ASSESSMENT REPORT

ON

EXPLORATION PROGRAMS 2010-2012

SBH PROPERTY

Birch Mountains, Athabasca Region, Alberta, Canada

DNI METALS INC.

(formerly Dumont Nickel Inc.)

by

Shahé F.Sabag MSc PGeo

Signing Date: April 20, 2012

(Effective Date: January 31, 2012)

Part-B

Technical Report

Metallic and Industrial Minerals Permits against which assessment expenditures are being applied
9310030798, 9310030799, 9310030800, 9310030801, 9310030802, 9310030803, 9310030804, 9310030805, 9310030806, 9310030807, 9310030808, 9310030809, 9310030861, 9310030862, 9310030863, 9310030864, 9310030865, 9310030866, 9308060406, 9308060407, 9308060408, 9308060409, 9308060410, 9308060411, 9308060412, 9308060413, 9308060414, 9308060415, 9309010692, 9310080630, 9310080631, 9310080632, 9310120510, 9310120511, 9310120512 and 9310120513.

DNI METALS INC.

(formerly Dumont Nickel Inc.)

Suite 1711, 25 Adelaide Street East, Toronto, Ontario, M5C 3A1, Tel (416)595-1195, Fax (416)595-5458

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TERMS OF REFERENCE

This Report summarizes exploration work and programs carried out during 2010-2012 by DNI Metals Inc. at its 100% held SBH Property, Alberta. The Report was prepared for DNI by S.Sabag PGeo, who was commissioned by DNI for its preparation, for filing toward assessment work requirements for the Property.

Much of this Report concerns itself with a winter 2010-2011 drilling program completed by DNI in addition to related analytical and metals leaching testwork, as preparatory work in advance of two resource studies completed in 2011-2012, for a portion of the Buckton Mineralized Zone which is one of six mineral systems (zones) identified on the Property. The report also contains results from various ongoing analytical work programs some of which commenced prior to 2010 and their details were outlined in a prior assessment report filed by DNI in August 2010 reporting work completed by DNI during 2007-2010 (Alberta Mineral Assessment Report MIN20100017).

A number of reports from third-party consultants to DNI are appended herein summarizing their findings from studies and work programs commissioned by DNI or programs implemented by them on DNI's behalf. Given the ongoing nature of some of the third-party work, some of the reports therefrom included herein are in memorandum format intended to serve as progress summaries, and others represent interim reports from work that is ongoing. Salient sections from the foregoing reports have been extracted and collated into this report. The reader is referred to the respective reports for additional details.

As at the date hereof, additional work is in progress comprising continuation of testwork reported on herein including leaching testwork and a additional resource study relating to overburden cover rocks in advance of revision of existing resources and a scoping study scheduled to commence later in 2012.

Shahé F.Sabag PGeo
President & Chief Executive Officer
DNI Metals Inc.
April 20, 2012

1. SUMMARY

Property

DNI Metals Inc. holds a 100% interest in the SBH Property (the "Property") consisting of thirty-six (36) contiguous Alberta Metallic and Industrial Mineral Permits (the "Permits"), representing an aggregate of 2,720 contiguous square kilometers (272,032 ha). The Permits extend over a 50kmx60km quadrant defined by T97-T103/R12-R17/W4, in northeast Alberta. The Property is located over the Birch Mountains, approximately 120 kilometers to the north of Fort McMurray, in the Athabasca oil sands region. DNI assembled the permits comprising the Property during 2008-2009 (certain portions were allowed to lapse and re-acquired in 2010). DNI acquired the permits relying on extensive third-party historic exploration records.

DNI's 100% interest in the Property is subject to a traditional royalty retained by the Province of Alberta against metal production revenues therefrom. There are no other overriding royalties encumbering DNI's interest. The Permits grant DNI the exclusive right to explore for metallic and industrial minerals for fourteen years subject to traditional assessment work performance biannually, and also grant use of the surface for the purposes of mineral exploration work.

Coexisting rights to oil sands, oil and gas over the Property are held by third parties. There are four active oil sands operations under different stages of development adjacent to the Property's east and south boundaries (Horizon, Pierre River, Equinox and Frontier). The Horizon oil sands mine is in production. There are active gas pipelines over the south-eastern parts of the Property.

DNI has been actively exploring the Property since its acquisition, predicated on recommendations of its NI-43-101 technical report prepared for the Property in 2008 (available on SEDAR.com) relying on extensive third-party public exploration records and databases from prior work dating back to the 1990's. DNI's more recent work has been modified to respond to findings from its various work programs, and its work programs completed prior to those discussed in this report are outlined in Alberta Mineral Assessment Report MIN20100017.

Permits Status & Assessment Work Expenditures

The permits comprising the Property have commencement dates ranging Jun30/2008 to Mar29/2010. The permits are contiguous and are grouped for assessment filing purposes. DNI has previously (Aug/2010) filed an aggregate of $958,362 toward assessment work to renew portions of the Property, including $44,432 in excess expenditures "banked" for future renewals. An aggregate of $2,150,231 (including a 10% overheads provision) was spent on exploration activities on the Property during the period Jul/2010-Jan/2012 toward ongoing data consolidation and synthesis, a 2010-2011 winter drilling program, leaching and bioleaching R&D testwork, two resource studies and ongoing analytical work related to the foregoing. Bulk of the expenditures incurred relate to a 2010-2011 winter drilling program and subsequent resource studies. The drilling was conducted over Permits#930806412 and #9308060407 and the subsequent related resource studies extend over Permits #9308060412 and #9308060410. The aggregate expenditures (including an excess of $43,463 for future use) are being applied against all of the permits, which are grouped, for assessment filing purposes to extend their anniversary dates.

Exploration Focus

DNI's primary exploration targets on the Property are metal accumulation zones hosted in polymetallic black shales associated also with considerable exhalative volcanogenic debris, bentonite development and extinction markers. The shales were discovered in 1995 by others, but could not be exploited at the time by then available metals recovery technologies. Advances over the past decade in the application of bioleaching to economic extraction of metals has significantly enhanced merits of polymetallic black shales worldwide as a long term future source to metals, and has similarly transformed the Alberta polymetallic shales from geological curiosities into prospective mineral opportunities.

The polymetallic zones are hosted in the Cretaceous Second White Speckled Shale Formation which is known to be near the surface over the entire Property, and is exposed throughout its eastern and southern parts. Several potential zones were identified by historic work, two of which have been confirmed by historic drilling. The shale hosted metal zones are envisaged to extend over vast areas (50-100 sq km each), occurring as flat-lying near-surface "blankets" amenable to extraction by open pit bulk mining methods subject to constraints imposed by depth criteria. Two of the zones, the Asphalt and Buckton Zones, are recognized by DNI to host two Mineralized Zones (under NI-43-101). The Property's large size is appropriate to the type and size of metal targets being sought by DNI.

Of collateral interest, is the suspected presence over the Property, and the surrounding Birch Mountains, of exhalative volcanogenic venting unique to the Birch Mountains, as a source to the volcanic debris, bentonites and metals discovered in the Speckled Shale. The potential of the foregoing to host sedimentary exhalative - SEDEX style - sulfides has never been investigated and comprises the secondary exploration objective over the Property, although to date DNI has not yet commenced field work to explore the foregoing potential.

