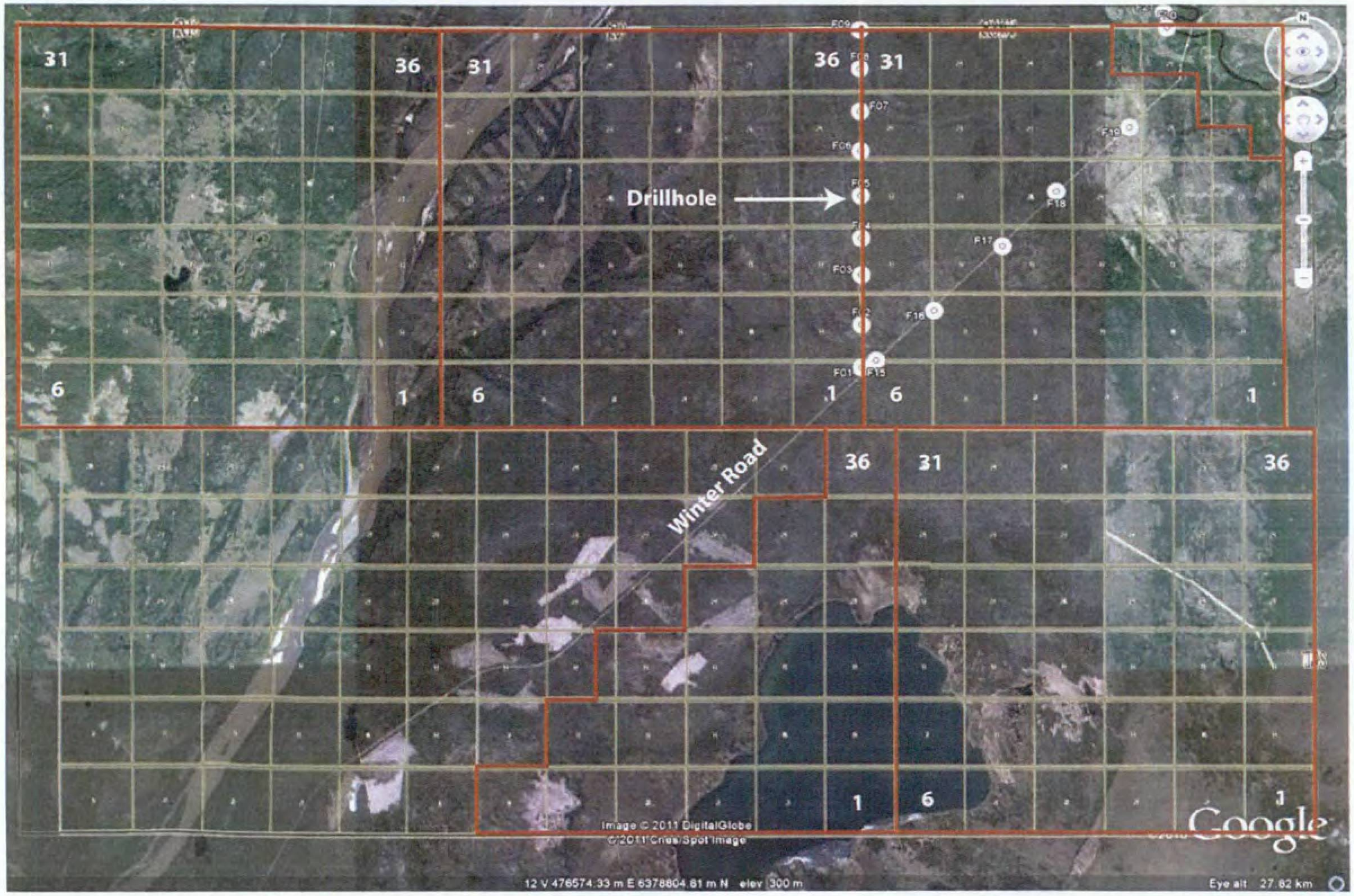
A total of 19 dry auger holes were drilled to a depth of 14.5 m. A drill rig, mounted on a tracked Argo, was used on both drill programs (**Figure 2-2**). All 19 holes from the initial drill program (F01-F19, **Appendix 2-1**) penetrated unconsolidated Quaternary sand throughout the entire length of each hole. A suite of 135 sand samples were collected and cataloged for analysis.

Six one-kilogram samples were collected at consistent depths to the bottom of each hole and a seventh sample was taken while recovering the stem after terminating the hole at 14.5 m. At times, returns from the drilling process were not being transferred to surface at a steady rate so lithological breaks in some holes were difficult to establish. The lack of consistent drill returns became most prominent at depths greater than 10m.

Fourteen drill holes were evenly spaced at one km intervals along the north-south township boundary road and the remaining five holes were set at two km intervals along the southwest-northeast trending Winter Road (**Figures 2-3 and 2-4**). The sampling program provided a starting point for characterization of the stratigraphic and lithological nature of the Quaternary succession on the Firebag River Property.

Figure 2-2: Shallow, dry auger rig used for sand sampling on the Firebag Property.

R10W4 R9W4 R8W4

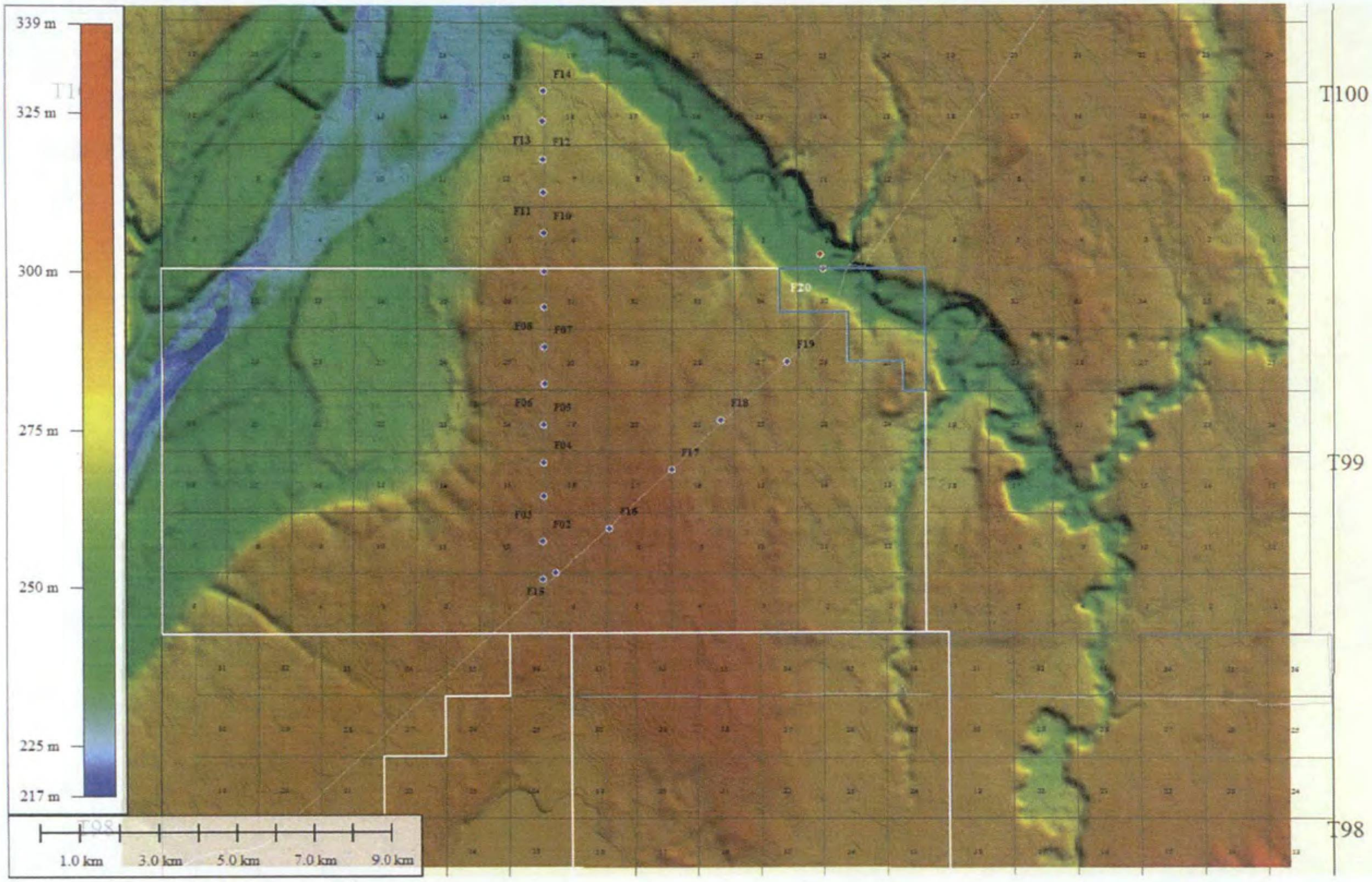


Scale (km) 0 5

N

Athabasca MINERALS INC.

Title: Silica Sand Drillhole Locations			Contour Interval: NA	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 2-3



Athabasca MINERALS INC.

Title: Firebag Drill Program			Contour Interval: NA	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 2-4

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2.5.5 Quaternary Stratigraphy and Lithology

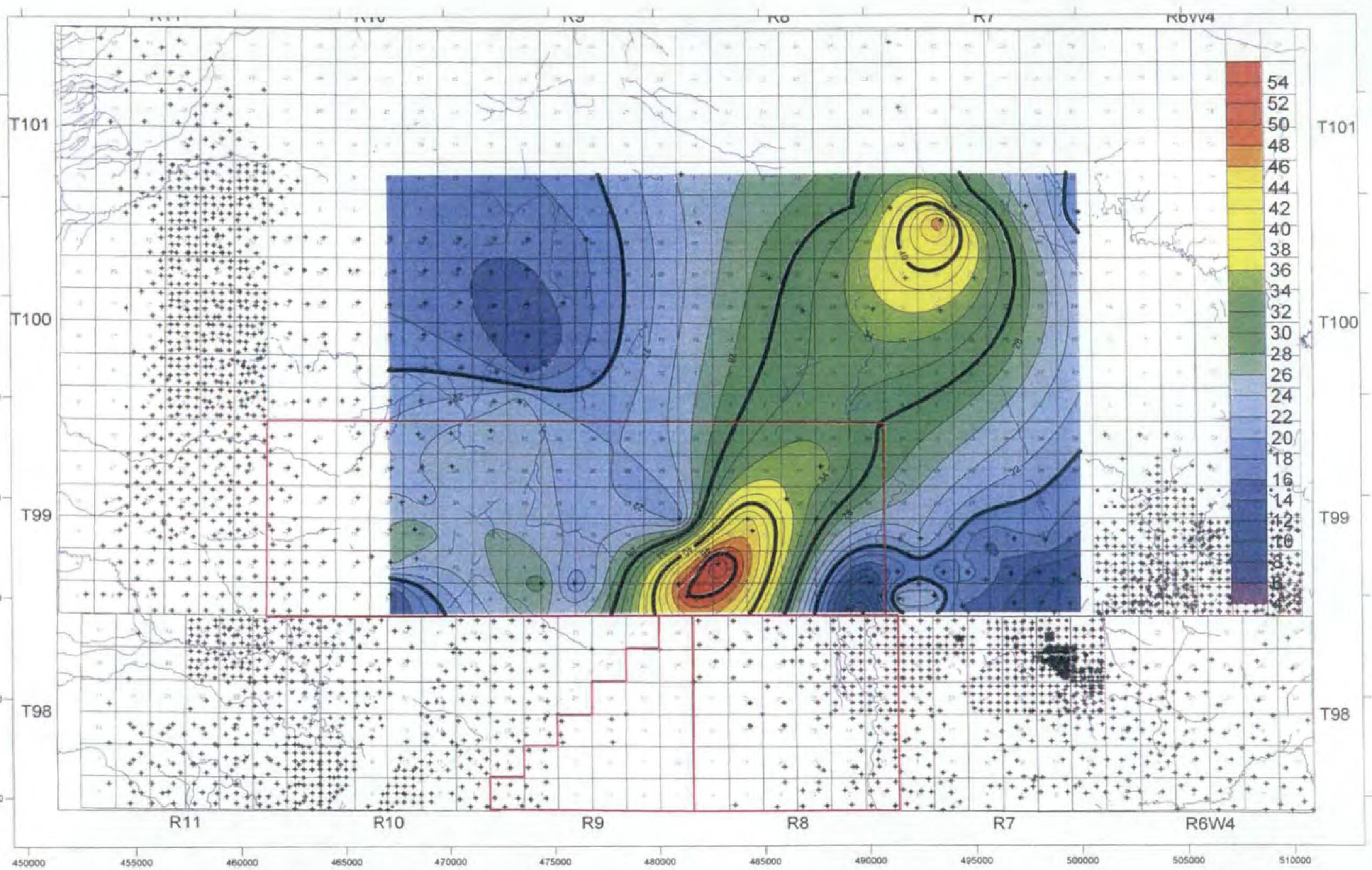
As stated previously, preliminary subsurface mapping from oilsand test holes indicate the average thickness of the Quaternary sediments on the Property to be about 20 m thick with the exception of a northeast trending, incised channel that extends to depths of greater than 45 m (**Figure 2-5**). The axis of the interpreted channel appears to be coincident with the Fort Hills Channel described in Andriashek and Atkinson (2007). The regional report suggests the Fort Hills Channel terminates at the southern boundary of the Firebag River Property.

Core recovered from oilsand drillholes in the area confirms the erosional nature of the contact between the Quaternary succession and the underlying Cretaceous and Devonian bedrock. Quaternary sediment most commonly unconformably overlies the Cretaceous McMurray Formation but in-places, is in direct contact with the sub-Cretaceous unconformity, comprised of Devonian limestone and dolomite. Limited core viewing indicates, at depth, the Quaternary succession generally consists of relatively clean, medium to coarse grained sand and commonly contains a basal till comprised of clay- and sand-rich sediment. Stratigraphic units identified in core can also be recognized on the south facing banks of the Firebag River where thick (up to 30 m), unconsolidated sand overlies a thick, muddy till (**Figure 2-6**).

The Firebag drill program intersected five distinct sand units over the 14.5m depth. All five sand units were not encountered in every hole. The presence or absence of particular sands can be explained, in part, due to subtle changes in elevation from hole to hole and the varied structural topography at the contact of each sand unit. In general, the sand-dominated succession becomes finer and cleaner upwards. In the field, sand units were logged based upon sand color and grain size. Lab analysis will further define the lithologic composition of the individual sands. The contact between individual sand units is often sharp with some transitional changes from sand to sand. Many sand-on-sand contacts are inferred as the drilling process has some inherent errors particularly with increased depth, the largest factor being inconsistent drill returns.

The upper portion of many drill holes intersected a very light brown, very clean, well sorted, fine grained sand (**Figures 2-7 and 2-8**). The light brown sand is commonly underlain by a slightly coarser, well sorted, medium brown sand. A number of holes intersected distinct orange-brown sand. The distinctive coloration is primarily the result of increased iron staining. With increased depth many drill holes intersected distinctive dark to very dark brown, fine to coarse grained sand intervals. Structural cross sections constructed along the township boundary road (**Figure 2-9**) and the Winter Road (**Figure 2-10**) illustrate the stratigraphic positioning of the sand units and the variable thickness of the sands encountered in the drill holes (**Figure 2-4**).

Previous regional work, conducted by the Alberta Geological Survey (Bayrock, 1971 and Andriashek and Atkinson, 2007), suggests the sand succession intersected by the winter drill program is principally comprised of ice contact and glacial outwash deposits with localized eolian sand dunes deposits (**Figure 2-11**). Preliminary interpretations by ABM are in general agreement with the surficial maps generated within and around the Firebag River Property. The drill program adds an additional, vertical dimension to the regional interpretation. The argillaceous, dark brown, coarse grained sands identified in numerous drill holes are interpreted as glacial outwash (**Figure 2-12**) sediment deposited near the terminus of glacial ice.



Athabasca MINERALS INC

Title: Estimated Thickness of Quaternary Sand			Contour Interval: 2m	Date: May 2011
Project: Firebag Project	Drawn By: DKC	Checked By: MM	Coordinate System: UTM N27/DLS	Figure: 2-5

Athabasca MINERALS INC

Figure 2-6: Unconsolidated Quaternary deposits exposed along the south facing valley wall of the Firebag River.

Figure 2-7: Sand sample collection on the Firebag River Property (near surface sand currently being evaluated by ABM).

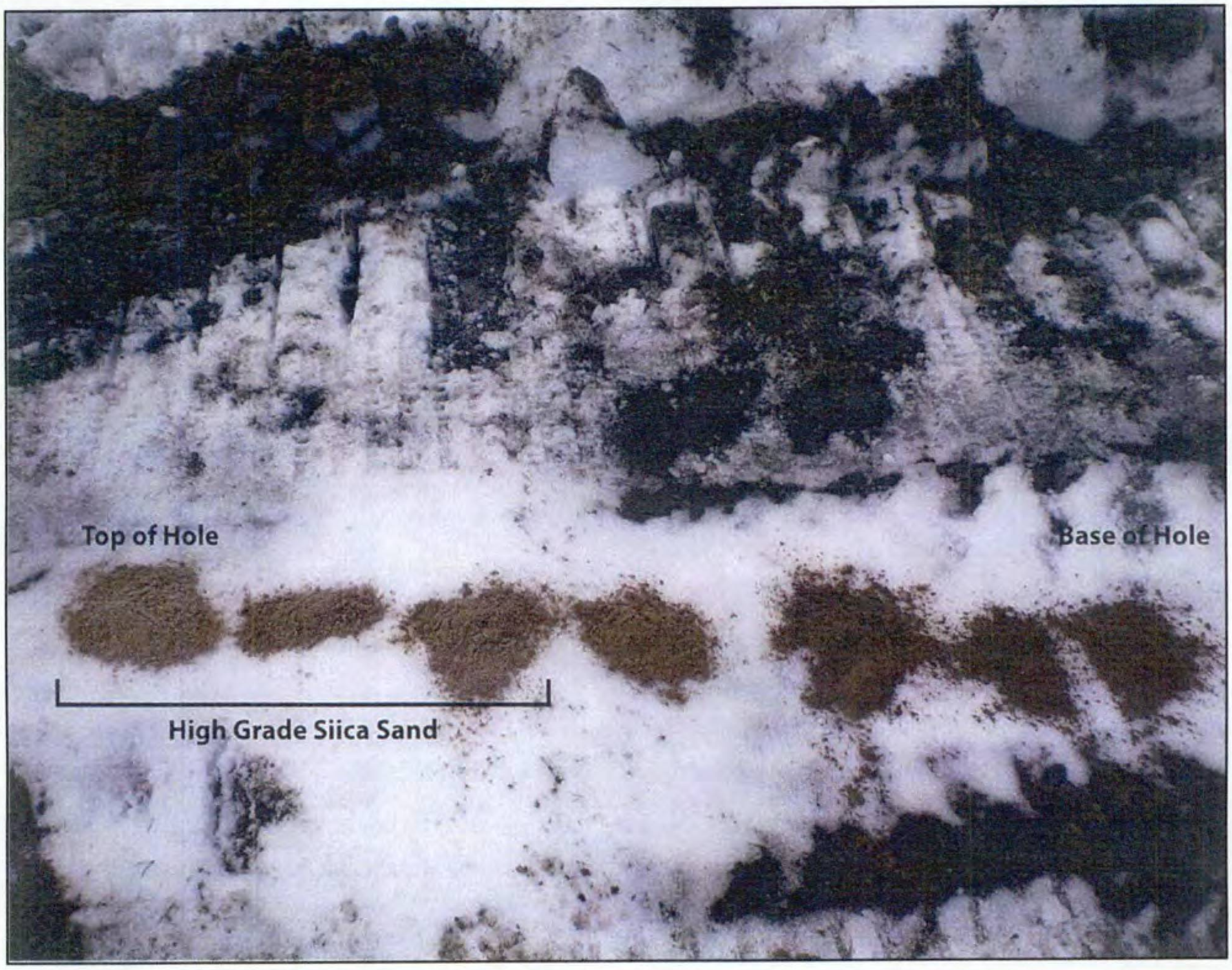


Figure 2-8: Typical sand lithologies intersected in drillholes on the Firebag River Property.

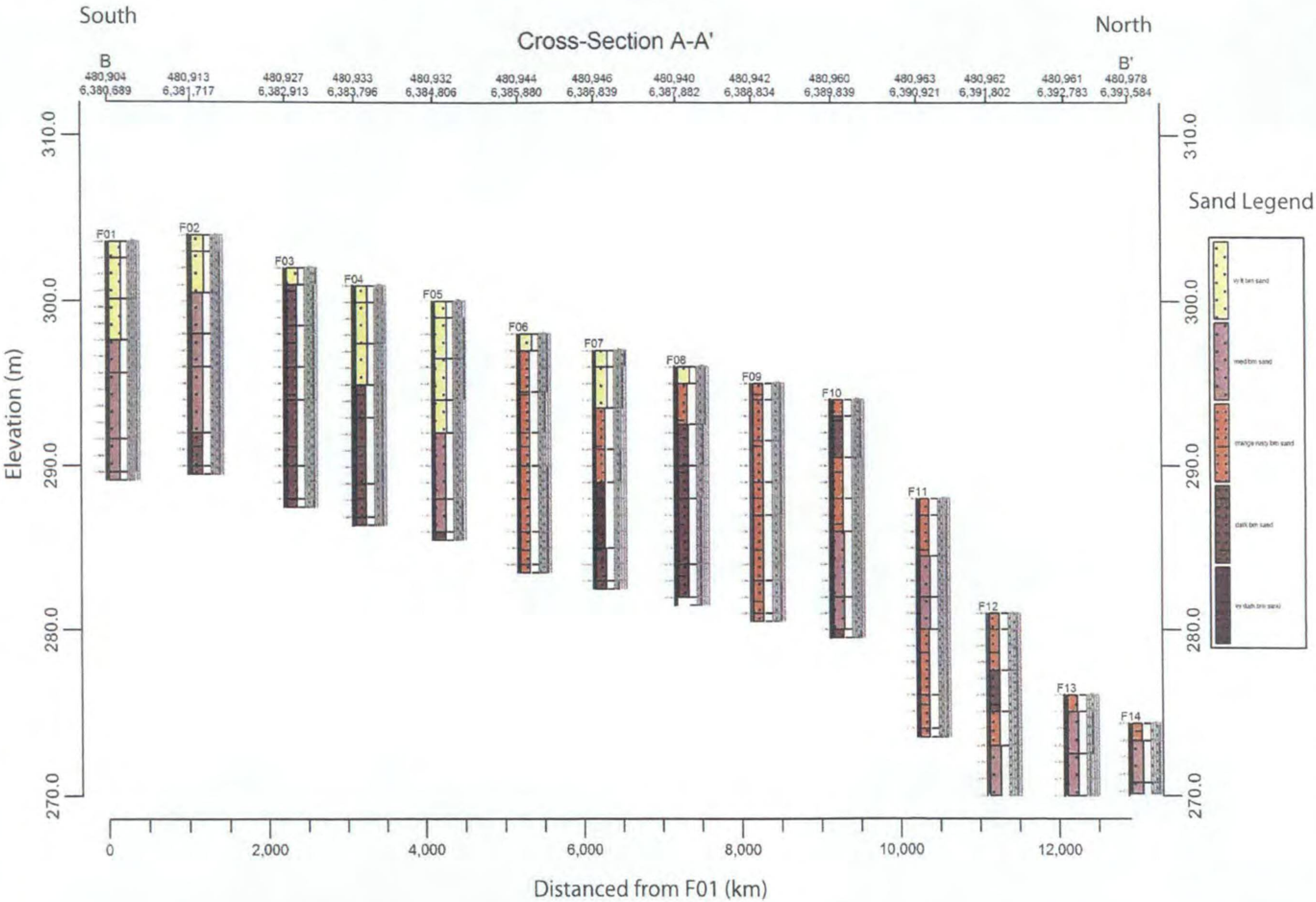


Figure 2-9: Structural cross section A-A' through drillholes F01-F14 (Firebag River Property).

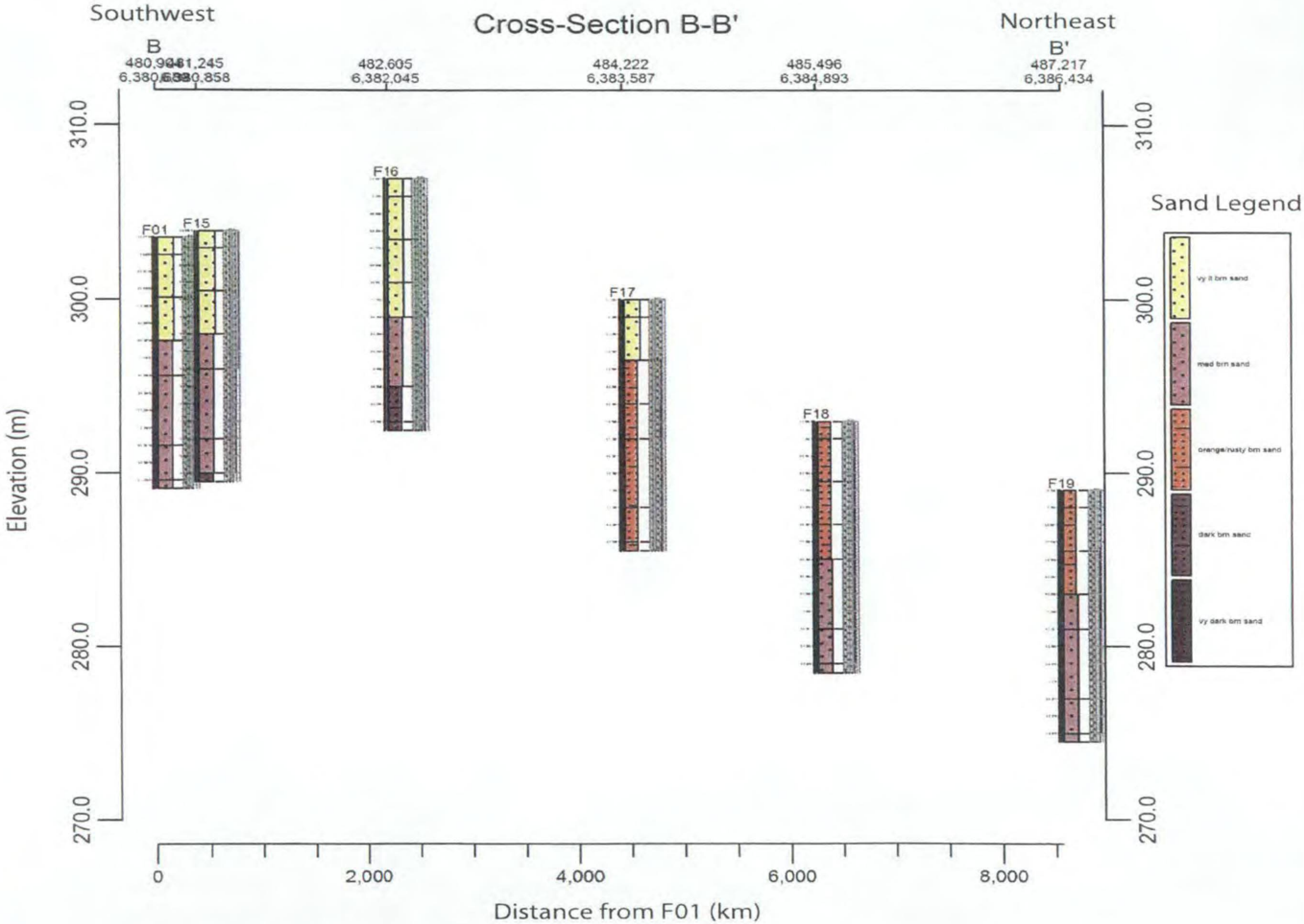
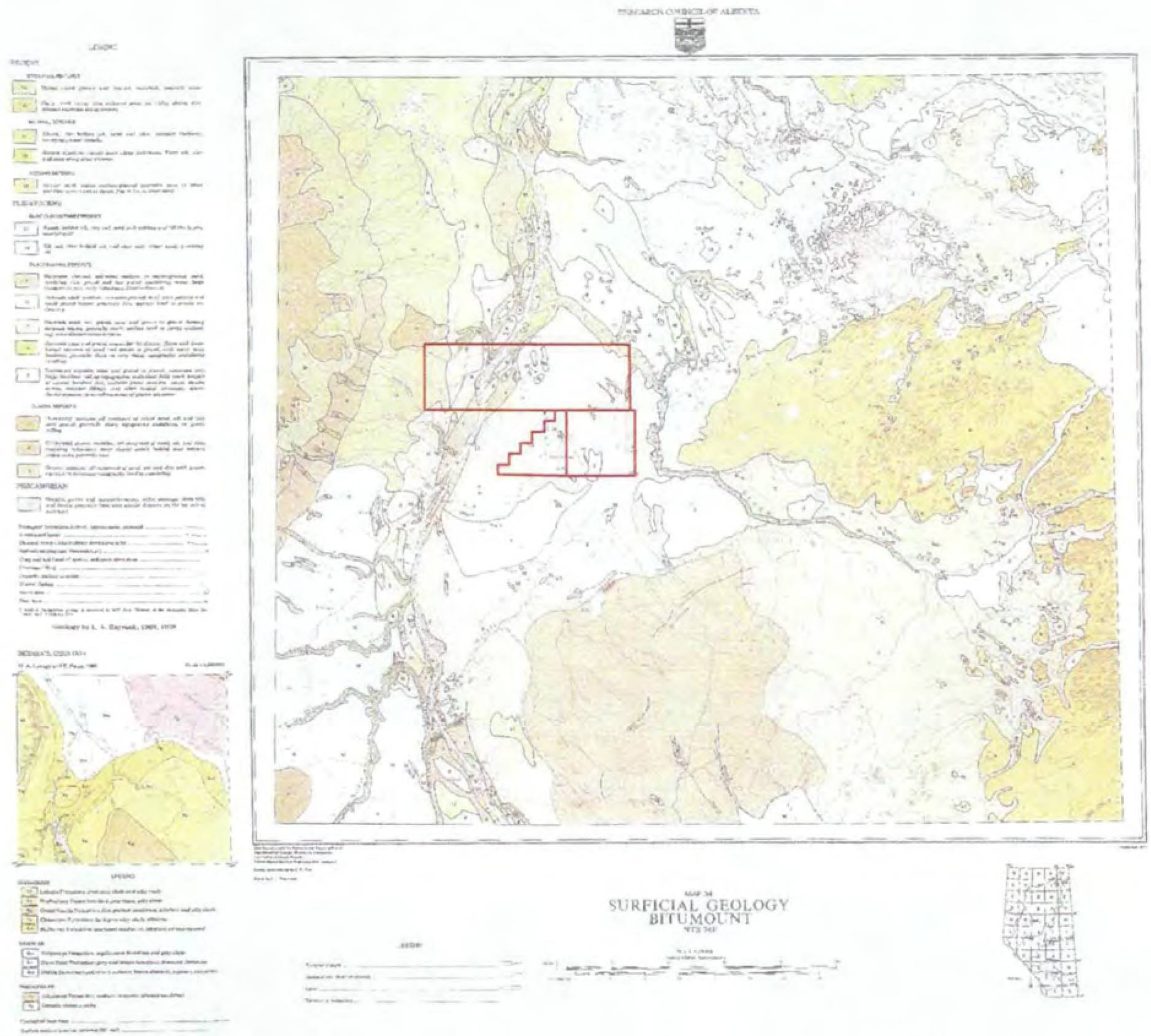


Figure 2-10: Structural cross section B-B' through drillholes F01, F15-F19 (Firebag River Property).



Title: Surficial Geology Bitumount			Source: Alberta Geological Survey Modified After Bayrock, 1971	Date: May 2011
Project: Firebag Project	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 2-11

Athabasca MINERALS INC

Figure 2-12: Dark brown, coarse sand penetrated at depth within many drillholes (Firebag River Property).

Distinctly colored, orange-brown sand (increased iron content) commonly overlies the dark brown sand units. The sands are likely glacial outwash deposits as well, but the distinct orange coloring may indicate the sand interval was positioned at or just above an existing water table allowing for the increased concentration of iron (Richard Stein, personal communication).

The clean, medium brown sand, identified on the Property, may represent re-worked outwash sediment and this sand is speculated to be the primary source for the overlying silica-rich, very light brown sand currently be investigated for commercial use. The medium brown sand is also rich in silica and is considered a significant secondary sand target on the Firebag Property. Preliminary mapping suggests the uppermost silica sand forms a northwest-southeast trending ridge through the central portion of the Property (**Figure 1-5**). The width of the ridge narrows from south to north and the northeast flank dips relatively steeply compared to the southwest flank. The sand is thought to have been deposited as windblown deposits within an eolian sand dune complex. Previous surficial mapping in the area identified local, small scale sand dune deposits, but Athabasca Minerals suggests a much larger, laterally extensive dune field that caps glacial outwash sediment. This sand deposit is unique among dune fields elsewhere in Alberta for the unusually high silica content of the sands. The current interpretation is expected to evolve with additional drill programs and surficial investigation.

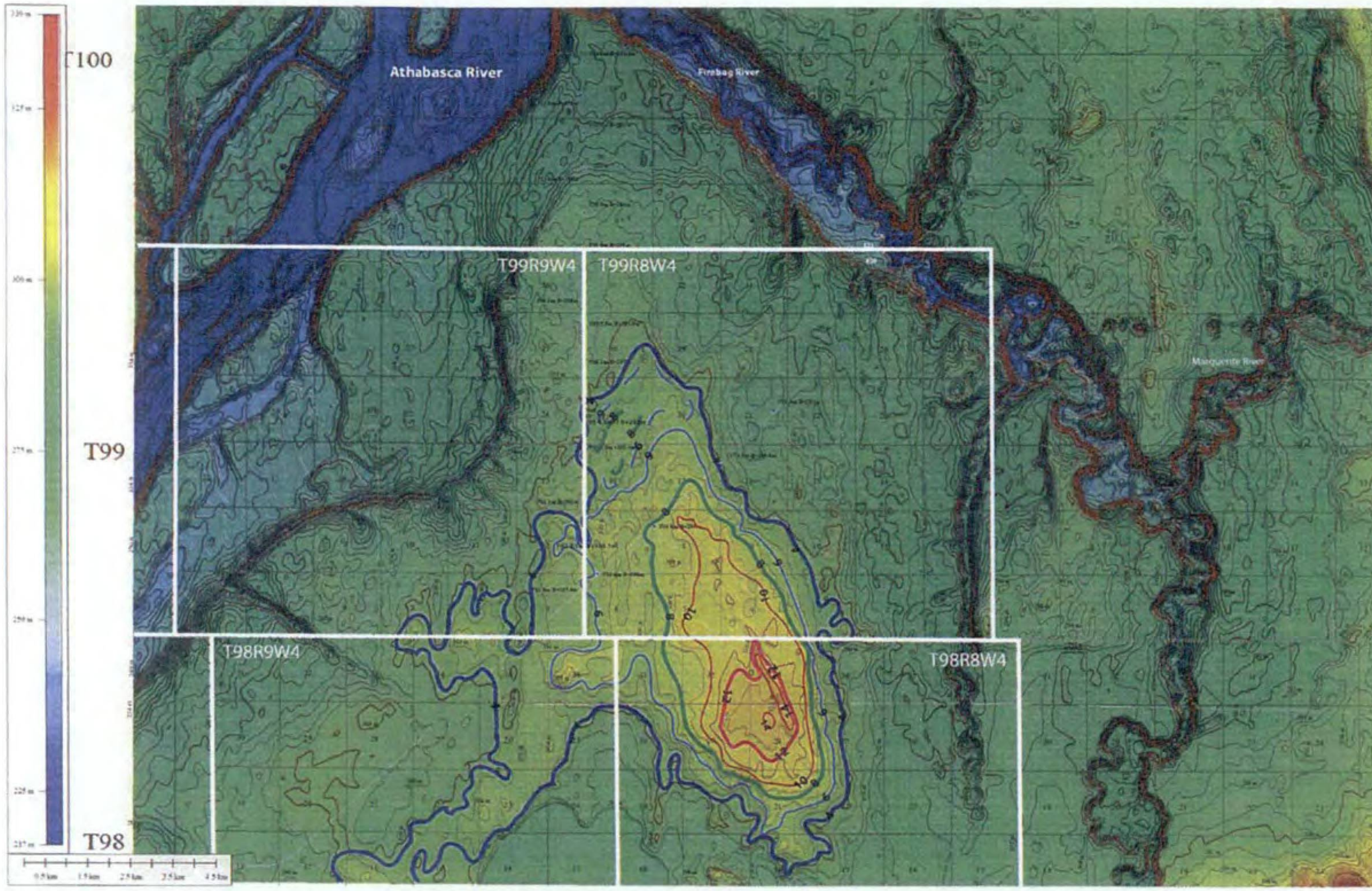
2.5.6 Mapping

To date, Athabasca Minerals has been targeting the clean upper sand present within most of the boreholes (**Figure 2-7**). The sand varies significantly in thickness (0 to 8m) throughout the drilled area and preliminary mapping suggests the thickest intervals coincide with the southeast-northwest trending ridge that extends from the east side of McClelland Lake to a position near the Firebag River in the northwest (**Figures 1-5 and 2-4**). The dune sand is present in 11 of the 19 holes drilled. Based upon the initial drilling assessment the targeted sand thins and eventually pinches along the reasonably well-defined edge of the central ridge (**Figure 2-13**). Additional drilling is required in order to fully delineate the overall geometry of the sand body in both the vertical and lateral dimension.

2.6 LAB RESULTS

2.6.1 Introduction and Methods

A total of 135 sand samples, collected from the January 2011 drill program (approximately 1 to 1.5 kg each), were submitted to Loring Laboratories for geochemical and grain size analysis. All samples were delivered in raw form, without washing or other treatment. Samples were analyzed using Wholerock ICP (Inductive Couple Plasma Analysis) to evaluate the geochemical properties of each sample. The raw samples were then wet-sieved into fractions based upon mesh ranges commonly used in the frac sand industry (+20 mesh, 20-40 mesh, 40-70 mesh and 70-100 Standard API).



N

Title:			Contour Interval:	Date:
Preliminary Upper Sand Thickness Map			2m	May 2011
Project: Firebag Project	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 2-13

Samples 2-5 from each borehole (eg: F01-2 to F01-5) were selected for additional testing. The uppermost sample and the basal two samples were omitted from the additional suite of tests. To ensure sample purity, the top sample from every drill hole was omitted from the additional set of tests. The bottom two samples from each hole were also removed from the further testing as these samples generally contained sand of lesser quality (lower silica content).

The samples (76 in total) selected for additional tests were divided into two groups. Group one (holes F01-F10) were washed with water in an attrition cell for 10 minutes. The second set of samples (holes F11-F19) were placed in a warm acid bath and then washed using an attrition cell, using the same water washing procedure as the first set of samples. All 76 samples were then sieved into +100 mesh and -100 mesh fractions and the +100 mesh fractions were analyzed again using Whole Rock ICP. These additional set of tests were intended to determine if simple water washing and acid bath techniques could elevate the overall silica content by removing clay, soluble iron and calcium. The test results are expected soon.

The set of 76 samples will be combined into 29 samples of like sand composition and are being analyzed for sphericity and crush resistance analysis. Results for these tests will not be available in time for inclusion into this assessment report.

2.6.2 Inductively Coupled Plasma Analysis-Whole Rock Analysis

Samples from the winter drill program were submitted to Loring Laboratories in Calgary. Whole Rock ICP analysis was utilized to determine the detailed chemical composition of each of the 135 samples. The primary chemical constituents of concern were the percentages of SiO_2, Al_2O_3, CaO and Fe_2O_3. Tabled results received from Loring Labs were compiled into a database and histograms were generated for the entire geochemical suite (**Appendix 2-2 and Appendix 2-3**).

Silica content (SiO_2 %) for the full suite of samples ranged from 75 to 96% (Mean of 91.9%), but the majority of samples were grouped between 90 and 96% (Appendix 2-3a). Over 105 samples made up the high silica background population (9 samples were considered anomalously low in silica). The upper targeted sand generally maintained silica contents exceeding 94% (**Appendix 2-1a**). The poorer quality sands demonstrated a much larger range in silica and the silica content commonly was shown to decrease with depth on the Property.

Aluminum oxide content for the samples ranged from 1.4 to 5.5% with a Mean value of 2.4% (**Appendix 2-3b**). Similar to the silica results, the Al_2O_3 content was generally elevated within the more argillaceous, deeper sand intervals. The majority of samples ranged between 1.5 and 2.75% (roughly 100 of 135 samples). Six samples were anomalously high in aluminum oxide.

Calcium oxide values, for the suite of submitted samples, range from 0.15 to 5.67% (**Appendix 2-3c**). The majority of samples were grouped between 0.2 and 1.2% (over 122 of 135 samples) with a Mean value of 0.68%. Calcium oxide values are considered relatively low with the exception of five anomalous values that showed significant concentrations above the background population.

Iron oxide concentrations ranged between 0.26 and 2.04% with a Mean value of 0.79% (**Appendix 2-3d**). Unlike the previous components the Fe_2O_3 values show a larger distribution range.

The remainder of the Whole Rock ICPO elemental analysis are presented in **Appendix 2-3e** through **2-3h**.

2.6.3 Sieve Analysis

All 135 raw, untreated samples were wet sieved into five fractions (% by weight). The sieve fractions were selected based upon standard mesh ranges used to segregate useable frac sand. The sieve analysis used standard API mesh sizes. The five sieve and sieve ranges include +20 mesh, 20-40 mesh, 40-70 mesh, 70-100 mesh and -100 mesh. Tabulated sieve data results from Loring Laboratories are included in **Appendix 2-4**.

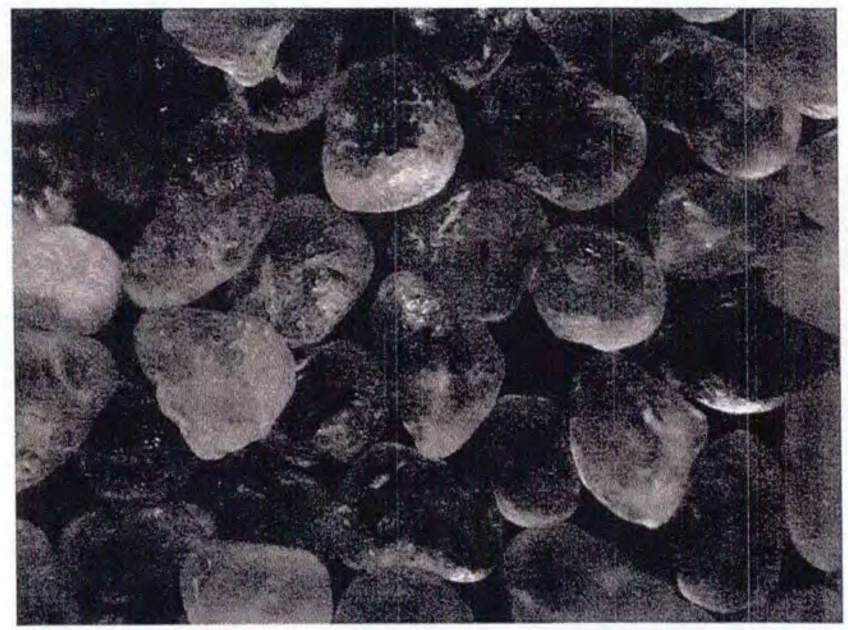
Sieve analysis for all samples indicate that an average of 4% of the sand sieved was retained on the 20 mesh sieve (+20 size fraction), 19% of the sieved sand passed through the 20 mesh and was retained on the 40 mesh (designated 20-40) and 44% of the sand passed through the 40 mesh and was retained on the 70 mesh (designated 40-70). The finer grain size fractions (70-100 mesh and -100 mesh) averaged 15% and 17% respectively. A complete set of sieve diagrams were generated for each hole that includes all seven, depth related samples (**Appendix 2-5**). The sieve diagrams clearly illustrate the distribution of the various size fractions for every sample within each borehole. Dashed, colored lines on the sieve diagrams indicate samples 1, 2 and 3 from each hole (eg: F01-01, F01-02 and F01-03 from depths 0-1m, 1-3.5m and 3.5-6m). The red dashed lines highlight sieve results for the primary sand of interest. Dashed green lines indicate sample results from poorer quality sand also present at shallow depths (also 0-6.0 m in some boreholes).

The average sieve fraction analyses for the targeted sand (based on 26 samples) are listed below.

Mesh Size	+20	20-40	40-70	70-100	-100
% Sand by Weight	1.4%	13.9%	44.5%	21.1%	19.1%

Currently sand samples with the same lithologic compositions from each hole are being combined to form 29 composite samples (from the set of 76 samples). These samples are being sieved into +20, 20-40, 40-70 and 70-140 fractions and will be submitted to EBA Engineering for sphericity and crush resistance testing. Photographed images of the targeted upper sand are shown in **Figures 2-14** and **2-15**. The sand was collected from drillhole F04 and was sieved into the four grain size ranges.

Photograh: 40 mesh (optic power 10x)
(Sand passes through 30 mesh and is retianed on 40 mesh)
40 mesh 0.420 mm



Photograph: 40 mesh (optic power 40x)

Figure 2-14: Photographs of sand from hole F04 (raw, untreated, clean upper sand).