Prior Work History

The only prior exploration of the Property for metals is extensive work carried out by Tintina Mines Limited during 1993-1999, augmented by concurrent work by the Alberta Geological Survey and the Geological Survey of Canada, partly in collaboration with Tintina. Some of the foregoing work was carried out by, or under the supervision or direction, of S.F.Sabag PGeo the author of this report and DNI's Qualified Person (QP) for the project and its current president, while he was affiliated with Tintina in charge of its exploration programs. There has since been no metals exploration work on the Property with the exception of work conducted by DNI during 2007-2010.

Tintina discovered the polymetallic black shales by accident in 1995 while searching for metal bearing permeability traps in redox fronts across northeast Alberta. The shales were initially explored as prospective redox fronts which could accumulate metals at their base, although 1997 verification drilling intended to probe beneath them discovered metal enrichment hosted in the black shales instead. What started out in 1993 as a search for gold-copper bearing redox systems ultimately led over a four year period to the discovery of previously unrecognized extensive metalliferous black shale assemblages at the Lower-Upper Cretaceous unconformity, associated also with considerable subaerial venting and previously unknown extinction markers.

The databases available from the historic work provide baseline geological information from the Property. They include databases from systematic reconnaissance level and in-fill surface geochemical, lithogeochemical and mineral sampling, in addition to geophysical and, more localized, drilling information, all of which augmented also with subsurface information from prior oil-gas drilling over the Property.

Though the polymetallic black shales underlying the Property were discovered in 1995, they could not be exploited by then available metals recovery technologies. Advances over the past decade in the application of bioleaching to economic extraction of metals from has significantly enhanced merits of polymetallic black shales worldwide as a long term future source to metals, and has similarly transformed the Alberta polymetallic shales from geological curiosities into prospective mineral opportunities.

DNI's work programs during 2007-2010 focused mainly on demonstrating collective recoverability of base metals and uranium from the Second White Speckled Shale Formation Shale by leaching and bioleaching procedures through a series of batch amenability bench scale tests. Encouraged by good results from its testwork, DNI completed its first drilling program in 2010-2011 and in 2011-2012 delineated an initial mineral resource from one the six zones identified (the Buckton Zone). DNI's recent work recognized the potential for extracting REEs and specialty metals (eg:Li,Sc,Th) as incidental co-products to leaching of base metals from the shale, and also recognized potential of additional mineralization, notably REE and specialty metals, hosted in the overburden cover rocks overlying the Buckton resource and its vicinity.

Physiography, Access and Surrounding Oil Sands Mines

The general region is of low, often swampy, relief punctuated by a handful of features protruding above the otherwise flat terrain. The Birch Mountains, located to the west of the Athabasca River, is the most conspicuous topographic feature in the region, protruding 500m-600m above the surrounding areas, with a distinct sharp erosional edge. The Birch Mountains provide excellent vertical exposures, especially in river valleys, across relatively long sections of the flat-lying Cretaceous stratigraphy of northeast Alberta, which are otherwise buried to the west and eroded to the south and east. DNI's exploration targets are nearer the surface of the Birch Mountains and are, accordingly, not exposed elsewhere in the region; they are eroded to the east of the Property and are buried under successively deeper cover to the west.

Access throughout the region is in a state of rapid development, providing road access to many pending oil sands projects skirting the Birch Mountains surrounding the Property to the east and south. There is good access to the Property's east and south boundaries by roads along the west shore of the Athabasca River. There is access by barge/boat via the Athabasca River, and also good access by rotary as well as fixed-wing aircraft relying on many private and public airstrips around the Property, one of which is on its eastern part. Access within the Property is best by rotary aircraft, although many old trails and seismic lines offer adequate, albeit selective, access especially during winter months.

Property Geology

The Property is situated in the sedimentary sequences of the Western Canada Sedimentary Basin dominating Alberta geology. The sedimentary sequences unconformably overlie a relatively stable Precambrian platform with localized zones of reactivation, and comprise a wedge shaped sedimentary pile bounded by the Rocky Mountains to the west the Canadian Shield to the east.

The sedimentary pile is substantially a flat-lying "layer cake" consisting of Devonian sequences at its base (carbonates, evaporite and basal red beds), which are unconformably overlain by Cretaceous clastic sedimentary Formations, the lowermost of which (McMurray Formation) hosts the oil sands deposits. The Lower Cretaceous sequences transition up-stratigraphy through a series of unconformities and disconformities to Upper Cretaceous clastic sequences separated from same by a principal extinction marker (the Fish Scales Marker Bed, Shaftesbury Formation) and a lesser known extinction horizon, the Second White Specks Formation.

A number of "hot-spots" have been recognized in the region, believed to reflect heat generation by the decay of radioactive elements at the top of the Precambrian basement beneath the Western Canada Sedimentary Basin. The Birch Mountains, and the Property, lie over one of the most significant hot-spots recognized, and Cretaceous Formations therein exhibit unique characteristics which are different than exposures of the same Formations elsewhere in northern Alberta away from the Birch Mountains.

Bedrock exposures throughout the Property are scarce (<2%) and, given the flat-lying stratigraphy, they are restricted to valley walls of the many creeks and rivers which define incisions confined to the eastern and southeastern erosional edge of the Birch Mountains, forming a narrow 5-10km arcuate lobe. The available exposures enable intermittent observation and sampling across 300m-350m of Cretaceous stratigraphy, extending upward from the top of the Manville to well into the Colorado Group, straddling the Albian-Cenomanian boundary, exposing five Formations: the Clearwater/Grand Rapids, the Viking/Pelican, the Westgate, the Fish Scales, and the Second White Speckled Shale Formations. Many of these Formations are eroded to the east of the Birch Mountains and to its south.

Near surface geology over the Property consists entirely of Lower-Upper Cretaceous sequences, and mostly straddles the Second White Speckled Shale and the Shaftesbury (Belle Fourche) Shale Formations. These shales are typical black shales with average 1.8% and 6.2% organic Carbon, respectively. The Second White Speckled Shale is enriched in Mo-Ni-V-U-Zn-Cu-Co-Ag-Au-REE and specialty metals (eg:Li,Sc,Th) compared to its enveloping Formations, and is a typical metal enriched black shale compatible with the Rift-Volcanic type of metal enrichment style recognized from black shales worldwide.

The Rift-Volcanic type of metal enrichment in black shales is associated with intracontinental rifting and basic volcanism in the oceanic crust. Metal accumulations of this type comprise alternating layers of metalliferous black shale and tuffaceous material, are known to occur around volcanic centers, and are believed to have been controlled by hydrothermal-volcanogenic events (submarine exhalations) in the presence of organic matter. The metal accumulations are further characterized by modest-low grading deposits of immense size (300MM-1,000MM+ tonne range) contained in tabular geometries, with thicknesses ranging 20m-100m extending over tens of square kilometers.

The overall region surrounding the Property is better known for its oil sands operations than for its mineral potential, although co-product metals (V, Ti) in oil sands deposits have attracted intermittent attention. Polymetallic mineral aggregations in the Cretaceous carbonaceous shales being targeted by DNI were unknown, and not recognized, until their discovery in 1995 and confirmation by drill testing in 1997.

Economic Geology and Metal Zones

Metals enrichment of interest to DNI on the Property consists of Mo-Ni-V-U-Zn-Cu-Co-Ag-Au-REE and specialty metals (eg:Li,Sc,Th) hosted in, and confined within the contacts of, the Second White Speckled Shale Formation. This Formation is typically a 20m-40m thick flat-lying "blanket" of poorly consolidated black shale, gently block-faulted in several places. Based on historic drilling, the Formation is 18.4m-26.2m thick at the Buckton Zone, and approximately 11m thick over the portion drilled at the Asphalt Zone. Recent work completed by DNI notes that overburden cover rocks above the Second White Speckled Shale are mineralized with Li, Rare Earth Elements and Specialty Metals, but are substantially barren of base metals and uranium.

The Second White Speckled Shale demonstrates good lateral geological and metal grade continuity between widely spaced historic holes drilled across an 8km cross-section over the Buckton Zone and also between the two historic holes drilled 900m apart over the Asphalt Zone. Average metal grades reported by the historic drilling also demonstrate remarkable consistency between averages from the Buckton Zone and those from the Asphalt Zone located 30km away to its south, reinforcing the typically good grade consistencies documented by historic surface sampling of the Shale's exposures across the entire 50km length of the Property. This is typical of the good lateral continuity characterizing black shales worldwide.

Vertical metal grade variations in the Second White Speckled Shale depict zonation for many of the base metals, with (overall) better concentration of Mo-Ni-U-(Zn) nearer the Formation's upper contact, dominated by intermixture of considerable bentonitic seams into the shale, and overall better concentration of V, Cu throughout its midsection. Metals enrichment in the upper sections of the Formation is also accompanied by Ba, S, Na and Corg enrichment, and by higher pyritic contents ranging upward to 20% by volume. Vertical grade zonation is typical of metalliferous black shales worldwide.

The Second White Speckled Shale contains fine and coarser sulfides which are dominated by many varieties of Fe-S species. The higher metal grades are contained in the more bentonitic upper sections of Shale. Cu-sulfides, Ni-sulfides as well as native gold have been documented in mineral concentrates recovered from the Shale, though no systematic mineralogical work exists characterizing its overall mineral make-up. Based on geochemical correlations, metals in the Second White Speckled Shale are likely hosted in multiple carrier minerals some of which are inorganic (sulfides, oxides) and others are likely organic (or clay) forms, with a suggested grouping of the various metals into one group (Mo, Ni, Zn, Mo, +U) characterized by affinity for enrichment predominantly in, or as, inorganic minerals and another group (V, Cu) exhibiting affinities for enrichment in organic (or clay) species, some subpopulation overlaps, notwithstanding. Mineral liberation (MLA) work completed by DNI suggests that at least some of the metallic mineralogy may be in the form of readily liberated charged metal ions adsorbed on clays, which suggestion is consistent with results from DNI's 2009-2010 leaching and bioleaching testwork.

The collective work from the Property and vicinity indicate that while none of the metals is present in the Second White Speckled Shale in sufficiently high concentrations to be of economic merit by itself, the metals Mo, Ni, U, V, Zn, Cu, Co collectively represent sufficient in-situ value on a combined basis to place the Shale within reach of economic viability provided the metals can be efficiently recovered on a combined basis. DNI's 2009-2010 metals leaching and bioleaching testwork demonstrated viability of collective recovery of the metals, many of which with high recoveries. The foregoing is confirmed by more recent work by DNI which also recognizes REEs and Specialty Metals as recoverable co-products which represent additional value recoverable from the Shale.

The collective historic work from the Property and vicinity indicate that the Second White Speckled Shale Formation holds potential for hosting laterally extensive metal enrichment zones with potential for delivering immense volumes of metals from tonnages which are partly exposed at, or are near, surface. The work also suggests that, provided metals can be effectively recovered on a combined basis from the Shale, the most attractive features of metal deposits identified therein would be (i) their potentially immense projected size, hence the potential as a long term source of metals;(ii) their proximity to surface and unconsolidated nature, hence likely amenability to extraction by low cost large scale bulk mining; and (iii) the remarkable uniformity of geology and metal grades as demonstrated by the drilling and other sampling over the large areas over the Property and it vicinity. DNI's recent work and related resource studies for a portion of the Buckton Zone which are discussed below corroborate the foregoing.

Overall conclusions from all historic work over the Birch Mountains Middle-Upper Cretaceous stratigraphic package over the Property, overwhelmingly propose a nearby volcanogenic source(s) to the metals discovered. The work further suggests that metallic mineralization in the area is congregated around volcanic centers characterized by considerable exhalative activity, and supports speculation of the existence in the area of yet undiscovered sedimentary exhalative - SEDEX style - sulfides.

In addition to its demonstrable geological merits, the Property's location in a mature mining district, within a well organized regulatory, jurisdictional and land use permitting framework tailored to the development of laterally extensive deposits, provide considerable logistical and infrastructural advantages. The local availability of sulfur as a waste product of surrounding oil sands operations, is an added benefit to any leaching methods which might ultimately be formulated for the recovery of metals from the shale, and would be a welcome sulfur waste mitigation activity in the region.

Anomalies, Target Areas, Zones & Mineralized Zones

DNI's NI-43-101 technical report for the Property (2008) recognized and identified six large mineralized systems on the Property, comprising six large contiguous areas centered over circular, or closed, surface or subsurface features associated with metals enrichment in one form or another either over them or on their flanks. The six areas are designated as six distinct sub-properties which are at different stages of development, ranging from areas with reconnaissance level anomalies which have not previously been explored, through drill-ready target areas with considerable historic work, to two Mineralized Zones at two of the sub-properties both of which have reached the resource definition stage. This report presents an initial resource delineated by DNI at one the foregoing Zones, the Buckton Mineralized Zone, representing the first resource delineated on the Property.

The six sub-properties range in size 100-300 sq km each and their size is appropriate for the principal type of polymetallic mineralization being sought by DNI, namely, nominal 5kmx5km or larger zones of polymetallic enrichment in flat-lying near-surface "blankets" of polymetallic black shale. The sub-properties share many similar characteristics, and provide two different, apparently related, types of prospective exploration and development targets, namely; (i) metal enriched polymetallic black shales; and (ii) possible source(s) to metals therein, proposed herein to be nearby exhalative vents with untested potential to host sedimentary exhalative - SEDEX style - sulfides. The six sub-properties consist of the following, ordered from the most developed to the least explored:

The six sub-properties are at different stages of development, ranging from two areas with reconnaissance level anomalies (**McIvor West Property** and **North Lily Property**), through two drill-ready large target areas with considerable historic work (**Eaglenest Property** and **Buckton South Property**), to two demonstrably continuous and partly drill tested Mineralized Zones which are targets for further exploration to advance them toward classified resources (the **Asphalt** and **Buckton Mineralized Zones** at the **Asphalt** and **Buckton Properties**, respectively). The two Mineralized Zones were previously referenced as "Potential Mineral Deposits", but were renamed in June 2011 as "Mineralized Zones" to harmonize nomenclature with amendments to NI-43-101 which came into effect on June 30, 2011. Although this report pertains almost entirely to work carried out over the Buckton Zone, with lesser work completed on the Asphalt Zone, an abstracted overview of the six sub-properties and related targets is as follows, ordered from the least developed to the most advanced:

The McIvor West Anomaly and **The North Lily Anomaly** comprise two 50-100 square kilometer anomalies which have been designated based on broad interpretations of general information, and have not previously been investigated in the field to determine if they hold realistic potential for hosting buried polymetallic mineralization. They are in the reconnaissance stages and present areas which might hold potential for hosting mineralized shale buried beneath their surface.