Photograph: 70 mesh (optic power10x)
(Sand passes through 60 mesh, retained on 70 mesh)
70 mesh 0.210 mm

Photograph: 70 mesh (optic power 40x)

Figures 2-15: Photographs of sand from hole F04 (raw, untreated, clean upper sand).

2.7 POTENTIAL MARKET FOR FIREBAG SILICA SAND

The primary market for the high grade silica sand, currently being evaluated on the Firebag River Property will target the frac sand industry. Laboratory testing thus far indicates the silica-rich sand meets and most often exceeds all standards (raw, untreated samples) set for frac sand used in the oil and gas industry. The current range of grain size fractions used in the frac sand industry suggests the major percentage of the upper sand on the Property can be marketed to the industry leaving behind minimal residual sand at the development site.

With the rapid development of horizontal drilling and multistage frac technologies, the economic production from gas trapped with relatively impermeable shale has become a reality. The shale gas industry has shown incredible growth in the past few years and with this growth comes the equivalent demand for high quality frac sand. Primary markets for the Firebag Silica Sand include southern Saskatchewan, and the United States (Montana and North Dakota). The oil and gas industry in Alberta (eg: the Cardium oil field in central Alberta) is also re-entering depleted oil fields using newly developed horizontal drilling and frac technologies to access marginal oil saturated zones that were deemed uneconomic for production through vertical wells. Shortages of quality frac sand are evident forcing the industry to use substandard sources of sand.

2.8 FUTURE EXPLORATION

Concurrent to the compilation of this assessment report a small scale, bulk sampling program and second phase of shallow auger drilling has been completed. Sand samples from both programs are at various stages of the testing process and results are expected in late May of 2011. A third drill program will likely be scheduled for late summer and surficial field investigations will be ongoing throughout 2011.

2.9 SUMMARY AND CONCLUSIONS

- Subsurface data from oilsand exploration drilling indicates collapsed units within the Waterways Formation, residual components of the Prairie Evaporite Formation and eroded units within the Winnipegosis Formation form the long standing sub-Cretaceous erosional unconformity within the Firebag River Property.
- Thin, Lower Cretaceous deposits of the McMurray Formation overlie the sub-Cretaceous unconformity with the exception of localized areas where Quaternary events have incised through the Cretaceous bedrock and deposited unconsolidated sand- and clay-rich sediment directly on the Devonian erosional surface.
- Oilsand drilling data indicates the Quaternary succession varies from less than 20 m thick to greater than 40 m thick within the Firebag River Property.
- Devonian, Cretaceous and Quaternary sedimentary successions crop out at numerous locations along the Athabasca and Firebag rivers.
- Shallow auger drill programs have sampled Quaternary sediments to a depth of 14.5 m and have identified five distinct sand units. Two of the five sand units show very encouraging test results for use in the quickly expanding frac sand industry.

- The upper sand, of primary interest to Athabasca Minerals Inc., has met and most often exceeded set standards for high quality frac sand. Additional tests are continuing with results expected in late May 2011.
- The sand body, targeted for the frac sand market, forms a northwest-southeast trending ridge and ranges in thickness from less than 1 m to greater than 8 m thick in drilled areas, but is expected to exceed 12 m thick along untested portions of the ridge.
- The upper sand commonly exceeds 95% silica and average grain size fractions indicate that more than 85% of the sand deposit fits within the grain size range suitable for frac sand use (in raw, untreated form).
- Based upon high silica values, grain size range, thickness and lateral extent, the upper sand, alone, can support a large commercial frac sand processing facility.

3.0 GYPSUM

Gypsum ($CaSO_4$ $2H_2O$) is the most common sulphate mineral found in sedimentary evaporite deposits and is a hydrated form of anhydrite ($CaSO_4$). Gypsum is most often found in association with anhydrite, sulfur, calcite, dolomite and soluble salts of potassium, sodium and magnesium (Sharpe and Cork, 2006). The mineral is principally formed as a chemical precipitate within sedimentary basin and sabka environments. Anhydrite and gypsum may be deposited concurrently in a sedimentary setting and the two minerals can revert from one to the other under variable conditions involving pressure, heat and the presence of water. In settings of deposition, burial, erosion and re-burial some deposits may show several cycles of conversion from gypsum to anhydrite or anhydrite to gypsum. Gypsum may convert to anhydrite during sedimentary loading (dehydration of gypsum) and then during a time of uplift and erosion the anhydrite (lithostatic unloading and percolation of water into the evaporite succession) may rehydrate back to gypsum. The solubility of gypsum in fresh water is roughly 150 times greater than limestone (Sharpe and Cork, 2006).

Canada is the third largest producer of gypsum in the world, following Iran and the United States. The majority of gypsum production comes from Nova Scotia. The gypsum quarry at Milford, operated by National Gypsum Canada Ltd., is the largest gypsum quarry in the world (Sharpe and Cork, 2006).

Gypsum deposits have been identified within the Prairie Evaporite Formation dating back to 1920 (Hamilton, 1969). It has been speculated that economic deposits of gypsum may be exploitable within the Prairie evaporite succession in areas where preserved anhydrite intervals have converted to gypsum at shallow depths (**Figure 3-1**).

3.1 GYPSUM USES

Gypsum is a multipurpose sulphate mineral with virtually hundreds of uses. Some principle uses of gypsum include: wallboard, cement, plaster of Paris, soil conditioning, beer brewing, baking, glass manufacturing, pottery and ceramic plasters as well as fining and oxidizing agents. The major use of gypsum is in the manufacture of plasters, portland cement and wallboard.

3.2 PERMIT HOLDINGS

See section 2.2

3.3 LOCAL GEOLOGY

See Section 2.3

3.4 PREVIOUS WORK

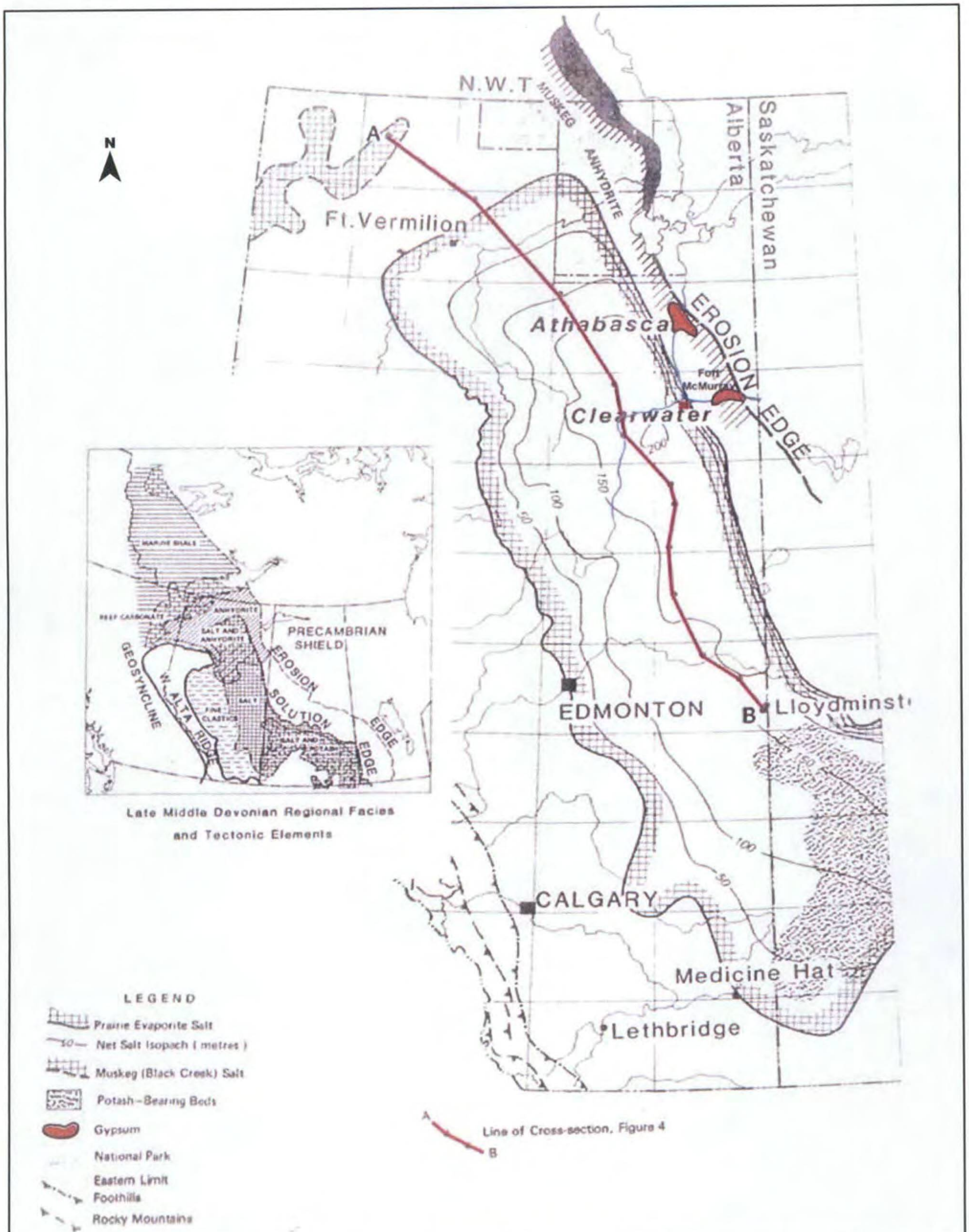


Figure 3-1: Distribution of the Upper Elk Point evaporates in Alberta (modified after Hamilton, 1982).

3.4.1 Pre-2009 Exploration

Gypsum has been identified within the Prairie Evaporite Formation in northeast Alberta, with the earliest reference from Allen (1920) who recorded as much as 40 m of gypsum in a well drilled in 1912 near Fort McMurray. A test-drilling program, directed by the Research Council of Alberta, drilled two holes within the Clearwater River valley (RCA Test Hole A and B). Test Hole A was drilled to a total depth of 71 m and Test Hole B was completed at a depth of 151 m. Both holes intersected gypsum and anhydrite deposits within the subcropping Prairie Evaporite Formation and terminated in porous dolomites of the Winnipegosis Formation (**Figure 3-2**). Test Hole A intersected 15.5 m of gypsum and greyish green shale and Test Hole B contained 18.5 m of gypsum with similar associated lithologies.

In 2000, Petro-Canada drilled two deep test wells northwest of the Clearwater River gypsum test holes. The wells were drilled to test the injectivity of the Winnipegosis and the La Loche formations (residual waste disposal). Both wells penetrated gypsum bearing intervals approximately 23 m thick within the upper portion of the Prairie Evaporite Formation (**Figure 3-3**). A number of deep wells were recently drilled south of the Firebag River Property to again, test the injectivity of the Winnipegosis Formation principally for the disposal of liquid waste generated from proposed oilsand mines. These wells also intersected gypsum bearing strata within the Prairie Evaporite Formation.

3.4.2 Initial Reconnaissance

Literature from limited Devonian studies was reviewed and pertinent data was included into a database for archival purposes and regional mapping. Data searches were performed to collect subsurface well information from recently drilled wells within and surrounding the Property. Well searches were first focused on wells that reached the top Winnipegosis Formation or deeper. Secondary searches concentrated on wells that penetrated the Devonian succession to a depth deep enough to identify subcropping Devonian formations at the erosional sub-Cretaceous unconformity. Devonian outcrop data was also collected and added to the database. Surface-based digital elevation data was reviewed in order to accurately calculate depths to the top of subsurface intervals of interest.

3.5 SUBSURFACE MAPPING

3.5.1 Introduction

Gypsum deposits were first identified within the subsurface of the Athabasca region in 1920 (Hamilton, 1969). The sulphate minerals are most prevalent in the Prairie Evaporite Formation, a thick, laterally extensive Devonian succession comprised of halite, anhydrite and gypsum with lesser amounts of shale, limestone and dolomite (**Figure 3-4**). Minor gypsum occurrences have also been observed within the Fort Vermilion and the Winnipegosis formations. Previous work in the region suggests the presence of a discontinuous, northwest trending belt of gypsum that extends from the Clearwater River valley, east of Fort McMurray, to the

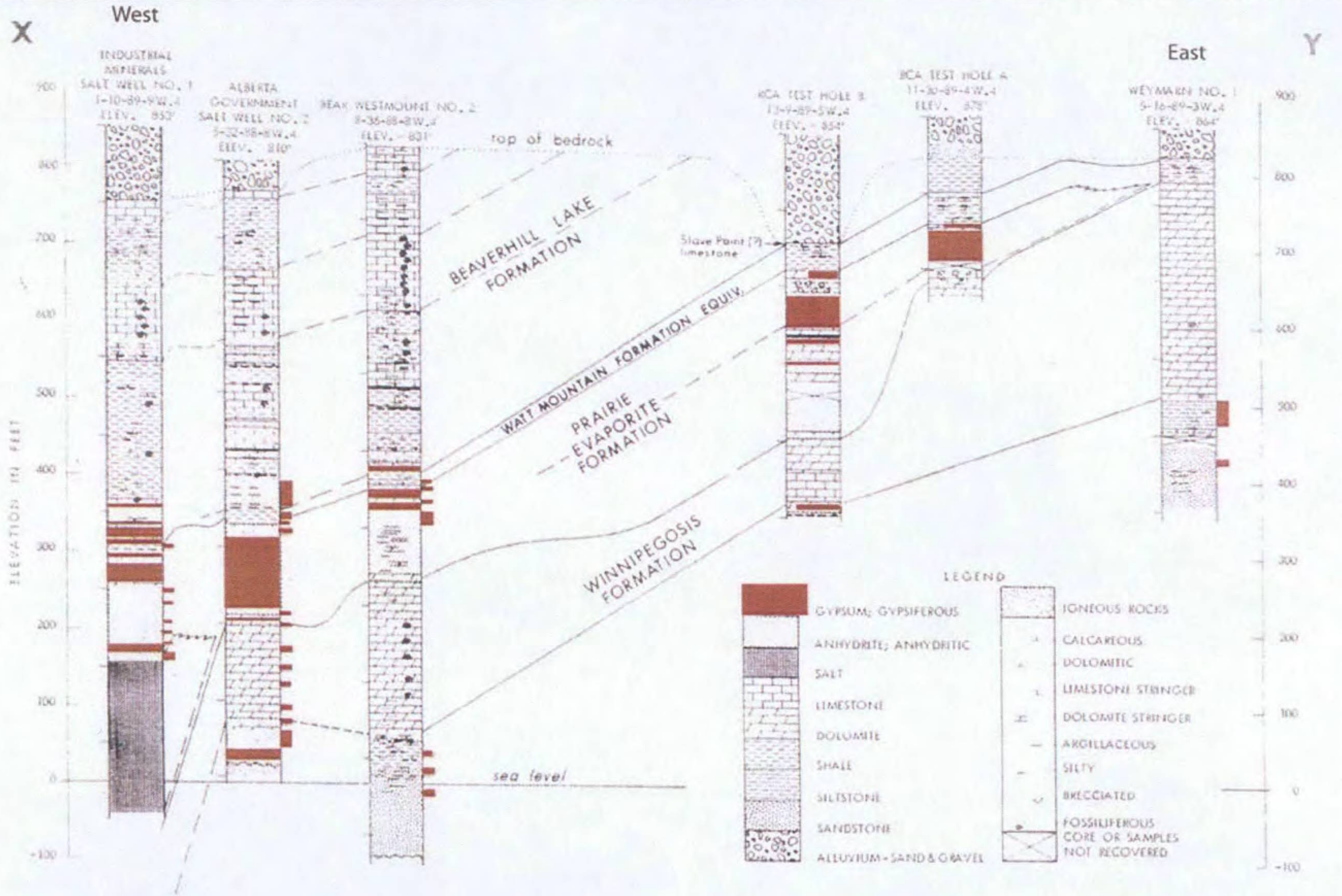
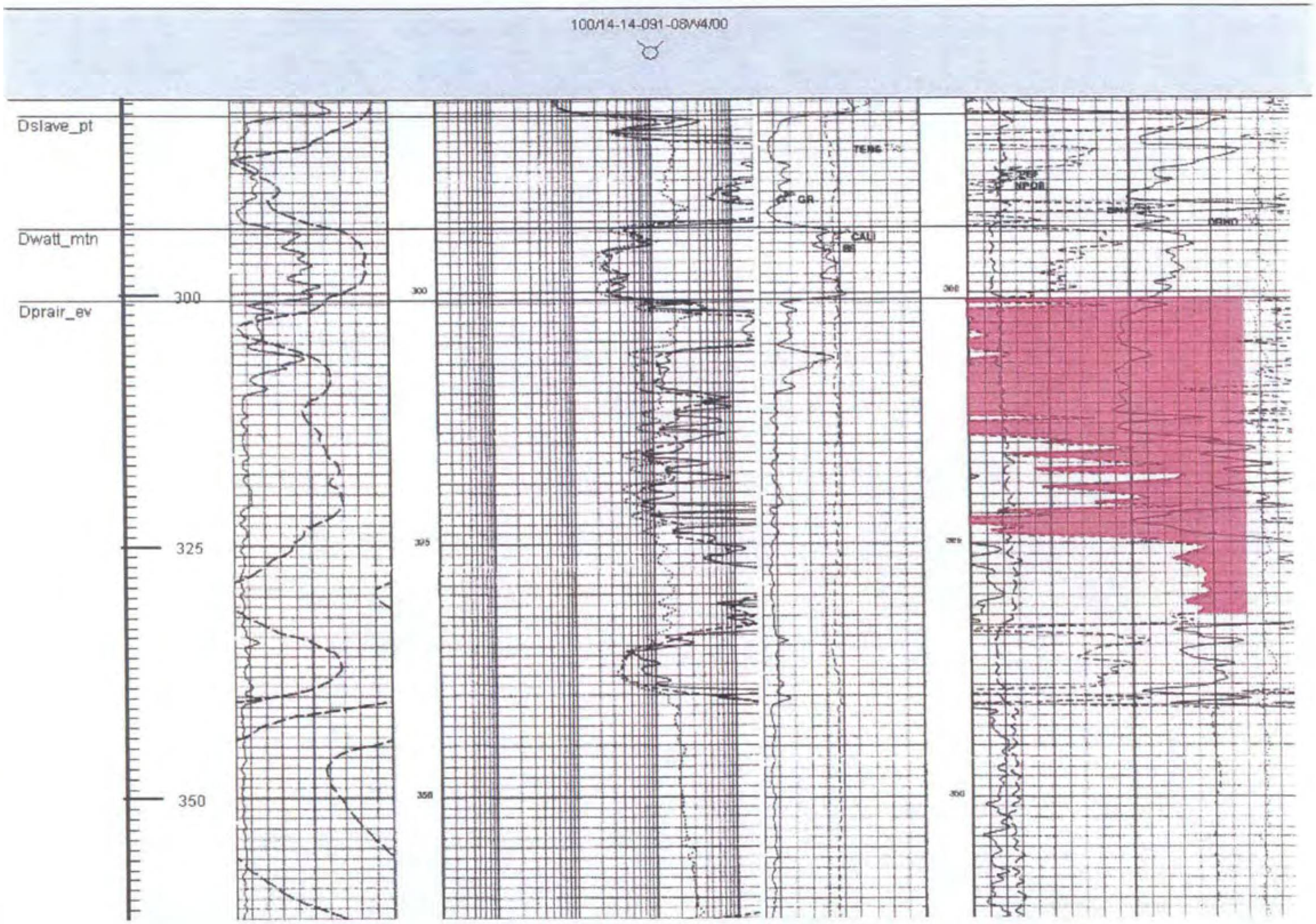


Figure 3-2: Structural cross section of Devonian strata highlighting gypsum bearing units east of Fort McMurray. Cross section begins in Fort McMurray and extends east along the Clearwater River valley for approximately 58 km (modified after Hamilton, 1969).



Athabasca MINERALS INC.

Title: Prairie Evaporite Gypsum 100/14-14-091-08W4			Source: GeoScout	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-3

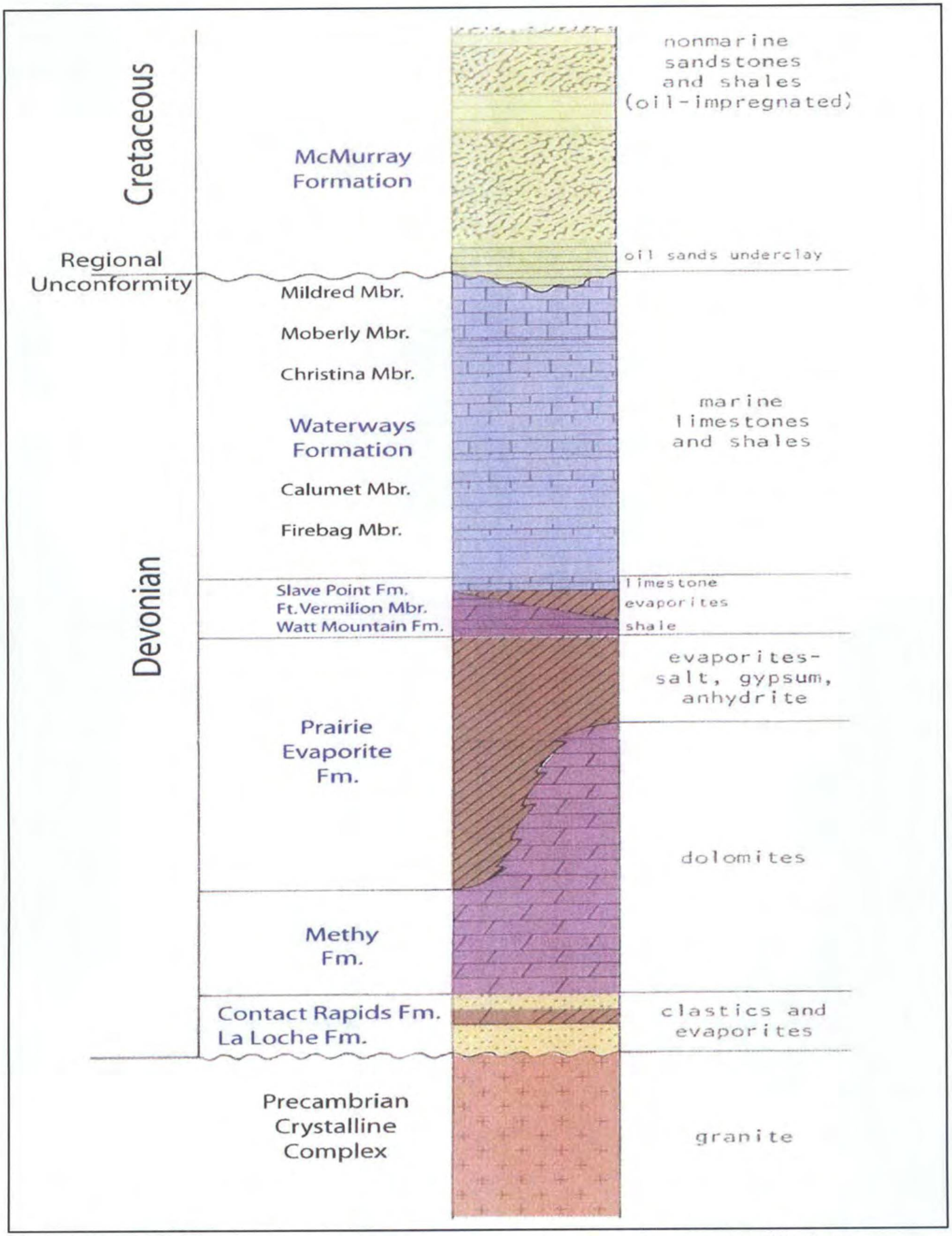


Figure 3-4: Local Devonian stratigraphy within the Athabasca Region (modified after Hamilton and Mellon, 1973).

Firebag River area, near the confluence of the Firebag and Athabasca rivers (Hamilton, 1969). Gypsum deposits have been identified in a sparse number of drillholes along this speculated trend. In the south, along the Clearwater River, gypsum has been intersected at depths ranging from 70 to 150 m (Hamilton, 1969). About 40 km to the northwest of the Clearwater Valley occurrences gypsum was intersected at depths of 300 and 330 m. Deep Devonian test wells, west and south of the Firebag River Property have penetrated gypsum at depths ranging from 125 to 240 m. A single well located just outside the Property intersected gypsum at depth of 150 m. The continuity of the gypsum bearing strata is rather speculative at this time as deep well control along the interpreted gypsum trend is sparse.

As mentioned previously, the conversion of anhydrite to gypsum and vice versa is largely dependent on heat, pressure and the presence of water. Due to the relatively shallow depths of the gypsum occurrences it is unlikely that heat is a significant factor. Pressure and the presence water are the more probable contributors to the conversion of anhydrite to gypsum. Hamilton (1969) suggested the effect of regional structure elevated the evaporites to the east to a position shallow enough to facilitate the conversion of anhydrite to gypsum. A structural cross section, extending from Fort McMurray to a distance roughly 60 km east along the Clearwater River valley, demonstrates the heterogeneous nature of gypsum and anhydrite deposits within the Prairie Evaporite Formation (**Figure 3-2**). The northwest trending gypsum fairway is also likely to show significant variations in terms lithological composition and lateral continuity. Subsurface well information south and west of the Firebag River Property does suggest the potential of laterally continuous gypsum bearing intervals of significant thickness within the evaporitic succession.

3.5.2 Data Control

The number of oilsand exploration test holes within and surrounding the Firebag Property mineral permits range from sparse to extensively drilled. A total of seven deep control wells were utilized to demonstrate the basic stratigraphic framework of the Devonian succession in the Firebag River area. A single deep well highlights the Devonian stratigraphy along the southern portion of the Property.

Shallow stratigraphic test holes (Cretaceous oilsand test holes) were used to model the structure of the sub-Cretaceous unconformity. Valuable core data helped define the internal stratigraphy of the Devonian, Cretaceous and Quaternary successions in the area as well as helping define the variable nature of the erosional unconformities separating the three sequences.

Devonian, Cretaceous and Quaternary sedimentary units are exposed at the surface along the Athabasca and Firebag rivers. Basal members of the Waterways Formation (Devonian) and the McMurray Formation (Cretaceous) crop out along the Athabasca River. The McMurray Formation also crops out along the Firebag River, near the confluence of the Marguerite and Firebag rivers. Reefal dolomites of the Winnipegosis Formation are locally exposed along the Firebag River stretching from points near where the Marguerite River enters the Firebag River to a point about 13 km southeast of where the Firebag River enters the Athabasca River.

3.5.3 Subsurface Stratigraphy and Mapping

The Devonian sedimentary succession unconformably overlies the Precambrian basement in northeastern Alberta. The Precambrian basement roughly dips at 4m/km to the southwest (**Figure 3-5**).Within the Firebag Property and immediate surrounding area preserved Devonian formations include Contact Rapids, Winnipegosis, Prairie Evaporite, Watt Mountain, Fort Vermilion, Slave Point and Waterways (**Figure 3-4**). The Firebag, a basal member of the Waterways Formation, is likely the only remaining unit within the Waterways. Younger members have been removed by erosion on the long standing sub-Cretaceous unconformity.

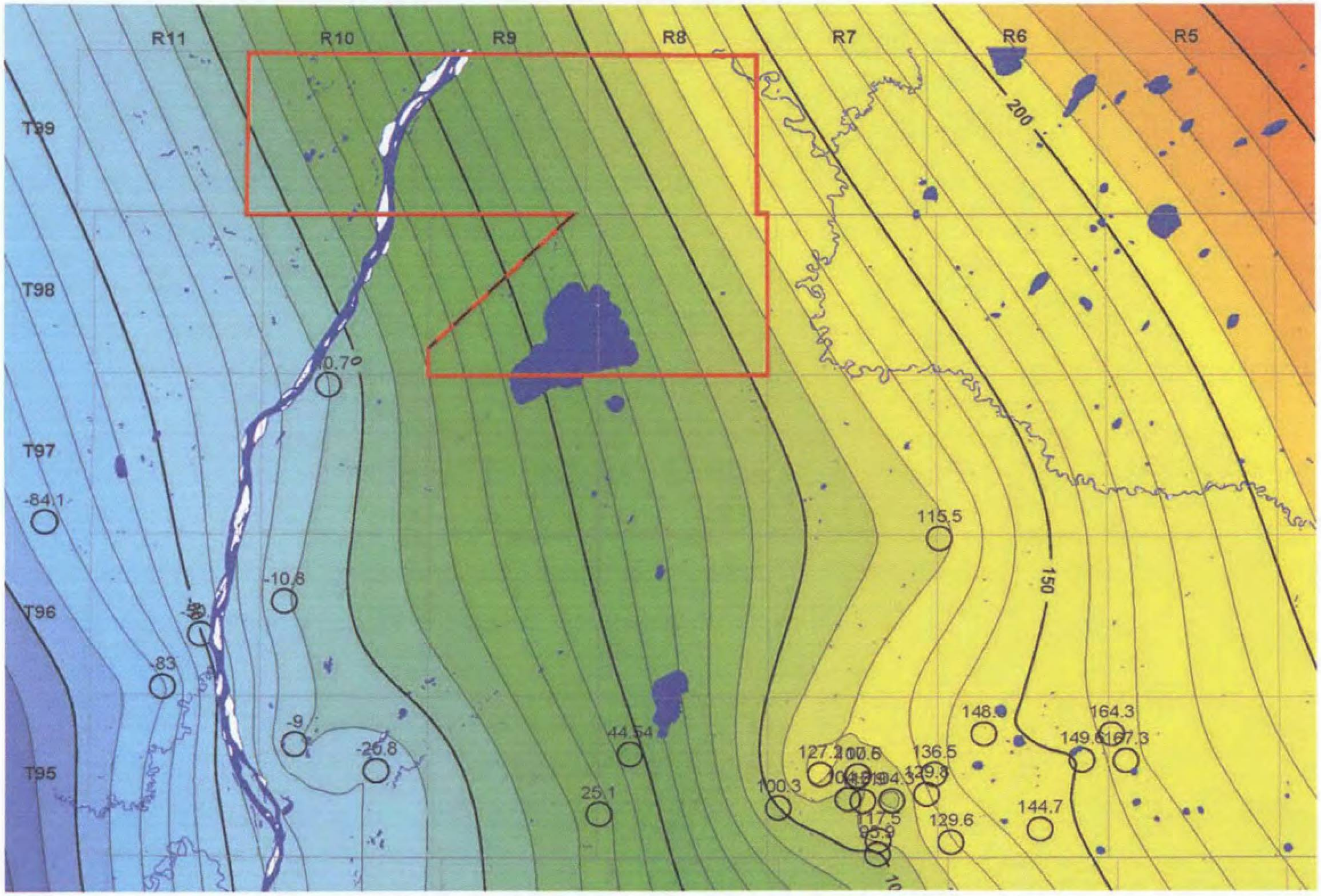
A deep test well, located just outside the Firebag Property, serves as an excellent reference well for the Devonian succession (**Figures 3-6**). The well illustrates the approximate thickness and lithological composition of each formation. Gypsum (gypsum bearing intervals highlighted in pink) and anhydrite make up the bulk of the sedimentary rock within the Prairie Evaporite and Fort Vermilion formations. The reference well is located approximately 20 km southwest of the Firebag River. Along local reaches of the Firebag River the Winnipegosis Formation crops out at river level. This indicates that Devonian strata above the Winnipegosis Formation, shown in **Figure 3-6**, have been eroded at the sub-Cretaceous unconformity, have thinned depositional or, in the case of the evaporite bearing formations, have been dissolved by infiltrating fresh water over the 20 km distance to the northwest (reference well to the Firebag River). Subsurface evidence that suggests all three events have taken place within the Firebag Property.

A significant reef buildup (depositional thickening) appears to roughly run coincident with the present day trend of the Firebag River. The interpreted increase in thickness can be recognized structurally on the top of the Winnipegosis Formation (**Figure 3-7**). The thickening of the Winnipegosis Formation would have reduced the accommodation space, to a certain degree, for the overlying Prairie Evaporite Formation therefore reducing the potential thickness for the evaporitic bearing succession.

Evaporites within the Prairie and Fort Vermilion formations would have also succumbed to dissolution as infiltrating fresh water would have preferentially removed salt, then the more insoluble anhydrite and gypsum deposits. As stated previously, gypsum is 150 times more soluble than limestone in fresh water.

Significant erosion of Devonian strata has taken place at the sub-Cretaceous unconformity in northeast Alberta. Within the Firebag Property there is substantial topographic relief on the erosional surface (**Figure 3-8**). A well-defined topographic low trends south to north through the west side of the Property (highlighted in blue). The area highlighted in green shows up to 85 m of structural relief. Further west the unconformity surface rises irregularly to over 300 m above sea level.

Based upon subsurface data in the region and outcrop data collected from the banks of the Firebag River, a preliminary map has been generated to estimate the depth to potential gypsum deposits within the Property boundary (**Figure 3-9**). If present, gypsum deposits should be intersected at depths ranging from 50 to 150 m. It is realistic to assume at the shallower depths once existing gypsum may have dissolved by intruding fresh water.

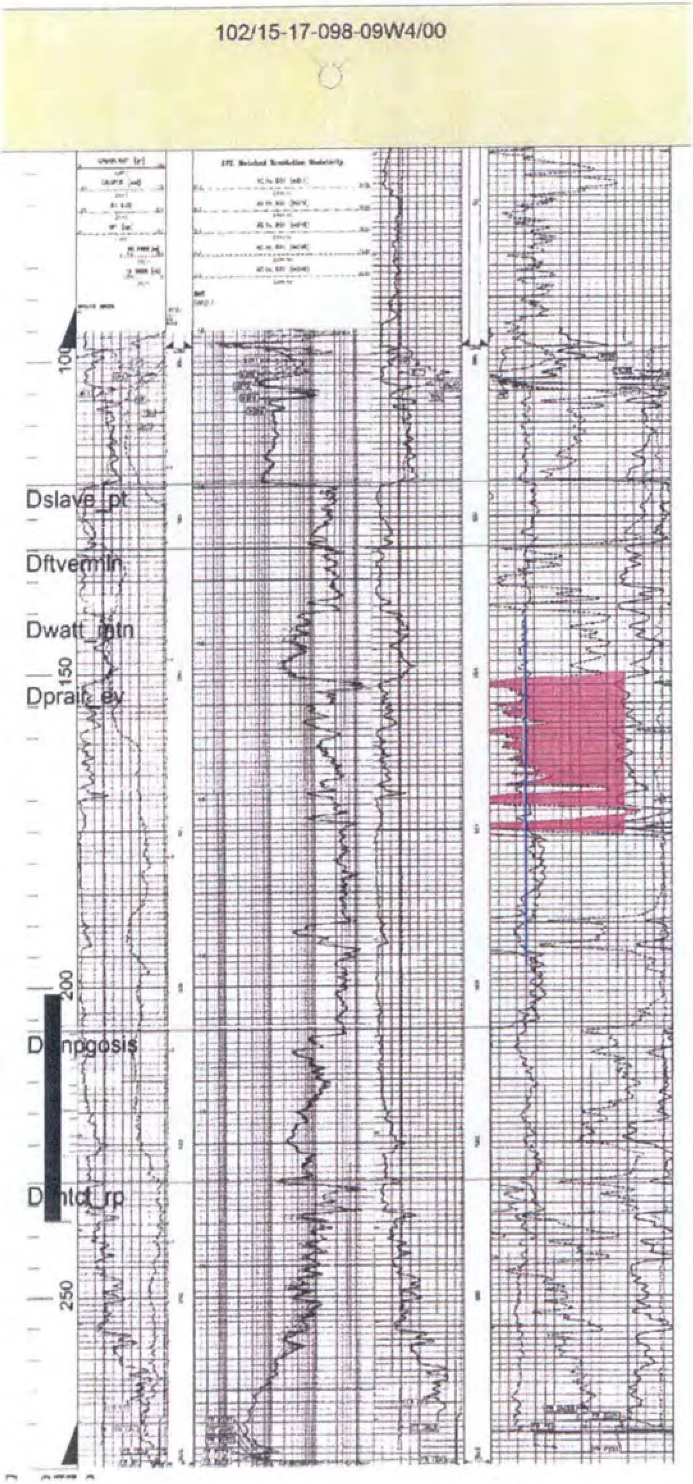


ABM Firebag Permits

0 10
Scale (km)

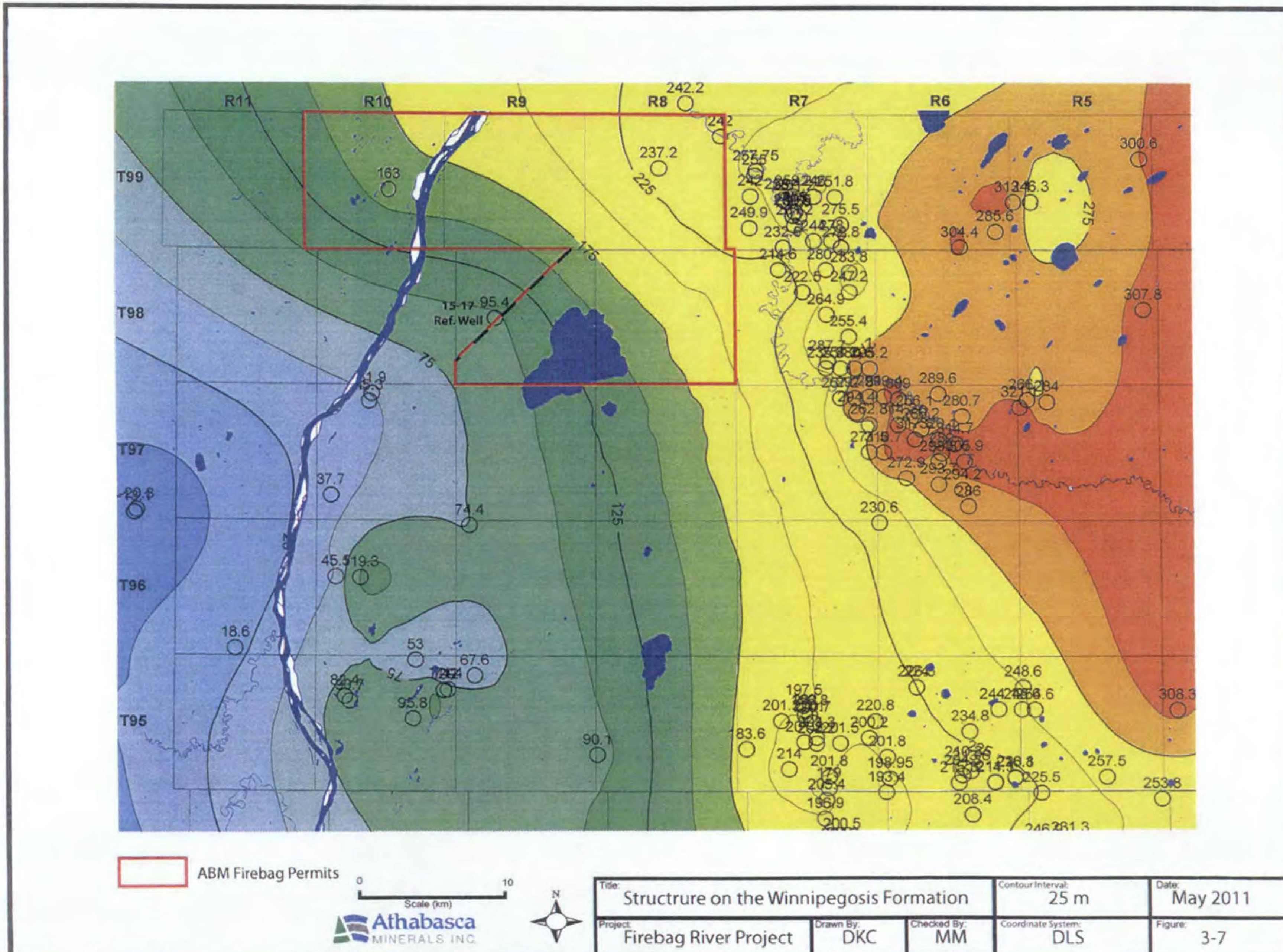
Athabasca MINERALS INC

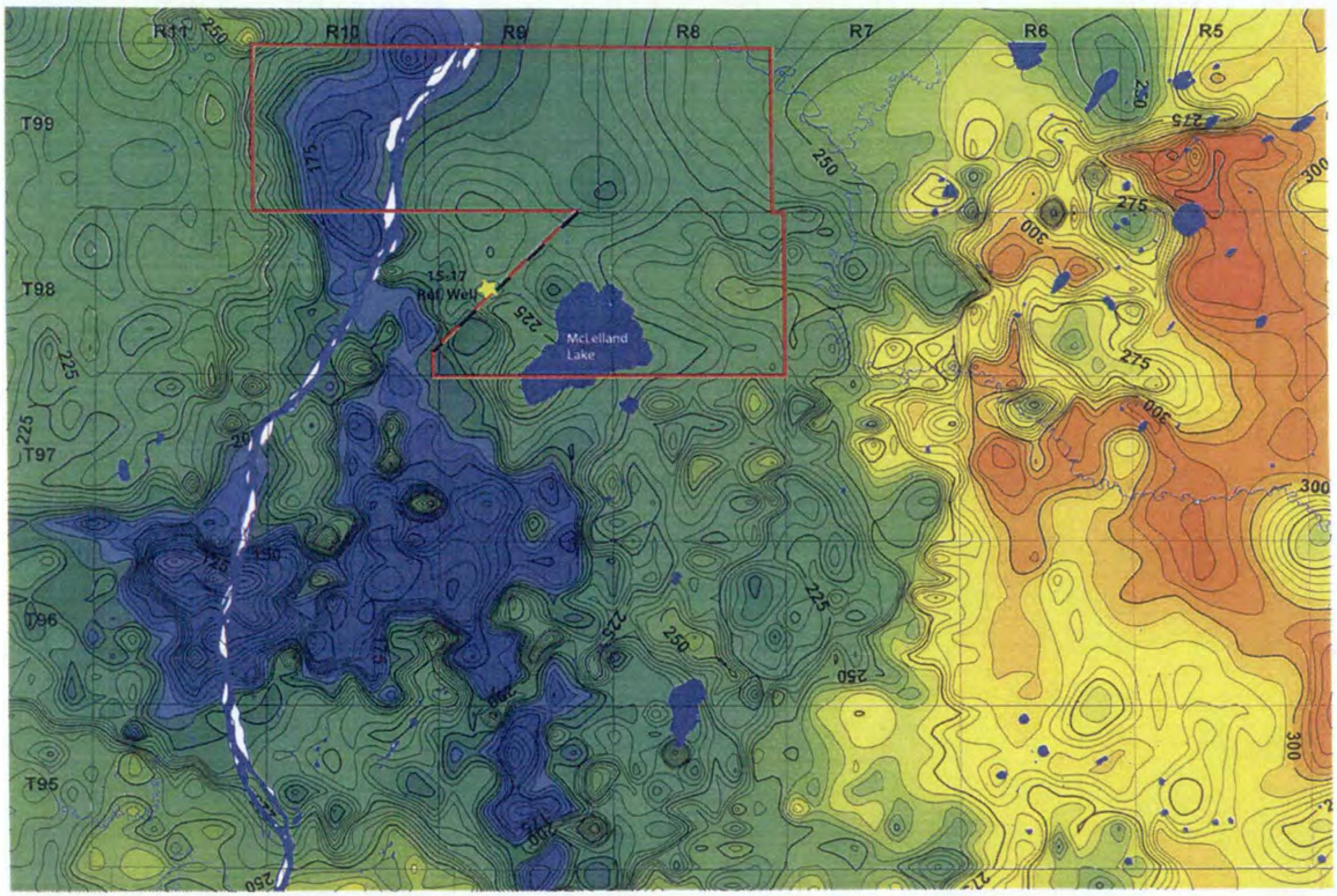
Title: Structure on the Precambrian Basement			Contour Interval: 10 m	Date: May 2011
Project: Firebag Project	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-5



Athabasca MINERALS INC.