The Buckton South Target Area and **The Eaglenest Target Area** comprise large 100-300 square kilometer areas each which have undergone considerable prior historic surface work which has identified prospective targets to be tested by future drilling to probe for suspected buried mineralized shale beneath the surface of each Target Area. Portions of both Areas also present reconnaissance level potential for presence of nearby exhalative vents. The Buckton South Target Area has potential for hosting southerly extension of the Buckton polymetallic Mineralized Zone over a 6km distance, or an altogether separate polymetallic zone of similar dimensions.

The Asphalt Zone and the Asphalt Mineralized Zone represents near-surface polymetallic enrichment in the Second White Speckled Shale, which is partly exposed in nearby river valleys and has been confirmed with two historic (1990's) drill holes cored and three holes cored by DNI in 201-2011. The Zone was discovered by two 3-inch diameter historic vertical holes, drilled to verify suspected metallic mineralization buried beneath composite surface anomalies which, together with enforcing stream sediment geochemical anomalies in adjacent Pierre River and Mid Creek, and partial exposures of the shale in drainages in their vicinity, collectively represent a 3kmx10km anomalous area. The Asphalt holes exhibit consistency of averaged metal grades and are also consistent with the average grade of the historic drilling completed over the Buckton Zone located approximately 30km to its. Lateral consistency is also exhibited in metals grades between the holes, although metal grades exhibit vertical zoning trends generally similar to those observed at the Buckton Zone, namely, a progressive enrichment of Mo-Ni-U-(Ag) upstratigraphy, consistent with progressively more bentonitic sections seen in the drill core which carry more abundant sulfides. V-Zn-Cu-Co, exhibit less ordered mixed trends.

Relying on the historic drill holes, together with reinforcing surface geochemical results and exposures of the Shale in nearby river valley walls, DNI's NI-43-101 report for the Property proposed that the Asphalt Zone contains a Mineralized Zone as understood under NI-43-101 (previously referenced as a "Potential Mineral Deposit", but renamed in Jun/2011 as a "Mineralized Zone" to harmonize with Jun30/2011 amendments to NI-43-101). The Asphalt Mineralized Zone extends over an approximate 1km x 4.5km area comprising approximately 4.5 square kilometers, with a thickness ranging 7.2m to 11.6m, and represents an aggregate of approximately 109-132 million short tons of mineralized material (99-120 million tonnes). DNI's 2009-2010 verification analytical work reported Specific Gravity which is higher than that on which the foregoing tonnages are based, suggesting that the tonnages may be understated.

Grade Averages and Gross Metals Content: Potential Mineral Deposit - Asphalt Zone

	Grade Range (ppm)	Grade Range (lb/st)(opt)	Gross Metal/Oxide Content (lb) (oz) Low Estimate	High Estimate
Mo	63ppm-73ppm	0.13lb/st-0.15lb/st	14,000,000	19,000,000
[MoO3]		0.19lb/st-0.22lb/st	20,000,000	29,000,000
Ni	122ppm-144ppm	0.24lb/st-0.29lb/st	27,000,000	38,000,000
U	31ppm-47ppm	0.06lb/st-0.09lb/st	7,000,000	12,000,000
[U3O8]		0.07lb/st-0.11lb/st	8,000,000	15,000,000
V	664ppm-690ppm	1.33lb/st-1.38lb/st	145,000,000	182,000,000
[V2O5]		2.39lb/st-2.48lb/st	261,000,000	328,000,000
Zn	282ppm-376ppm	0.56lb/st-0.75lb/st	62,000,000	99,000,000
Cu	89ppm-89ppm	0.18lb/st-0.18lb/st	19,000,000	24,000,000
Co	20ppm-20ppm	0.04lb/st-0.04lb/st	4,000,000	5,000,000
Ag	0.3ppm-0.3ppm	0.01opt-0.01opt	1,000,000	1,000,000
Au	assumed nil	assumed nil	assumed nil	assumed nil

lb/st=lbs per short ton; opt=ounces per ton Gross metal contents are rounded to nearest million units *

<u>Note</u>: The Asphalt "Potential Mineral Deposit" was renamed as the Asphalt "Mineralized Zone" in June 2010 to harmonize with amendments to NI-43-101 which came into effect in June 2010.

The proposed Asphalt Mineralized Zone is conceptual in nature, and is intended to demonstrate the potential of identifying mineralized material at the Zone subject to additional future drilling. In addition, there has been insufficient drilling conducted over the Zone to define a mineral resource, and it is uncertain whether further drilling will define a mineral resource over the Zone.

The Asphalt Mineralized Zone is open toward the north and the northwest. It holds potential to deliver additional mineralized material from areas immediately to its northwest over an additional distance of 5km-6km, and similarly also for an additional 6km distance to its northeast. Rare metals, including Lithium, were also discovered and recovered during DNI's 2009-2010 metals leaching testwork in surface samples from the Asphalt Zone, although same has not yet been incorporated into estimates of the Asphalt Mineralized Zones on the Property.

A nearby source is suggested by the historic work for the volcanogenic debris and bentonites noted in the Asphalt drill holes, suggesting also that the general vicinity of the Asphalt Zone holds potential for hosting exhalative metalliferous venting possibly associated with SEDEX style sulfide mineralization hosted in the Cretaceous stratigraphy. Several potential targets are suggested by the historic work.

The Buckton Zone and Buckton Mineralized Zone represents a near-surface polymetallic enrichment zone in the Second White Speckled Shale which is partly exposed in nearby river valleys and has been confirmed by six widely spaced historic (1990's) drill holes and five holes cored by DNI in 201-2011. The Zone was discovered by six 3-inch diameter vertical historic holes which were drilled to verify suspected metallic mineralization buried beneath composite surface anomalies over a 5kmx8km area. The drill holes are arranged along an 8km cross section generally paralleling intermittent exposures of the Zone along the adjacent valley walls of Gos Creek approximately 1km-2km to its southeast. The drilling demonstrated good lateral consistency of metal grades among the holes, and a vertical zoned pattern characterized by progressive Mo-Ni-U-(Zn)-(Ag) enrichment up-hole and better concentration of V-Cu-(Zn) in their midsection. An initial in-fill drilling program completed over the Zone by DNI in 2010-2011 cored sufficient number of holes to enable delineation of an initial resource from the Mineralized Zone (discussed below).