Title: Prairie Evaporite Gypsum 15-17-98-9W4			Source: GeoScout	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-6


R11
R10
R9
R8
R7
R6
R5
T99
T98
T97
T96
T95
15-17 Ref. Well
ABM Firebag Permits
Scale (km)
0
10
N
Athabasca MINERALS INC.
Title: Structrure on the Winnipegosis Formation
Contour Interval: 25 m
Date: May 2011
Project: Firebag River Project
Drawn By: DKC
Checked By: MM
Coordinate System: DLS
Figure: 3-7



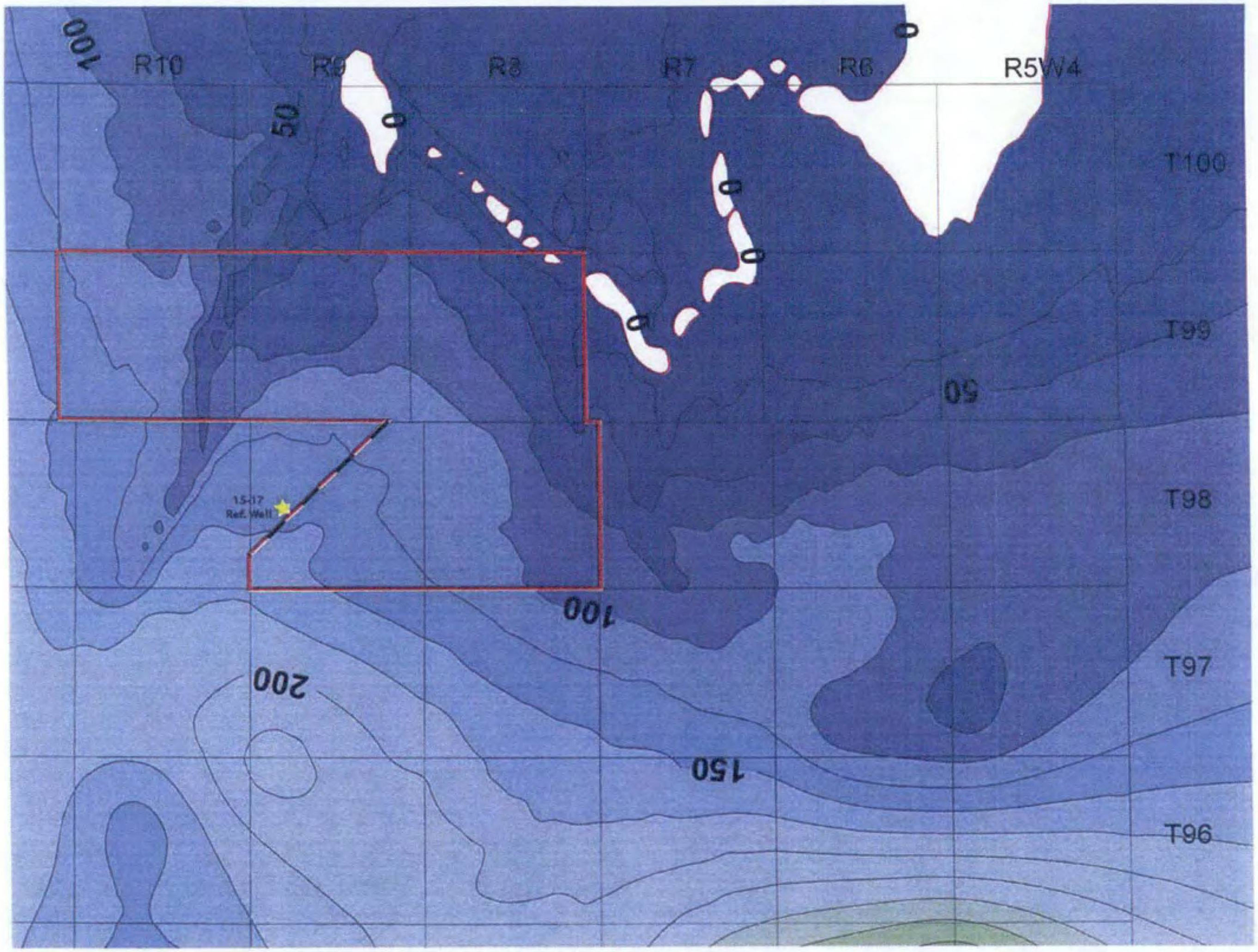
ABM Firebag Permits

Scale (km) 0 10

Athabasca MINERALS INC.

N

Title: Structure on the Sub-Cretaceous Unconformity			Contour Interval: 5 m	Date: May 2011
Project: Firebag River Project	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-8



ABM Firebag River permits

0 10
Scale (km)

N

Athabasca
MINERALS INC.

Title: Estimated Depth to the Top of the Prairie Evaporite Fm.			Contour Interval: 25 m	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-9

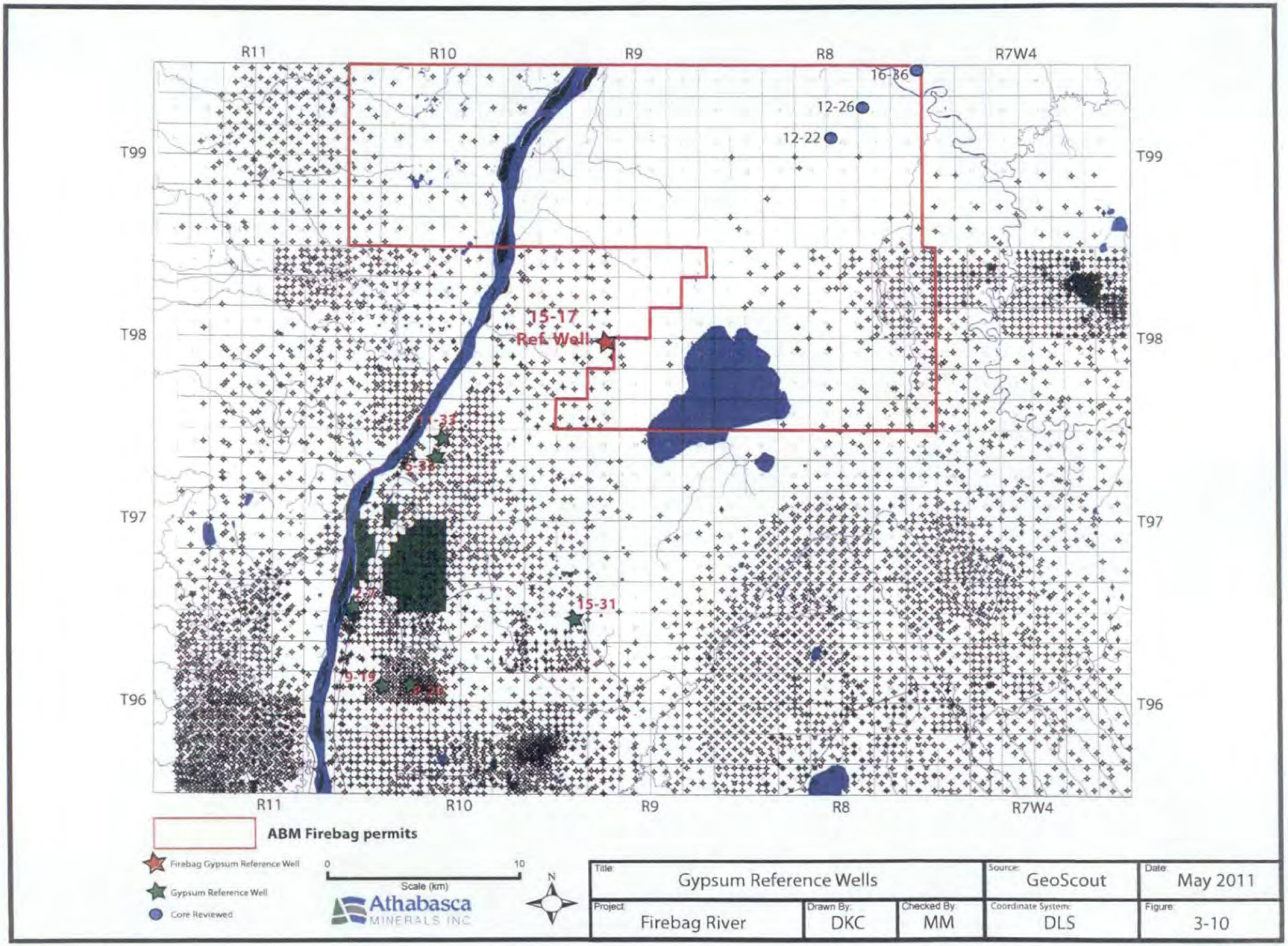
With this general reasoning and assumption in mind it remains a difficult task to accurately map subsurface gypsum within and around the Property as deep well control is very limited in the area. A number of deep wells, located a significant distance to the south and west, clearly show the existence of gypsum within the Prairie Evaporite Formation and occasionally the Fort Vermilion Formation. Mapping these deposits into the Property is an ongoing task and will eventually require drillholes to confirm the presence of gypsum. A drill program will also confirm the lateral extent of preserved gypsum deposits and help define the feasibility of extracting the sulphate mineral over a range of depths.

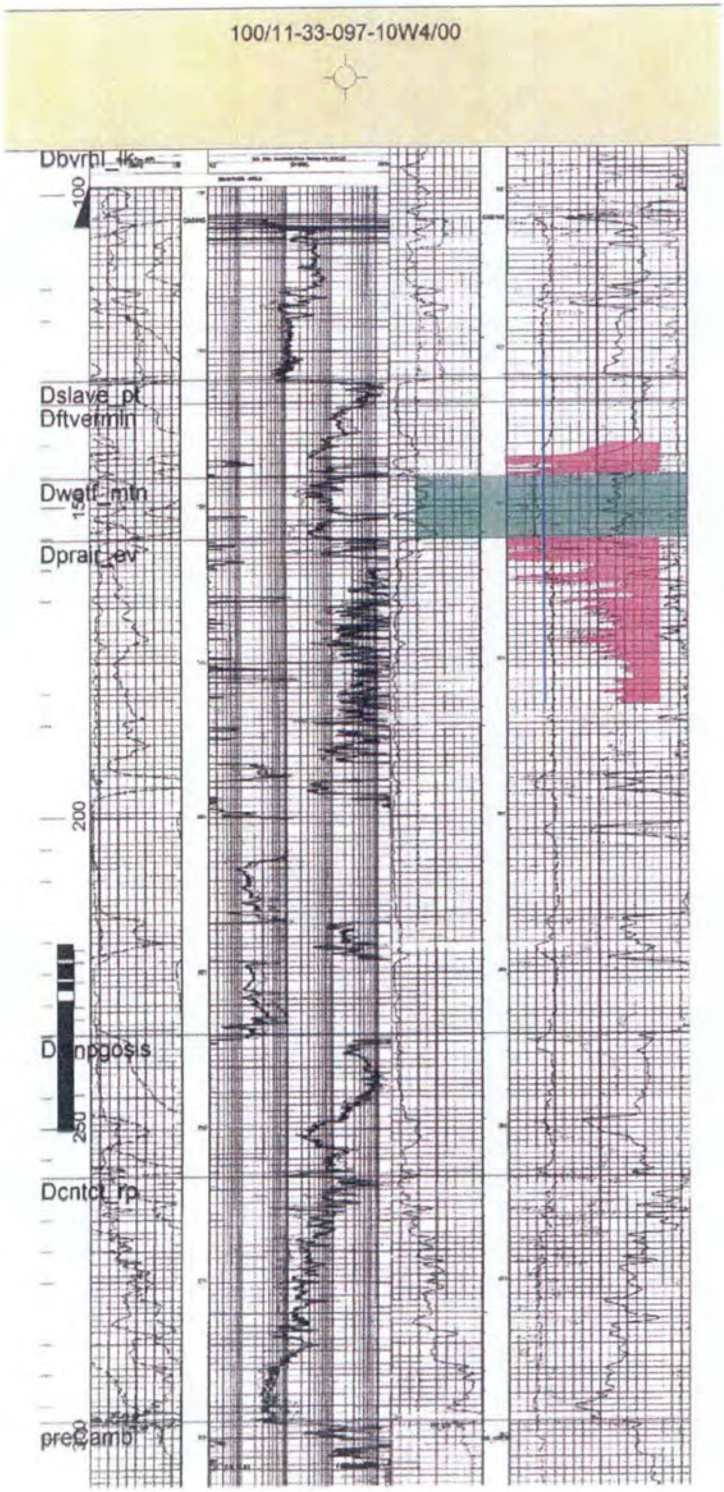
3.5.3.1 Geophysical Logs

Geophysical well logs that register the entire Devonian sedimentary sequence in the area are rare. Most extended depth wells were drilled to evaluate the injectivity potential of the Winnipegosis and La Loche formations. Seven wells drilled near ABM's Firebag permits penetrated gypsum and anhydrite deposits within the Prairie Evaporite Formation (**Figure 3-10**). Two of the seven wells also show gypsum in the overlying Fort Vermilion Formation (**Figures 3-11 and 3-12**).

In the 11-33 well gypsum bearing intervals (highlighted in pink) are concentrated above and below the Watt Mountain Formation (highlighted in green). Thin gypsum stringers appear extend deeper into the Prairie Evaporite Formation. In the 2-7 well gypsum deposits extend over an interval approximately 55 m thick. The best quality gypsum is present at the top and base of the gross interval. Wells 9-19-96-10W4, 8-20-96-10W4, 6-33-97-10W4 and 15-31-96-9W4 (**Figures 3-13, 3-14, 3-15, 3-16**) suggest high quality gypsum deposits concentrated near the top of the Prairie Evaporite Formation. Gypsum bearing beds within the four wells range from 8 to 11 m thick. The primary reference well (**Figure 3-6**) contains gypsum-rich beds over a 24 m interval at depths of 151 to 175 m. Evaluation of the seven wells indicates that gypsum exist over intervals that range from 11 to 55 m thick and within the those intervals net gypsum deposits vary from 7 to 19 m thick. None of the seven deep reference wells have cored the gypsum bearing intervals. To this end, the quality of the subsurface gypsum is uncertain and thus far can only be evaluated in a cursory manner using geophysical log response properties.

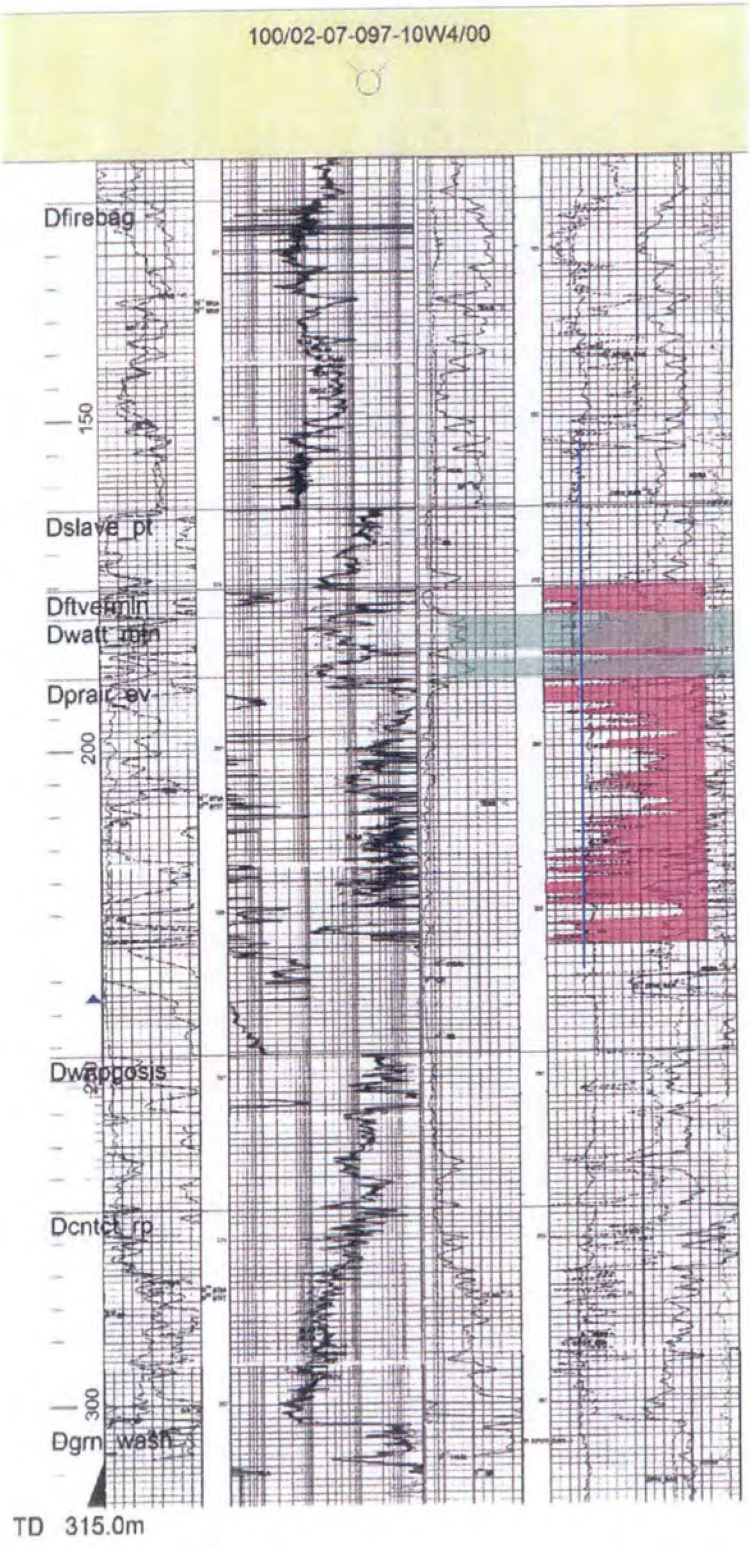
Limited wells within the Firebag area prove the existence of relatively thick intervals of gypsum preserved within the Prairie Evaporite Formation, as speculated by Hamilton (1969). It is plausible that gypsum bearing units, identified to the south and west of the Property, do extend into ABM's Property. Relatively thick, gypsum bearing beds present in the main reference well (**Figure 3-6**) certainly indicates the possible presence of gypsum within parts of the southern two permits (9309040361 and 9309040362). The lack of subsurface data within the Property does provide challenges to accurately mapping of potential gypsum deposits that extend into the permitted area which increases the risk factor for future exploration.


R11
R10
R9
R8
R7W4
T99
T98
T97
T96
16-36
12-26
12-22
15-17
Ref. Well
11-33
5-33
2-7
15-31
9-19
8-20
ABM Firebag permits
Firebag Gypsum Reference Well
Gypsum Reference Well
Core Reviewed
0
10
Scale (km)
N
Athabasca
MINERALS INC.
Title: Gypsum Reference Wells
Source: GeoScout
Date: May 2011
Project: Firebag River
Drawn By: DKC
Checked By: MM
Coordinate System: DLS
Figure: 3-10



Title: Prairie Evaporite-Fort Vermilion Gypsum 11-33			Source: GeoScout	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-11

Athabasca MINERALS INC.



Title: Prairie Evaporite-Fort Vermilion Gypsum 2-7-97-10W4			Source: GeoScout	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-12

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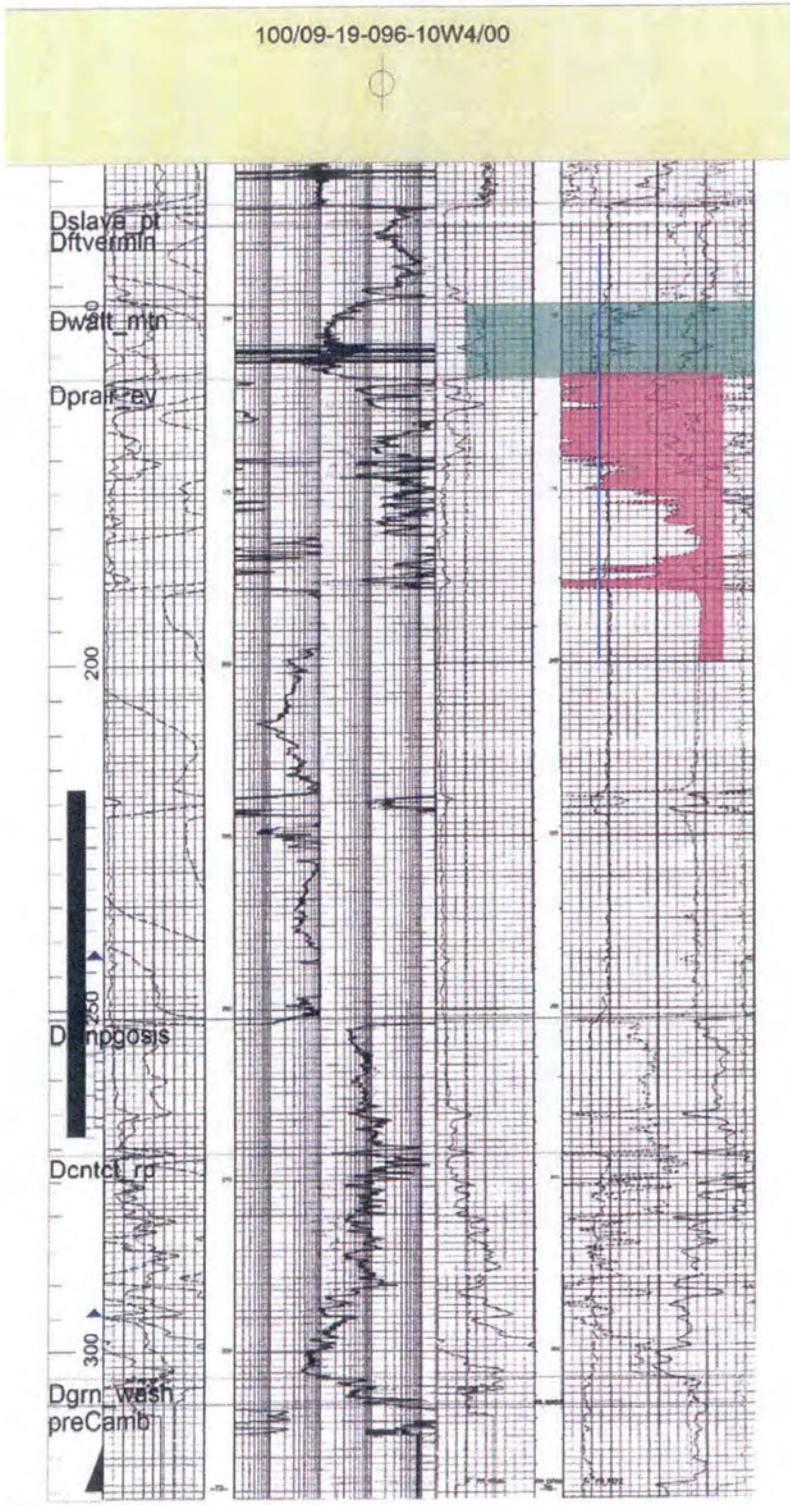
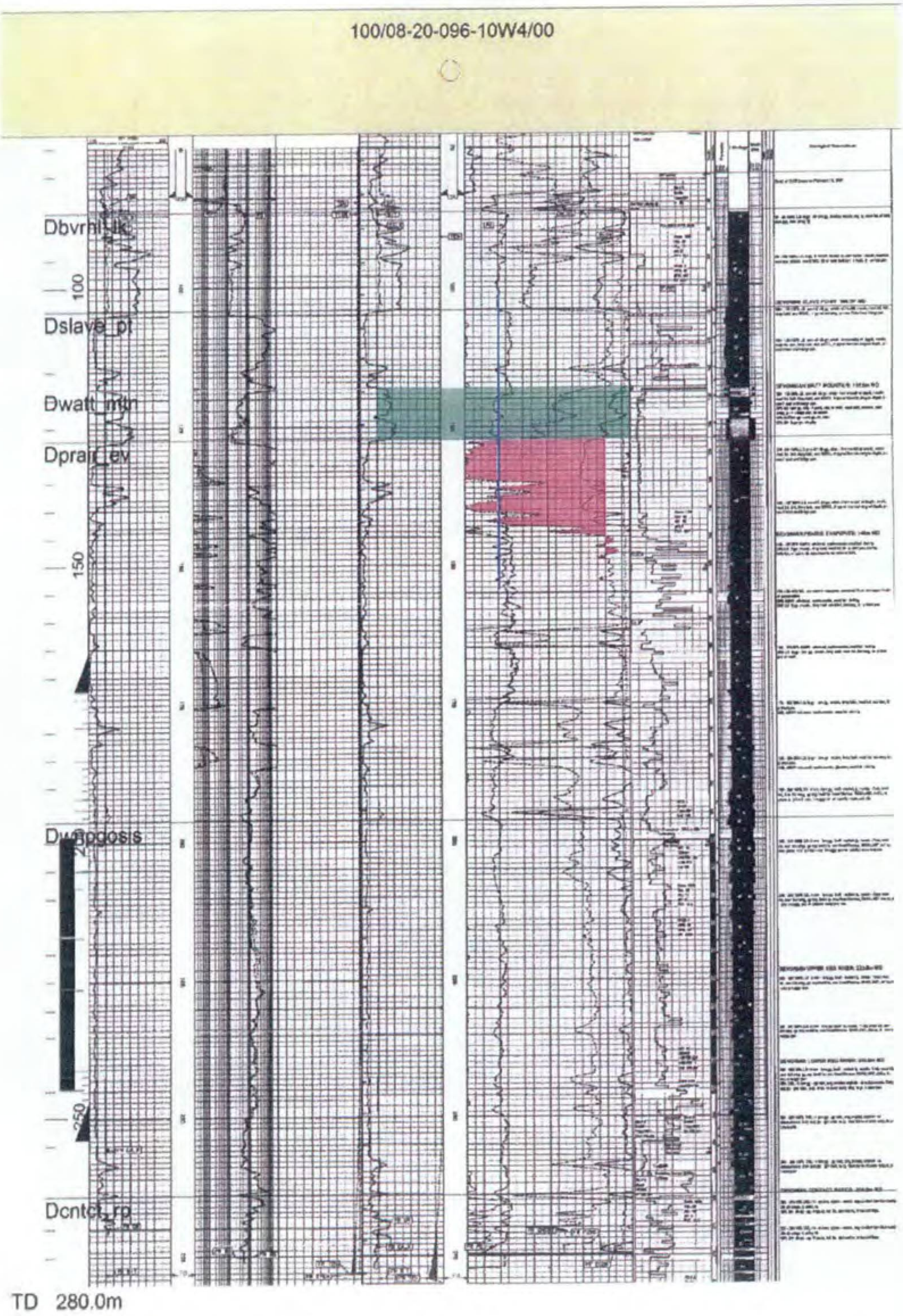
Athabasca MINERALS INC.



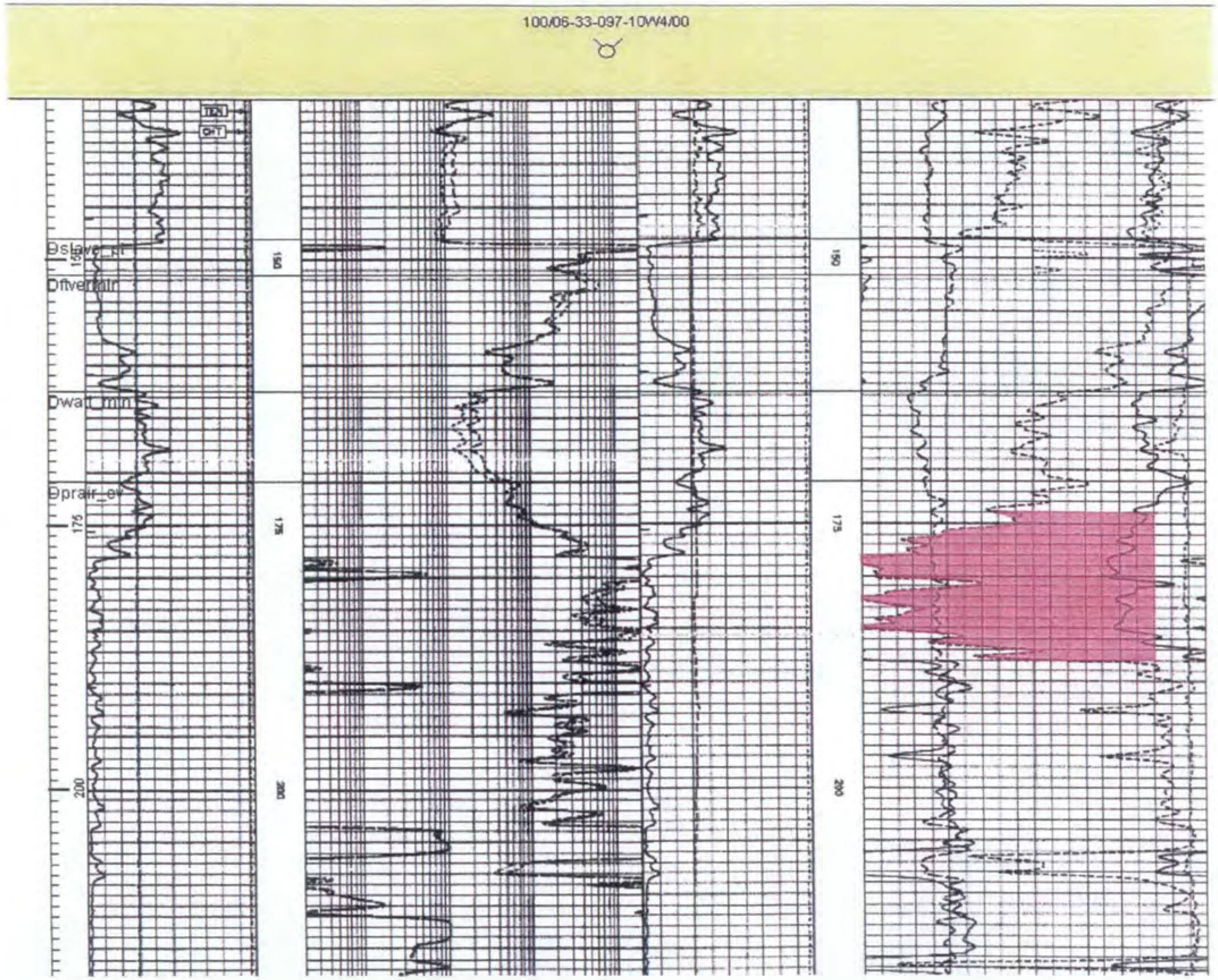
Title: Prairie Evaporite Gypsum 9-19-96-10W4			Source: GeoScout	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-13

Athabasca MINERALS INC.

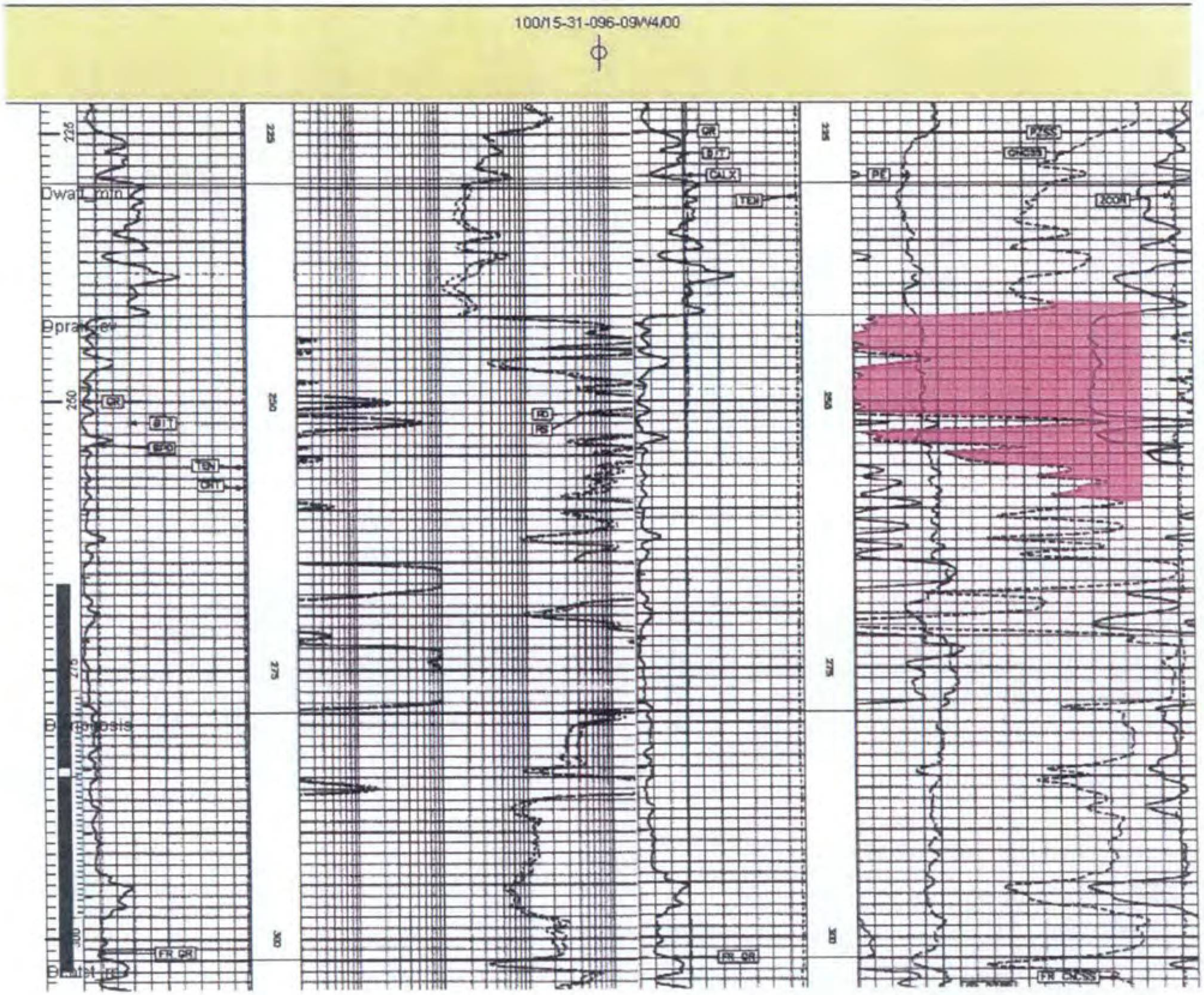


Title: Prairie Evaporite Gypsum 8-20-96-10W4			Source: GeoScout	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-14

Athabasca MINERALS INC.



Title: Prairie Evaporite Gypsum 6-33-97-10W4			Source: GeoScout	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-15



Title: Prairie Evaporite Gypsum 15-31-96-09W4			Source: GeoScout	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-16

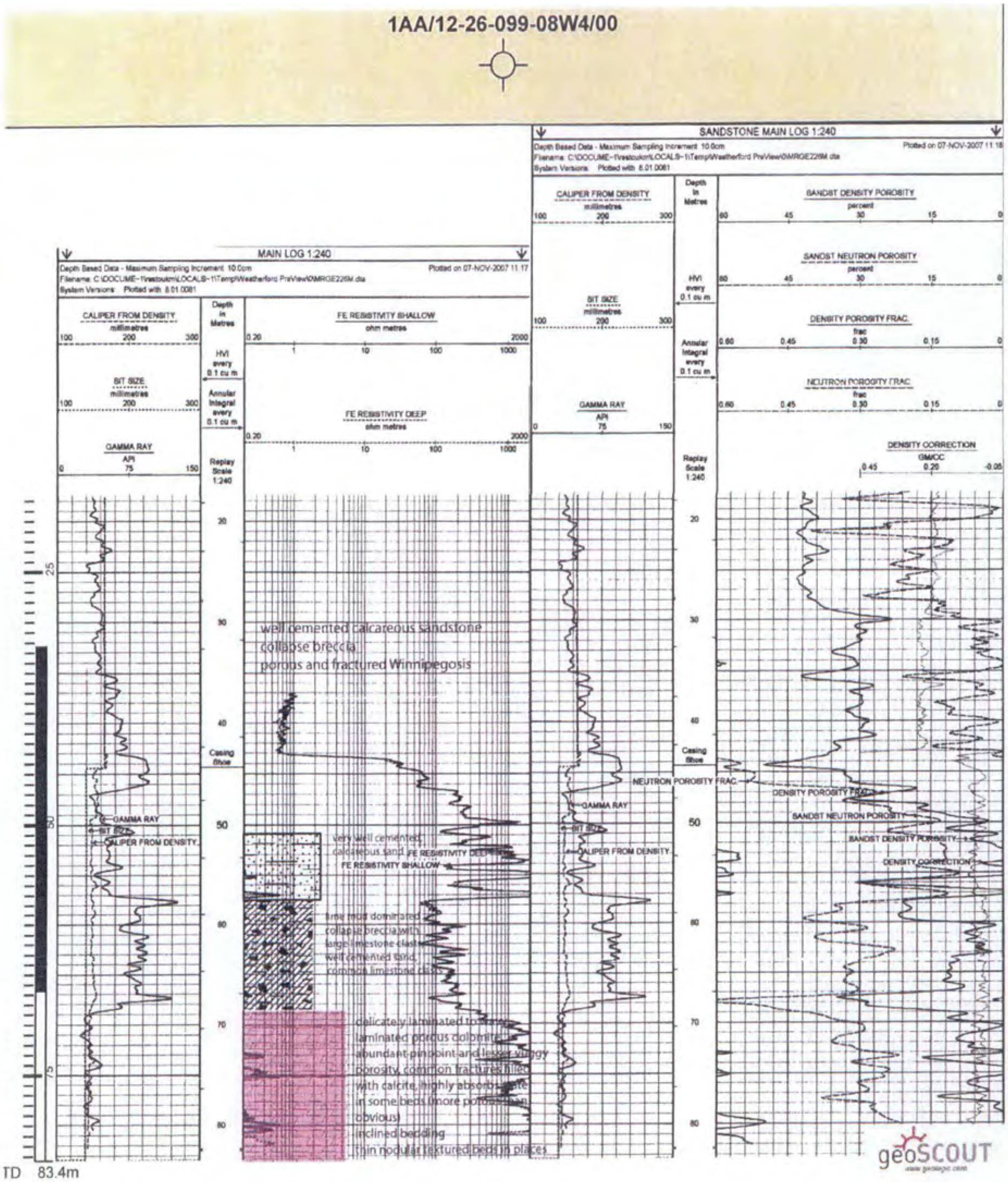
3.5.3.2 Core Review

All but one of the gypsum reference wells are located a significant distance from the Firebag River Property. It is also known that along the northwest trending section of the Firebag River, just east and north of the Property, the Winnipegosis Formations crops out at river level at a number of locations. This evidence indicates that the Prairie Evaporite Formation and the overlying Devonian strata have terminated at some point along the sub-Cretaceous unconformity, southwest of the Firebag River. In order to refine the speculative, erosional zero edge of the gypsum deposits, core from shallow, oilsand test holes were reviewed. Generally, oilsand companies in the area do not have hydrocarbon rights that extend into the Devonian strata so oilsand test holes are usually prohibited from drilling deeper than 10 m into the Devonian carbonates. This fact limits the evaluation of the Devonian strata to less than 10 m on geophysical logs, but if the well is cored to total depth a full 10 m of Devonian carbonate core may be available for viewing.

A number of cores were briefly reviewed within the Firebag Property. The primary goal was to assess the Devonian carbonates at and just below the sub-Cretaceous unconformity. By identifying the subcropping units it is possible to reduce the exploration window by defining where the zero edge of the gypsum deposit is likely to occur. Two cored wells located along the Winter Road, south of the Firebag River, were reviewed at the ERCB Core Research Centre (**Figures 3-10, 3-17 and 3-18**). Core from the 12-26 well revealed anomalous cemented Quaternary sand capping roughly 10 m of collapse breccia comprised lime mudstone clasts and cemented sand. The collapse zone, in turn, overlies delicately laminated, porous dolomites of the Winnipegosis Formation (depth of 68 m). Core recovered from the 12-22 well, located further southwest, clearly shows sediments of the McMurray Formation reworked into the Quaternary succession. The unconsolidated sediment overlies a distinctive pink colored till. The pink till is in direct contact with the Winnipegosis Formation. Both wells undoubtedly demonstrate the zero edge for potential gypsum deposits must be located some distance further to the southwest. It is reasonable to suspect that gypsum deposits were present in the area, but infiltrating fresh water has likely dissolved in-place gypsum and anhydrite resulting in the retreat of gypsum and anhydrite deposits to the southwest. Additional core logging is required to further isolate the erosional edge of the targeted gypsum deposits within the subsurface of the Property.

3.6 FUTURE EXPLORATION FOR GYPSUM

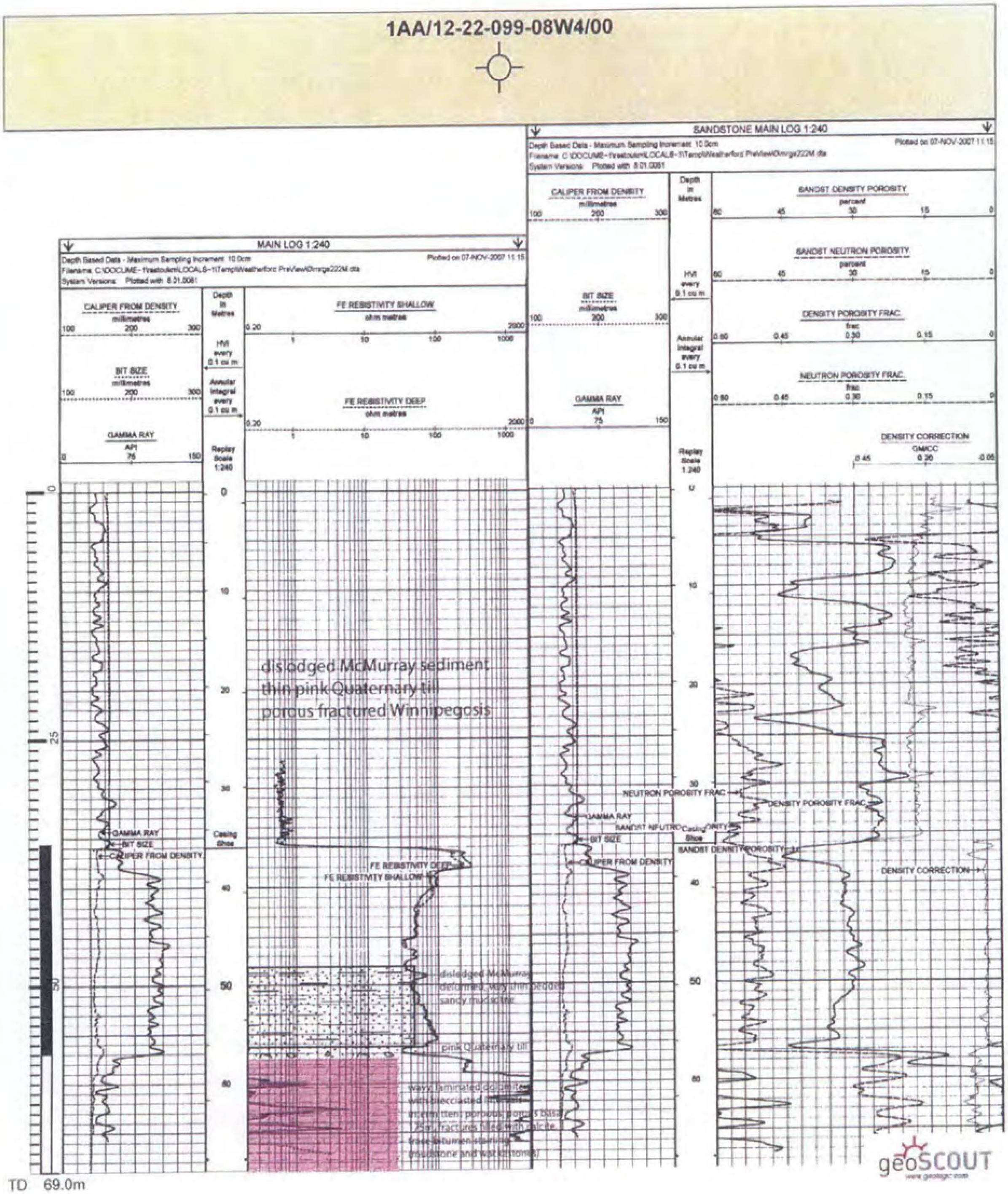
Subsurface geophysical log interpretation and core review suggest gypsum bearing intervals are likely preserved along a northwest trending belt that roughly parallels the strike of subcropping Devonian units. As erosional uplift and the naturally rising structural attitude of the Devonian succession brings evaporite deposits closer to surface intervals of anhydrite are gradually converted to gypsum under the delicate interplay of heat, pressure and the presence of water. Excess shallow based, water delivered by active flow systems may have dissolved significant amounts of gypsum from the Property and surrounding region. This complex geological setting will require additional subsurface data collection and core review in order to generate prospects that will eventually require drilling. Gypsum exploration activities are likely to focus on the two southern permit areas.



Title: Core Review AA/12-26-99-08W4			Source: GeoScout	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-17

Athabasca Minerals Inc.

Athabasca Minerals Inc.



Title: Core Review AA/12-22-99-08W4			Source: GeoScout	Date: May 2011
Project: Firebag River	Drawn By: DKC	Checked By: MM	Coordinate System: DLS	Figure: 3-18

Athabasca MINERALS INC.

Athabasca MINERALS INC.

3.7 Summary and Conclusions

- The existence of subsurface gypsum deposits were first documented in 1920. Gypsum was observed within the evaporite bearing Prairie Evaporite Formation. Follow up work in the late 60's and 70's expanded the potential for economic gypsum deposits along a northwest trending fairway that extends from the Clearwater River, east of Fort McMurray, to the confluence of the Athabasca and Firebag rivers and beyond. The speculative gypsum fairway appears to be an optimal setting for the conversion of anhydrite to gypsum.
- A number of recently drilled deep Devonian test wells, located near the Firebag River Property, have intersected gypsum at depths ranging from 150 to 240 m. The thickness and quality of the gypsum appears to be somewhat variable. Gross, gypsum bearing intervals range from 11 to 55 m thick and within those intervals, gypsum-rich zones range from 7 to 19 m in thickness.
- Over a distance of roughly 20 km the entire Prairie Evaporite succession and overlying Devonian formations terminate along an erosional zero edge within the Firebag River Property. Sparse, deep well control in the area impedes an accurate delineation of the zero edge, in particular the terminal edge of the gypsum deposits. Continued subsurface investigations are refining the zero edge.
- Based upon the principal gypsum reference well, located at the edge of the Property, potentially thick gypsum deposits are likely to exist within the two southern permits.
- Athabasca Minerals intends to further evaluate the potentially thick, subsurface gypsum deposits at Firebag, but the company is currently focusing efforts on the development of industrial grade, silica-rich sand also present on the Property.

4.0 RECOMMENDATIONS

4.1 Silica Sand

- Silica sand, currently being exploited on the Firebag River Property, will remain the primary focus of exploration and development programs for Athabasca Minerals.
- Ongoing sand analysis from the first and second drill programs continue to show above average analytical results for use in the frac sand industry.
- Based upon test results received thus far, the area containing the upper sand deposit should be converted from mineral permit to lease.
- Athabasca Minerals should proceed with additional feasibility and market studies and if positive, move towards the development of a commercial scale frac sand plant.

4.2 GYPSUM

- Subsurface gypsum deposits will continue to be a secondary exploration target for Athabasca Minerals.
- Additional subsurface investigation is required to further delineate the zero-edge of the gypsum deposits.
- Once an approximate zero-edge is established, within the limitations of existing subsurface data, test drilling will be required to confirm the thickness and lateral continuity of the gypsum bearing zone.

5.0 REFERENCES

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PART C

ATHABASCA MINERALS INC.

2009-2010 EXPLORATION
FIREBAG RIVER PROJECT, NORTHEAST ALBERTA

Mineral Assessment Report

Part C

Appendice

Metallic and Industrial Minerals Permits
9308120744
9308120745
9308120746
9309040361
9309040362

Geographic Coordinates
57° 33' 19"N to 57° 43' 46"N
111° 09' 15"W to 111° 38'46"W

NTS 74E11 and 74E12

May 2011

Completed By:
Parallax Resources Ltd.
Box 88 Site 270 RR2
Stony Plain, AB T7Z 1X2

D. K. Cotterill, P.Geol.
Parallax Resources Ltd.

Appendix 1-1

Athabasca Minerals Inc. Metallic and Industrial Mineral Permits (Firebag River)

Metallic and Industrial Minerals Permit No.	Legal Land Description	Term Commence Date	Permittee	Area (hectares)	Report Date	Transfer Date	Transfer to	Area (hectares) Cancelled	Date Cancelled	Cost Commitment	Application Cost	Journal Entry
*9308120744	4-08-099: 01-24;25SW;26L10,L15,SE,SW,NW;27-33;34L1-L2,SW,NW;35L2-L4	11-Dec-08	Athabasca Minerals Inc.	8,432	11-Mar-11	permits extended 90 days via letter to AE				$ 42,160.00	$625.00	
*9308120745	4-09-099: 1-36	11-Dec-08	Athabasca Minerals Inc.	9,216	11-Mar-11	assessment due May 11_11				$ 46,080.00	$625.00	
*9308120746	4-10-099: 1-36	11-Dec-08	Athabasca Minerals Inc.	9,216	11-Mar-11					$ 46,080.00	$625.00	
9309040361	4-08-098: 1-36	7-Apr-09	Athabasca Minerals Inc.	9,216	7-Apr-11	assessment due June 11_11				$ 46,080.00	$625.00	
9309040362	4-09-098: 1, 2 , 3NP, SE,SWP; 4SEP, NWP; 5P; 6; 8SP, N; 9SP, N; 10SP, N; 11-16; 17L1, L8, L9, L16; 22-26; 35L1, L8, L9, L16; 36	7-Apr-09	Athabasca Minerals Inc.	4,984	7-Apr-11					$ 24,920.00	$625.00	

Total Hectares **41,064**

$5/ha **$205,320.00**

		Ha Retained
9308120744	4-08-099: 01-24;25SW;26L10,L15,SE,SW,NW;27-33;34L1-L2,SW,NW;35L2-L4	3609
9308120745	4-09-099: 1-36	5040
9309040361	4-08-098: 1-36	1846
9309040362	4-09-098: 1, 2 , 3NP, SE,SWP; 4SEP, NWP; 5P; 6; 8SP, N; 9SP, N; 10SP, N; 11-16; 17L1, L8, L9, L16; 22-26; 35L1, L8, L9, L16; 36	855

Total Land Retained 11350

Appendix 1-1

Appendix 1-2

Alberta Department of Energy Permit Details

1-2a Permit 9308120744

1-2b Permit 9308120745

1-2c Permit 9308120746

1-2d Permit 9309040361

1-2e Permit 9309040362 (p1)

1-2f Permit 9309040362 (p2)

Alberta

MINERAL AGREEMENT DETAIL REPORT

Report Date: February 7, 2011 12:49:33 AM

Agreement Number: 093 9308120744

Status: ACTIVE
Agreement Area: 8432.0000

Term Date: 2008.12.11
Continuation Date:

DESIGNATED REPRESENTATIVE

Client Id: 8082863
Client Name: ATHABASCA MINERALS INC.

Address: 9524 27 AVE NW

EDMONTON, AB
CANADA T6N 1B2

LAND / ZONE DESCRIPTION

4-08-099: 01-24;25SW;26L10,L15,SE,SW,NW;27-33;34L1-L2,SW,NW;35L2-L4

METALLIC AND INDUSTRIAL MINERALS

Appendix 1-1a: Athabasca Minerals mineral agreement report 9308120744.

Alberta

MINERAL AGREEMENT DETAIL REPORT

Report Date: February 7, 2011 12:48:51 AM

Agreement Number: 093 9308120745

Status: ACTIVE
Agreement Area: 9216.0000

Term Date: 2008.12.11
Continuation Date:

DESIGNATED REPRESENTATIVE

Client Id: 8082863
Client Name: ATHABASCA MINERALS INC.

Address: 9524 27 AVE NW

EDMONTON, AB
CANADA T6N 1B2

LAND / ZONE DESCRIPTION

4-09-099: 01-36

METALLIC AND INDUSTRIAL MINERALS

Appendix 1-1b: Athabasca Minerals mineral agreement report 9308120745.

Alberta

MINERAL AGREEMENT DETAIL REPORT

Report Date: February 7, 2011 12:47:52 AM

Agreement Number: 093 9308120746

Status: ACTIVE
Agreement Area: 9216.0000

Term Date: 2008.12.11
Continuation Date:

DESIGNATED REPRESENTATIVE

Client Id: 8082863
Client Name: ATHABASCA MINERALS INC.

Address: 9524 27 AVE NW

EDMONTON, AB
CANADA T6N 1B2

LAND / ZONE DESCRIPTION

4-10-099: 01-36

METALLIC AND INDUSTRIAL MINERALS

Appendix 1-1c: Athabasca Minerals mineral agreement report 9308120746.

MINERAL AGREEMENT DETAIL REPORT

Report Date: February 7, 2011 12:46:46 AM

Agreement Number: 093 9309040361

Status: ACTIVE
Agreement Area: 9216.0000

Term Date: 2009.04.07
Continuation Date:

DESIGNATED REPRESENTATIVE

Client Id: 8082863
Client Name: ATHABASCA MINERALS INC.

Address: 9524 27 AVE NW

EDMONTON, AB
CANADA T6N 1B2

LAND / ZONE DESCRIPTION

4-08-098: 01-36

METALLIC AND INDUSTRIAL MINERALS

Appendix 1-1d: Athabasca Minerals mineral agreement report 0939040361.

Alberta

MINERAL AGREEMENT DETAIL REPORT

Report Date: February 7, 2011 12:44:58 AM

Agreement Number: 093 9309040362

Status: ACTIVE
Agreement Area: 4984.0000
Term Date: 2009.04.07
Continuation Date:

DESIGNATED REPRESENTATIVE

Client Id: 8082863
Client Name: ATHABASCA MINERALS INC.

Address: 9524 27 AVE NW

EDMONTON, AB
CANADA T6N 1B2

LAND / ZONE DESCRIPTION

4-09-098: 01-2;03SWP
PORTION(S) LYING OUTSIDE FORT MCMURRAY - ATHABASCA OIL SANDS INTEGRATEDRESOURCE PLAN SPECIAL LAND USE.

4-09-098: 03NWP
PORTION(S) LYING OUTSIDE FORT MCMURRAY - ATHABASCA OIL SANDS INTEGRATEDRESOURCE PLAN SPECIAL LAND USE.

4-09-098: 03NEP
PORTION(S) LYING OUTSIDE FORT MCMURRAY - ATHABASCA OIL SANDS INTEGRATEDRESOURCE PLAN SPECIAL LAND USE.

4-09-098: 03SE;04SEP
PORTION(S) LYING OUTSIDE FORT MCMURRAY - ATHABASCA OIL SANDS INTEGRATEDRESOURCE PLAN SPECIAL LAND USE.

Appendix 1-1e: Athabasca Minerals mineral agreement report 9309040362 (p1).

4-09-098: 04NWP
PORTION(S) LYING OUTSIDE FORT MCMURRAY - ATHABASCA OIL SANDS INTEGRATEDRESOURCE PLAN SPECIAL LAND USE.

4-09-098: 05P
PORTION(S) LYING OUTSIDE FORT MCMURRAY - ATHABASCA OIL SANDS INTEGRATEDRESOURCE PLAN SPECIAL LAND USE.

4-09-098: 06;08SEP
PORTION(S) LYING OUTSIDE FORT MCMURRAY - ATHABASCA OIL SANDS INTEGRATEDRESOURCE PLAN SPECIAL LAND USE.

4-09-098: 08SWP
PORTION(S) LYING OUTSIDE FORT MCMURRAY - ATHABASCA OIL SANDS INTEGRATEDRESOURCE PLAN SPECIAL LAND USE.

4-09-098: 08NW,NE;09NW,NESEP
PORTION(S) LYING OUTSIDE FORT MCMURRAY - ATHABASCA OIL SANDS INTEGRATEDRESOURCE PLAN SPECIAL LAND USE.

4-09-098: 09SWP
PORTION(S) LYING OUTSIDE FORT MCMURRAY - ATHABASCA OIL SANDS INTEGRATEDRESOURCE PLAN SPECIAL LAND USE.

4-09-098: 10SEP
PORTION(S) LYING OUTSIDE FORT MCMURRAY - ATHABASCA OIL SANDS INTEGRATEDRESOURCE PLAN SPECIAL LAND USE.

4-09-098: 10SWP
PORTION(S) LYING OUTSIDE FORT MCMURRAY - ATHABASCA OIL SANDS INTEGRATEDRESOURCE PLAN SPECIAL LAND USE.

4-09-098: 10NW,NE;11-16;17L1,L8-L9,L16;22-26;35L1,L8-L9,L16;36

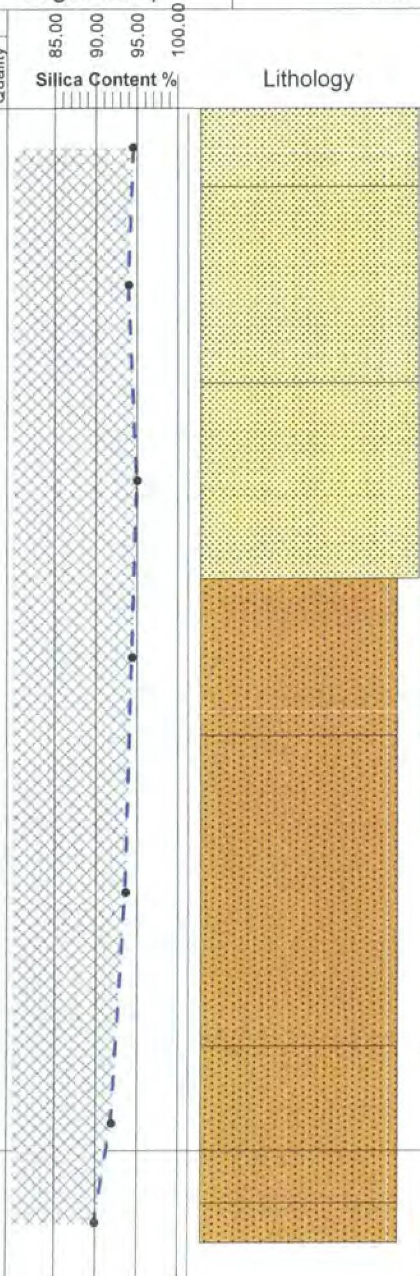
METALLIC AND INDUSTRIAL MINERALS

Appendix 1-1f: Athabasca Minerals mineral agreement report 9039040362 (p2).

Appendix 2-1

Preliminary Stratigraphic Field Logs

F01 (Field Preliminary)			Athabasca Minerals Inc.	
Borehole Location UTM N83:	6380689N 0480904E		ELEVATION AND DATUM: 303.615	
Geographic Location:	South of the Firebag River		DATE STARTED: 1/12/2011	DATE FINISHED: 1/12/2011
Drilling Contractor:	Mark Griffin		TOTAL DEPTH (m): 14.3m	MEASURING POINT: Ground Surface
Drilling Method:	Dry Auger		DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:	
Drilling Equipment:	Auger Mounted Argo		DEPTH TO WATER AT COMPLETION:	
Sampling Method:	Silica auger sample	Weather: cold -28C	LOGGED BY: Cotterill	



DEPTH (m)	Sample No.	Sample	Sample Quality	MATERIAL DESCRIPTION	Sieve Analysis	Roundness	Compressive Strength
0–1	F01-1			vy lt brn, clean sand, minor organics			
1–3.5	F01-2			vy lt brn clean sand			
3.5–6	F01-3			vy lt brn clean sand			
6–8	F01-4			medium brn sand, moist (color chge?)			
8–12	F01-5			medium brn sand, moist			
12–13.3	F01-6			medium brn sand, moist			
13.3–14.5	F01-7			medium brn sand, moist, stem pull sample			

Project: Firebag Silica	Athabasca Minerals Inc.	Permit: MME100004

Appendix 2-1a: Stratigraphic field log for drillhole F01.

F02 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83:	6381717N 0480913E	ELEVATION AND DATUM:	304
Geographic Location:	South of the Firebag River	DATE STARTED: 1/12/2011	DATE FINISHED: 1/12/2011
Drilling Contractor:	Mark Griffin	TOTAL DEPTH (m): 14.3m	MEASURING POINT: Ground Surface
Drilling Method:	Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:	
Drilling Equipment:	Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:	
Sampling Method:	Silica auger sample — Weather: cold -28C	LOGGED BY:	Cotterill

DEPTH (m)	Sample No.	Sample	Sample Quality	Silica Content % (85.00 / 90.00 / 95.00 / 100.00)	Lithology	MATERIAL DESCRIPTION	Sieve Analysis	Roundness	Compressive Strength
0–1	F02-1					clean, vy lt brn sd			
1–3.5	F02-2					clean, vy lt brn sd			
3.5–6	F02-3					med brn sd, color change may do due to moisture			
6–8	F02-4					med brn sd, color change may do due to moisture			
8–12	F02-5					med brn sd			
12–14	F02-6					dk brown sd, lithology change			
14–14.5	F02-7					dk brown sd, lithology change			

LABORATORY TESTS: Sieve Analysis, Roundness, Compressive Strength

Project: Firebag Silica | Athabasca Minerals Inc. | Permit: MME100004

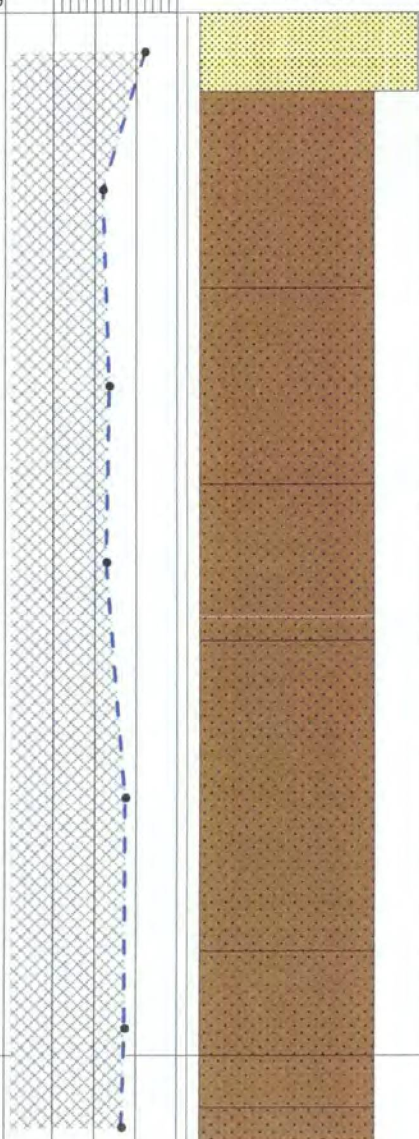
Appendix 2-1b: Stratigraphic field log from drillhole F02.

F03 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83: 6382913N 0480927E	ELEVATION AND DATUM: 302
Geographic Location: South of the Firebag River	DATE STARTED: 1/12/2011 — DATE FINISHED: 1/12/2011
Drilling Contractor: Mark Griffin	TOTAL DEPTH (m): 14.3m — MEASURING POINT: Ground Surface
Drilling Method: Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:
Drilling Equipment: Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:
Sampling Method: Silica auger sample — Weather: cold -28C	LOGGED BY: Cotterill

DEPTH (m)	Sample No.	Sample	Sample Quality	Silica Content % (85.00 – 90.00 – 95.00 – 100.00)	Lithology	MATERIAL DESCRIPTION	Sieve Analysis	Roundness	Compressive Strength
0–1	F03-1					vy lt brn sand (contact with underlying dk brn sd approx 2m)			
1–3.5	F03-2					dk brn sd, with mixed organics and clay			
3.5–6	F03-3					dk brn sd			
6–8	F03-4					dk brn organic rich? sd			
8–12	F03-5					med dk brn, slightly lighter color than previous sample			
12–13.3	F03-6					mixed med dk and dk brn sand			
13.3–14.3	F03-7					medium dark brown sand			

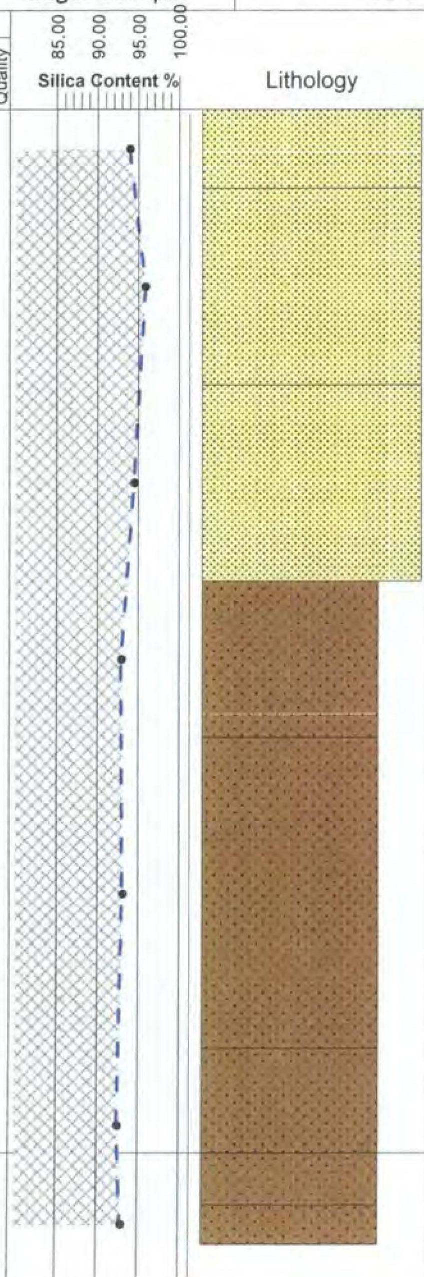


Appendix 2-1c: Stratigraphic filed log for drillhole F03.

F04 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83: 6383796N 0480933E	ELEVATION AND DATUM: 300.912
Geographic Location: South of the Firebag River	DATE STARTED: 1/12/2011 — DATE FINISHED: 1/12/2011
Drilling Contractor: Mark Griffin	TOTAL DEPTH (m): 14.3m — MEASURING POINT: Ground Surface
Drilling Method: Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:
Drilling Equipment: Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:
Sampling Method: Silica auger sample — Weather: cold -28C	LOGGED BY: Cotterill

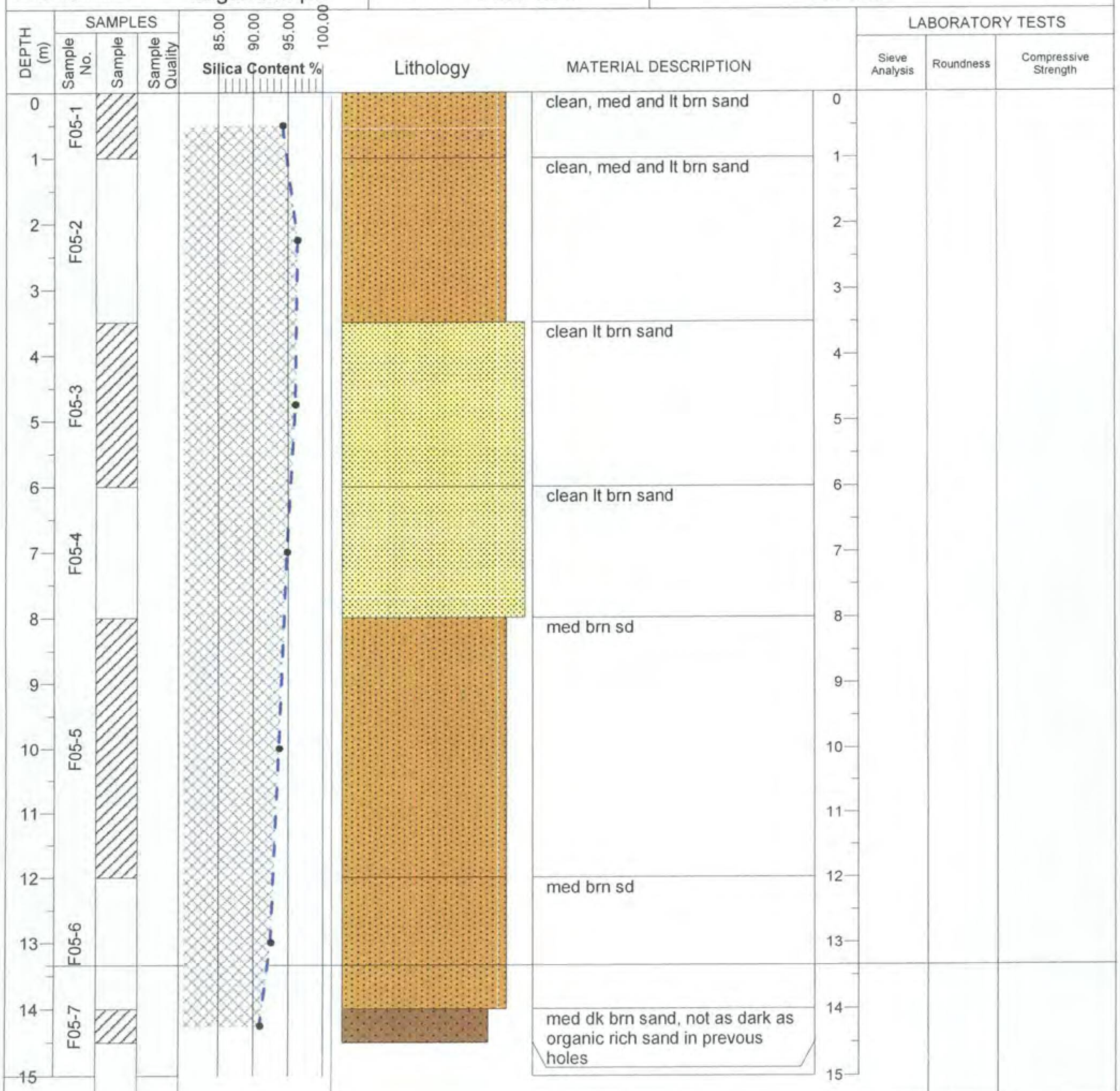


DEPTH (m)	Sample No.	MATERIAL DESCRIPTION	Sieve Analysis	Roundness	Compressive Strength
0–1	F04-1	white to vy lt brn sand, vy cean			
1–3.5	F04-2	white to vy lt brn sand, vy cean			
3.5–6	F04-3	white to vy lt brn sand, vy cean, dk brn sd contact at ~7.5m			
6–8	F04-4	mixture of vy lt and dk brn sand			
8–12	F04-5	dark brn sand, slightly harder drilling last 1m			
12–13.3	F04-6	dark brn sd			
13.3–14.3	F04-7	dark brown sand			

Project: Firebag Silica | Athabasca Minerals Inc. | Permit: MME100004

Appendix 2-1d: Stratigrphic field log for drillhole F04.

F05 (Field Preliminary)		Athabasca Minerals Inc.	
Borehole Location UTM N83: 6384806N 0480932E		ELEVATION AND DATUM: 300	
Geographic Location: South of the Firebag River		DATE STARTED: 1/12/2011	DATE FINISHED: 1/12/2011
Drilling Contractor: Mark Griffin		TOTAL DEPTH (m): 14.3m	MEASURING POINT: Ground Surface
Drilling Method: Dry Auger		DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:	
Drilling Equipment: Auger Mounted Argo		DEPTH TO WATER AT COMPLETION:	
Sampling Method: Silica auger sample	Weather: cold -28C	LOGGED BY: Cotterill	



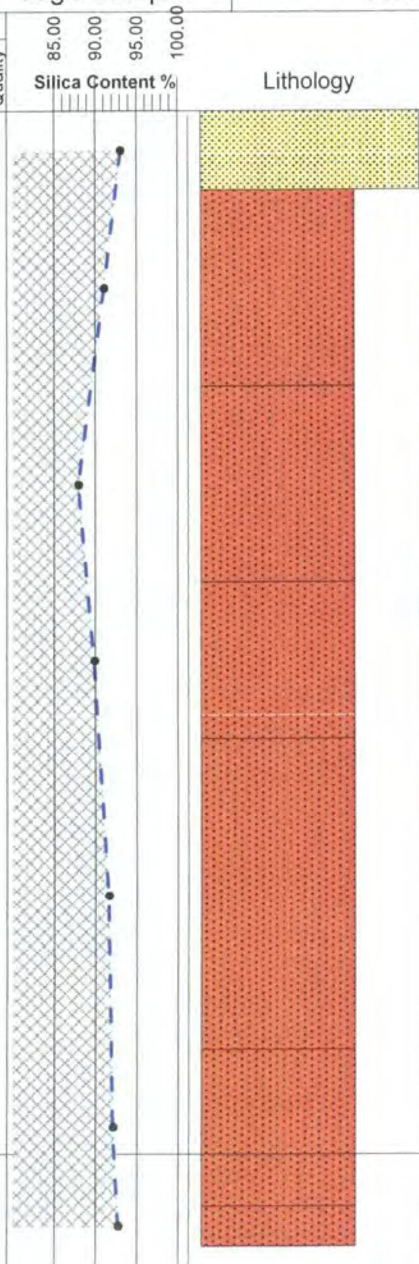
Project: Firebag Silica	Athabasca Minerals Inc.	Permit: MME100004

Appendix 2-1e: Stratigraphic field log for drillhole F05.

F06 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83: 6385880N 0480944E	ELEVATION AND DATUM: 298
Geographic Location: South of the Firebag River	DATE STARTED: 1/12/2011 — DATE FINISHED: 1/12/2011
Drilling Contractor: Mark Griffin	TOTAL DEPTH (m): 14.3m — MEASURING POINT: Ground Surface
Drilling Method: Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:
Drilling Equipment: Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:
Sampling Method: Silica auger sample — Weather: cold -28C	LOGGED BY: Cotterill



DEPTH (m)	Sample No.	MATERIAL DESCRIPTION
0	F06-1	vy lt brn sand, good quality
1	F06-2	orange brn sd, top approx 2.75m
3.5	F06-3	orange brn sd, poorly sorted, dispersed coarse grains
6	F06-4	orange brn sd
8	F06-5	orange brn sd
12	F06-6	orange brn sd
14	F06-7	orange brn sd

LABORATORY TESTS		
Sieve Analysis	Roundness	Compressive Strength

Project: Firebag Silica | Athabasca Minerals Inc. | Permit: MME100004

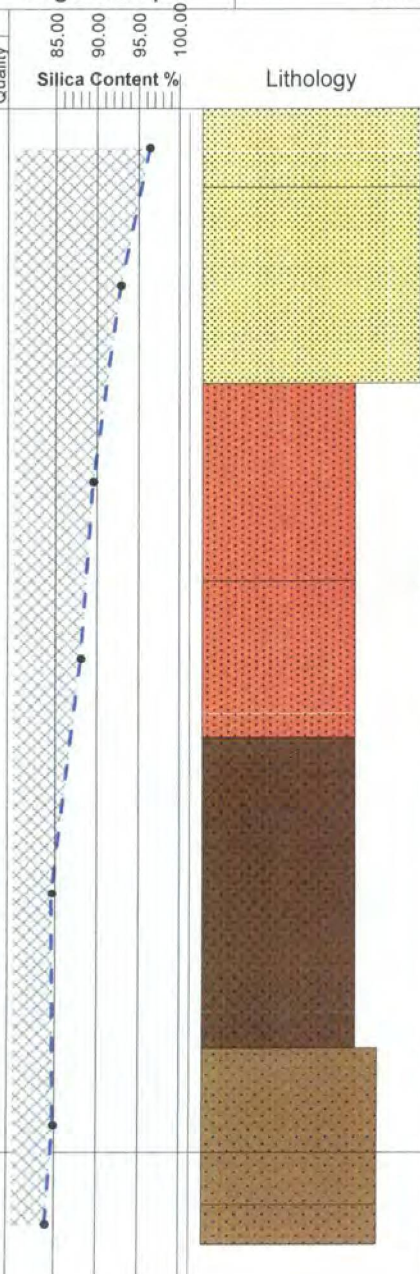
Appendix 2-1f: Stratigraphic field log for drillhole F06.

F07 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83: 6386839N 0480946E	ELEVATION AND DATUM: 297
Geographic Location: South of the Firebag River	DATE STARTED: 1/12/2011 — DATE FINISHED: 1/12/2011
Drilling Contractor: Mark Griffin	TOTAL DEPTH (m): 14.3m — MEASURING POINT: Ground Surface
Drilling Method: Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:
Drilling Equipment: Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:
Sampling Method: Silica auger sample — Weather: cold -28C	LOGGED BY: Cotterill

DEPTH (m) | SAMPLES: Sample No., Sample, Sample Quality | Silica Content % | Lithology | MATERIAL DESCRIPTION | LABORATORY TESTS: Sieve Analysis, Roundness, Compressive Strength



Samples: F07-1, F07-2, F07-3, F07-4, F07-5, F07-6, F07-7

MATERIAL DESCRIPTION
clean, vy lt brn sd at surface, 0.5m Quat pink and grey clay at approx 3m
clean, vy lt brn sd
med dk orange brn sd
dark orange brn sd, hit single cobble at 8.5m
vy dark brn sd sand more consolidated, drill rate decreasing
dk brn sd
dk brn sd

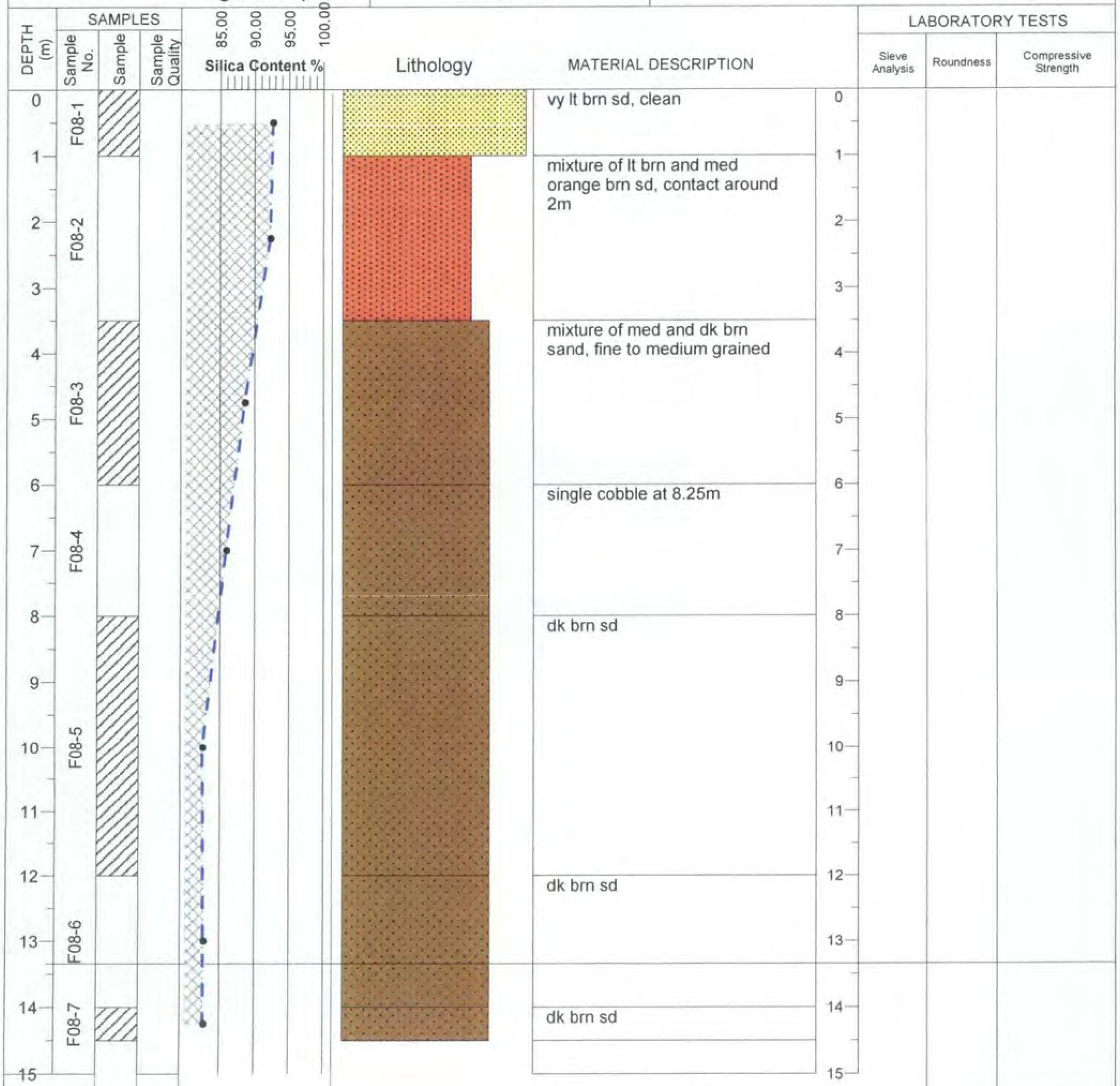
Project: Firebag Silica | Athabasca Minerals Inc. | Permit: MME100004

Appendix 2-1g: Stratigraphic field log for drillhole F07.

F08 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83: 6387882N 0480940E		ELEVATION AND DATUM: 296	
Geographic Location: South of the Firebag River		DATE STARTED: 1/13/2011	DATE FINISHED: 1/13/2011
Drilling Contractor: Mark Griffin		TOTAL DEPTH (m): 14.3m	MEASURING POINT: Ground Surface
Drilling Method: Dry Auger		DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:	
Drilling Equipment: Auger Mounted Argo		DEPTH TO WATER AT COMPLETION:	
Sampling Method: Silica auger sample	Weather: cold -26C	LOGGED BY: Cotterill	



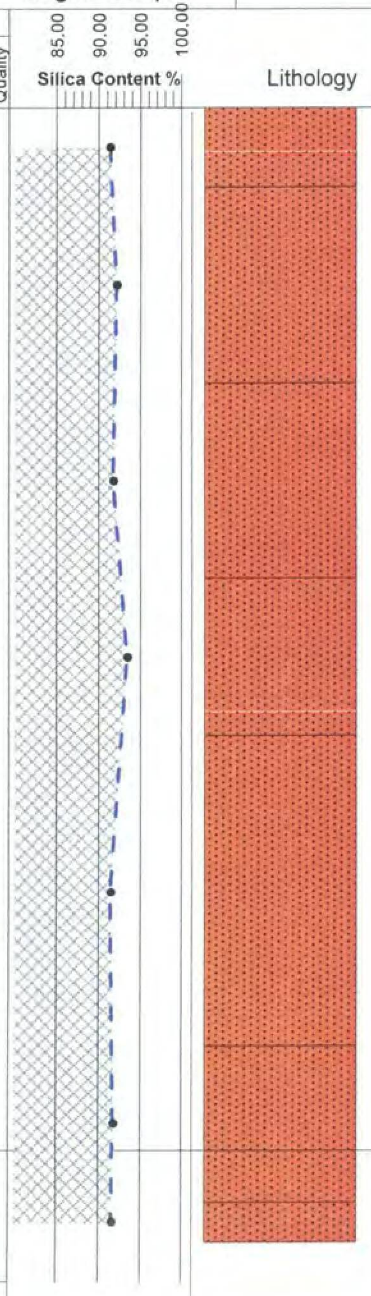
Project: Firebag Silica	Athabasca Minerals Inc.	Permit: MME100004

Appendix 2-1h: Stratigraphic field log for drillhole F08.

F09 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83: 6388834N 0480942E	ELEVATION AND DATUM: 295
Geographic Location: South of the Firebag River	DATE STARTED: 1/13/2011 / DATE FINISHED: 1/13/2011
Drilling Contractor: Mark Griffin	TOTAL DEPTH (m): 14.3m / MEASURING POINT: Ground Surface
Drilling Method: Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:
Drilling Equipment: Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:
Sampling Method: Silica auger sample / Weather: cold -26C	LOGGED BY: Cotterill



DEPTH (m)	Sample No.	MATERIAL DESCRIPTION
0–1	F09-1	lt to med orange brn sd, clean
1–3.5	F09-2	med orange brn sd
3.5–6	F09-3	med orange brn sd
6–8	F09-4	med orange brn sd
8–12	F09-5	med orange brn sd
12–14	F09-6	med orange brn sd
14–14.5	F09-7	med orange brn sd

LABORATORY TESTS: Sieve Analysis | Roundness | Compressive Strength

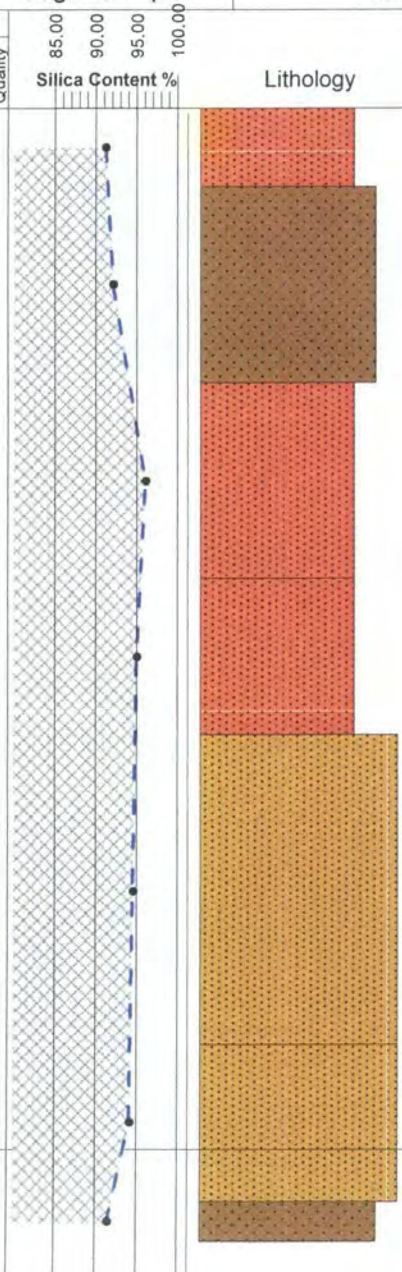
Project: Firebag Silica | Athabasca Minerals Inc. | Permit: MME100004

Appendix 2-1i: Stratigraphic field log for drillhole F09.

F10 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83: 6389839N 0480960E	ELEVATION AND DATUM: 294
Geographic Location: South of the Firebag River	DATE STARTED: 1/13/2011 — DATE FINISHED: 1/13/2011
Drilling Contractor: Mark Griffin	TOTAL DEPTH (m): 14.3m — MEASURING POINT: Ground Surface
Drilling Method: Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:
Drilling Equipment: Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:
Sampling Method: Silica auger sample — Weather: cold -26C	LOGGED BY: Cotterill

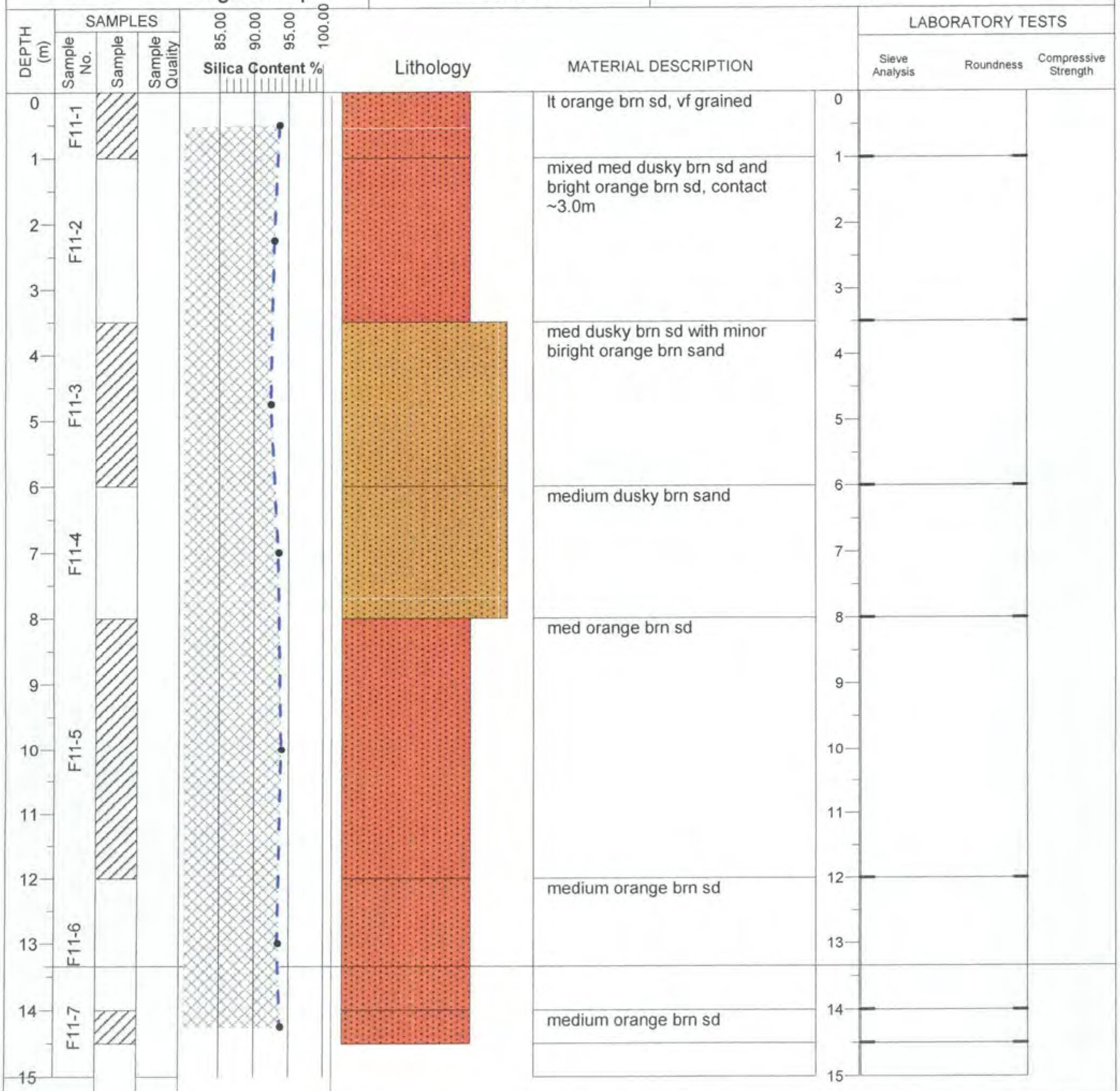


DEPTH (m)	Sample No.	MATERIAL DESCRIPTION	Sieve Analysis	Roundness	Compressive Strength
0–1	F10-1	lt to med orange brn sd			
1–3.5	F10-2	mixed med orange brn and dk brn sd, contact ~ 2m			
3.5–6	F10-3	lt orange brn sd			
6–8	F10-4	lt orange brn sd			
8–12	F10-5	med lt brn sd			
12–14	F10-6	med lt brn sd			
14–14.5	F10-7	med dk brn sd			

Project: Firebag Silica | Athabasca Minerals Inc. | Permit: MME100004

Appendix 2-1j: Stratigraphic field log for drillhole F10.