Relying on the historic drilling results, reinforced also by results from exposures of the Second White Speckled Shale Formation in valley walls near the drill-section and near the holes, and further reinforced by surface geochemical data and the remarkable lateral continuity in geology and orderly grades exhibited by the historic drilling, DNI's NI-43-101 report for the Property proposed that the Buckton Zone contains a Mineralized Zone as understood under NI-43-101 (previously referenced as a "Potential Mineral Deposit", but renamed in Jun/2011 as a "Mineralized Zone" to harmonize with Jun30/2011 amendments to NI-43-101). The proposed Buckton Mineralized Zone extends over an approximate 26 square kilometers, with an estimated thickness varying, on average, 20.5m to 21.9m, representing an aggregate of approximately 1.2-1.3 billion short tons of mineralized material (1.1 to 1.2 billion tonnes) hosted in the Second White Speckled Shale Formation. The polymetallic mineralization consist of Mo-Ni-U-V-Zn-Cu-Co-Ag in addition to gold whose average grade has not yet been definitively established over the Zone and is treated as nil in this report. DNI's 2009-2010 verification analytical work reported Specific Gravity measurments which are higher than that on which the foregoing tonnages are based, suggesting that the tonnage estimates are understated.

The Buckton Mineralized Zone proposed by DNI's NI-43-101 Technical Report is conceptual in nature, and is intended solely to provide an indication of the overall potential of the Buckton Zone. The proposed tonnage estimates are superceded by results from an initial in-fill drilling program completed by DNI over the Mineralized Zone during the 2010-2011 winter, which cored sufficient number of holes to enable estimation of an initial inferred resource of 250,092,000 short tons over a 5.7 sq km portion of the Zone. The resource is "open" and is presented below.

The Buckton Mineralized Zone demonstrates good lateral continuity and is vertically zoned, containing generally better grading material over its upper half, and progressively better grades northward in the upper parts of the drill holes accompanied by progressive northward thickening of the better grading sections. Subzones can be blocked out within the Mineralized Zone which are either of better grade than the entire volume (e.g 15%-30% better grades over upper half of the volume being the uppermost 10m), or which are dominated by different groupings of metals, especially over its northern portion where its uppermost sections are progressively better mineralized with Mo-Ni-U-Zn-Co. The upper subsidiary northern subzone, occupies the northern half of the uppermost 10m of the Mineralized Zone and represents approximately 20%-30% of its volume.

The Buckton Mineralized Zone is open to the south, the west and to the north. Its projected northerly extension holds the best potential for providing considerable additional mineralized volumes over an additional 5km-10km under sufficiently thin overburden cover to have realistic potential for access by open pit. The Potential Deposit might extend to the south for an additional 6km, although the southerly projected extension may be an altogether separate mineralized Zone, designated herein as the Buckton South Target Area presented above, which has not yet been drill tested.

The northerly trend of better drill grades in the upper portions of the Buckton Zone, the general trend of northward thickening of the better grading drill sections, together with observations of northerly increasing thickness, frequency and distribution of bentonites in the Buckton drill holes, suggest a northerly nearby source to volcanic debris (and metallic mineralization) incorporated into the Second White Speckled Shale at the Buckton Zone. The trends suggest the presence of exhalative venting to the north of the Zone with potential for hosting sedimentary exhalative sulfides. Several possible targets are identified herein for future follow-up.

DNI Exploration and Development Programs and Work Progress

Conclusions and interpretations of DNI's NI-43-101 technical report for the Property form the basis of its exploration work on the Property, and the report's recommendations define DNI's critical path to advance and develop the six sub-properties over a four to five year period via series of multi-phased integrated programs, with an aggregate $5.3 million budget, addressing the different requisites of each sub-property.

The six sub-properties are at different stages of development, ranging from two reconnaissance level anomalies (McIvor West Property and North Lily Property), through two drill-ready target areas with considerable historic work (Eaglenest Property and Buckton South Property), to two partly drill tested proposed Mineralized Zones, which are open and ready to advance through in-fill drilling to classified resources (Buckton Property and Asphalt Property). DNI regards the six sub-properties as distinct properties in their own right, requiring different exploration/ and development programs to advance their development.

DNI's work programs address the two prospective target types on the Property, namely; (i) exploration and development of known and suspected Shale hosted polymetallic mineralization; and (ii) reconnaissance level exploration for SEDEX style sulfide mineralization as the suspected source to the metals and exhalative debris hosted in the shales.

To the extent that the potential of any polymetallic shale hosted deposits which might exist on the Property is ultimately dependant on whether metals can be effectively and collectively recovered from the shales, DNI held all work intended to identify additional volumes of shale hosted polymetallic mineralization over the Property, or intended to expand the proposed Asphalt and Buckton Mineralized Zones, in abeyance until such time as it demonstrated collective recoverability of metals on a combined basis through bench scale leaching and bioleaching testwork conducted during 2009-2010. Encouraged by excellent recoveries achieved, DNI conducted its first drilling program in 2010-2011 to delineate the first resource from the Property, over a portion of the Buckton Mineralized Zone (discussed below).

DNI is currently partway through a two phased program to evaluate the polymetallic potential of the Second White Speckled Shale as follows: **Phase-1**: comprises substantially only metallurgical testwork to determine recovery of the metals from the shale relying on samples from the Asphalt and Buckton Zones. (this Phase has been completed); and **Phase-2**: consists of drilling and related work over the Asphalt and Buckton Mineralized Zones to classify portions thereof to a resource to be subsequently systematically expanded by testing their projected extensions (DNI has to date successfully delineated a resource over a portion of the Buckton Mineralized Zone).

DNI Current Programs 2007-2010 and Summary of Conclusions

DNI commenced its exploration work on the Property prior to commencing its land assembly in September 2007, and has since actively continued its work to advance development of the Property.

While DNI's earlier work mainly entailed data consolidation and review, DNI quickly progressed into extensive laboratory based activities focusing almost entirely on investigating metal extraction and recovery testwork studies to formulate an economically viable flowsheet for extraction of collective base metals from the mineralized shales. This work entailed completion of BioLeaching as well as conventional inorganic leaching testwork. Much of this testwork is advancing to its expanded stage and is expected to continue through the balance of 2012 toward scaling up of what is currently benchtesting through column leaching tests toward pilot heap leaching tests. DNI is in the process of planning several field and research and testwork programs for 2012-2013.

DNI's work programs completed during the period 2007-2010 included the following: (i) Regional and Property scale geological data synthesis and compilation, including synthesis of information from the Western Canada Sedimentary Basin with specific focus on northeast Alberta the Birch Mountains (2007-2008); (ii) Consolidation of the information from geological data synthesis and compilation into databases as well as preparation of a NI-43-101 compliant Technical Report for the Property (2008); (iii) review, inventory and verification analysis of historic third-party drill core archived at the MCRF from the Property (2008-2009); (iv) Expansion of subsurface geological database, related synthesis and subsurface stratigraphic modeling (2008-2010); (v) Strategic field sampling program and related analytical work (2009 and 2010); (vi) A number of leaching and mineral studies as follows: Initial cyanidation testwork (2009); Micro scaled mineral (MLA) study (2009-2010); Bio-Organism cultivation, culture adaptation and BioLeaching studies (BRGM and ARC, 2009-2010), sulfuric acid leaching testwork (2010); and (vii) CO_2 Sequestration study – ARC (2009-2010.