F11 (Field Preliminary)	Athabasca Minerals Inc.
Borehole Location UTM N83: 6390921N 0480963E	ELEVATION AND DATUM: 288
Geographic Location: South of the Firebag River	DATE STARTED: 1/13/2011 · DATE FINISHED: 1/13/2011
Drilling Contractor: Mark Griffin	TOTAL DEPTH (m): 14.3m · MEASURING POINT: Ground Surface
Drilling Method: Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:
Drilling Equipment: Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:
Sampling Method: Silica auger sample · Weather: cold -26C	LOGGED BY: Cotterill



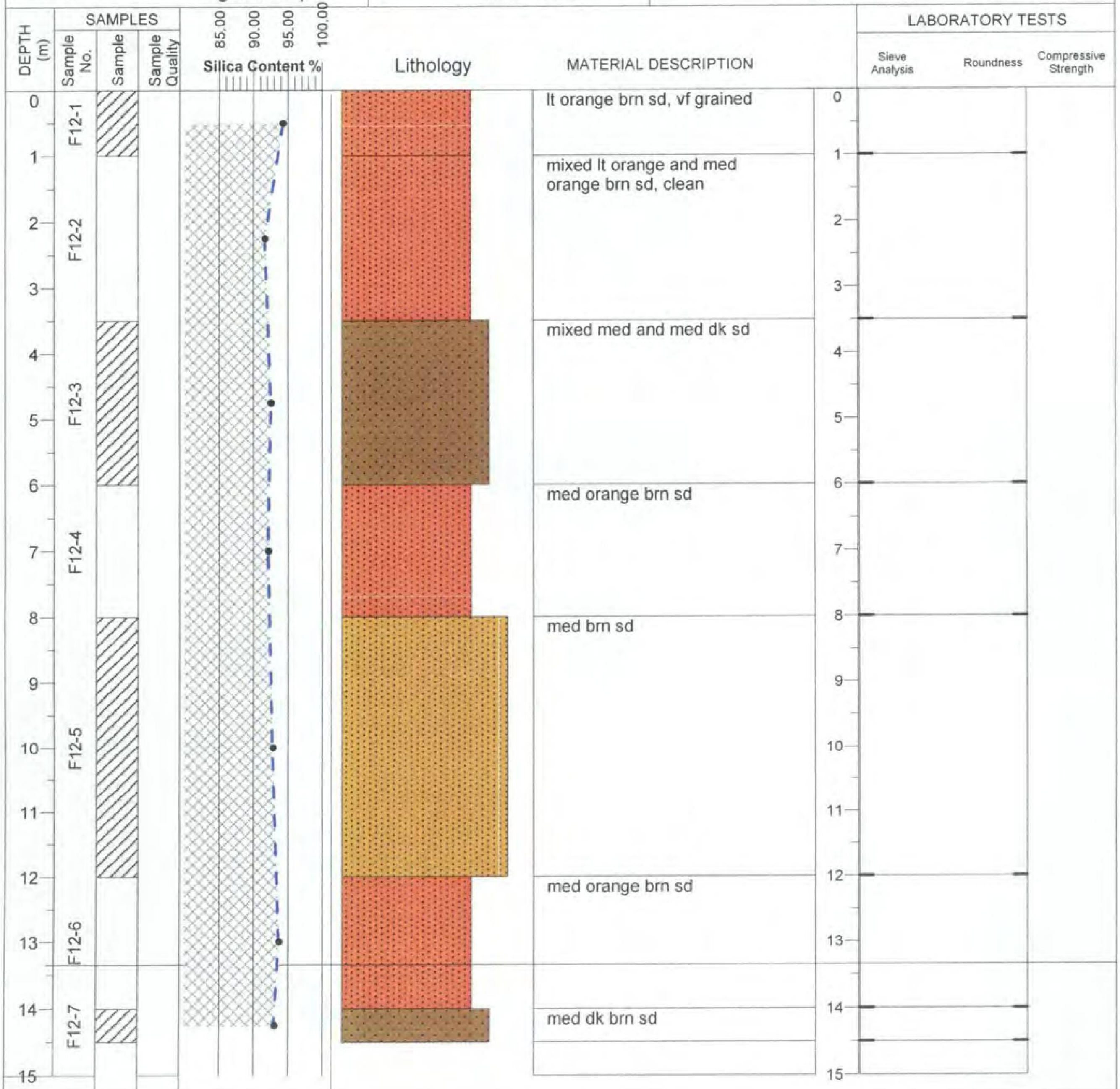
Project: Firebag Silica	Athabasca Minerals Inc.	Permit: MME100004

Appendix 2-1k: Stratigraphic field log for drillhole F11.

F12 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83: 6391802N 0480962E	ELEVATION AND DATUM: 281
Geographic Location: South of the Firebag River	DATE STARTED: 1/13/2011 — DATE FINISHED: 1/13/2011
Drilling Contractor: Mark Griffin	TOTAL DEPTH (m): 14.3m — MEASURING POINT: Ground Surface
Drilling Method: Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:
Drilling Equipment: Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:
Sampling Method: Silica auger sample — Weather: cold -26C	LOGGED BY: Cotterill



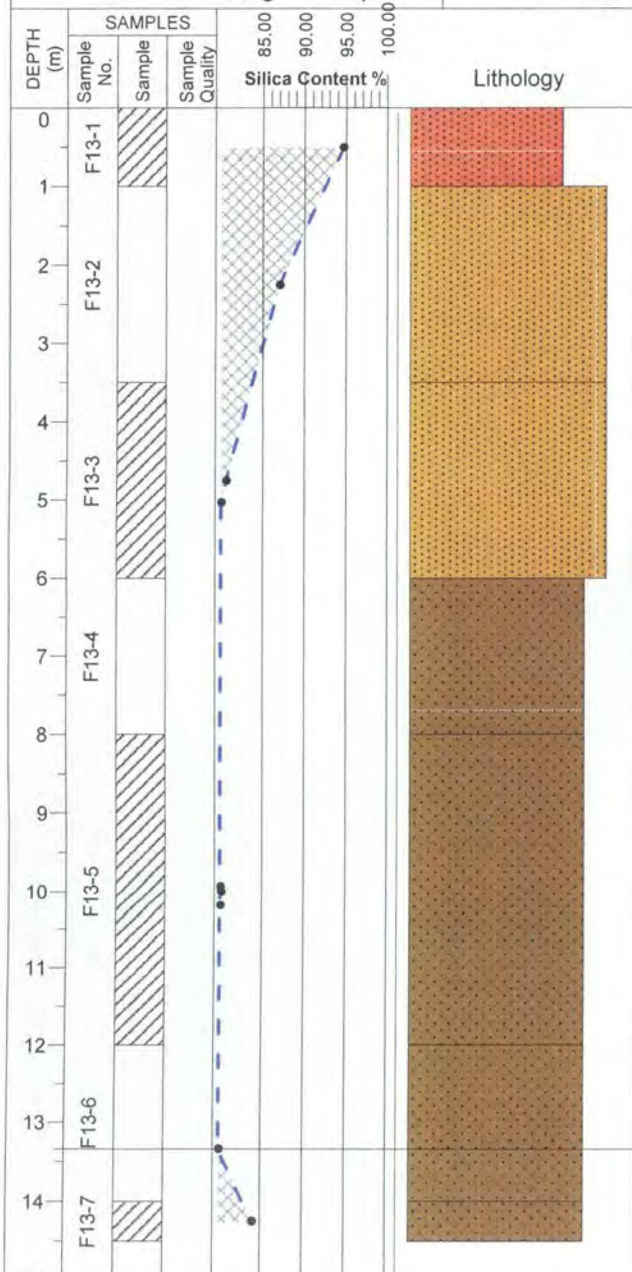
Project: Firebag Silica	Athabasca Minerals Inc.	Permit: MME100004

Appendix 2-1l: Stratigraphic field log for drillhole F12.

F13 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83: 6392783N 0480961E	ELEVATION AND DATUM: 276
Geographic Location: South of the Firebag River	DATE STARTED: 1/13/2011 — DATE FINISHED: 1/13/2011
Drilling Contractor: Mark Griffin	TOTAL DEPTH (m): 14.3m — MEASURING POINT: Ground Surface
Drilling Method: Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:
Drilling Equipment: Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:
Sampling Method: Silica auger sample — Weather: cold -26C	LOGGED BY: Cotterill



Depth (m)	MATERIAL DESCRIPTION
0–1	lt orange brn sd
1–3.5	med brn sd and soft clay (thin clay hit a around 3m)
3.5–6	med brn sd, fine to medium grained sd
6–8	dk brn sd, fine to medium grained
8–12	med to dk brn sd
12–13.5	dk brn sd, med to coarse grained sand
14–14.5	dark brown, medium to coarse grained sand

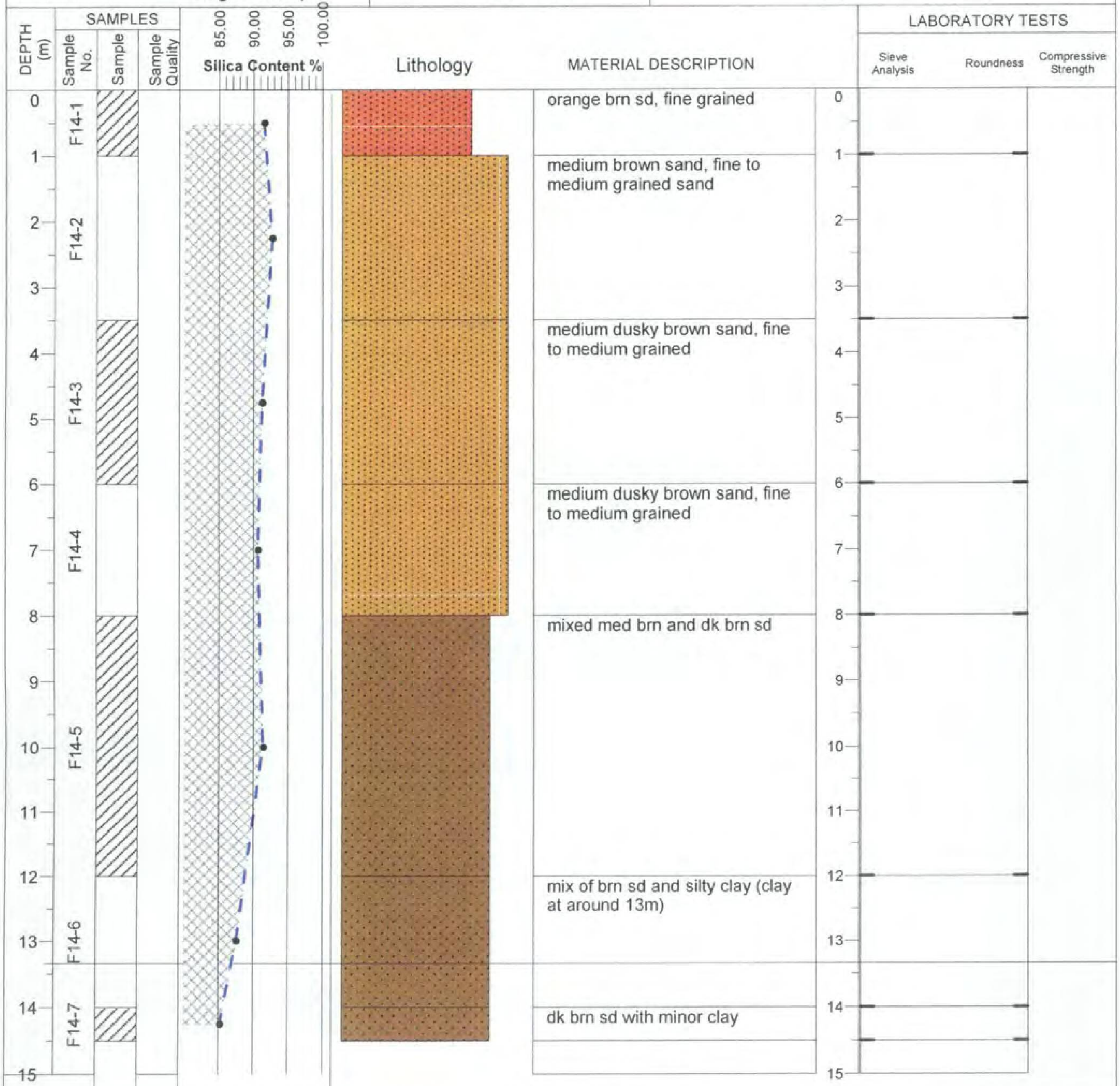
Sample No.	Approx. depth (m)
F13-1	0–1
F13-2	1–3.5
F13-3	3.5–6
F13-4	6–8
F13-5	8–12
F13-6	12–13.5
F13-7	14–14.5

LABORATORY TESTS: Sieve Analysis | Roundness | Compressive Strength

Project: Firebag Silica | Athabasca Minerals Inc. | Permit: MME100004

Appendix 2-1m: Stratigraphic field log for drillhole F13.

F14 (Field Preliminary)		Athabasca Minerals Inc.	
Borehole Location UTM N83: 6393584N 0480978E		ELEVATION AND DATUM: 274.3	
Geographic Location: South of the Firebag River		DATE STARTED: 1/13/2011	DATE FINISHED: 1/13/2011
Drilling Contractor: Mark Griffin		TOTAL DEPTH (m): 14.3m	MEASURING POINT: Ground Surface
Drilling Method: Dry Auger		DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:	
Drilling Equipment: Auger Mounted Argo		DEPTH TO WATER AT COMPLETION:	
Sampling Method: Silica auger sample	Weather: cold -26C	LOGGED BY: Cotterill	



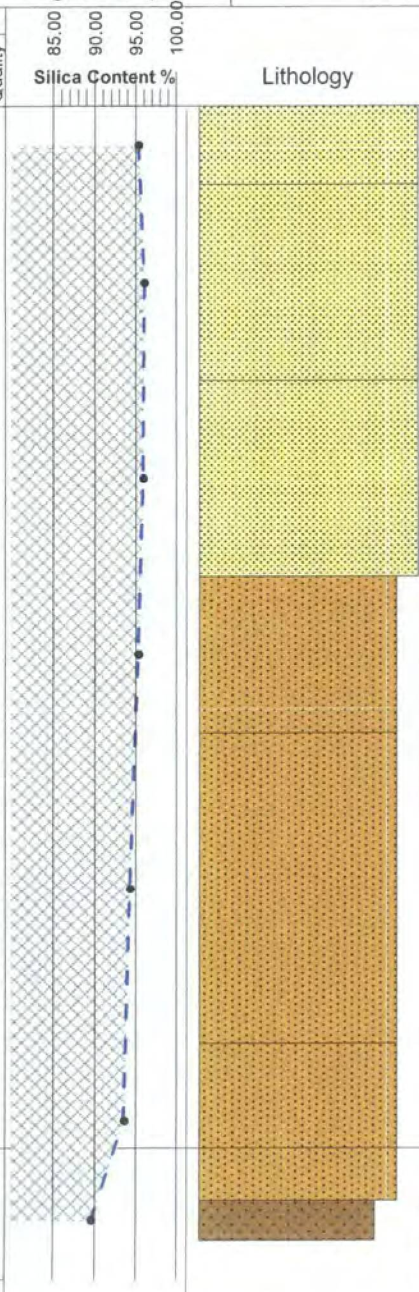
Project: Firebag Silica	Athabasca Minerals Inc.	Permit: MME100004

Appendix 2-1n: Stratigraphic field log for drillhole F14.

F15 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83: 6380858N 0481245E	ELEVATION AND DATUM: 304
Geographic Location: South of the Firebag River	DATE STARTED: 1/14/2011 / DATE FINISHED: 1/14/2011
Drilling Contractor: Mark Griffin	TOTAL DEPTH (m): 14.3m / MEASURING POINT: Ground Surface
Drilling Method: Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:
Drilling Equipment: Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:
Sampling Method: Silica auger sample / Weather: cold -30C	LOGGED BY: Cotterill



DEPTH (m)	SAMPLES: Sample No.	MATERIAL DESCRIPTION	LABORATORY TESTS: Sieve Analysis	Roundness	Compressive Strength
0–1	F15-1	vy lt brn sd, very fine grained			
1–3.5	F15-2	vy lt brn sd, very fine grained			
3.5–6	F15-3	vy lt brn sd, very fine grained			
6–8	F15-4	med lt brn sd (may be as above with misture content)			
8–12	F15-5	med lt brn sd			
12–14	F15-6	med lt brn sd			
14–14.5	F15-7	med to med dk brn sd			

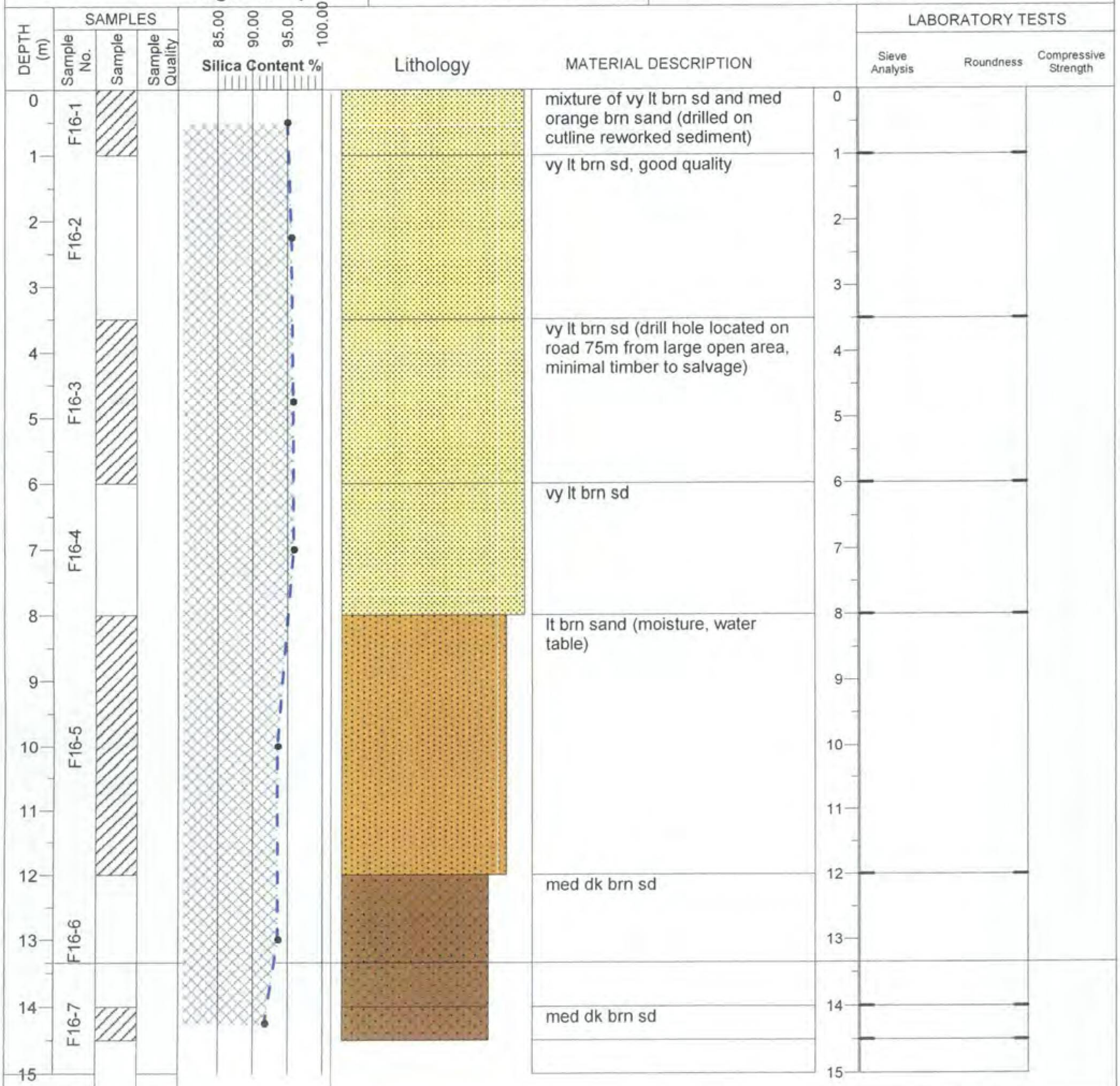
Project: Firebag Silica	Athabasca Minerals Inc.	Permit: MME100004

Appendix 2-1o: Stratigraphc field log for drillhole F15.

F16 (Field Preliminary)

Athabasca Minerals Inc.

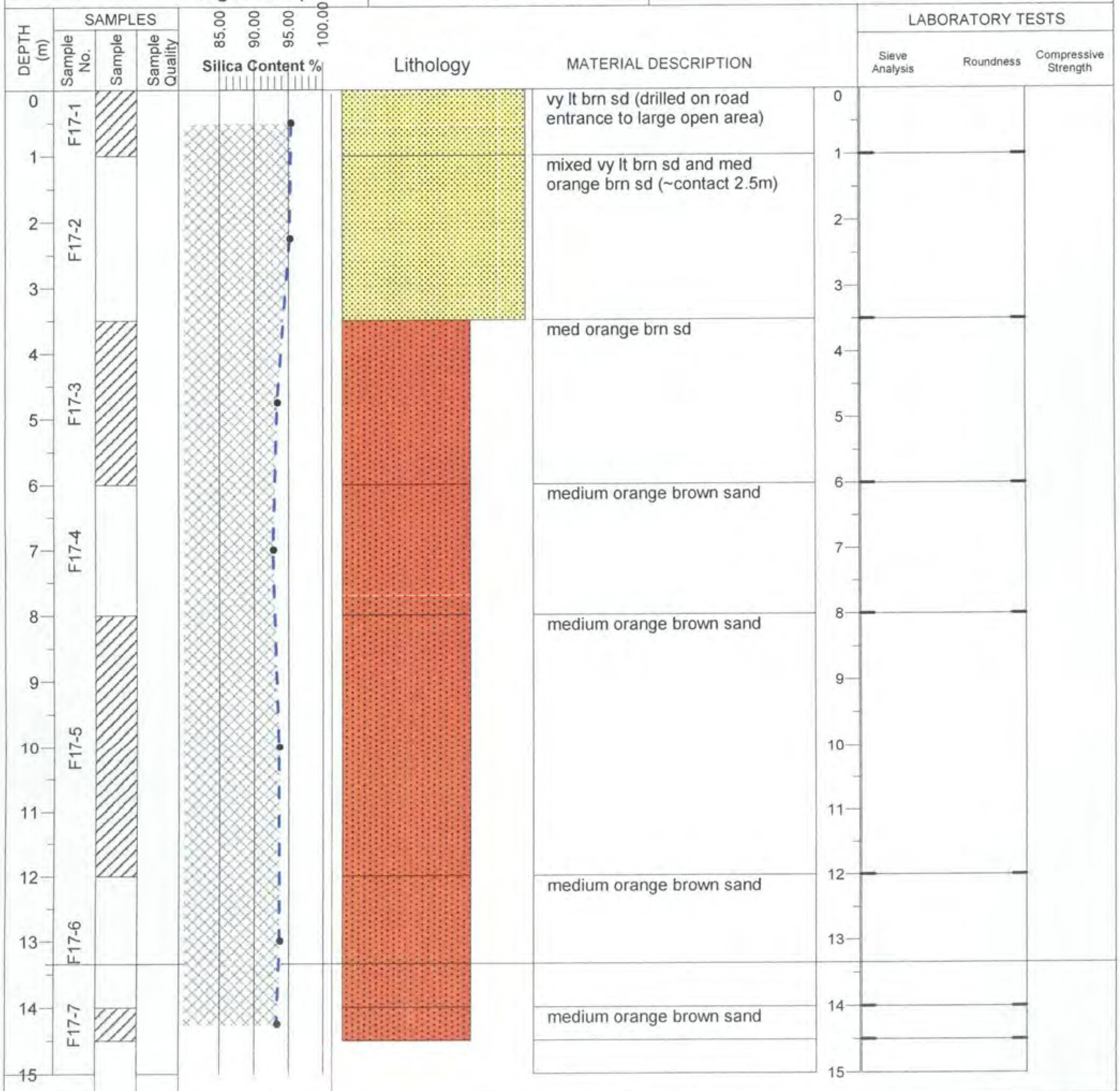
Borehole Location UTM N83: 6382045N 0482605E	ELEVATION AND DATUM: 307
Geographic Location: South of the Firebag River	DATE STARTED: 1/14/2011 — DATE FINISHED: 1/14/2011
Drilling Contractor: Mark Griffin	TOTAL DEPTH (m): 14.3m — MEASURING POINT: Ground Surface
Drilling Method: Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:
Drilling Equipment: Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:
Sampling Method: Silica auger sample — Weather: cold -30C	LOGGED BY: Cotterill



Project: Firebag Silica	Athabasca Minerals Inc.	Permit: MME100004

Appendix 2-1p: Stratigraphic field log for drillhole F16.

F17 (Field Preliminary)		Athabasca Minerals Inc.	
Borehole Location UTM N83: 6383587N 0484222E		ELEVATION AND DATUM: 300	
Geographic Location: South of the Firebag River		DATE STARTED: 1/14/2011	DATE FINISHED: 1/14/2011
Drilling Contractor: Mark Griffin		TOTAL DEPTH (m): 14.3m	MEASURING POINT: Ground Surface
Drilling Method: Dry Auger		DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:	
Drilling Equipment: Auger Mounted Argo		DEPTH TO WATER AT COMPLETION:	
Sampling Method: Silica auger sample	Weather: cold -30C	LOGGED BY: Cotterill	



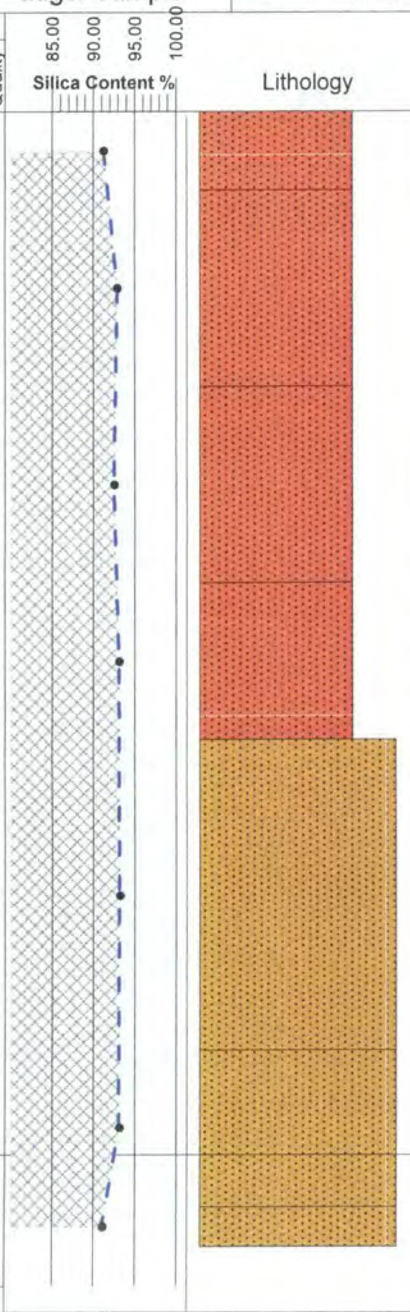
Project: Firebag Silica	Athabasca Minerals Inc.	Permit: MME100004

Appendix 2-1q: Stratigraphic field log for srillhole F17.

F18 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83: 6384893N 0485496E	ELEVATION AND DATUM: 293
Geographic Location: South of the Firebag River	DATE STARTED: 1/14/2011 — DATE FINISHED: 1/14/2011
Drilling Contractor: Mark Griffin	TOTAL DEPTH (m): 14.3m — MEASURING POINT: Ground Surface
Drilling Method: Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:
Drilling Equipment: Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:
Sampling Method: Silica auger sample — Weather: cold -30C	LOGGED BY: Cotterill



DEPTH (m)	Sample No.	MATERIAL DESCRIPTION	Sieve Analysis	Roundness	Compressive Strength
0–1	F18-1	bright rusty orange brn sd, fine to medium grained			
1–3.5	F18-2	medium rusty orange brown sand, f-m grained			
3.5–6	F18-3	medium rusty orange brown sand, f-m grained			
6–8	F18-4	medium rusty orange brown sand, f-m grained			
8–12	F18-5	medium dusky brown sand, finem medium and coarse grained			
12–13.3	F18-6	medium dusky brn water sand, medium to coarse grained			
14–14.3	F18-7	medium dusky brn water sand, medium to coarse grained			

Project: Firebag Silica | Athabasca Minerals Inc. | Permit: MME100004

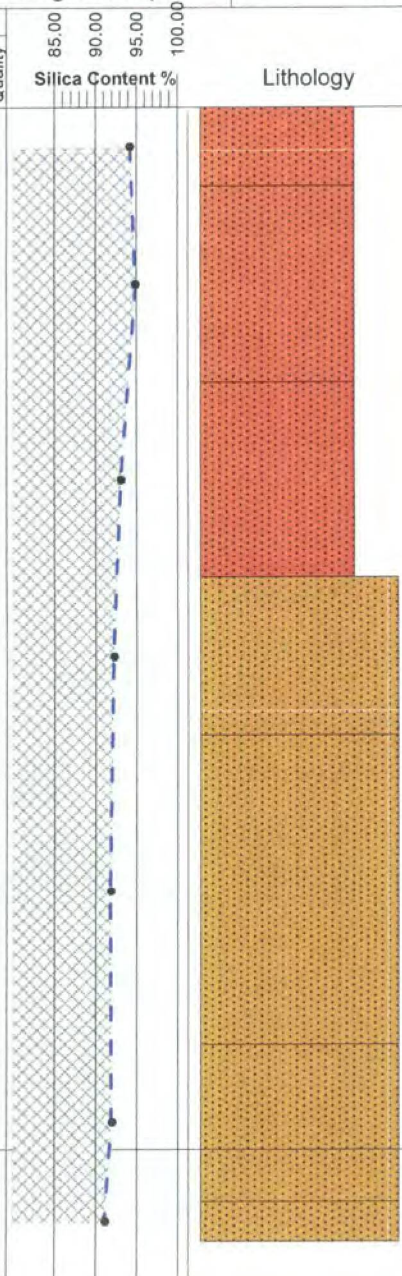
Appendix 2-1r: Stratigraphic field log for drillhole F18.

F19 (Field Preliminary)

Athabasca Minerals Inc.

Borehole Location UTM N83:	6386434N 0487217E	ELEVATION AND DATUM:	289
Geographic Location:	South of the Firebag River	DATE STARTED: 1/14/2011	DATE FINISHED: 1/14/2011
Drilling Contractor:	Mark Griffin	TOTAL DEPTH (m): 14.3m	MEASURING POINT: Ground Surface
Drilling Method:	Dry Auger	DEPTH TO WHERE FREE WATER FIRST ENCOUNTERED:	
Drilling Equipment:	Auger Mounted Argo	DEPTH TO WATER AT COMPLETION:	
Sampling Method:	Silica auger sample — Weather: cold -30C	LOGGED BY:	Cotterill

DEPTH (m)	Sample No.	MATERIAL DESCRIPTION
0 – 1	F19-1	lt orange brn sd, vf to f grained
1 – 3.5	F19-2	lt orange brn sd, vf to f grained
3.5 – 6	F19-3	mixed lt orange brn and med brn sd, very fine to fine grained
6 – 8	F19-4	medium brown, very fine grained sand
8 – 12	F19-5	med brn, fine to medium grained, soupy wet sand
12 – 14	F19-6	medium brown wet sand
14 – 14.5	F19-7	medium brown, fine to medium grained sand



LABORATORY TESTS: Sieve Analysis | Roundness | Compressive Strength

Project: Firebag Silica | Athabasca Minerals Inc. | Permit: MME100004

Appendix 2-1s: Stratigraphic field log for drillhole F19.

Appendix 2-2

Whole Rock ICP Geochemical Analysis (F01-F20)

ISO 9001:2008 Certified

Loring Laboratories(Alberta) Ltd.

629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel: 403- 274-2777 Fax:403- 275-0541

TO: ATHABASCA MINERALS
9524 - 27 Ave
Edmonton, AB
T6W 1B2

FILE: 5 4 0 1 1

DATE: February 08, 2011

Attn: Darrell Cotterill

WHOLEROCK ICP ANALYSIS

Sample I.D.	Al_2O_3 %	Ba ppm	CaO %	Cr ppm	Fe_2O_3 %	K_2O %	MgO %	MnO %	Na_2O %	Ni ppm	P_2O_5 %	SO_3 %	SiO_2 %	Sr ppm	TiO_2 %	V ppm	LOI@1000 %	SUM %
F01-1	1.95	289	0.21	6	0.42	0.26	0.09	0.01	0.24	2	0.04	0.48	94.52	49	0.05	5	0.48	98.74
F01-2	1.47	152	0.16	2	0.26	0.21	0.06	<0.01	0.19	1	0.02	0.02	94.00	43	0.03	3	1.22	97.64
F01-3	1.64	139	0.18	3	0.31	0.24	0.07	<0.01	0.21	1	0.02	0.01	95.02	46	0.05	4	0.28	98.03
F01-4	1.69	150	0.21	3	0.37	0.26	0.08	0.01	0.21	1	0.03	0.01	94.44	47	0.05	5	0.31	97.65
F01-5	2.01	213	0.27	5	0.70	0.32	0.12	0.01	0.23	3	0.03	0.02	93.66	51	0.06	7	0.53	97.97
F01-6	1.90	190	0.50	5	0.81	0.30	0.15	0.01	0.22	3	0.03	0.03	91.96	50	0.08	8	0.61	96.58
F01-7	2.74	239	0.77	8	1.07	0.45	0.30	0.01	0.32	4	0.04	0.04	89.94	61	0.12	14	1.21	97.00
F02-1	1.61	135	0.15	3	0.33	0.22	0.07	<0.01	0.18	1	0.03	0.02	94.74	42	0.04	4	0.33	97.72
F02-2	1.68	157	0.16	3	0.39	0.26	0.08	0.01	0.20	1	0.02	0.01	93.42	46	0.05	4	1.24	97.51
F02-3	2.29	224	0.24	4	0.75	0.39	0.12	0.01	0.28	2	0.02	0.02	92.96	56	0.06	7	0.31	97.43
F02-4	2.45	259	0.48	4	0.83	0.46	0.15	0.01	0.33	2	0.02	0.02	93.58	61	0.05	6	0.44	98.81
F02-5	2.07	225	0.37	4	0.77	0.38	0.13	0.01	0.27	2	0.02	0.02	92.34	54	0.05	6	0.87	97.29
F02-6	2.23	303	0.36	6	0.89	0.41	0.14	0.01	0.27	5	0.03	0.08	92.44	60	0.07	12	1.73	98.63
F02-7	2.33	330	0.38	6	0.76	0.44	0.12	0.01	0.27	5	0.02	0.08	92.00	62	0.07	14	2.20	98.68
F03-1	1.54	202	0.15	3	0.34	0.22	0.07	<0.01	0.17	1	0.02	0.02	96.08	43	0.05	4	0.35	99.01
F03-2	2.35	252	0.35	6	0.92	0.41	0.15	0.01	0.26	6	0.03	0.20	91.02	57	0.10	17	3.19	98.99
F03-3	2.75	298	0.30	7	0.94	0.51	0.15	0.01	0.32	5	0.03	0.08	91.82	64	0.07	13	1.57	98.55
F03-4	2.78	389	0.62	6	1.12	0.51	0.15	0.01	0.36	10	0.03	0.08	91.46	74	0.06	12	1.45	98.62
F03-5	2.19	257	0.23	4	0.69	0.41	0.10	0.01	0.26	3	0.02	0.05	93.78	57	0.06	9	0.86	98.65
F03-6	2.20	267	0.28	5	0.68	0.41	0.11	0.01	0.26	3	0.02	0.04	93.72	59	0.06	9	0.89	98.67
F03-7	2.04	230	0.24	5	0.61	0.39	0.10	0.01	0.26	3	0.02	0.07	93.38	52	0.06	8	0.55	97.73
F04-1	1.69	131	0.16	3	0.34	0.21	0.07	<0.01	0.19	1	0.03	0.03	93.98	42	0.04	5	0.43	97.18
Dup. F03-1	1.60	226	0.16	3	0.35	0.22	0.07	0.01	0.18	1	0.02	0.03	95.62	46	0.05	5	0.37	98.67

0.5g Sample with HF, HCL, HNO3 total digestion , ICP finish.

Sample received on Jan. 31, 2011

Certified by: ____________________

Appendix 2-2a: Wholerock ICP analysis for drillholes F01-F04.

Loring Laboratories(Alberta) Ltd.

629 Beaverdam Road N.E.
Calgary Alberta T2K 4W7
Tel: 403- 274-2777 Fax:403- 275-0541

ISO 9001:2008 Certified

TO: ATHABASCA MINERALS
9524 - 27 Ave
Edmonton, AB
T6W 1B2

Attn: Darrell Cotterill

FILE: 5 4 0 1 1

DATE: February 08, 2011

WHOLEROCK ICP ANALYSIS

Sample I.D.	Al_2O_3 %	Ba ppm	CaO %	Cr ppm	Fe_2O_3 %	K_2O %	MgO %	MnO %	Na_2O %	Ni ppm	P_2O_5 %	SO_3 %	SiO_2 %	Sr ppm	TiO_2 %	V ppm	LOI@1000 %	SUM %
F04-2	1.53	137	0.18	3	0.33	0.22	0.08	<0.01	0.20	1	0.02	0.04	95.88	45	0.05	4	0.30	98.83
F04-3	1.79	161	0.20	4	0.43	0.25	0.09	0.01	0.22	1	0.02	0.03	94.56	48	0.05	6	0.25	97.88
F04-4	2.27	187	0.22	6	0.65	0.34	0.14	0.01	0.26	3	0.02	0.04	93.00	55	0.07	10	0.87	97.88
F04-5	2.17	221	0.30	5	0.60	0.37	0.11	0.01	0.27	3	0.03	0.06	93.14	59	0.06	9	1.21	98.31
F04-6	2.15	233	0.23	6	0.63	0.38	0.10	0.01	0.26	3	0.02	0.04	92.54	55	0.06	9	1.07	97.48
F04-7	2.17	229	0.24	5	0.62	0.39	0.11	0.01	0.25	3	0.02	0.05	93.02	54	0.06	9	0.82	97.76
F05-1	2.13	177	0.25	4	0.49	0.27	0.11	0.01	0.29	2	0.02	0.04	94.28	52	0.05	6	0.44	98.38
F05-2	1.51	155	0.17	3	0.28	0.19	0.07	<0.01	0.21	1	0.01	0.02	96.40	45	0.04	3	0.26	99.18
F05-3	1.52	133	0.17	3	0.29	0.20	0.07	<0.01	0.20	1	0.01	0.03	96.10	45	0.04	3	0.24	98.88
F05-4	1.70	154	0.22	3	0.38	0.23	0.08	<0.01	0.24	1	0.02	0.04	94.88	48	0.05	5	0.29	98.12
F05-5	2.13	214	0.25	5	0.56	0.30	0.11	0.01	0.27	2	0.02	0.03	93.76	56	0.06	7	0.47	97.96
F05-6	2.42	238	0.53	5	0.75	0.37	0.17	0.01	0.31	3	0.02	0.04	92.58	61	0.06	8	0.67	97.93
F05-7	2.59	269	1.20	5	0.84	0.46	0.29	0.01	0.31	3	0.02	0.07	91.00	67	0.06	8	1.32	98.17
F06-1	1.95	139	0.19	3	0.38	0.20	0.07	<0.01	0.19	1	0.02	0.03	93.09	42	0.05	4	0.91	97.08
F06-2	2.69	259	0.31	6	1.46	0.41	0.17	0.02	0.35	4	0.03	0.03	91.11	62	0.06	9	0.48	97.10
F06-3	3.23	325	1.62	6	1.22	0.51	0.31	0.02	0.44	3	0.03	0.07	88.00	81	0.06	9	1.57	97.06
F06-4	2.60	269	1.49	6	0.99	0.44	0.33	0.01	0.31	4	0.03	0.09	89.94	68	0.07	9	1.61	97.89
F06-5	2.42	269	1.07	6	0.87	0.44	0.24	0.01	0.28	4	0.02	0.07	91.68	62	0.07	9	1.15	98.32
F06-6	2.11	266	0.76	5	0.72	0.37	0.16	0.01	0.25	3	0.02	0.06	92.16	55	0.06	8	0.92	97.59
F06-7	2.17	236	1.03	5	0.74	0.39	0.19	0.01	0.25	3	0.02	0.08	92.78	58	0.07	8	1.06	98.78
F07-1	1.49	125	0.17	3	0.29	0.18	0.06	<0.01	0.18	1	0.02	0.02	96.38	42	0.03	3	0.40	99.23
F07-2	2.64	193	0.30	7	0.62	0.31	0.18	0.01	0.23	3	0.02	0.06	92.90	65	0.07	9	0.65	97.99

0.5g Sample with HF, HCL, HNO3 total digestion , ICP finish.

Sample received on Jan. 31, 2011

Certified by: ______________________

Appendix 2-2b: Wholerock ICP analysis for drillholes F04-F07.

ISO 9001:2008 Certified

Loring Laboratories(Alberta) Ltd.
629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel 403- 274-2777 Fax:403- 275-0541

TO: **ATHABASCA MINERALS**
9524 - 27 Ave
Edmonton, AB
T6W 1B2

Attn: Darrell Cotterill

FILE: 5 4 0 1 1

DATE: February 08, 2011

WHOLEROCK ICP ANALYSIS

Sample I.D.	Al_2O_3 %	Ba ppm	CaO %	Cr ppm	Fe_2O_3 %	K_2O %	MgO %	MnO %	Na_2O %	Ni ppm	P_2O_5 %	SO_3 %	SiO_2 %	Sr ppm	TiO_2 %	V ppm	LOI@1000 %	SUM %
F07-3	3.49	267	0.38	10	1.25	0.54	0.26	0.01	0.35	5	0.03	0.05	89.61	66	0.10	15	1.06	97.12
F07-4	3.94	388	0.60	9	1.42	0.74	0.31	0.02	0.54	7	0.04	0.06	88.10	88	0.08	12	1.28	97.10
F07-5	3.77	360	2.06	8	1.26	0.64	0.44	0.02	0.45	6	0.04	0.12	84.64	89	0.08	14	3.55	97.04
F07-6	3.66	310	1.97	11	1.23	0.51	0.49	0.02	0.39	7	0.03	0.12	84.88	80	0.07	13	3.73	97.09
F07-7	2.95	283	1.59	14	1.32	0.49	0.45	0.02	0.34	7	0.03	0.42	83.96	73	0.10	18	5.41	97.06
F08-1	2.40	223	0.26	5	0.50	0.33	0.13	0.01	0.32	2	0.02	0.04	92.68	57	0.05	6	0.45	97.19
F08-2	2.53	231	0.24	6	0.78	0.35	0.15	0.01	0.31	2	0.02	0.02	92.34	58	0.07	9	0.49	97.31
F08-3	3.36	309	1.11	8	1.09	0.54	0.35	0.02	0.37	5	0.03	0.13	88.64	79	0.08	12	1.91	97.61
F08-4	3.41	322	1.08	12	1.46	0.55	0.40	0.02	0.41	8	0.04	0.21	85.94	78	0.11	18	4.07	97.68
F08-5	3.69	348	2.29	12	1.48	0.63	0.58	0.02	0.47	7	0.04	0.19	82.58	89	0.09	17	4.99	97.02
F08-6	3.84	346	2.36	13	1.51	0.60	0.59	0.02	0.43	7	0.04	0.20	82.74	87	0.10	18	4.62	97.01
F08-7	3.97	335	2.11	18	1.68	0.58	0.67	0.02	0.41	8	0.04	0.16	82.74	82	0.12	20	4.57	97.06
F09-1	2.77	272	0.28	6	0.76	0.37	0.16	0.01	0.31	3	0.03	0.04	91.38	60	0.07	9	0.99	97.16
F09-2	2.46	265	0.25	10	0.77	0.41	0.31	0.01	0.28	13	0.03	0.05	92.18	58	0.05	8	0.62	97.41
F09-3	2.46	241	0.30	8	0.86	0.39	0.19	0.01	0.28	5	0.03	0.05	91.78	56	0.07	10	0.83	97.24
F09-4	1.92	196	0.54	8	0.72	0.31	0.23	0.01	0.23	6	0.02	0.07	93.46	50	0.05	6	0.62	98.18
F09-5	2.37	257	1.04	6	0.73	0.41	0.23	0.01	0.27	4	0.02	0.06	91.48	61	0.06	7	1.13	97.80
F09-6	2.02	223	1.01	5	0.63	0.35	0.19	0.01	0.23	3	0.02	0.06	91.82	55	0.05	6	1.02	97.41
F09-7	2.13	232	1.19	5	0.71	0.36	0.22	0.01	0.24	3	0.02	0.07	91.64	59	0.06	7	1.19	97.82
F10-1	2.66	233	0.23	6	0.98	0.36	0.13	0.01	0.24	3	0.03	0.04	91.24	51	0.06	8	1.08	97.06
F10-2	2.38	224	0.25	7	0.98	0.35	0.18	0.01	0.25	6	0.03	0.06	92.18	51	0.10	12	0.85	97.60
F10-3	1.61	240	0.28	5	0.64	0.19	0.12	0.01	0.18	3	0.02	0.05	96.14	49	0.05	6	0.38	99.66

0.5g Sample with HF, HCL, HNO3 total digestion , ICP finish.

Sample received on Jan. 31, 2011

Certified by: ______________________

Appendix 2-2c: Wholerock ICP analysis for drillholes F07-F10.

ISO 9001:2008 Certified

Loring Laboratories(Alberta) Ltd.

629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel: 403- 274-2777 Fax:403- 275-0541

TO: ATHABASCA MINERALS
9524 - 27 Ave
Edmonton, AB
T6W 1B2

Attn: Darrell Cotterill

FILE: 5 4 0 1 1

DATE: February 08, 2011

WHOLEROCK ICP ANALYSIS

Sample I.D.	Al_2O_3 %	Ba ppm	CaO %	Cr ppm	Fe_2O_3 %	K_2O %	MgO %	MnO %	Na_2O %	Ni ppm	P_2O_5 %	SO_3 %	SiO_2 %	Sr ppm	TiO_2 %	V ppm	LOI@1000 %	SUM %
F10-4	1.43	154	0.20	6	0.61	0.20	0.13	0.01	0.17	4	0.02	0.05	95.06	41	0.05	5	0.33	98.26
F10-5	1.50	167	0.55	5	0.59	0.23	0.15	0.01	0.18	3	0.02	0.06	94.62	44	0.05	5	0.57	98.51
F10-6	1.63	188	0.77	5	0.55	0.25	0.17	0.01	0.19	3	0.02	0.06	94.22	48	0.05	5	0.76	98.66
F10-7	2.01	225	1.20	4	0.66	0.36	0.25	0.01	0.21	3	0.02	0.07	91.56	56	0.06	7	1.46	97.86
Dup. F03-7	2.13	242	0.26	5	0.61	0.37	0.13	0.01	0.26	3	0.02	0.09	93.14	55	0.07	8	0.59	97.67
Blank	<0.01	<1	<0.01	<1	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<0.01	<0.01	<0.01	<1	<0.01	<1	<0.01	

0.5g Sample with HF, HCL, HNO3 total digestion , ICP finish.

Sample received on Jan. 31, 2011

Certified by: ______________________

Appendix 2-2d: Wholerock ICP analysis for drillhole F10.

ISO 9001:2008 Certified

Loring Laboratories(Alberta) Ltd.

629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel: 403- 274-2777 Fax:403- 275-0541

TO: ATHABASCA MINERALS
9524 - 27 Ave
Edmonton, AB
T6W 1B2

FILE: 5 4 0 1 1

DATE: Febuary 15, 2011

Attn: Darrell Cotterill

WHOLEROCK ICP ANALYSIS

Sample I.D.	Al_2O_3 %	Ba ppm	CaO %	Cr ppm	Fe_2O_3 %	K_2O %	MgO %	MnO %	Na_2O %	Ni ppm	P_2O_5 %	SO_3 %	SiO_2 %	Sr ppm	TiO_2 %	V ppm	LOI@1000 %	SUM %
F11-1	2.54	252	0.29	6	0.86	0.51	0.15	0.01	0.26	5	0.04	0.04	93.70	57	0.09	11	0.72	98.61
F11-2	2.72	255	0.26	7	1.15	0.54	0.18	0.01	0.28	4	0.03	0.03	93.00	59	0.12	13	0.59	98.30
F11-3	2.52	247	0.24	7	1.17	0.56	0.16	0.01	0.25	4	0.03	0.04	92.48	56	0.11	14	0.74	97.67
F11-4	2.31	225	0.24	7	0.98	0.49	0.16	0.01	0.24	5	0.03	0.04	93.58	53	0.12	13	0.61	98.23
F11-5	2.12	217	0.23	6	0.90	0.47	0.15	0.01	0.22	4	0.03	0.04	94.00	50	0.11	11	0.58	98.32
F11-6	2.26	248	0.23	6	0.83	0.50	0.14	0.01	0.23	4	0.03	0.04	93.46	52	0.10	11	0.55	97.81
F11-7	2.01	222	0.43	6	0.78	0.47	0.16	0.01	0.21	5	0.02	0.12	93.86	50	0.08	9	0.59	98.13
F12-1	2.36	250	0.26	5	0.74	0.48	0.13	0.01	0.26	4	0.03	0.03	94.32	56	0.07	8	0.50	98.64
F12-2	3.08	281	0.41	9	1.12	0.58	0.24	0.01	0.32	6	0.03	0.04	91.70	65	0.12	16	0.85	97.84
F12-3	2.80	292	0.50	7	0.89	0.63	0.20	0.01	0.29	5	0.03	0.05	92.56	65	0.10	12	0.71	98.06
F12-4	2.89	299	0.38	8	0.91	0.62	0.20	0.01	0.28	5	0.03	0.05	92.20	64	0.10	14	0.73	97.69
F12-5	2.51	258	0.31	7	0.88	0.56	0.18	0.01	0.26	5	0.03	0.04	92.84	56	0.11	12	0.56	97.64
F12-6	2.02	214	0.35	6	0.71	0.43	0.15	0.01	0.22	4	0.02	0.04	93.74	52	0.09	9	0.49	97.78
F12-7	2.08	241	0.71	5	0.69	0.48	0.20	0.01	0.24	4	0.02	0.05	93.04	56	0.07	9	0.99	98.02
F13-1	2.28	242	0.22	6	0.65	0.46	0.13	0.01	0.24	6	0.04	0.03	94.70	53	0.07	9	0.53	98.82
F13-2	5.49	374	0.46	19	1.68	0.88	0.43	0.02	0.41	12	0.06	0.06	87.06	86	0.20	34	1.51	97.23
F13-3	5.24	470	3.73	14	1.92	1.05	0.92	0.03	0.62	9	0.05	0.15	80.60	117	0.15	24	4.62	97.80
F13-4	5.30	513	5.64	13	2.01	1.13	1.26	0.03	0.73	8	0.05	0.19	75.82	134	0.12	20	6.28	97.16
F13-5	4.00	385	4.45	10	1.68	0.86	0.99	0.03	0.64	7	0.04	0.15	80.10	111	0.08	13	5.11	97.05
F13-6	4.52	436	5.11	11	1.75	1.05	1.14	0.03	0.75	7	0.05	0.18	78.48	126	0.10	15	5.76	97.60
F13-7	3.45	381	3.59	8	1.43	0.77	0.84	0.02	0.51	6	0.03	0.17	84.08	98	0.08	12	3.99	97.96
F14-1	3.17	324	0.36	7	1.09	0.65	0.21	0.01	0.39	5	0.04	0.04	91.60	72	0.08	11	0.69	97.59
Dup. F11-1	2.50	237	0.26	6	0.84	0.53	0.14	0.01	0.27	6	0.04	0.04	93.82	54	0.09	10	0.74	98.65

0.5g Sample with HF, HCL, HNO3 total digestion, ICP finish.

Sample received on Jan. 31, 2011

Certified by: ____________________

Appendix 2-2e: Wholerock ICP analysis for drillholes F11-F14.

ISO 9001:2008 Certified

Loring Laboratories(Alberta) Ltd.

629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel: 403- 274-2777 Fax:403- 275-0541

TO: ATHABASCA MINERALS
9524 - 27 Ave
Edmonton, AB
T6W 1B2

FILE: 5 4 0 1 1

DATE: Febuary 15, 2011

Attn: Darrell Cotterill

WHOLEROCK ICP ANALYSIS

Sample I.D.	Al_2O_3 %	Ba ppm	CaO %	Cr ppm	Fe_2O_3 %	K_2O %	MgO %	MnO %	Na_2O %	Ni ppm	P_2O_5 %	SO_3 %	SiO_2 %	Sr ppm	TiO_2 %	V ppm	LOI@1000 %	SUM %
F14-2	2.30	244	0.25	5	0.79	0.50	0.18	0.01	0.27	4	0.02	0.04	92.78	57	0.06	8	0.43	97.08
F14-3	2.93	276	0.41	8	1.09	0.57	0.27	0.02	0.35	6	0.03	0.13	91.34	66	0.10	14	0.93	97.42
F14-4	3.59	295	0.39	12	1.18	0.68	0.30	0.02	0.41	8	0.04	0.16	90.72	68	0.12	19	0.97	97.67
F14-5	2.72	268	0.65	9	0.81	0.60	0.31	0.01	0.32	9	0.03	0.09	91.46	63	0.08	14	1.57	97.91
F14-6	4.76	333	0.73	17	1.34	0.83	0.51	0.02	0.51	12	0.06	0.14	87.66	86	0.16	28	2.38	98.04
F14-7	4.74	349	1.64	16	1.50	0.85	0.66	0.02	0.57	10	0.06	0.24	85.28	93	0.16	26	2.85	97.40
F15-1	1.62	130	0.16	5	0.35	0.29	0.13	0.00	0.19	3	0.02	0.04	95.36	42	0.04	5	0.17	98.02
F15-2	1.47	127	0.15	5	0.29	0.28	0.13	0.00	0.19	4	0.02	0.04	96.08	43	0.04	4	0.11	98.46
F15-3	1.56	133	0.16	4	0.30	0.32	0.13	0.00	0.20	4	0.02	0.03	95.92	46	0.04	4	0.25	98.56
F15-4	1.66	152	0.19	5	0.39	0.31	0.17	0.01	0.21	5	0.02	0.04	95.36	47	0.05	5	0.37	98.39
F15-5	1.99	175	0.21	6	0.62	0.40	0.17	0.01	0.25	5	0.02	0.04	94.36	52	0.07	8	0.42	98.08
F15-6	2.10	201	0.33	6	0.66	0.43	0.18	0.01	0.25	4	0.02	0.04	93.60	54	0.07	8	0.46	97.64
F15-7	3.43	263	0.82	11	1.11	0.63	0.47	0.01	0.36	6	0.04	0.06	89.60	67	0.12	19	1.78	97.70
F16-1	1.77	139	0.18	5	0.44	0.29	0.10	0.01	0.19	3	0.04	0.04	95.04	43	0.05	6	0.61	98.36
F16-2	1.51	128	0.16	4	0.32	0.30	0.09	0.00	0.20	2	0.02	0.02	95.64	45	0.04	4	0.31	98.26
F16-3	1.48	122	0.17	5	0.29	0.28	0.12	0.00	0.20	4	0.02	0.06	95.90	45	0.04	4	0.20	98.39
F16-4	1.47	127	0.17	4	0.30	0.28	0.08	0.00	0.19	2	0.01	0.02	95.96	44	0.04	4	0.25	98.47
F16-5	1.88	161	0.21	5	0.50	0.37	0.11	0.01	0.22	2	0.02	0.02	93.66	51	0.06	7	0.47	97.11
F16-6	2.24	193	0.23	6	0.70	0.42	0.14	0.01	0.26	3	0.02	0.03	93.68	56	0.08	9	0.50	97.84
F16-7	2.73	235	0.31	9	0.98	0.52	0.19	0.01	0.30	5	0.03	0.04	91.80	59	0.11	13	0.77	97.19
F17-1	1.77	154	0.18	5	0.45	0.32	0.09	0.01	0.21	2	0.02	0.02	95.38	47	0.05	5	0.35	98.48
F17-2	1.70	186	0.17	4	0.45	0.33	0.10	0.01	0.22	2	0.02	0.03	95.22	47	0.06	5	0.35	98.27

0.5g Sample with HF, HCL, HNO3 total digestion, ICP finish.

Sample received on Jan. 31, 2011

Certified by: ______________________

Appendix 2-2f: Wholerock ICP analysis for drillholes F14-F17.

ISO 9001:2008 Certified

Loring Laboratories(Alberta) Ltd.

629 Beaverdam Road N.E.,
Calgary Alberta T2K 4W7
Tel: 403- 274-2777 Fax:403- 275-0541

TO: ATHABASCA MINERALS
9524 - 27 Ave
Edmonton, AB
T6W 1B2

FILE: 5 4 0 1 1

DATE: Febuary 15, 2011

Attn: Darrell Cotterill

WHOLEROCK ICP ANALYSIS

Sample I.D.	Al_2O_3 %	Ba ppm	CaO %	Cr ppm	Fe_2O_3 %	K_2O %	MgO %	MnO %	Na_2O %	Ni ppm	P_2O_5 %	SO_3 %	SiO_2 %	Sr ppm	TiO_2 %	V ppm	LOI@1000 %	SUM %
F17-3	1.89	193	0.68	5	0.71	0.41	0.17	0.01	0.25	3	0.02	0.03	93.38	53	0.06	6	0.66	97.78
F17-4	1.96	195	0.74	4	0.82	0.39	0.20	0.01	0.26	3	0.02	0.06	92.80	56	0.07	7	0.84	97.69
F17-5	2.01	194	0.39	6	0.75	0.42	0.15	0.01	0.25	3	0.02	0.08	93.68	51	0.07	7	0.53	97.82
F17-6	1.89	199	0.30	6	0.79	0.41	0.14	0.01	0.23	3	0.02	0.04	93.72	48	0.06	7	0.47	97.61
F17-7	1.96	212	0.69	3	0.61	0.46	0.14	0.01	0.25	2	0.02	0.04	93.30	55	0.05	5	0.82	97.83
F18-1	2.88	286	0.26	7	0.98	0.57	0.14	0.01	0.34	5	0.03	0.05	91.28	61	0.08	13	1.19	97.15
F18-2	2.02	236	0.24	5	1.19	0.47	0.12	0.01	0.31	4	0.02	0.04	92.93	52	0.05	8	0.41	97.34
F18-3	1.91	211	0.66	3	0.91	0.49	0.14	0.01	0.30	3	0.02	0.03	92.55	53	0.04	6	0.67	97.24
F18-4	1.57	217	0.95	3	0.59	0.42	0.12	0.01	0.24	2	0.01	0.04	93.17	48	0.04	4	0.73	97.46
F18-5	1.71	282	0.98	4	0.60	0.42	0.16	0.01	0.27	2	0.02	0.08	93.26	52	0.04	6	1.23	98.36
F18-6	1.76	205	1.15	3	0.60	0.47	0.22	0.01	0.27	2	0.02	0.18	93.19	53	0.04	5	1.24	98.67
F18-7	1.78	211	1.36	3	0.65	0.46	0.26	0.01	0.26	3	0.02	0.31	91.14	56	0.05	6	1.70	97.53
F19-1	2.04	213	0.21	5	0.57	0.41	0.10	0.01	0.26	3	0.02	0.03	94.23	51	0.04	7	0.53	98.05
F19-2	1.85	196	0.19	4	0.48	0.42	0.09	0.01	0.27	3	0.02	0.02	94.91	51	0.04	5	0.27	98.14
F19-3	2.35	208	0.24	6	0.62	0.51	0.15	0.01	0.29	3	0.02	0.03	93.14	58	0.06	9	0.52	97.42
F19-4	2.57	236	0.38	5	0.63	0.56	0.19	0.01	0.35	3	0.02	0.04	92.28	62	0.06	10	0.66	97.20
F19-5	2.59	244	0.89	7	0.74	0.57	0.32	0.01	0.37	4	0.03	0.12	91.89	65	0.07	10	1.33	98.35
F19-6	2.32	241	1.17	5	0.76	0.56	0.36	0.01	0.35	3	0.03	0.13	92.03	63	0.05	8	1.30	98.49
F19-7	2.15	224	1.28	6	0.69	0.49	0.40	0.01	0.34	5	0.02	0.19	91.16	63	0.05	7	1.27	97.56
F20-1	1.71	189	0.29	4	0.47	0.37	0.11	0.01	0.29	1	0.03	0.03	93.68	50	0.05	5	1.06	97.72
F20-2	3.34	308	0.64	7	0.75	0.77	0.36	0.01	0.45	5	0.03	0.12	88.95	84	0.08	12	2.42	97.16
Dup. F18-2	2.03	227	0.28	4	1.17	0.47	0.12	0.01	0.33	4	0.02	0.07	93.02	54	0.05	7	0.45	97.56
Blank	<0.01	<1	<0.01	<1	<0.01	<0.01	<0.01	<0.01	<0.01	<1	<0.01	<0.01	<0.01	<1	<0.01	<1	<0.01	

0.5g Sample with HF, HCL, HNO3 total digestion, ICP finish.

Sample received on Jan. 31, 2011

Certified by: ______________________

Appendix 2-2g: Wholerock ICP analysis for drillholes F17-F20.

Appendix 2-3

Whole ICP Histograms (F01-F19)

2-3a **SiO_2 Content (%)**

2-3b **$Al2O_3$ Content (%)**

2-3c **CaO Content (%)**

2-3d **Fe_2O_3 Content (%)**

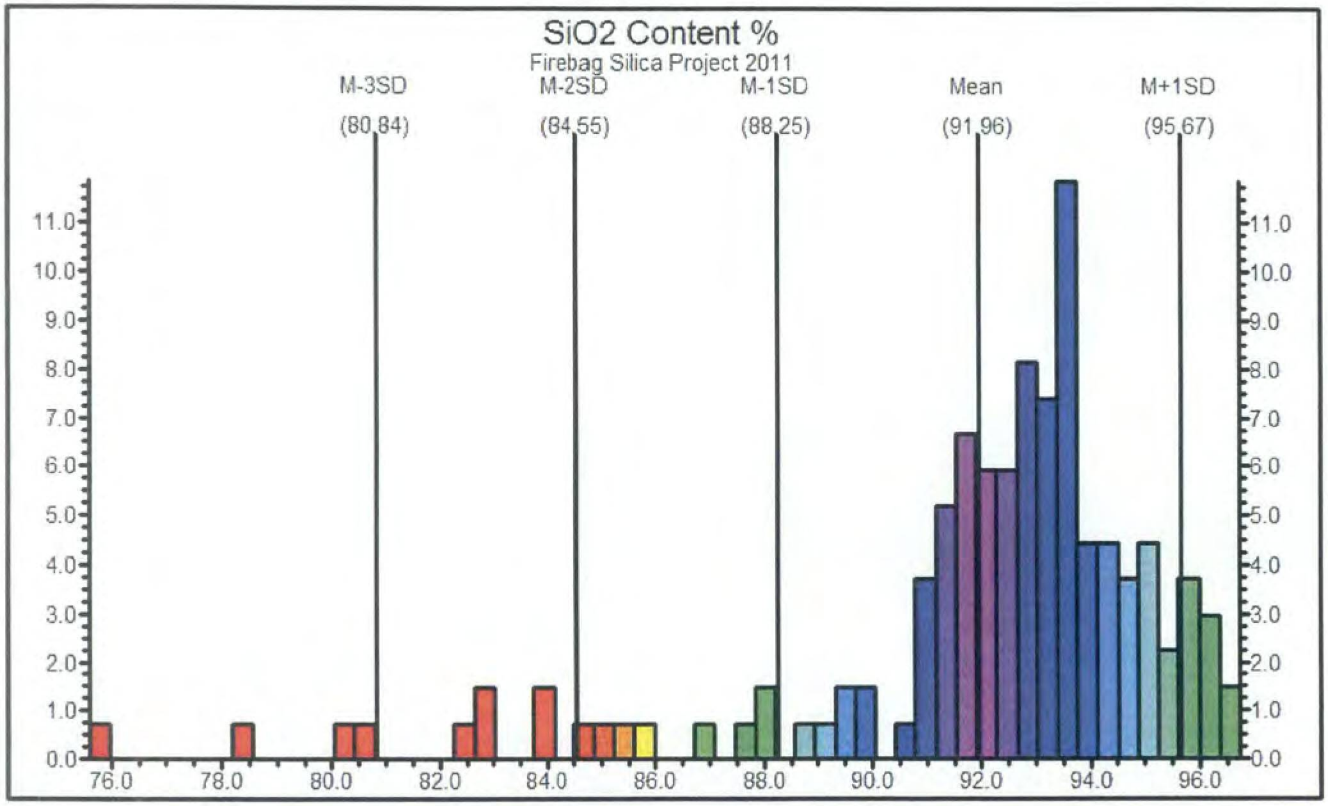
2-3e **K_2O Content (%)**

2-3f **MgO Content (%)**

2-3g **Na_2O Content (%)**

2-3h **TiO_2 Content (%)**

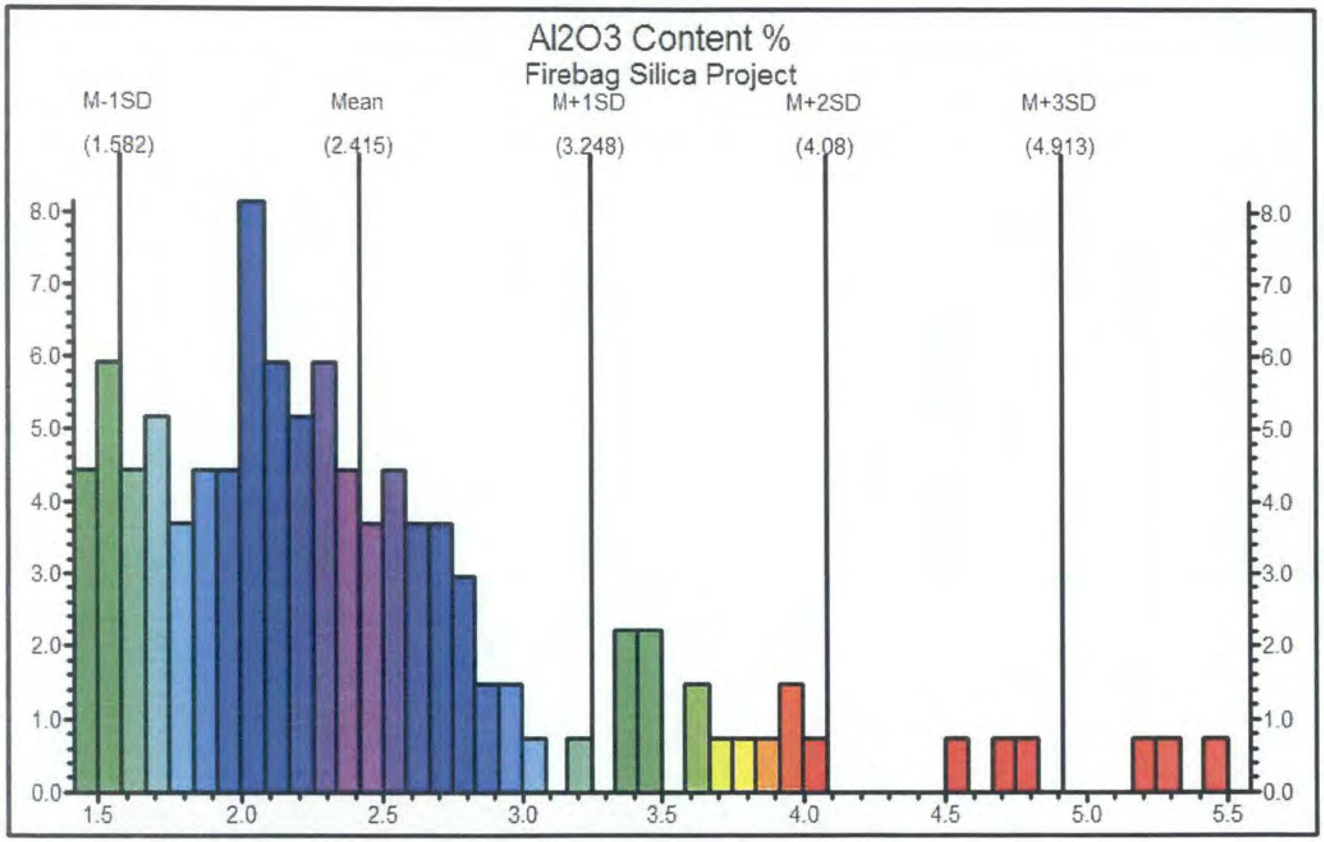
Athabasca MINERALS INC.



Statistical Summary

Population	135
Minimum Value	75.82
Maximum Value	96.57392
Range	20.58
Mean	91.96044
Standard Deviation	3.70606
Standard Error	0.31897
Median	92.93
Sum	12,414.66
Sum of Squares	1,143,498.122
Variance	13.73486
Skewness	-1.96576
Kurtosis	4.16992
Coefficient of Variation	0.0403
Mean - 1 Standard Deviations	88.25439
Mean - 2 Standard Deviations	84.54833
Mean - 3 Standard Deviations	80.84227
Mean - 4 Standard Deviations	77.13622
Mean + 1 Standard Deviations	95.6665
Mean + 2 Standard Deviations	99.37256
Mean + 3 Standard Deviations	103.07861
Mean + 4 Standard Deviations	106.78467
Background Population	108
Slightly Anomalous Population	18
Moderately Anomalous Population	5
Strongly Anomalous Population	3
Extremely Anomalous Population	1

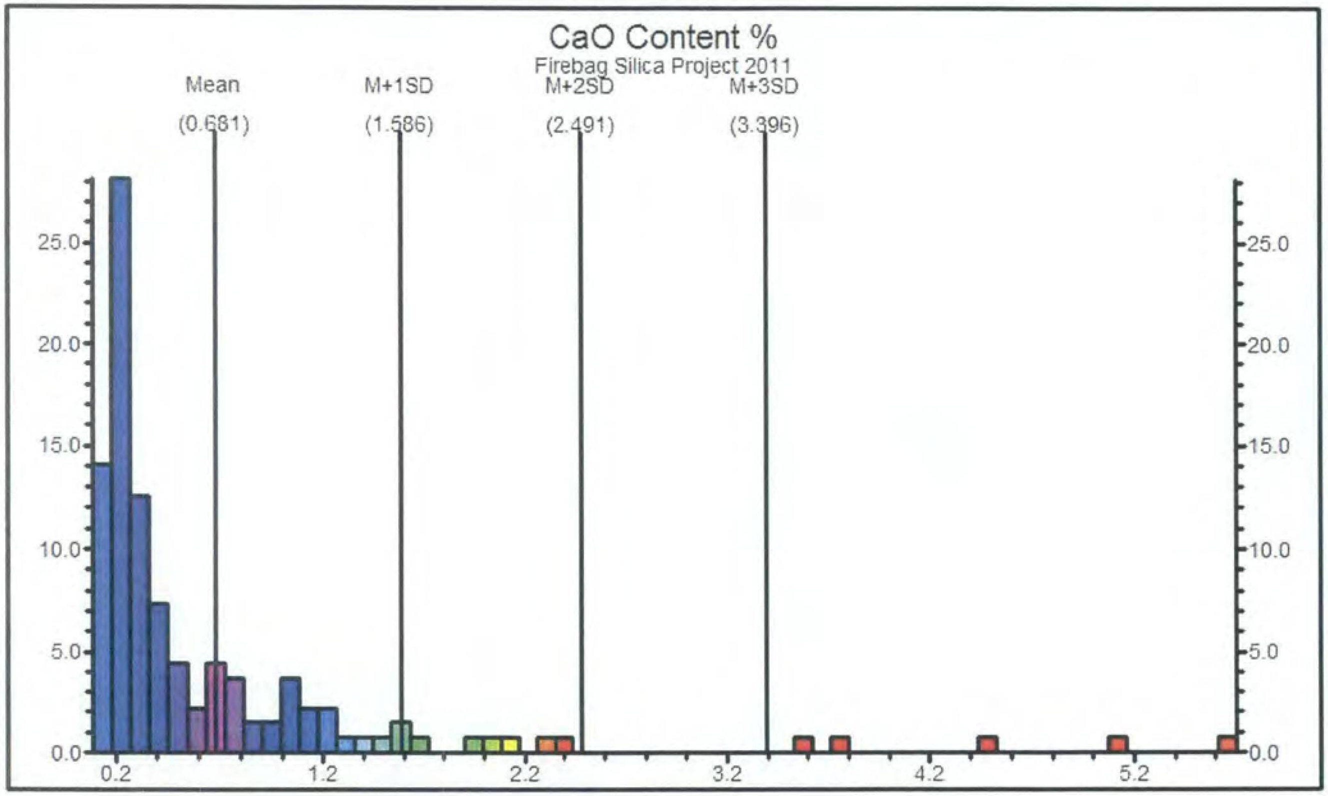
Appendix 2-3a: SiO_2 content (%) for drillholes F01-F19 (135 sand samples).



Statistical Summary

Population	135
Minimum Value	1.43
Maximum Value	5.50991
Range	4.06
Mean	2.41496
Standard Deviation	0.83264
Standard Error	0.07166
Median	2.2
Sum	326.02
Sum of Squares	880.226
Variance	0.69328
Skewness	1.54731
Kurtosis	2.49265
Coefficient of Variation	0.34478
Mean - 1 Standard Deviations	1.58233
Mean - 2 Standard Deviations	0.74969
Mean - 3 Standard Deviations	-0.08294
Mean - 4 Standard Deviations	-0.91558
Mean + 1 Standard Deviations	3.2476
Mean + 2 Standard Deviations	4.08023
Mean + 3 Standard Deviations	4.91287
Mean + 4 Standard Deviations	5.74551
Background Population	101
Slightly Anomalous Population	28
Moderately Anomalous Population	3
Strongly Anomalous Population	3
Extremely Anomalous Population	0

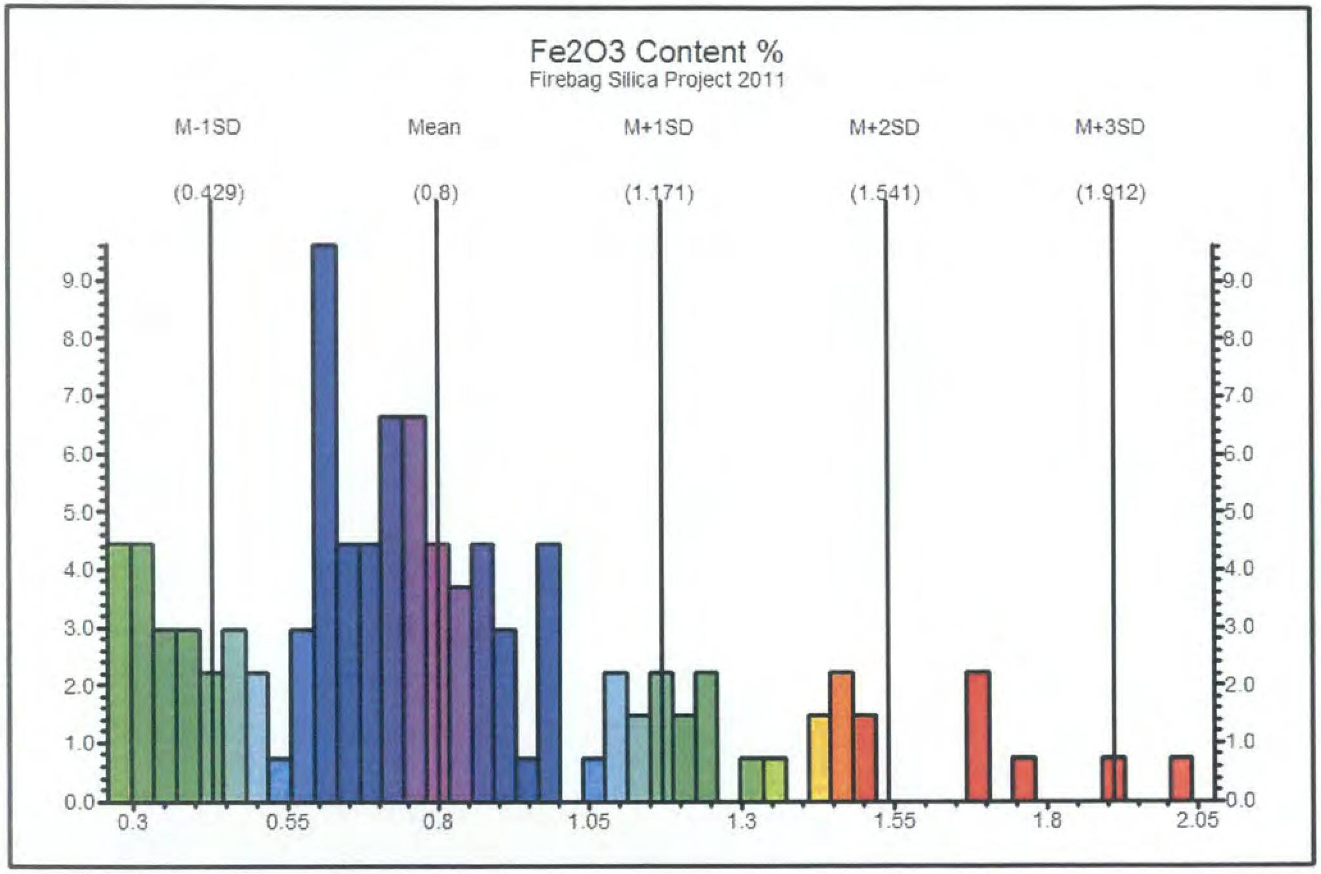
Appendix 2-3b: Al_2O_3 content (%) for drillholes F01-F19 (135 sand samples).



Statistical Summary

Population	135
Minimum Value	0.15
Maximum Value	5.67247
Range	5.49
Mean	0.68052
Standard Deviation	0.90532
Standard Error	0.07792
Median	0.31
Sum	91.87
Sum of Squares	172.3469
Variance	0.81961
Skewness	3.28792
Kurtosis	12.23978
Coefficient of Variation	1.33034
Mean - 1 Standard Deviations	-0.2248
Mean - 2 Standard Deviations	-1.13013
Mean - 3 Standard Deviations	-2.03545
Mean - 4 Standard Deviations	-2.94077
Mean + 1 Standard Deviations	1.58584
Mean + 2 Standard Deviations	2.49116
Mean + 3 Standard Deviations	3.39649
Mean + 4 Standard Deviations	4.30181
Background Population	122
Slightly Anomalous Population	8
Moderately Anomalous Population	0
Strongly Anomalous Population	2
Extremely Anomalous Population	3

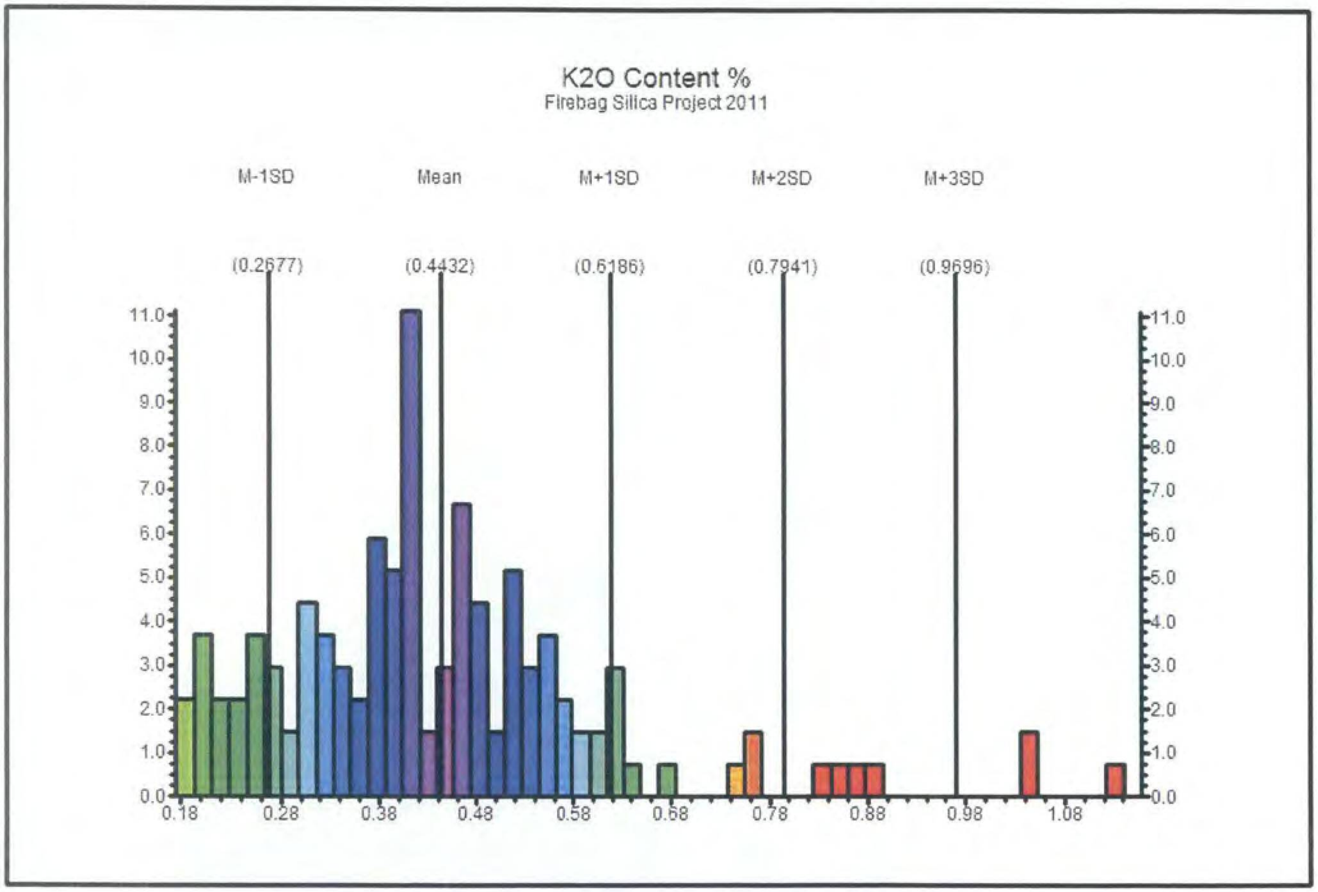
Appendix 2-3c: CaO content (%) for drillholes F01-F19 (135 sand samples).



Statistical Summary

Population	135
Minimum Value	0.26
Maximum Value	2.04022
Range	1.75
Mean	0.79963
Standard Deviation	0.37088
Standard Error	0.03192
Median	0.74
Sum	107.95
Sum of Squares	104.7519
Variance	0.13755
Skewness	0.94449
Kurtosis	0.67653
Coefficient of Variation	0.46381
Mean - 1 Standard Deviations	0.42875
Mean - 2 Standard Deviations	0.05787
Mean - 3 Standard Deviations	-0.31301
Mean - 4 Standard Deviations	-0.68389
Mean + 1 Standard Deviations	1.17051
Mean + 2 Standard Deviations	1.54139
Mean + 3 Standard Deviations	1.91227
Mean + 4 Standard Deviations	2.28315
Background Population	93
Slightly Anomalous Population	36
Moderately Anomalous Population	4
Strongly Anomalous Population	2
Extremely Anomalous Population	0

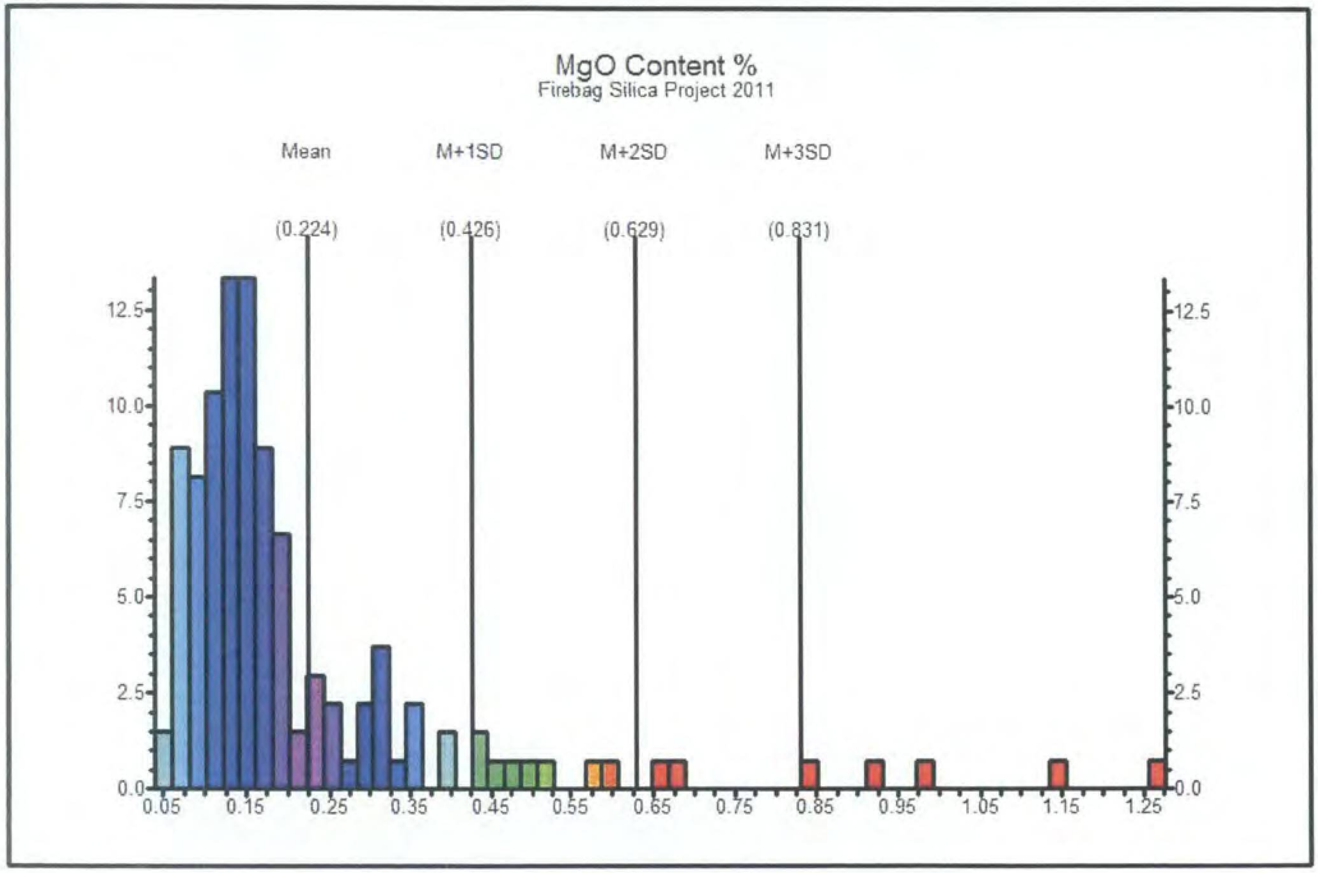
Appendix 2-3d: Fe_2O_3 content (%) for drillholes F01-F19 (135 sand samples).



Statistical Summary

Population	135
Minimum Value	0.18
Maximum Value	1.14505
Range	0.95
Mean	0.44319
Standard Deviation	0.17546
Standard Error	0.0151
Median	0.41
Sum	59.83
Sum of Squares	30.6413
Variance	0.03079
Skewness	1.3087
Kurtosis	2.55604
Coefficient of Variation	0.39592
Mean - 1 Standard Deviations	0.26772
Mean - 2 Standard Deviations	0.09226
Mean - 3 Standard Deviations	-0.08321
Mean - 4 Standard Deviations	-0.25867
Mean + 1 Standard Deviations	0.61865
Mean + 2 Standard Deviations	0.79411
Mean + 3 Standard Deviations	0.96958
Mean + 4 Standard Deviations	1.14504
Background Population	100
Slightly Anomalous Population	28
Moderately Anomalous Population	4
Strongly Anomalous Population	3
Extremely Anomalous Population	0

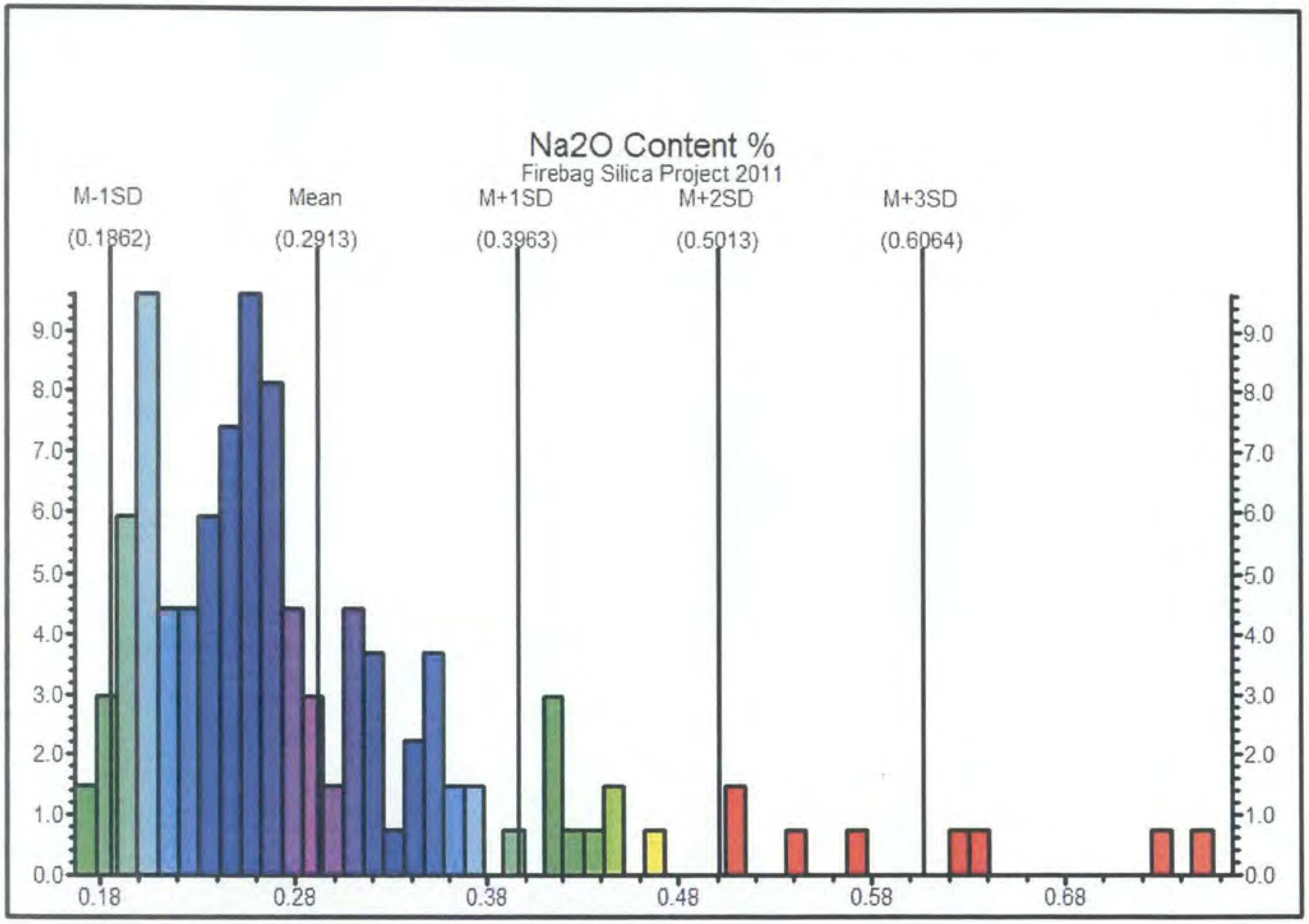
Appendix 2-3e: K_2O content (%) for drillholes F01-F19 (135 sand samples).