DNI's work programs completed during the period 2010-2012 included the following: (i) stage2 Bioleaching testwork and related Study (2011-2012) testing drill core composite samples; (ii) stage2 Leaching testwork relying on CO_2 and related Study (2011-2012) testing use of CO_2 as a leaching reagent; (iii) a winter 2010-2011 drilling program and related permitting, community consultation, road construction, coring, geological support and analytical work; (iv) Buckton Zone Initial (Maiden) Resource Study, relating to Base Metals, Uranium and Lithium; and (v) Buckton Zone Supplemental Resource Study, relating to Specialty Metals and REE contained in the Maiden resource.

The above work concluded as follows: (i) downhole geology and grades reported from historic drill core relied upon for estimation of Mineralized Zones were successfully verified; (ii) bioculturing and adaptation testwork demonstrated that microorganisms capable of growing under bioleaching conditions naturally exist in the Second White Speckled Shale and that enrichment cultures can be obtained from the Shale whose adaptation to the Shale is immediate, and that there is no "poisoning" by the shale's geochemistry nor does the shales chemistry inhibit start-up of bacterial growth; (iii) leaching and bioleaching tests of fresh surface samples from the Asphalt and Buckton Zones concluded that the Shale is amenable to bioleaching and to abiotic leaching in sulfuric acid; (iv) batch amenability bioleaching tests demonstrated that collective group of metals can be extracted (recovered) from the Shale and that non-optimized nominal high recoveries typically ranging 80%-95% can be achieved for Ni-U-Zn-Cd-Co, that middling recoveries typically ranging 40%-55% can be achieved for Cu-Li; and that the typically poor recoveries documented for Mo-V, ranging 2%-50% for Mo and 2%-30% for V, might be partly due to re-precipitation of Mo and V from solution associated with re-precipitation of Fe and such might be enhanced; (v) leaching and bioleaching tests of Asphalt Zone samples reported incidental solubilization of previously overlooked rare metals, including Lithium, as a co-product of the base metals of interest hence representing previously unrecognized additional value to the Shale; (vi) bioleaching testwork demonstrated that REE and Specialty Metals (eg:Li,Sc,Th) are incidentally recovered during leaching of base metals from the shale as co-products, and that good recoveries are achievable as follows: La-39%, Ce-47%, Pr-61%, Nd-

66%, Sm-76%, Eu-79%, Gd-83%, Tb-88%, Dy-84%, Ho-86%, Er-82%, Tm-73%, Yb-75%, Lu-73%, Y-85%, Th-60%, Sc-31%; (vii) CO_2 sparging tests conducted to test the Speckled Shale's capacity for sequestering CO_2 also reported dissolved metals due to the moderate acidity created by the CO_2 (carbonic acid), offering possibilities for using CO_2 as the principal leaching reagent (instead of other acids or bioleaching) to dissolve metals from the shale.

By far the most significant milestone development from the Property achieved by DNI is the delineation of an initial inferred resource over a portion of the Buckton Mineralized Zone relying on information from the 2010-2011 winter drilling program together with available historic drilling from the Zone. The 2010-2011 winter drilling program successfully completed sufficient holes over the Buckton Zone to enable preparation of an initial resource estimate for a 5.7 sq km portion of the Buckton Zone which is believed to extend over 26 sq km. The Buckton Maiden Resource Study 2011 for Mo-Ni-U-V-Zn-Cu-Co-Li, and the Buckton Supplemental Resource Study 2012 for REE-Y-Sc-Th, together delineated the Buckton *inferred resource* comprising a 250,092,000 short tons hosted in the Second White Speckled Shale, and bounded within its upper and lower contacts, mineralized with recoverable Mo-Ni-U-V-Zn-Co-Cu-Li-REE-Y-Sc-Th. Details of the Inferred Resource are tabulated below:

Buckton Inferred Resource Mineralized Shale (tons)	250,092,000							
	MoO3	Ni	U3O8	V2O5	Zn	Cu	Co	Li2CO3
Raw Grade (ppm)	115	148	37	1288	302	76	23	302
Recovery %	50%	90%	90%	40%	90%	60%	90%	50%
Recoverable Grade (ppm)	57	133	33	515	272	46	21	151
Recoverable Grade (lbs/ton)	0.115	0.266	0.066	1.030	0.544	0.091	0.042	0.302
Metal/Oxide Price* (US$/lb)	21.6	11.1	73	8.1	1.1	3.2	25.3	3
Recoverable metal/oxide (lbs)	28,656,000	66,454,000	16,513,000	257,604,000	136,065,000	22,832,000	10,412,000	75,507,000

**Metal/Oxide commodity prices are the five year average to Aug/2006 used to establish bulk recoverable values for cut-off grade thresholding tests. ton(s)=short ton(s); lb(s)=pound(s); The 2011 drilling included an appropriate number of analytical standards, blanks and duplicates, and no analytical issues were identified. Numbers may not add due to rounding.*

REE-Y-Sc-Th Resource Estimate Supplementary to the Buckton Maiden Inferred Resource *(table cnt'd below)*

REE-Y-Sc-Th Inferred Resource Mineralized Shale (tons)	250,092,000							
	La2O3	Ce2O3	Pr2O3	Nd2O3	Sm2O3	Eu2O3	Gd2O3	Tb2O3
Raw Grade (ppm)	60	96	13	50	11	2	10	2
Recovery %	70%	70%	65%	70%	85%	85%	85%	90%
Recoverable Grade (ppm)	42	67	8	35	9	2	8	1
Recoverable Grade (kg/tonne)	0.042	0.067	0.008	0.035	0.009	0.002	0.008	0.001
Recoverable Grade (lb/ton)	0.084	0.135	0.017	0.069	0.018	0.004	0.016	0.003
Metal Prices (US$/kg)	43	41	81	93	39	1,203	56	1,017
Recoverable Metal Oxide (kg)	9,475,841	15,258,501	1,911,792	7,868,316	2,047,474	417,068	1,831,110	303,420
Recoverable Metal Oxide (lb)	20,846,850	33,568,702	4,205,942	17,310,295	4,504,443	917,550	4,028,442	667,524

REE-Y-Sc-Th Resource Estimate Supplementary to the Buckton Maiden Inferred Resource

REE-Y-Sc-Th Inferred Resource Mineralized Shale (tons)	250,092,000								
	Dy2O3	Ho2O3	Er2O3	Tm2O3	Yb2O3	Lu2O3	Y2O3	Sc2O3	ThO2
Raw Grade (ppm)	8	2	5	1	5	1	58	17	11
Recovery %	90%	75%	90%	75%	80%	75%	90%	55%	80%
Recoverable Grade (ppm)	7	1	4	1	4	1	52	10	9
Recoverable Grade (kg/tonne)	0.007	0.001	0.004	0.001	0.004	0.001	0.052	0.010	0.009
Recoverable Grade (lb/ton)	0.015	0.003	0.009	0.001	0.007	0.001	0.104	0.019	0.018
Metal Prices (US$/kg)	548	276	240	97	77	719	57	3,528	252
Recoverable Metal Oxide (kg)	1,682,194	284,728	964,717	117,273	819,952	120,851	11,782,391	2,150,578	2,069,674
Recoverable Metal Oxide (lb)	3,700,827	626,402	2,122,377	258,001	1,803,894	265,872	25,921,260	4,731,272	4,553,283