Statistical Summary

Population	135
Minimum Value	0.06
Maximum Value	1.27506
Range	1.2
Mean	0.22385
Standard Deviation	0.20251
Standard Error	0.01743
Median	0.15
Sum	30.22
Sum of Squares	12.2602
Variance	0.04101
Skewness	2.82601
Kurtosis	9.0241
Coefficient of Variation	0.90466
Mean - 1 Standard Deviations	0.02134
Mean - 2 Standard Deviations	-0.18117
Mean - 3 Standard Deviations	-0.38368
Mean - 4 Standard Deviations	-0.58619
Mean + 1 Standard Deviations	0.42636
Mean + 2 Standard Deviations	0.62887
Mean + 3 Standard Deviations	0.83138
Mean + 4 Standard Deviations	1.03389
Background Population	120
Slightly Anomalous Population	8
Moderately Anomalous Population	2
Strongly Anomalous Population	3
Extremely Anomalous Population	2

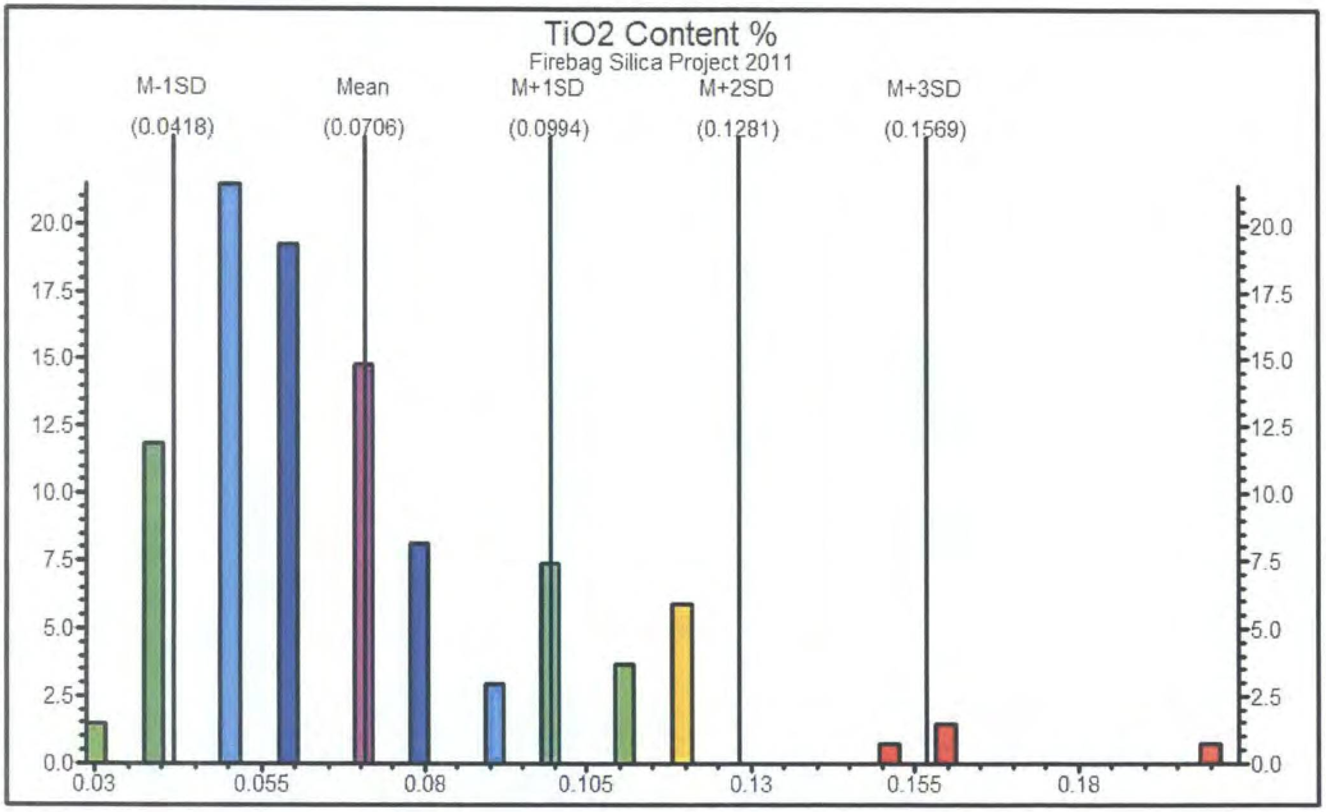
Appendix 2-3f: MgO content (%) for drillholes F01-F19 (135 sand samples).



Statistical Summary

Population	135
Minimum Value	0.17
Maximum Value	0.75823
Range	0.58
Mean	0.29126
Standard Deviation	0.10504
Standard Error	0.00904
Median	0.26
Sum	39.32
Sum of Squares	12.9308
Variance	0.01103
Skewness	2.01912
Kurtosis	4.87641
Coefficient of Variation	0.36064
Mean - 1 Standard Deviations	0.18622
Mean - 2 Standard Deviations	0.08118
Mean - 3 Standard Deviations	-0.02386
Mean - 4 Standard Deviations	-0.1289
Mean + 1 Standard Deviations	0.3963
Mean + 2 Standard Deviations	0.50134
Mean + 3 Standard Deviations	0.60638
Mean + 4 Standard Deviations	0.71142
Background Population	112
Slightly Anomalous Population	15
Moderately Anomalous Population	4
Strongly Anomalous Population	2
Extremely Anomalous Population	2

Appendix 2-3g: Na_2O content (%) for drillholes F01-F19 (135 sand samples).



Statistical Summary

Population	135
Minimum Value	0.03
Maximum Value	0.20265
Range	0.17
Mean	0.07059
Standard Deviation	0.02878
Standard Error	0.00248
Median	0.06
Sum	9.53
Sum of Squares	0.7837
Variance	0.00083
Skewness	1.48756
Kurtosis	2.84351
Coefficient of Variation	0.40762
Mean - 1 Standard Deviations	0.04182
Mean - 2 Standard Deviations	0.01304
Mean - 3 Standard Deviations	-0.01573
Mean - 4 Standard Deviations	-0.04451
Mean + 1 Standard Deviations	0.09937
Mean + 2 Standard Deviations	0.12814
Mean + 3 Standard Deviations	0.15692
Mean + 4 Standard Deviations	0.18569
Background Population	90
Slightly Anomalous Population	41
Moderately Anomalous Population	1
Strongly Anomalous Population	2
Extremely Anomalous Population	1

Appendix 2-3h: TiO_2 content (%) for drillholes F01-F19 (135 sand samples).

Appendix 2-4

Sand Sieve Data (F01-F20)

LORING LABORATORIES (ALBERTA) LTD.
629 Beaverdam Road N.E. Calgary, Alberta T2K 4W7
Tel : (403) 274-2777 Fax : (403) 275-0541
ISO 9001:2008 Certified

TO: ATHABASCA MINERALS
9524 - 27 Ave
Edmonton, AB
T6W 1B2

FILE # : 54011
DATE : Feb 22, 2011
REPORT BY : DAVID KO

Attn: Darrell Cotterill

Sample Type: Sand

SAMPLE ID	WET SIEVE ANALYSIS % BY WEIGHT				
	+ 20 Mesh	20 x 40 M	40 x 70 M	70 x 100 M	- 100 Mesh
F01-1	1.76	15.81	39.45	19.27	23.71
F01-2	0.83	14.62	49.06	20.13	15.37
F01-3	0.76	10.00	51.10	19.33	18.82
F01-4	0.76	10.34	45.96	23.59	19.35
F01-5	0.43	16.94	57.90	12.57	12.16
F01-6	0.36	10.36	58.45	18.80	12.03
F01-7	0.23	6.27	40.89	19.24	33.37
F02-1	1.22	13.94	45.61	20.73	18.50
F02-2	0.47	10.29	45.57	24.00	19.67
F02-3	5.05	23.52	39.45	16.57	15.41
F02-4	4.26	49.35	34.57	5.28	6.53
F02-5	1.75	32.15	53.90	6.11	6.09
F02-6	1.48	28.05	56.45	7.11	6.92
F02-7	0.55	18.99	67.70	5.57	7.18
F03-1	0.31	6.65	32.08	31.78	29.18
F03-2	12.24	21.70	39.73	16.68	9.64
F03-3	4.27	40.41	31.79	14.68	8.85
F03-4	7.59	51.03	33.10	4.32	3.95
F03-5	1.23	20.67	67.22	6.95	3.94
F03-6	0.89	16.07	67.19	10.50	5.36
F03-7	0.27	5.23	70.36	16.62	7.52
F04-1	0.71	13.54	46.43	22.39	16.94
F04-2	0.81	13.74	44.79	24.15	16.52
F04-3	0.84	14.73	44.17	20.31	19.95
F04-4	0.79	13.68	40.96	20.36	24.20
F04-5	0.19	17.40	64.64	9.37	8.40
F04-6	0.17	12.09	70.04	10.50	7.20
F04-7	0.03	6.96	66.89	17.84	8.28

Samples received on: Jan 31, 2011

ASSAYER

Appendix 2-4a: Sieve analysis for drillholes F01-F04.

LORING LABORATORIES (ALBERTA) LTD.

629 Beaverdam Road N.E. Calgary, Alberta T2K 4W7
Tel : (403) 274-2777 Fax : (403) 275-0541

ISO 9001:2008 Certified

TO: ATHABASCA MINERALS
9524 - 27 Ave
Edmonton, AB
T6W 1B2

FILE # : 54011
DATE : Feb 22, 2011
REPORT BY : DAVID KO

Attn: Darrell Cotterill

Sample Type: Sand

	WET SIEVE ANALYSIS % BY WEIGHT				
SAMPLE ID	**+ 20 Mesh**	**20 x 40 M**	**40 x 70 M**	**70 x 100 M**	**- 100 Mesh**
F05-1	3.54	39.37	35.03	10.13	11.93
F05-2	0.88	14.85	46.21	23.32	14.75
F05-3	0.73	10.84	47.69	22.62	18.11
F05-4	1.03	13.87	49.05	18.90	17.15
F05-5	1.26	15.08	40.51	19.22	23.93
F05-6	3.54	24.78	44.96	9.97	16.75
F05-7	2.36	21.32	58.26	8.53	9.54
F06-1	1.14	11.60	39.19	23.48	24.59
F06-2	8.15	46.81	32.02	5.54	7.48
F06-3	17.07	42.85	28.94	3.95	7.20
F06-4	7.04	28.80	42.06	11.30	10.80
F06-5	3.17	12.50	40.92	26.22	17.19
F06-6	0.75	7.40	42.44	32.87	16.53
F06-7	0.35	5.63	59.20	21.51	13.31
F07-1	0.10	3.82	49.29	28.87	17.91
F07-2	1.33	11.46	35.28	21.79	30.14
F07-3	4.95	18.40	32.59	17.95	26.10
F07-4	17.75	43.18	21.44	7.44	10.19
F07-5	17.11	37.13	27.66	6.92	11.18
F07-6	15.05	36.08	28.44	6.36	14.07
F07-7	27.90	29.58	25.94	8.59	7.98
F08-1	8.49	18.61	34.54	16.85	21.50
F08-2	3.28	23.79	40.99	12.54	19.41
F08-3	7.38	39.08	29.60	8.32	15.62
F08-4	25.58	39.32	22.14	4.78	8.17
F08-5	38.06	42.28	11.62	2.45	5.58
F08-6	19.73	53.90	16.90	3.13	6.35
F08-7	9.36	40.24	21.28	4.76	24.36

Samples received on: Jan 31, 2011

ASSAYER

Appendix 2-4b: Sieve analysis for drillholes F05-F08.

LORING LABORATORIES (ALBERTA) LTD.
629 Beaverdam Road N.E. Calgary, Alberta T2K 4W7
Tel : (403) 274-2777 Fax : (403) 275-0541

ISO 9001:2008 Certified

TO: ATHABASCA MINERALS
9524 - 27 Ave
Edmonton, AB
T6W 1B2

FILE # : 54011
DATE : Feb 22, 2011
REPORT BY : DAVID KO

Attn: Darrell Cotterill

Sample Type: Sand

SAMPLE ID	WET SIEVE ANALYSIS % BY WEIGHT				
	+ 20 Mesh	20 x 40 M	40 x 70 M	70 x 100 M	- 100 Mesh
F09-1	5.89	25.11	40.63	11.20	17.17
F09-2	1.20	18.99	67.36	6.91	5.54
F09-3	0.96	16.76	63.54	11.14	7.60
F09-4	0.33	15.90	69.73	8.66	5.38
F09-5	1.11	18.05	64.38	9.29	7.16
F09-6	0.76	18.49	64.68	10.02	6.06
F09-7	0.55	14.67	62.87	11.66	10.26
F10-1	1.94	12.96	72.38	5.21	7.52
F10-2	0.67	3.17	48.72	28.29	19.15
F10-3	0.17	1.21	73.09	16.62	8.91
F10-4	0.06	1.32	74.30	16.26	8.05
F10-5	0.21	2.48	74.14	14.95	8.22
F10-6	0.04	1.71	73.11	17.01	8.13
F10-7	0.32	3.38	73.36	12.70	10.25
F11-1	1.64	25.31	47.75	12.01	13.29
F11-2	1.43	14.22	42.25	14.80	27.30
F11-3	0.59	8.18	49.80	22.33	19.10
F11-4	0.21	1.97	24.11	45.16	28.55
F11-5	0.19	1.58	25.03	40.27	32.94
F11-6	0.15	1.32	24.55	41.44	32.54
F11-7	0.06	1.37	34.27	37.71	26.59
F12-1	1.51	28.57	36.34	12.77	20.81
F12-2	1.81	18.35	36.68	12.62	30.55
F12-3	1.18	9.46	20.99	34.83	33.53
F12-4	0.39	3.39	30.91	34.43	30.87
F12-5	0.14	1.02	20.69	54.29	23.87
F12-6	0.09	1.76	50.57	29.03	18.55
F12-7	0.48	2.16	55.75	26.04	15.56

Samples received on: Jan 31, 2011

ASSAYER

Appendix 2-4c: Sieve analysis for drillholes F09-F12.

LORING LABORATORIES (ALBERTA) LTD.

629 Beaverdam Road N.E. Calgary, Alberta T2K 4W7
Tel : (403) 274-2777 Fax : (403) 275-0541

ISO 9001:2008 Certified

TO: ATHABASCA MINERALS
9524 - 27 Ave
Edmonton, AB
T6W 1B2

FILE # : 54011
DATE : Feb 22, 2011
REPORT BY : DAVID KO

Attn: Darrell Cotterill

Sample Type: Sand

SAMPLE ID	WET SIEVE ANALYSIS % BY WEIGHT				
	+ 20 Mesh	20 x 40 M	40 x 70 M	70 x 100 M	- 100 Mesh
F13-1	0.80	9.28	46.98	24.35	18.59
F13-2	1.17	7.20	28.82	13.60	49.21
F13-3	21.26	28.76	12.79	6.76	30.43
F13-4	38.49	29.20	7.20	3.11	21.99
F13-5	30.15	30.18	22.26	3.87	13.54
F13-6	39.02	23.96	20.05	4.16	12.81
F13-7	19.66	36.29	31.56	2.62	9.87
F14-1	13.75	28.83	36.63	9.37	11.43
F14-2	2.52	21.15	62.12	9.00	5.21
F14-3	4.90	21.99	45.22	13.80	14.08
F14-4	1.98	12.10	40.33	14.01	31.57
F14-5	2.27	13.00	57.51	14.96	12.25
F14-6	1.33	7.23	26.80	9.06	55.57
F14-7	8.43	11.52	24.62	7.94	47.49
F15-1	0.55	14.56	42.51	19.14	23.24
F15-2	0.78	10.70	44.90	23.13	20.51
F15-3	0.72	11.81	45.12	22.17	20.17
F15-4	0.63	12.80	49.56	17.05	19.96
F15-5	0.63	12.29	46.14	18.83	22.11
F15-6	0.43	9.90	58.13	13.68	17.87
F15-7	0.31	5.05	39.73	15.20	39.72
F16-1	1.38	12.84	48.00	18.60	19.18
F16-2	1.93	12.17	49.95	21.51	14.43
F16-3	0.98	17.51	47.52	19.94	14.06
F16-4	0.67	13.40	54.05	16.04	15.84
F16-5	0.91	13.50	48.03	15.27	22.29
F16-6	1.31	20.17	46.20	13.23	19.09
F16-7	0.61	8.71	35.59	22.26	32.84

Samples received on: Jan 31, 2011

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Appendix 2-4d: Sieve analysis for drillholes F13-F16.

LORING LABORATORIES (ALBERTA) LTD.
629 Beaverdam Road N.E. Calgary, Alberta T2K 4W7
Tel : (403) 274-2777 Fax : (403) 275-0541

ISO 9001:2008 Certified

TO: ATHABASCA MINERALS
9524 - 27 Ave
Edmonton, AB
T6W 1B2

FILE # : 54011
DATE : Feb 22, 2011
REPORT BY : DAVID KO

Attn: Darrell Cotterill

Sample Type: Sand

WET SIEVE ANALYSIS % BY WEIGHT

SAMPLE ID	+ 20 Mesh	20 x 40 M	40 x 70 M	70 x 100 M	- 100 Mesh
F17-1	2.99	17.15	43.87	19.41	16.58
F17-2	1.14	14.50	46.20	20.37	17.79
F17-3	1.31	24.36	60.37	8.15	5.82
F17-4	2.34	21.23	57.83	10.65	7.95
F17-5	1.02	29.93	50.57	8.35	10.13
F17-6	0.47	25.39	59.85	5.91	8.39
F17-7	0.89	28.97	55.92	9.08	5.13
F18-1	3.16	53.86	23.15	6.63	13.20
F18-2	2.58	56.75	31.49	4.92	4.26
F18-3	2.00	47.23	38.70	6.77	5.30
F18-4	1.25	37.41	52.00	6.39	2.94
F18-5	4.37	30.42	58.26	3.47	3.47
F18-6	2.87	24.92	62.48	4.80	4.93
F18-7	3.75	21.73	64.69	5.06	4.78
F19-1	2.85	21.38	46.52	11.49	17.76
F19-2	2.32	18.06	49.88	14.34	15.39
F19-3	0.72	5.04	22.73	23.55	47.96
F19-4	2.67	12.77	17.01	12.40	55.15
F19-5	3.70	19.26	26.30	11.60	39.15
F19-6	2.55	47.07	28.23	4.84	17.31
F19-7	1.02	50.32	33.11	3.48	12.06
F20-1	3.54	26.20	51.78	8.72	9.75
F20-2	12.58	27.79	38.92	6.77	13.94

Samples received on: Jan 31, 2011

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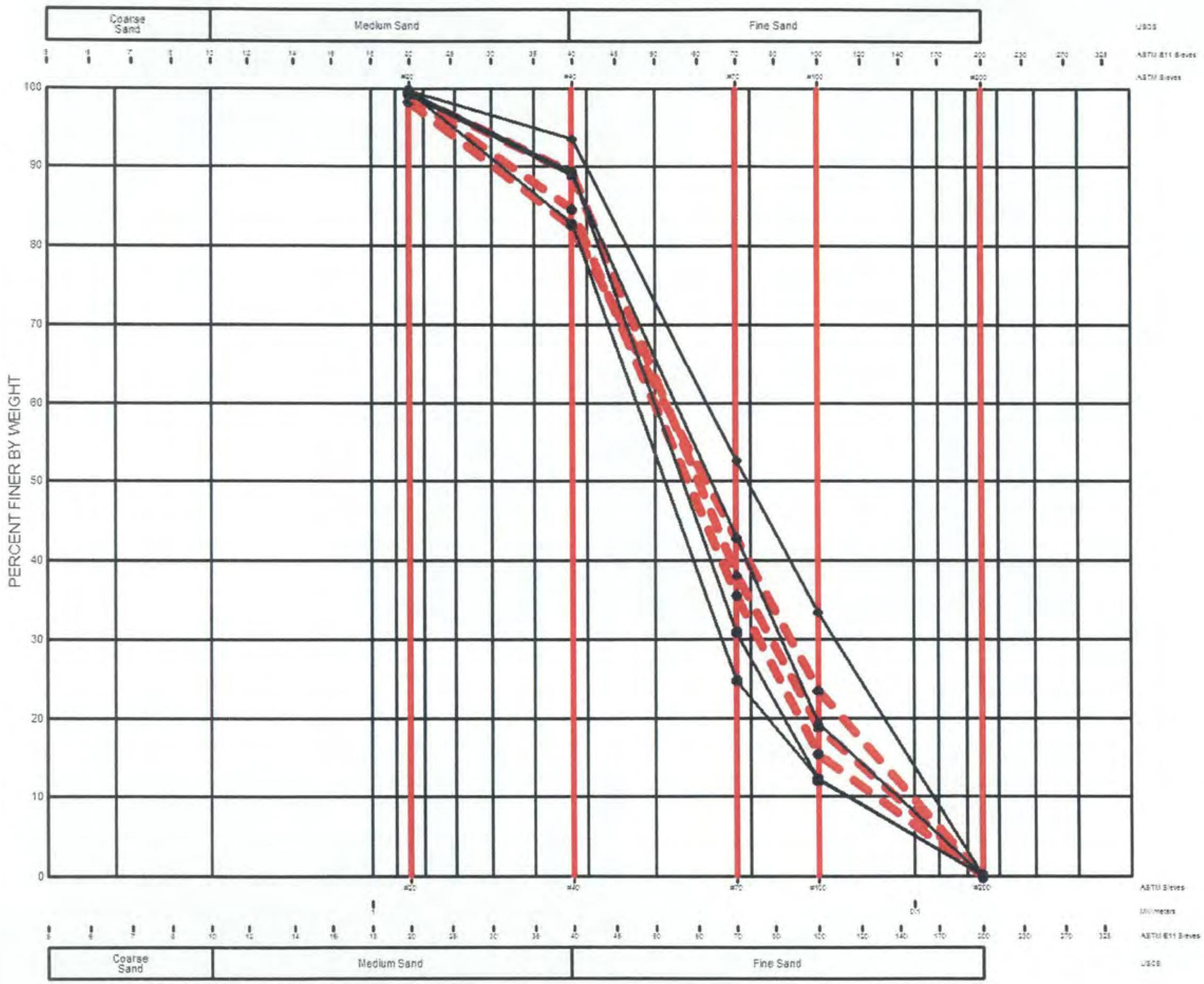
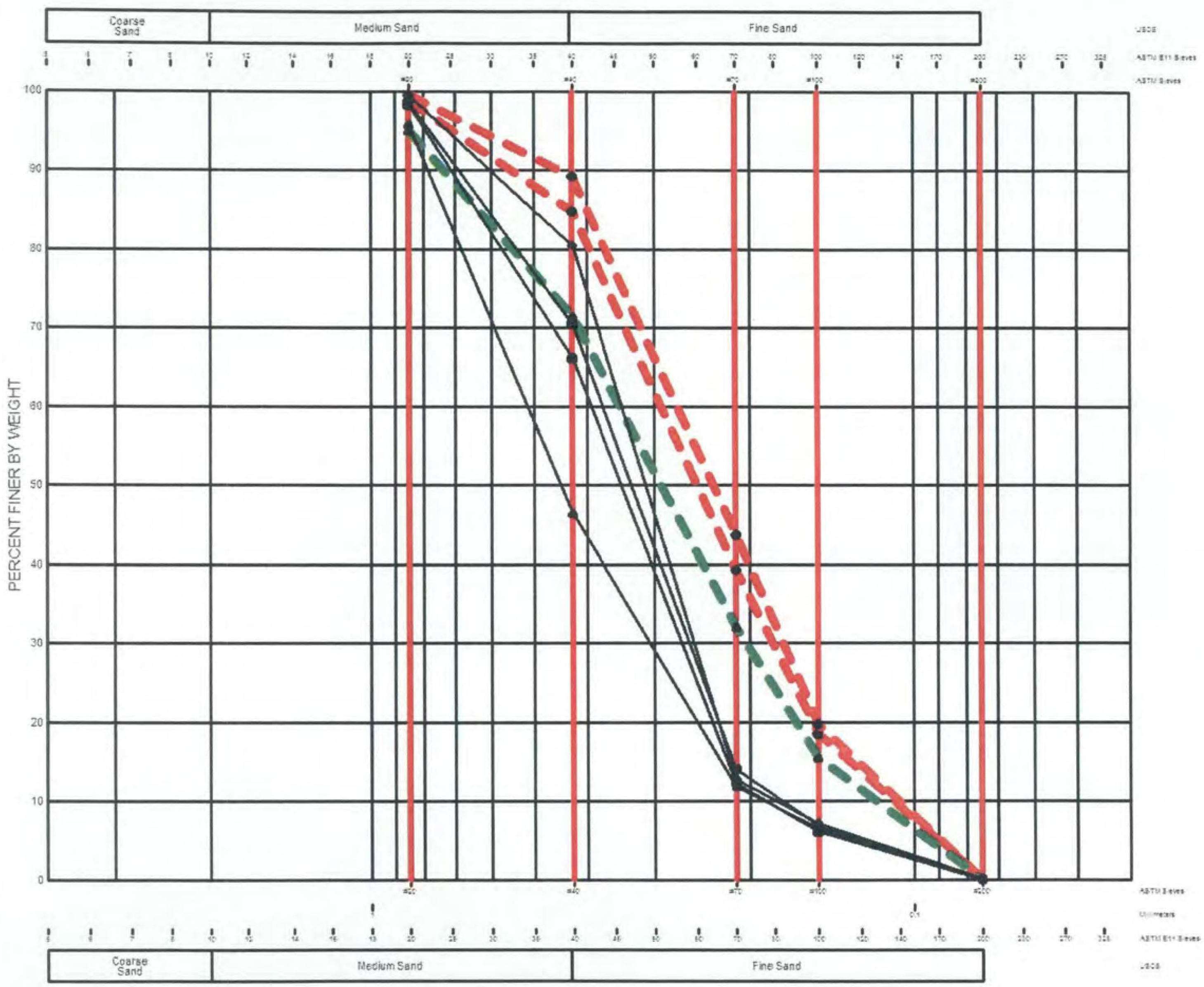
Appendix 2-4e: Sieve analysis for drillholes F17-F20.

Appendix 2-5

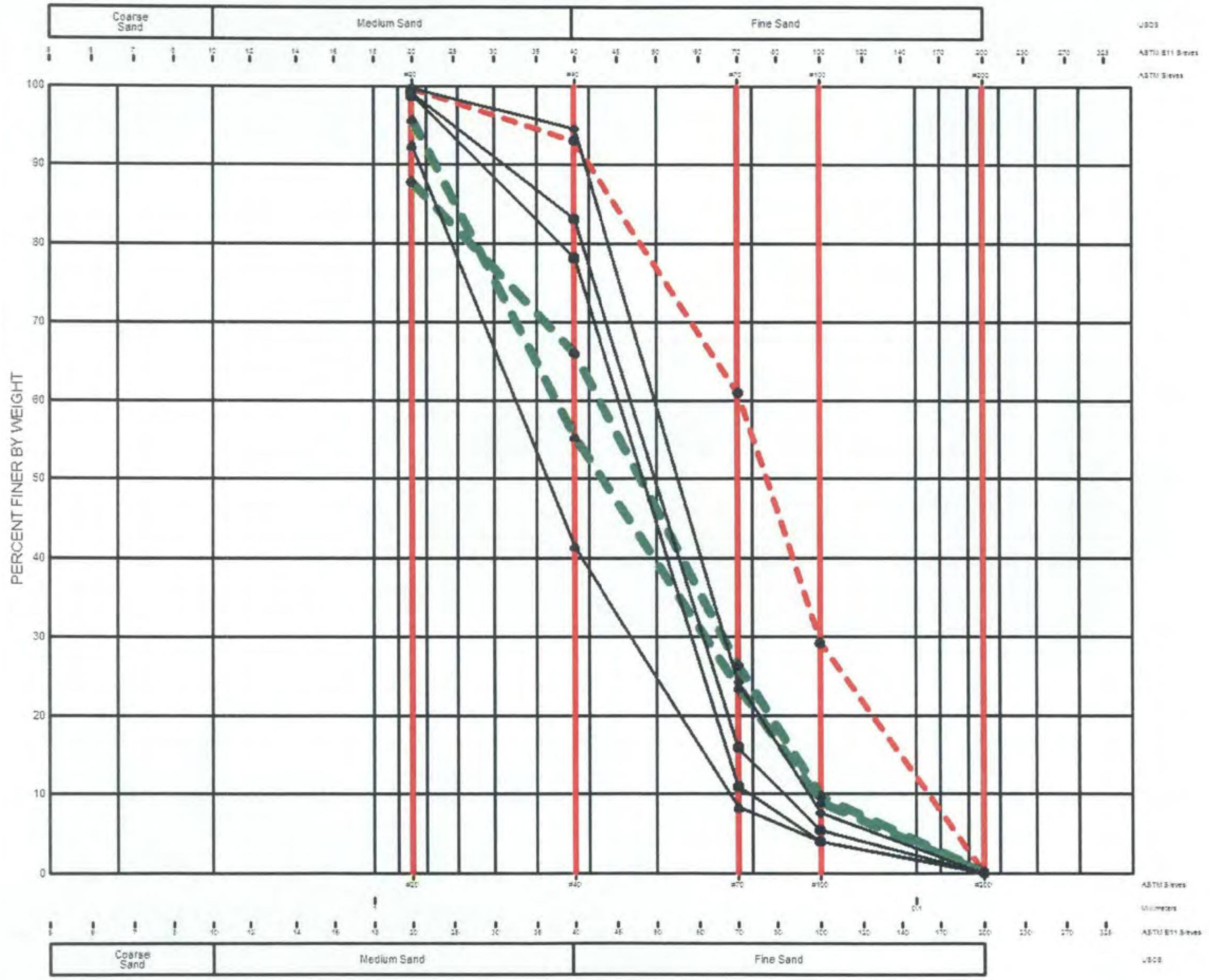
Sand Sieve Diagrams (F01-F19)



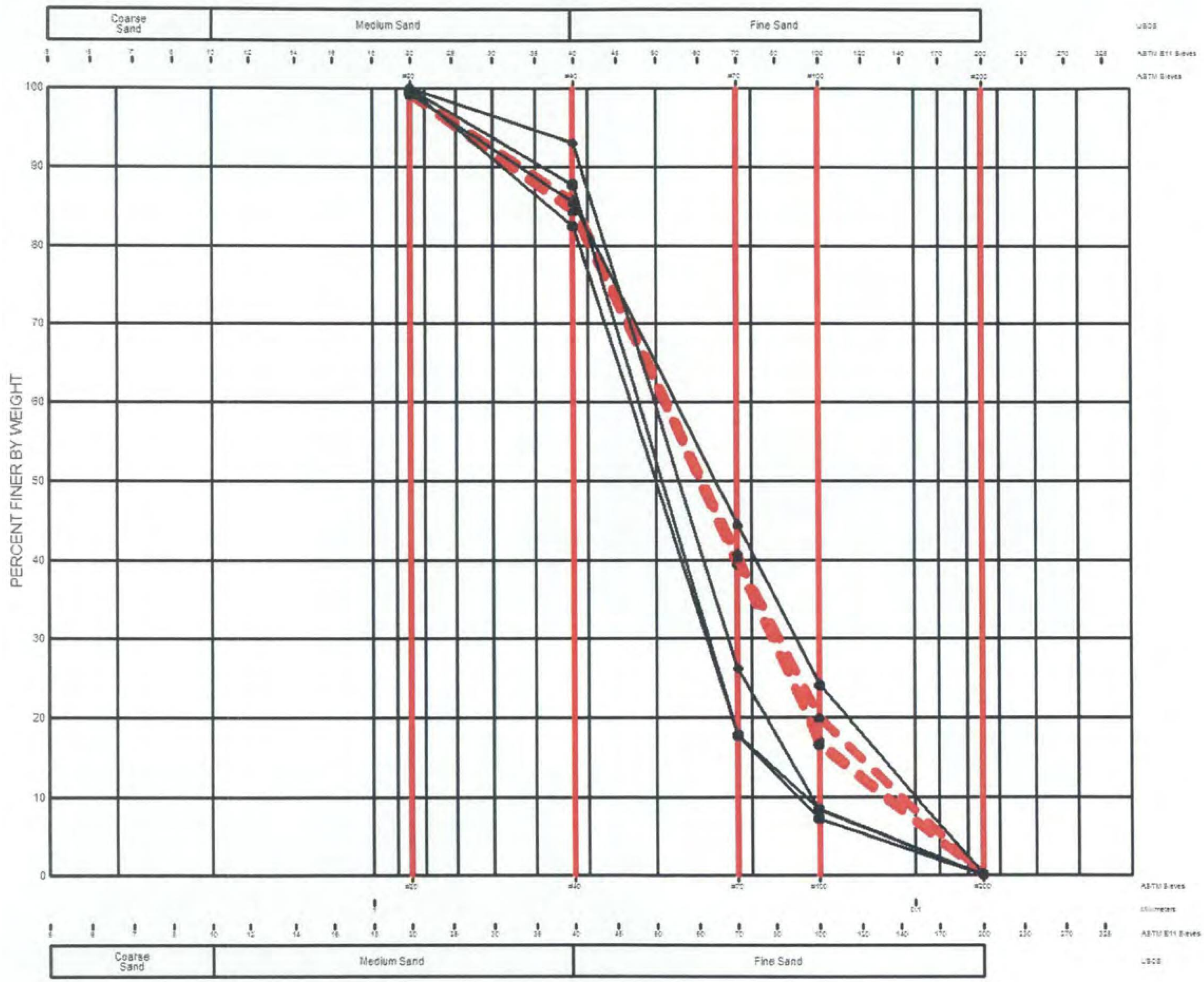
Appendix 2-5a: Sieve diagram for drillhole F01.



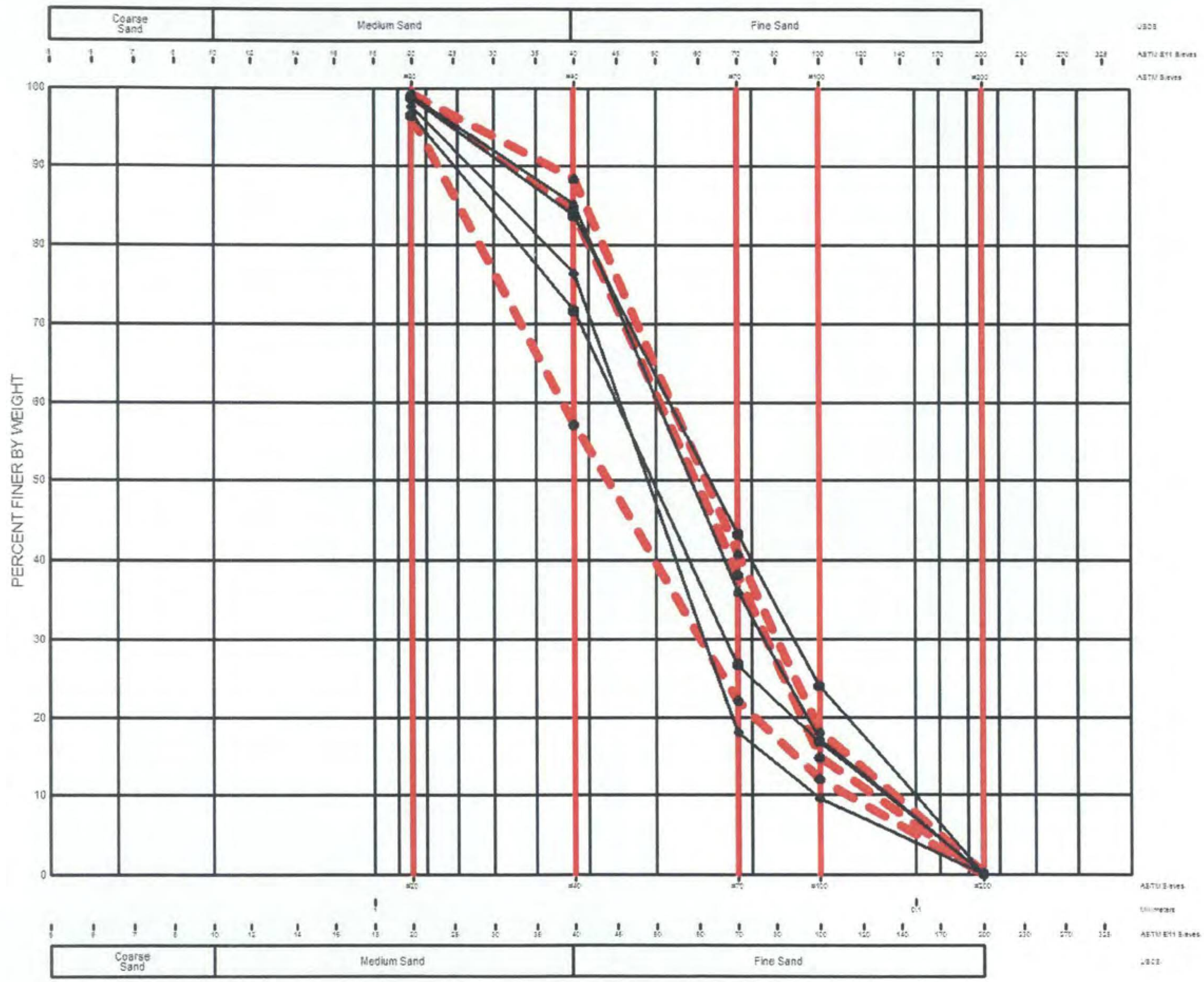
Appendix 2-5b: Sieve diagram for drillhole F02.



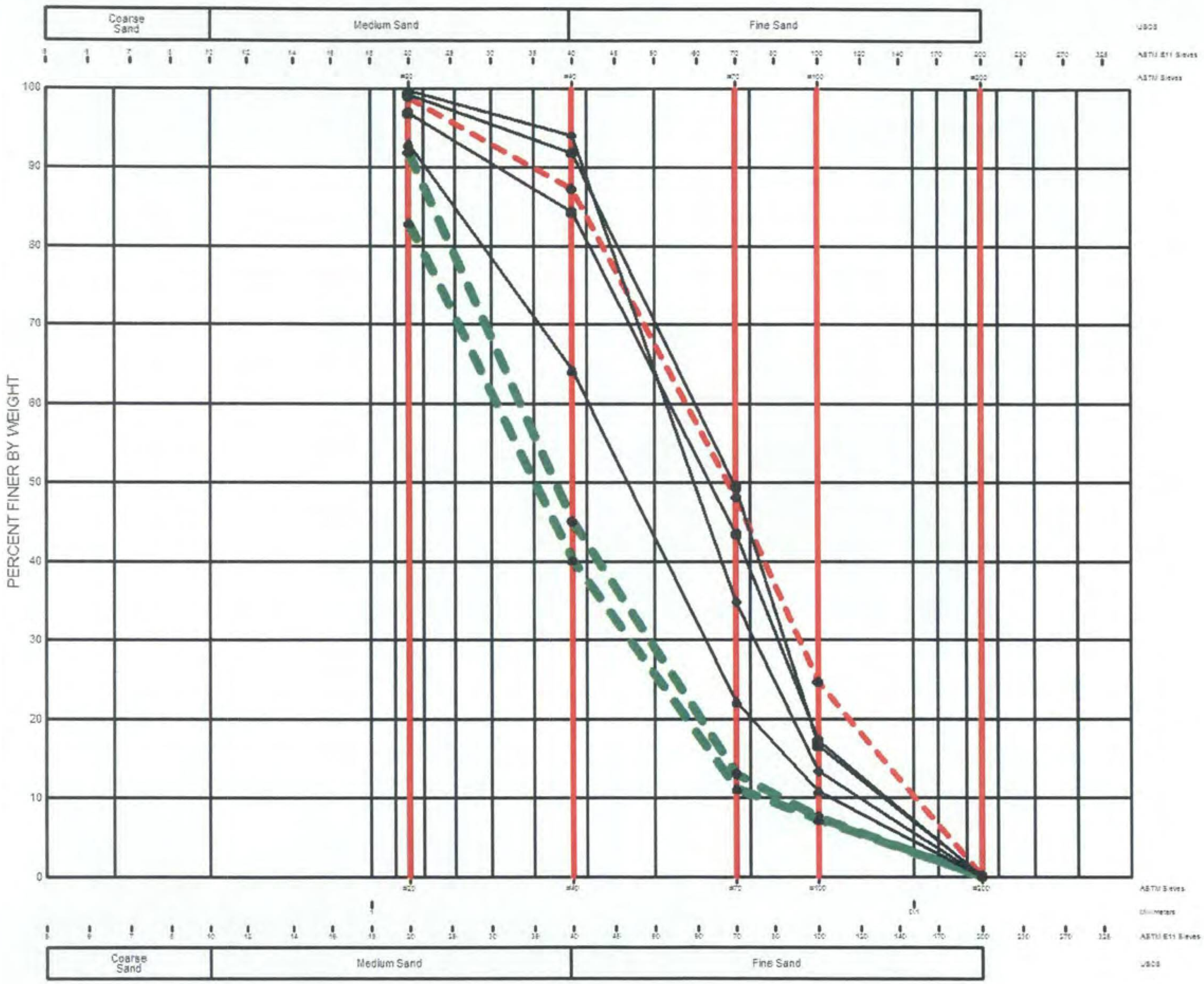
Appendix 2-5c: Sieve diagram for drillhole F03.



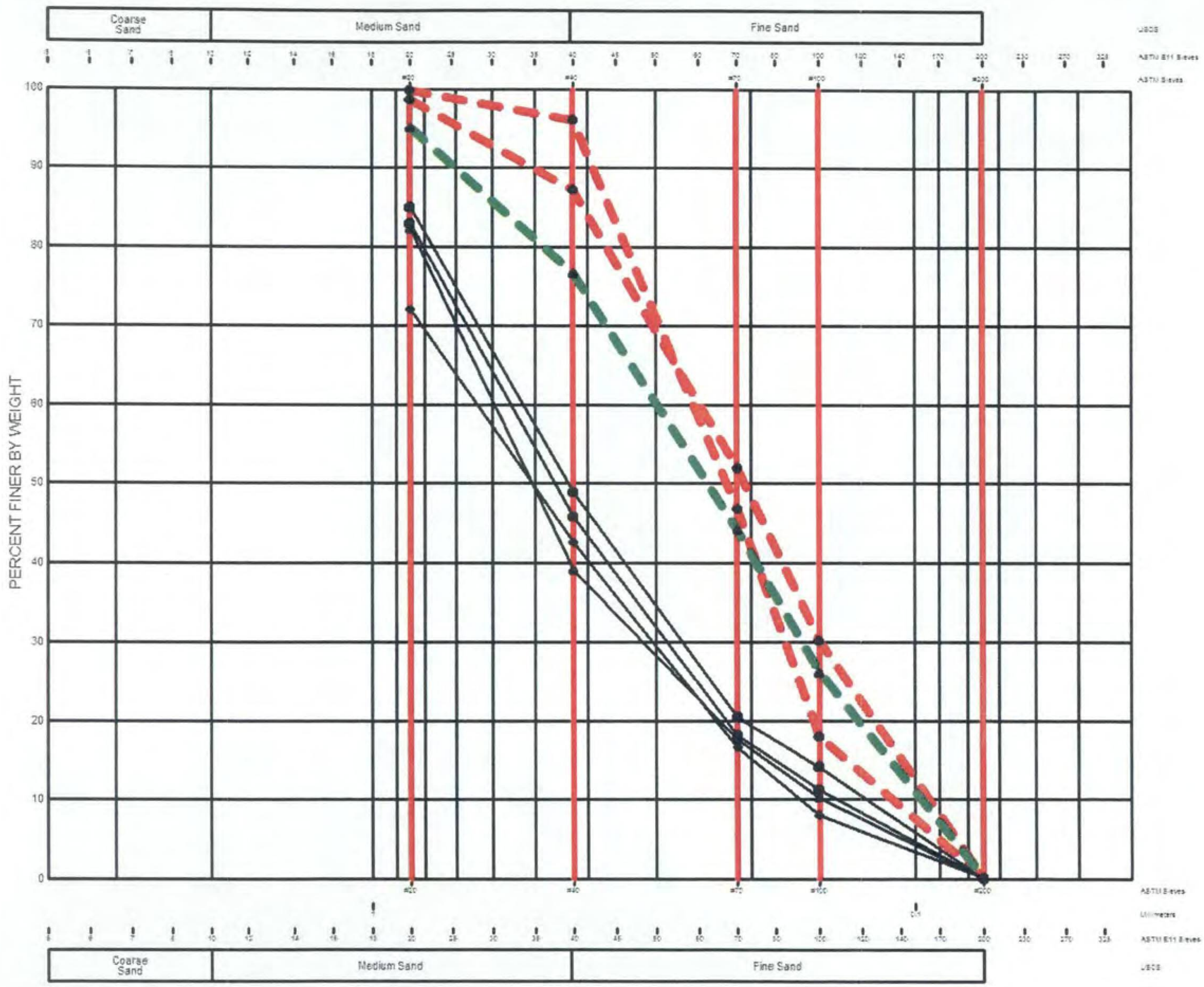
Appendix 2-5d: Sieve diagram for drillhole F04.



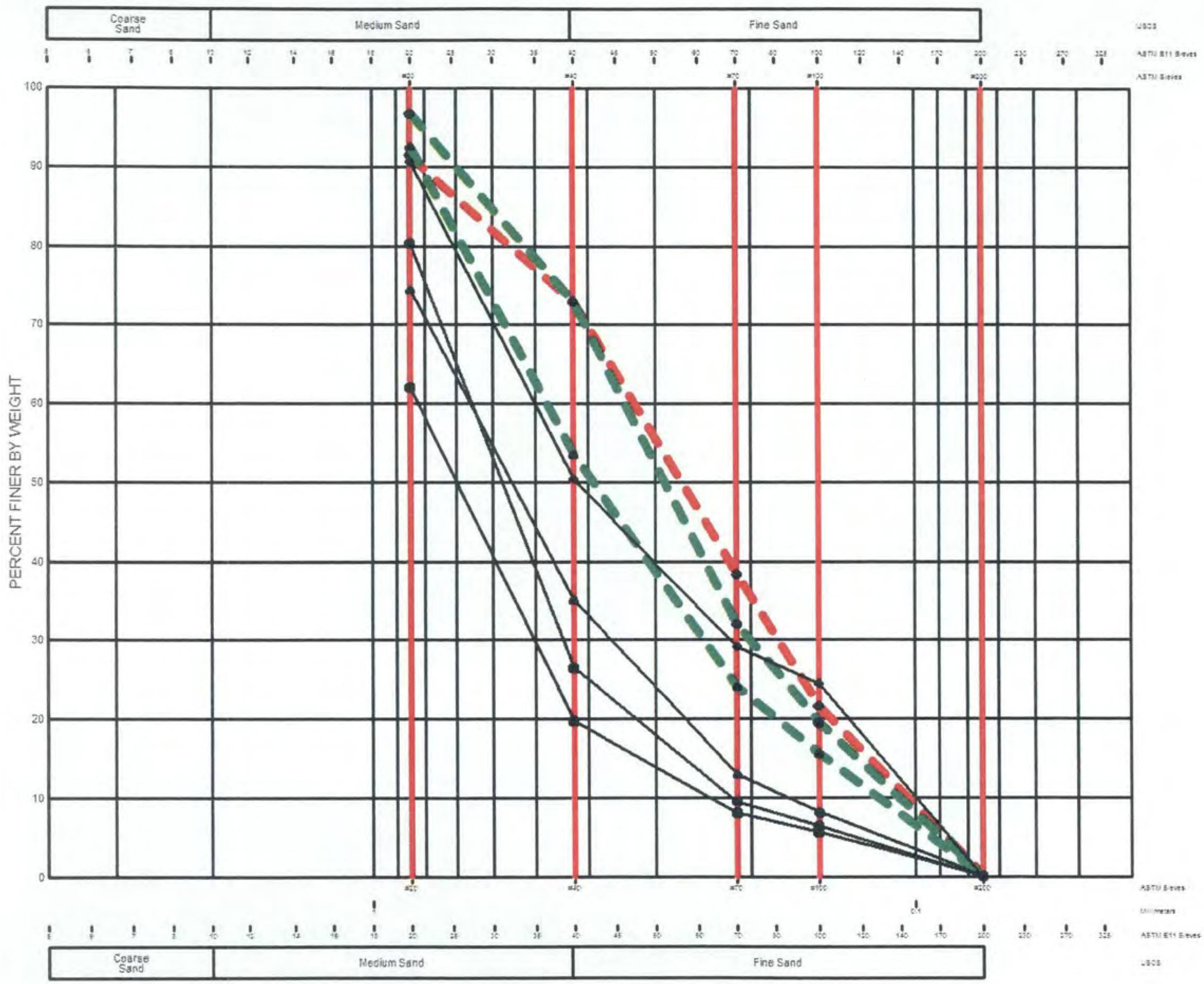
Appendix 2-5e: Sieve diagram for drillhole F05.



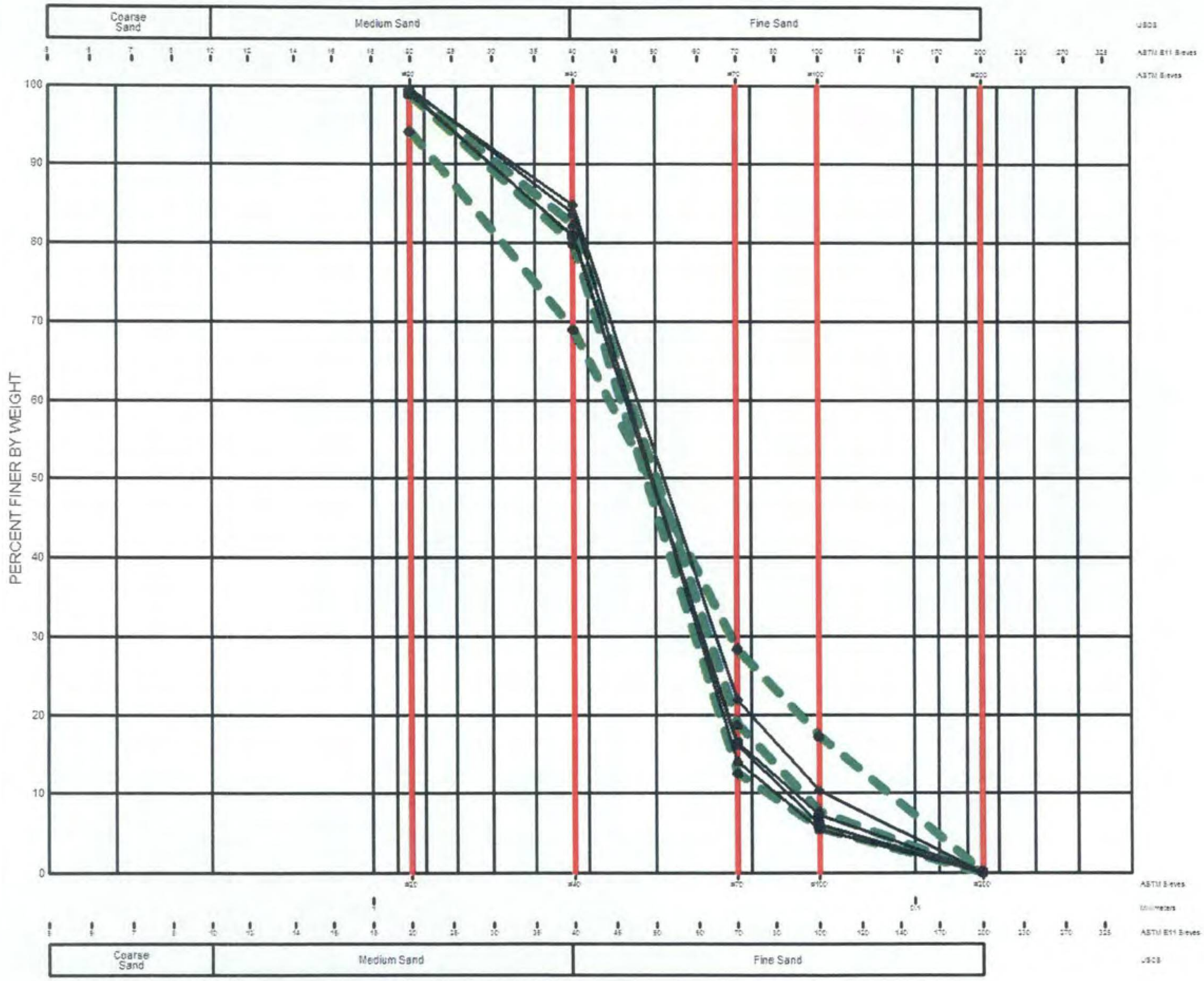
Appendix 2-5f: Sieve diagram for drillhole F06.



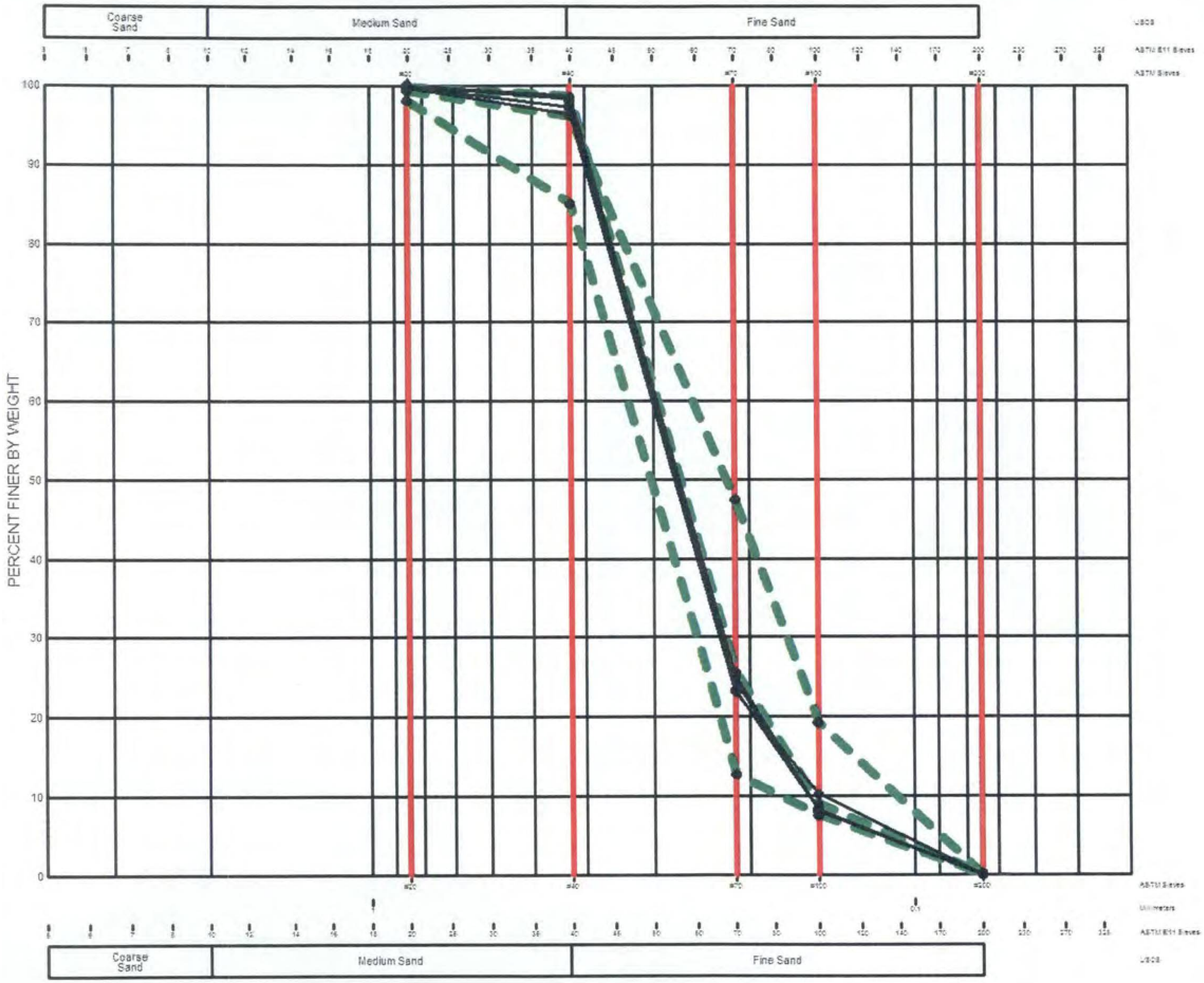
Appendix 2-5g: Sieve diagram for drillhole F07.



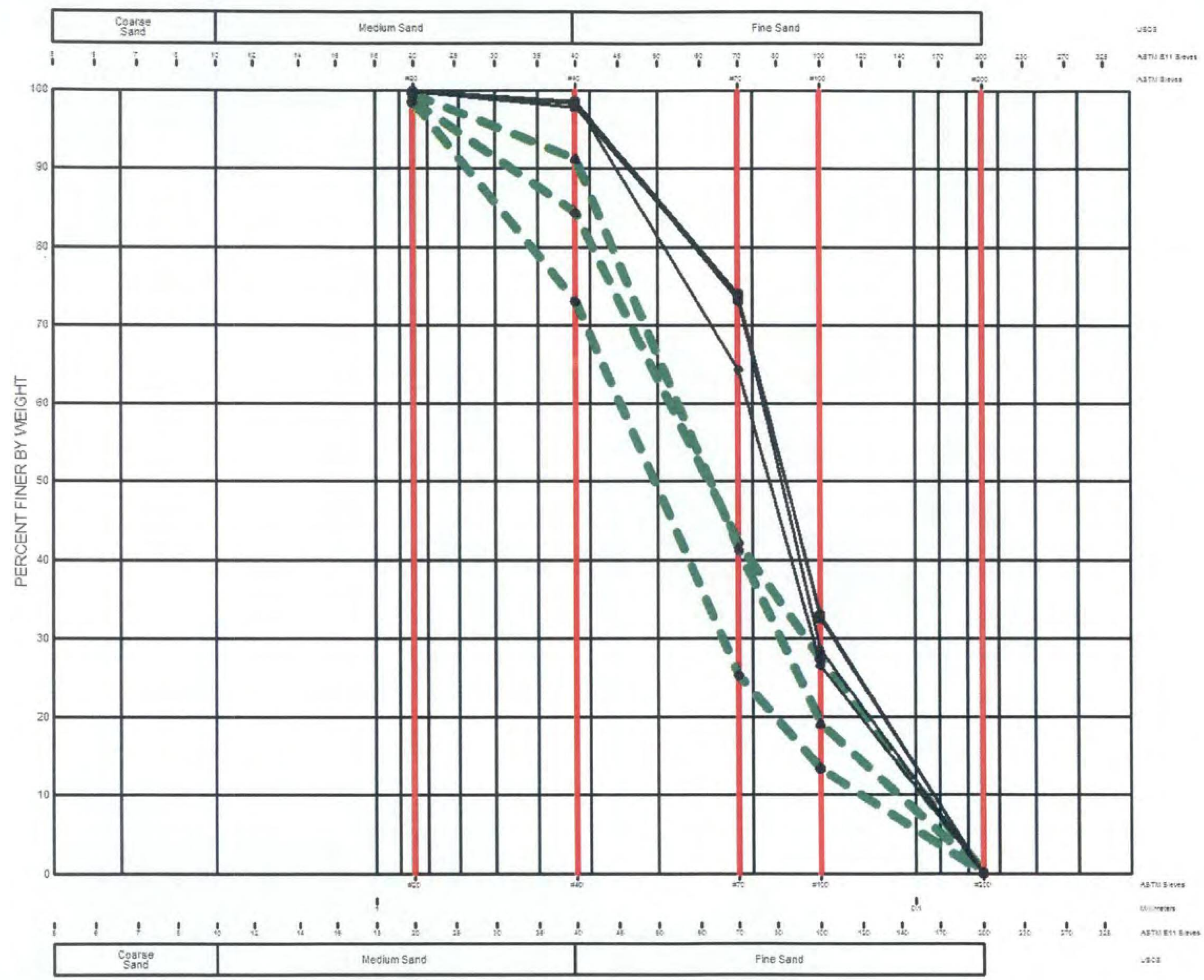
Appendix 2-5h: Sieve diagram for drillhole F08.



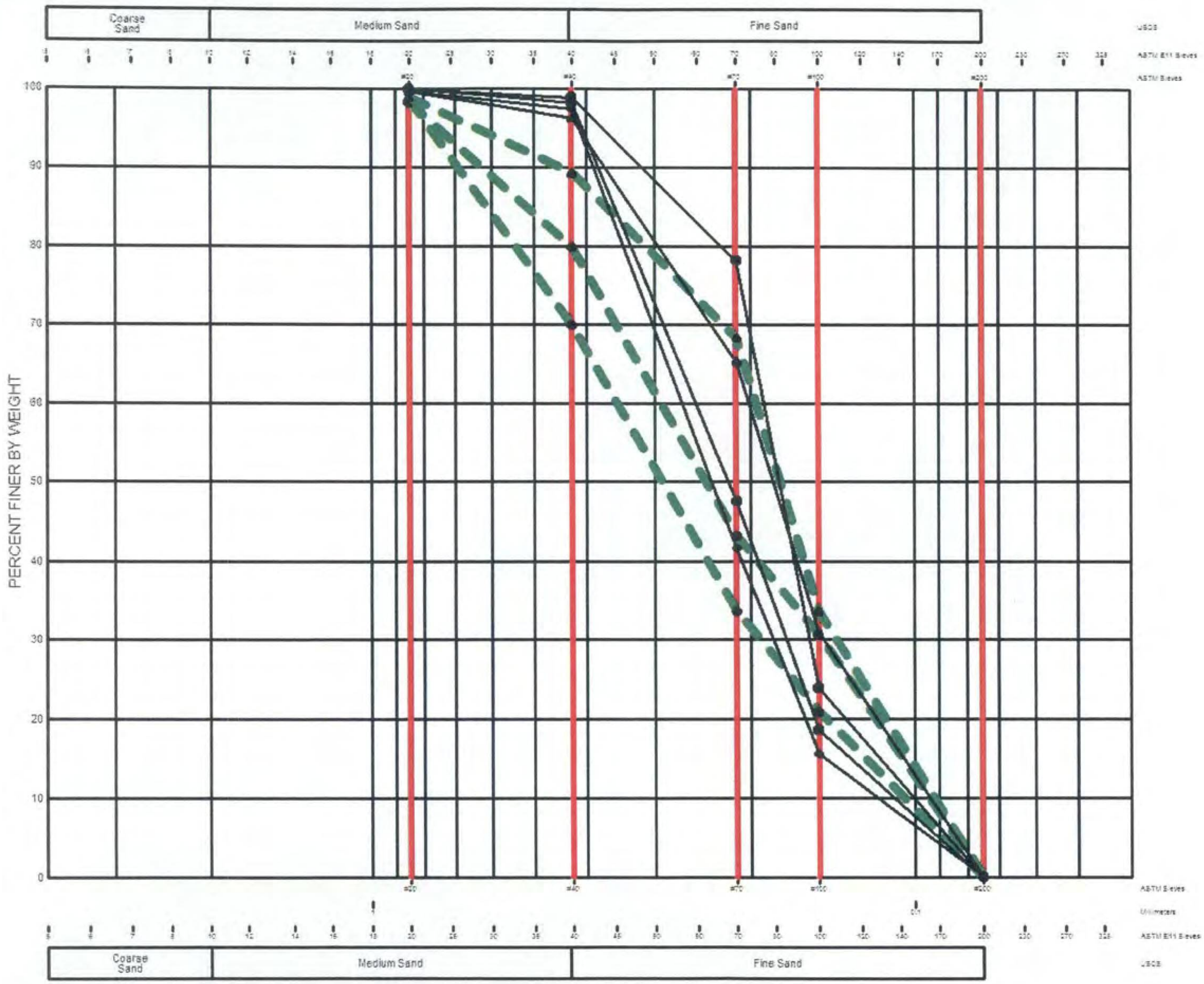
Appendix 2-5i: Sieve diagram for drillhole F09.



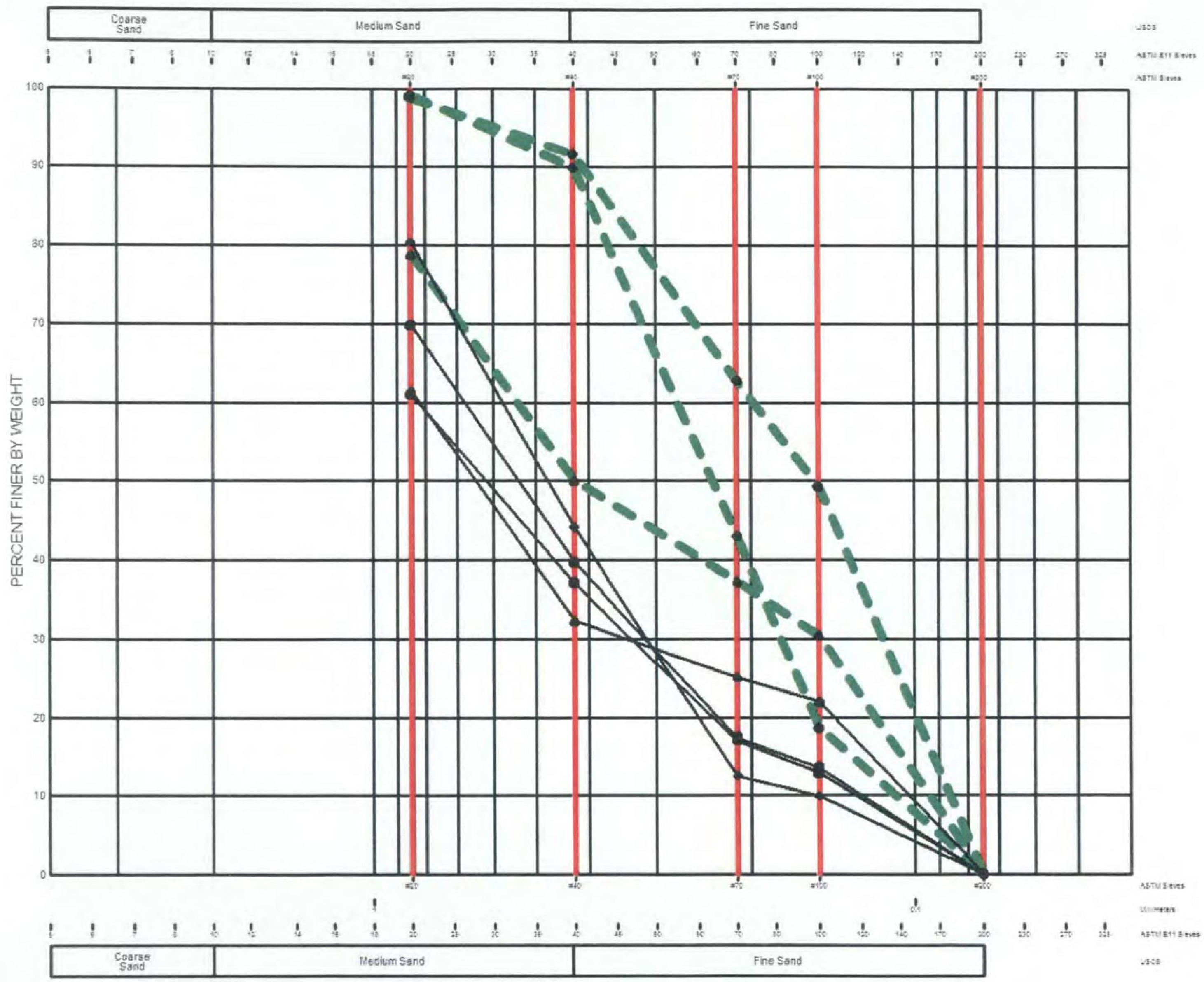
Appendix 2-5j: Sieve diagram for drillhole F10.



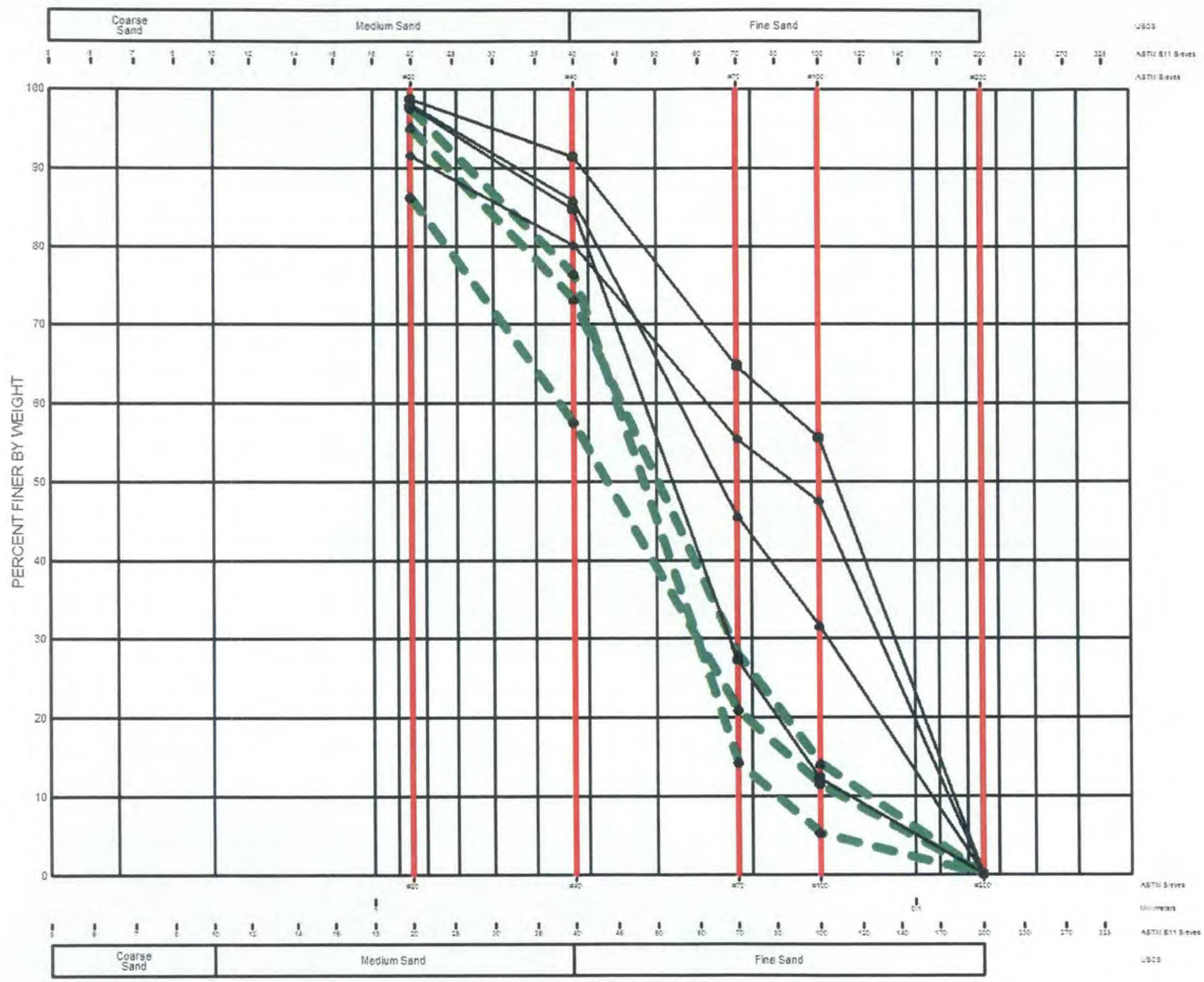
Appendix 2-5k: Sieve diagram for drillhole F11.



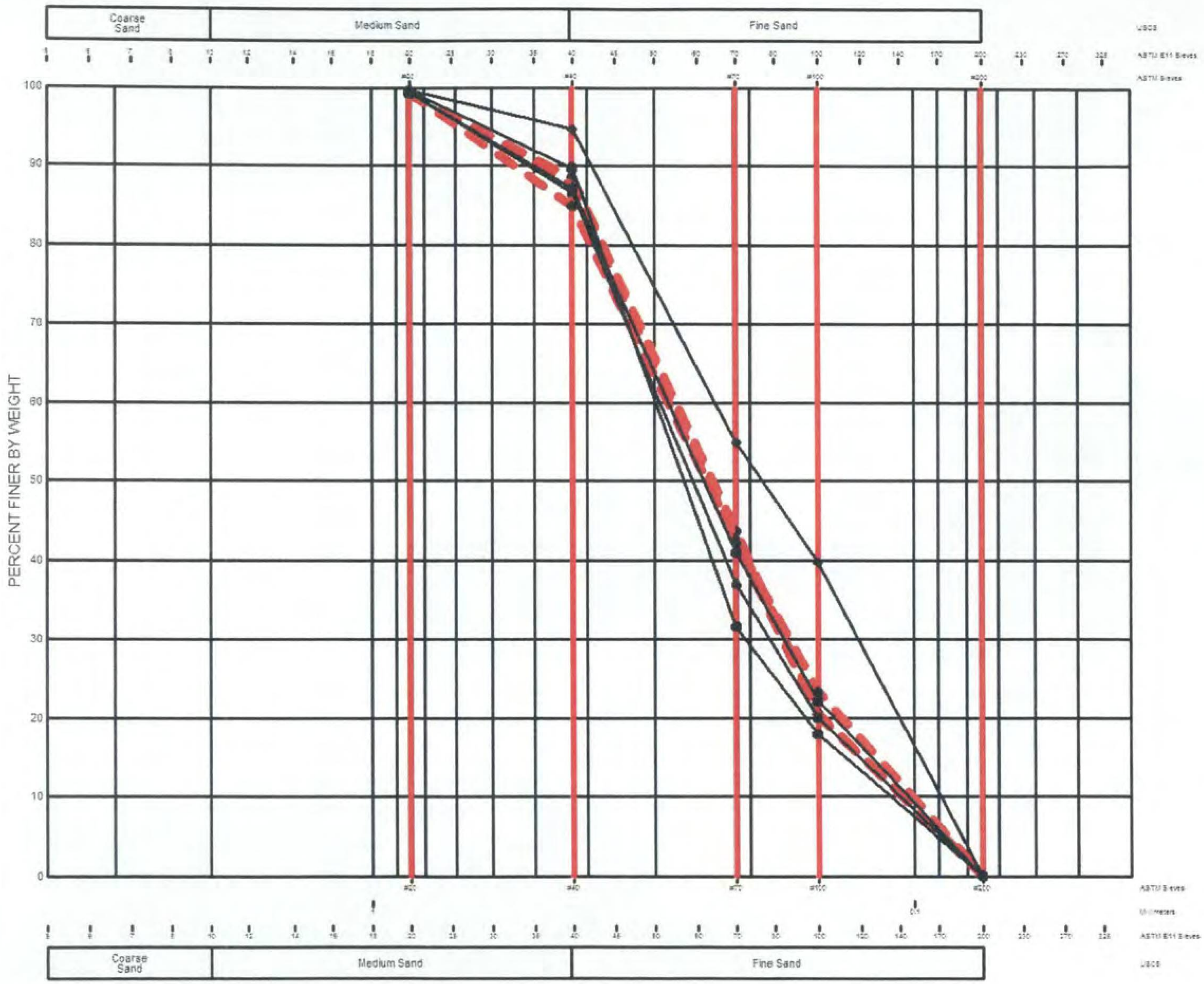
Appendix 2-5l: Sieve diagram for drillhole F12.



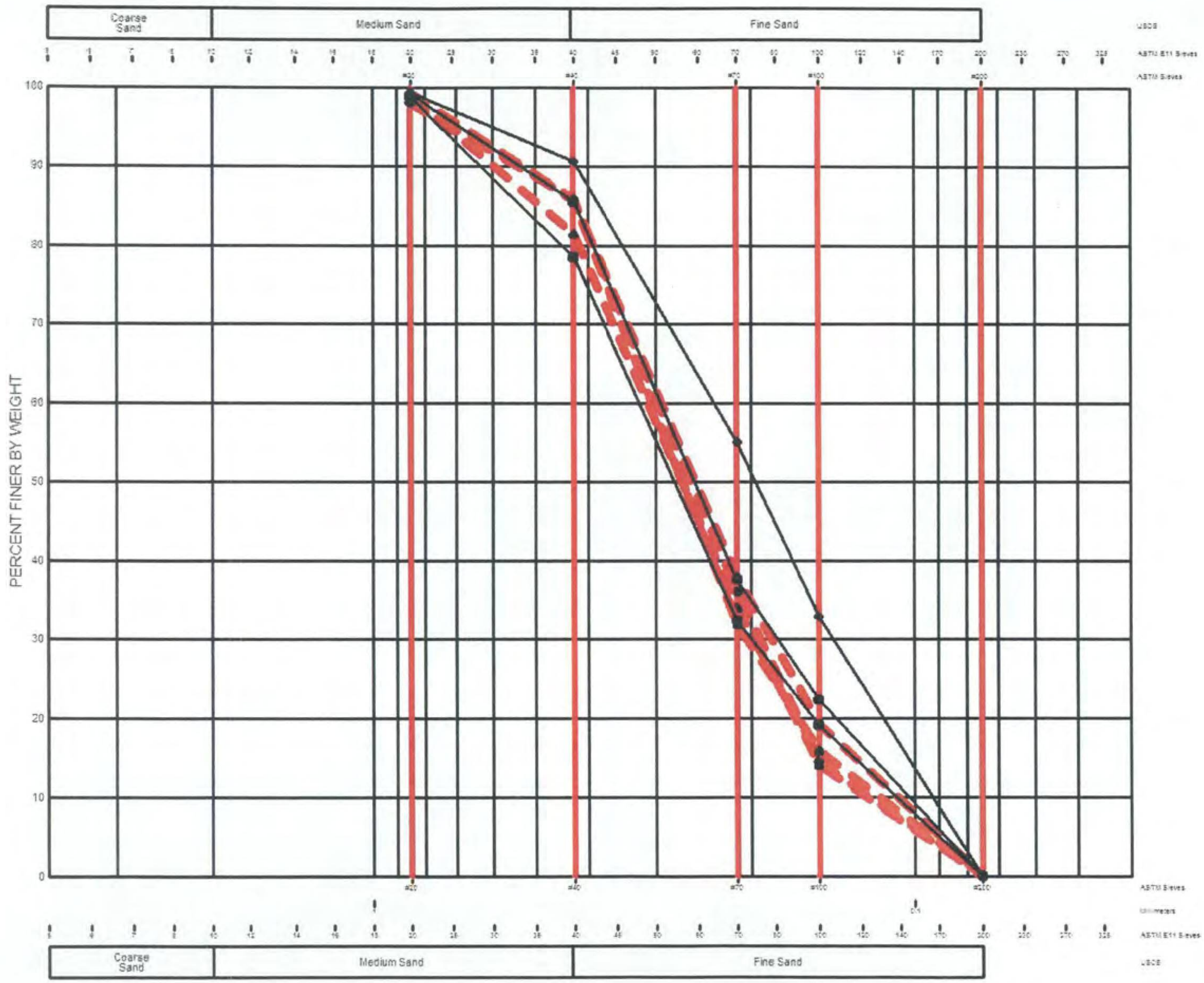
Appendix 2-5m: Sieve diagram for drillhole F13.



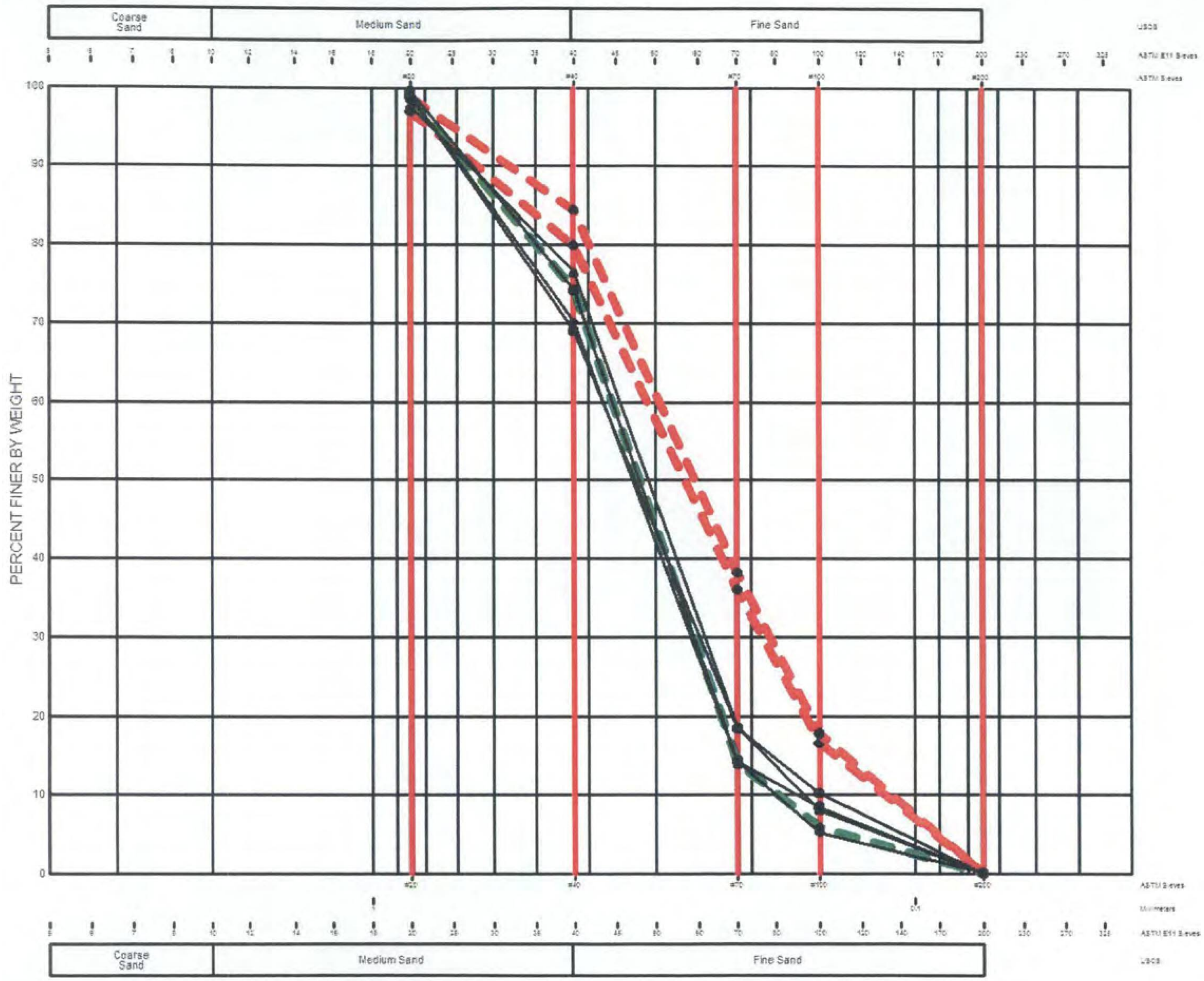
Appendix 2-5n: Sieve diagram for drillhole F14.



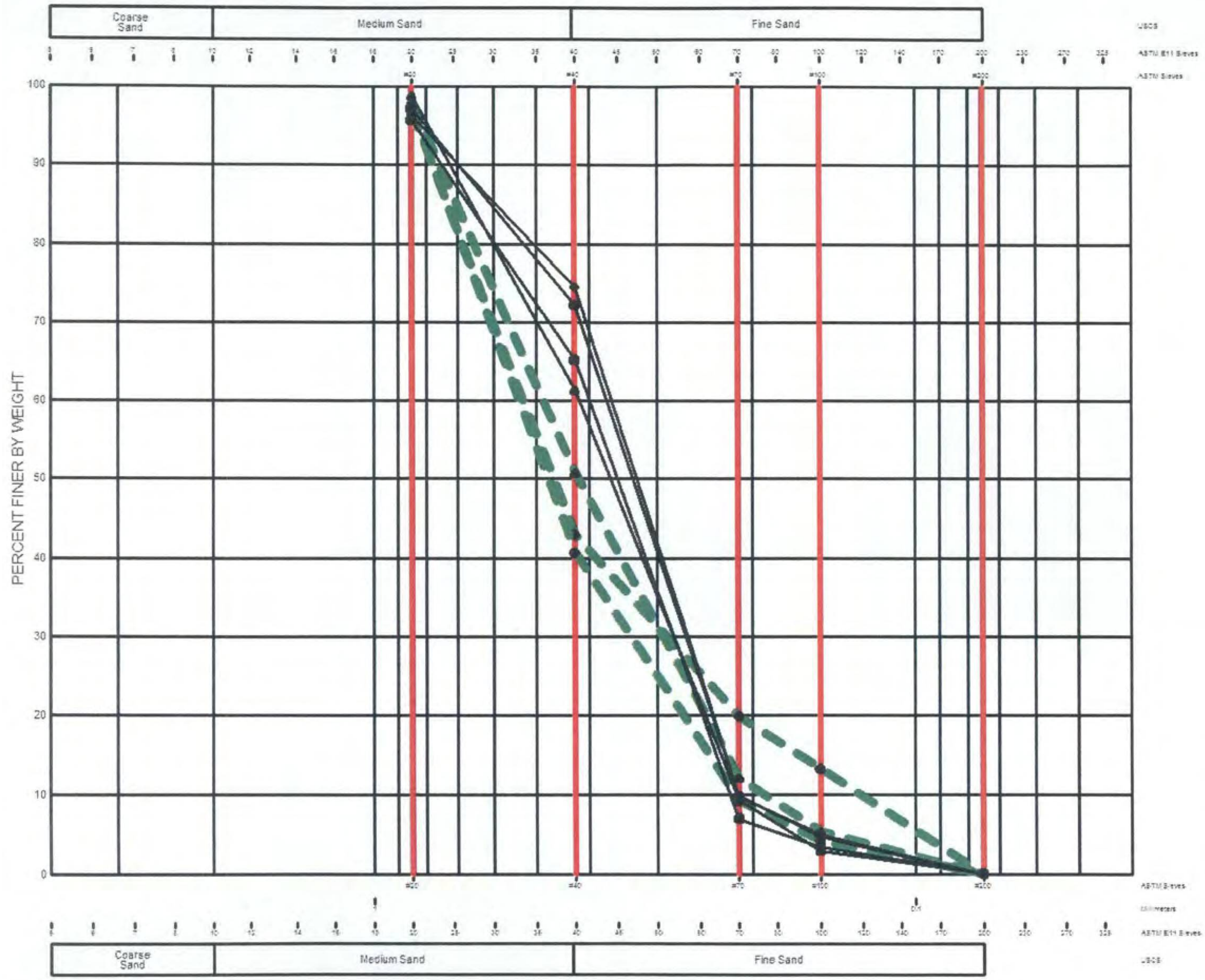
Appendix 2-50: Sieve diagram for drillhole F15.



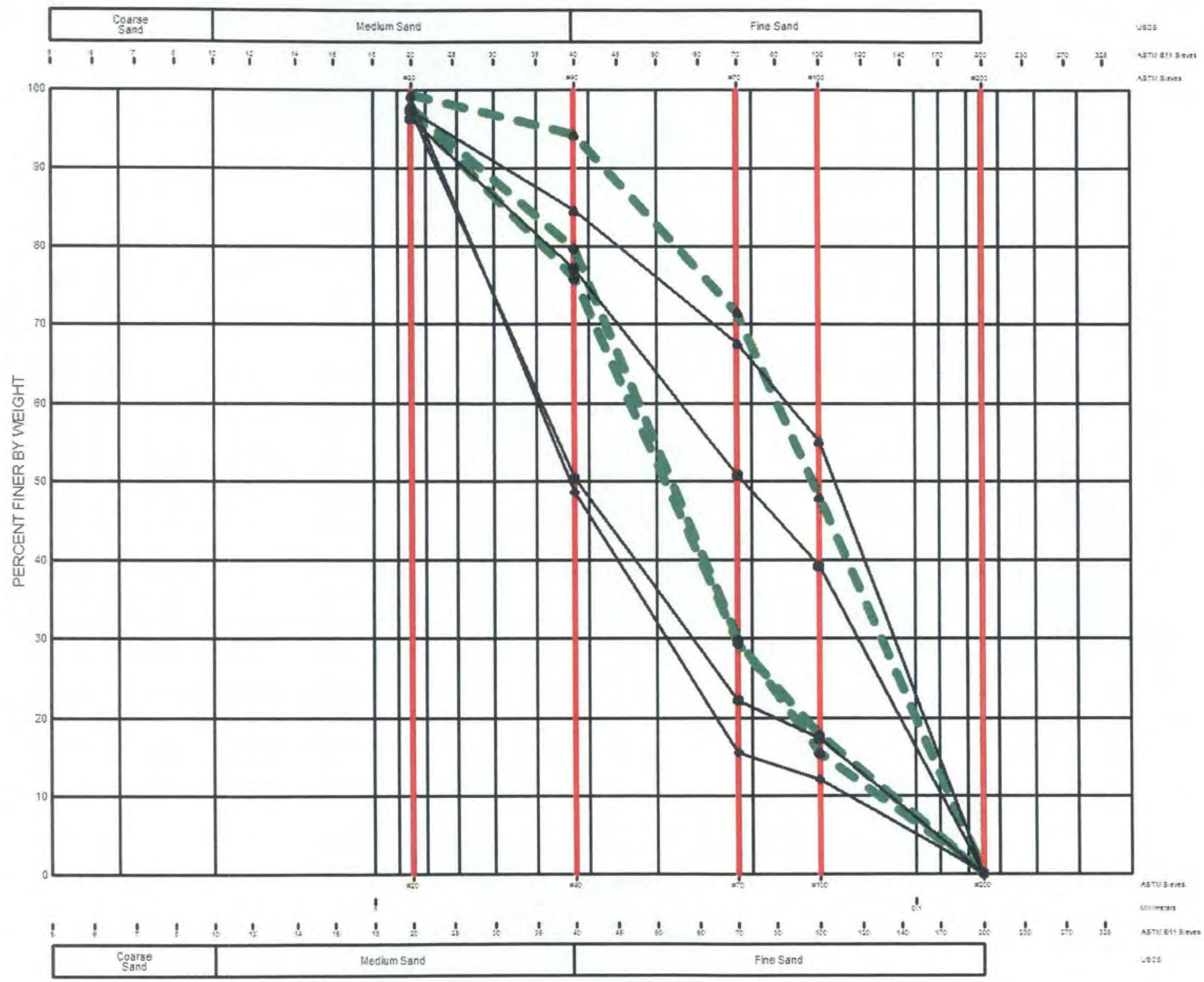
Appendix 2-5p: Sieve diagram for drillhole F16.



Appendix 2-5q: Sieve diagram for drillhole F17.



Appendix 2-5r: Sieve diagram for drillhole F18.



Appendix 2-5s: Sieve diagram for drillhole F19.