**Metal/Oxide commodity prices used to establish bulk recoverable values for cut-off grade thresholding tests are the three year trailing average to Nov17/2011 for La-Ce-Pr-Nd-Sm-Eu-Gd-Tb-Dy and Y, and the one year trailing average to Nov17/2011 for Ho-Er-Yb-Lu and Sc. Tm value from Montviel Core Zone REE resources study 2011 by SGS Canada Inc. Th value per USGS Mineral Commodity Summaries 2008-2010. Metal prices vary among various commodity information sources and, in all conflicting instances, the lower pricing was used. The 2011 drilling included an appropriate number of analytical standards, blanks and duplicates, and no analytical issues were identified. ton=short ton; lb=pound; kg=Kilogram; Figures may not add exactly due to rounding.*

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource reported herein will be converted into a mineral reserve. An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

The Buckton Inferred Resource relates to recoverable Mo-Ni-U-V-Zn-Co-Cu-Li-REE-Y-Sc-Th hosted in the Second White Speckled Shale Formation beneath less than 75m of overburden cover, over a 5.7 sq km portion of the Buckton Zone, relying on 11 drill holes which are spaced approximately 240m-2400m apart (averaging 1000m). The inferred resource comprises a 13m-23m thick near-horizontal tabular zone of polymetallic mineralization hosted entirely within the Second White Speckled Shale Formation, bounded by its upper and lower contacts. Given excellent uniformity of metals grades within the Shale, the resource is laterally delimited based on depth criteria (ie: thickness of cover rocks which would have to be removed to excavate the zone by open pit) rather than continuity of metallic mineralization which extends well beyond its limits. The Resource Studies relied on the best achieved metals recoveries as reported from the collective of DNI's leaching testwork.

The two studies together ascribed a recoverable value of US$73.9 per short ton to the Buckton inferred resource, US$21.4 per short ton of which is related to Mo-Ni-U-V-Zn-Co-Cu-Li, US$20 per short is related to REE-Y, and US$32.4 per short ton is related to Sc-Th. These values were estimated by the resource studies relying on the aggregate value of recoverable grades, per the five year average metal/oxide price to Aug/2006 for Mo-Ni-U-V-Zn-Co-Cu-Li, and per the three and one year trailing average metal/oxide price to Nov17/2011 for REE-Y-Sc-Th. Based on the foregoing, the resource studies concluded that the Buckton Inferred Resource meets a block value base case cut-off of US$7.5 per tonne. Testing and iteration of the Buckton resource model at a higher cut-off of US$10 per tonne reported a similar tonnage as the US$7.5 per tonne cut-off base case scenario save for approximately 100,000 tonnes which did not meet the US$10 per tonne threshold criteria.

The Buckton resource studies estimated that the Buckton inferred resource is overlain by 762,678,000 short tons of overburden cover material consisting of LaBiche Formation shales with a thin veneer of overlying till glacially scoured therefrom. In addition, the two resource studies also concluded that mineralized tonnages ranging 400-679 million short tons with similar grades as the Buckton inferred resource can be blocked at a US$7.5 per tonne cut-off, representing extensions of the Buckton resource, which are beneath less than 100m-150m of the surface and which are overlain by 1.4-3.0 billion short tons of overburden cover rocks.

While the overburden cover rocks are substantially devoid of base metals and have, accordingly, previously been considered to be "waste" material for the purposes of estimating the Buckton inferred resource, they contain REE and Specialty metals (eg:Li,Sc,Th), in addition to low levels of base metals and uranium, all of which are sufficiently recoverable through conventional bioleaching to merit a re-evaluation of the overburden rocks as a separate zone overlying the Buckton Zone, or in the least material which may be sufficiently mineralized to not be considered to be "waste" for the purposes of delimiting the underlying Buckton inferred resource (ie: constraining the lateral extents).

Bioleaching testwork completed in 2011-2012 by AITF demonstrated that base metals, specialty metals and REE contained within the overburden cover rocks are recoverable by the same procedures as those utilized for the recovery of base metals from the Second White Speckled Shale. The results suggest that the overburden cover rocks might not be "waste" and might represent some recoverable value. The best calculated metal recoveries achieved as reported by AITF from bioleaching testwork of the sample of LaBiche Shale are as follows: Mo-57%, Ni-82%, U-78%, V-10%, Zn-76%, Cu-65%, Co-80%, Li-41%. Recoveries for Specialty Metals and REE as calculated by DNI, based on the difference of metal content between head sample feed material and final tail residues per analytical results from AITF's testwork, range as follows: La-13%-20%, Ce-21%-28%, Pr-28%-34%, Nd-35%-41%, Sm-49%-53%, Eu-55%-59%, Gd-61%-64%, Tb-60%-63%, Dy-61%-65%, Ho-58%-62%, Er-51%-55%, Tm-53%-57%, Yb-42%-47%, Lu-53%-57%, Y-56%-59%, Sc-28%-37%, Th-32%-34%. Recoverability of Metals and REE from the overburden cover above the Buckton resource might serve to: (i) enable expansion of the Buckton inferred resource beyond its current limits to surrounding areas under thicker overburden cover, and

(ii) provide an additional zone of recoverable mineralization overlying the Second White Speckled Shale hosted polymetallic Zones which have to date been DNI's principal and only focus.

The Buckton Resource Studies concluded that the Buckton inferred resource has excellent potential for expansion and that it is "open" to the north and northeast, as presence of the Speckled Shale has been confirmed by oil/gas downhole well logs in the area for at least 6km to its north, its south, and beyond. The resource is also open for approximately 300m eastward to the erosional edge of the Birch Mountains over a large area with thin overburden cover where mineralization intermittently outcrops at surface or is intermittently exposed throughout several kilometres of valley walls.

In addition to delineating an inferred resource from the Buckton Mineralized Zone, the resource studies made the following geological observations: (i) whereas base metals and uranium within the Speckled Shale Formation are typically better enriched over its upper portions, REEs are better concentrated over the lower portions of the Formation; (ii) REE grades depict a bipopular distribution; (iii) REEs likely occur principally in ionic form as charged particles adsorbed on clays; and (iv) the excellent lateral grade uniformity noted in drill data was confirmed and quantified by variography and statistical grade distribution analysis carried out during the resource studies, demonstrating that average sample grades and model grades are remarkably similar, and that the mineralization is characterized by exceptionally good lateral continuity of metals grades over large distances ranging up to 1km-2.2km for REEs, 1km for Sc, 4.8km for Th and 400m-2.1km for Mo-Ni-U-V-Zn-Cu-Co-Li. These distances provide guidelines for spacing of future drilling over the Zones.

DNI continues to systematically advance the Property through work programs per recommendations of its NI-43-101 technical report for the Property. As such, no additional substantive recommendations are made herein since they are already outlined in considerable detail in the foregoing report. None of exploration results collected from the above work equivocate any of the recommendations made in the technical report, although minor recommendations are inserted in this Report as topics which require future expansion, many of which relate to metals leaching R&D testwork.

The Buckton resource studies made recommendations to implement certain additional mineralogical and leaching work, in addition to a 5,000m diamond drilling program intended to expand the Buckton inferred resource northward and eastward, and to upgrade a portion of it into an Indicated or higher resource classification. This recommended drilling also includes initial holes to test the Buckton South Target located approximately nine kilometres to the south of the Buckton inferred resources, and which may represent its southerly extension or an entirely separate similar Zone which has not yet been drilled (cored) by DNI. Certain additional minor recommendations are made herein relating to optimization of leaching procedures, continuing work toward column leaching testwork and to doing all necessary to definitively clarify and establish status of the overburden cover rocks above the Buckton resource, whether "waste" or mineralization, since ultimate size and distribution of the underlying polymetallic zones hosted in Second White Speckled Shale is to a large extent dependant on thickness of material which would have to be removed to exploit the polymetallic zones by open pit.

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2. Introduction and Scope

2.1 Introduction

This report (the "Report") documents exploration and R&D testwork carried out by DNI Metals Inc. (formerly Dumont Nickel Inc.) on its SBH Property (the "Property") during the period July 1, 2010 to January 31, 2012. The names "DNI" and "Dumont" are used interchangeably throughout this Report.

This Report was intended for filing toward assessment work requirements of the Metallic and Industrial Mineral Permits comprising the SBH Property as better outlined in Section 4. This Report also represents a natural milestone reached in exploration of the Property, and future work to follow represent in most part expansions of DNI's programs reported herein, or are implementation of recommendations which flow therefrom.

This Report was prepared by Mr.S.F.Sabag PGeo, who is president and CEO of DNI and its Qualified Person (QP) in connection with work on the Property. The Report, however, also relies upon, and incorporates, findings from work completed by other duly qualified independent geoscientists or engineers who were retained by DNI to conduct certain work programs on its behalf under Mr.Sabag's direction or supervision. Independent stand-alone reports prepared by the foregoing third-parties are appended herein, and summaries of salient information therefrom are extracted into the main body of this Report.

DNI acquired the Permits comprising the Property relying on geoscientific baseline historic technical information from third-party reports, press releases, documents and mineral assessment reports, which contain historic results gathered by them from areas presently under the Property. Some of the foregoing third-party work comprises results from exploration carried out by Tintina Mines Limited which extensively explored the area during 1993-1999, which work was carried out by, or under the supervision or direction, of the author of this Report while he was vice president of Tintina. Exploration results from the foregoing work are summarized in a series of Alberta mineral assessment reports prepared by the author of this Report.

Although this Report conforms to Canadian mineral exploration best practices guidelines it is not formatted to comply with National Instrument 43-101 ("NI-43-101") nor is it intended as a NI-43-101 Technical Report for the Property. A NI-43-101 compliant Technical Report (Sabag 2008) for the Property is, however, publicly available, which Technical Report predates all field and analytical work conducted by DNI but provides, nonetheless, a solid geological foundation which consolidates all prior historic work conducted by others on the Property and DNI's reinterpretations of same.

Two NI-43-101 compliant Technical Reports are appended herein relating to two resource studies and DNI's drill program. The foregoing reports were prepared by independent consultants.

Extensive sections from DNI's NI-43-101 Technical Report for the Property have been extracted and incorporated into the body of this Report.

2.2 Abbreviations & Units Standards

Geographic locations in this Report, and in all related historic work, are expressed in Universal Transverse Mercator (UTM) grid coordinates, **using the 1927 North American Datum (NAD27[1]), Zone 12.**

Measurements in this Report are in metric units.

Permit descriptions in this Report are defined per the Dominion Land Survey system, West of the 4th Meridian, based on Townships, Ranges, Sections and subdivisions thereof.

Formational name Speckled Shale, Second White Specks and 2ws are used interchangeably in the Report to refer to the Second White Speckled Shale Formation. Formational name Belle Fourche and Shaftesbury Formation are also used interchangeably in this report.

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[1] Nearly all databases in Alberta, though in NAD27 in the 1990's and early 2000's, are currently in NAD83.

More detailed tabulation of units and abbreviations used in this Report are shown in Section 2.2 of DNI's NI-43-101 report for the Property.

2.3 Reliance on Other Experts

The historical work reported in this Report is summarized or extracted from numerous publicly available third-party reports all of which are referenced throughout the Report. Although the author has critically reviewed the foregoing information during preparation of this Report and has no reason to believe that the information is false or intentionally misleading, he has relied on the accuracy and integrity of the foregoing during preparation of this Report.

The author has also relied on the truth and accuracy of geoscientific information presented in the sources listed in the Reference section of this report, including stand-alone third-party consulting reports appended in Alberta Mineral Assessment Reports referenced.

Substantially all of DNI's analytical work is carried out by Actlabs, Ancaster, Ontario, which is an ISO certified analytical facility and an acceptable Certified Canadian Laboratory as understood under Canadian securities regulations and stock exchange rules. Laboratory analytical certificates from Actlabs' work are included herein in respective appendices along with summaries for convenience. Analytical procedures and procedural Codes related to Actlabs' work are included in Appendix A4. Actlabs analytical certificates related to any given work program are referenced in Sections of this report ("Actlabs Rpt#"), along with the corresponding DNI work order ("DNI#SB").

Some of DNI's metals leaching and other similar R&D testwork reported upon herein was carried out by recognized research institutions such as the Bureau de Recherches Géologiques et Minières (BRGM), France, and the Alberta Research Council[2] (ARC), Alberta, which are not certified analytical facilities which strictly conform to Canadian securities regulations and stock exchange rules. Whereas the BRGM, France's leading Earth Sciences public institution recognized worldwide for its expertise in biohydrometallurgy, warranties its research, the ARC, an equally well recognized research facility, withholds such warranty as a pre-condition to its terms of service. While the ARC's preference to withhold warranty of its work is by no means a reflection of the caliber and veracity of its research, the lack of warranty may equivocate incorporation of its research results into public records for a Canadian publicly listed company as the results may not comply with Canadian disclosure rules.

Information as to title of DNI's Permits has been collected from the Alberta Department of Energy records and is believed to be accurate. The author has reviewed DNI's Alberta registration and confirms that DNI is duly registered to do business in the Province of Alberta and, as such, is entitled to hold mineral Property in Alberta.

[2] The Alberta Research Council (ARC) changed its name to Alberta Innovates Technology Futures (AITF) in 2010.

3. PROPERTY DESCRIPTION, LOCATION, RIGHTS AND MAINTENANCE

3.1 PROPERTY DESCRIPTION, RIGHTS AND MAINTENANCE

DNI's Alberta SBH Property (the "Property") consists of thirty-six (36) contiguous Alberta Metallic and Industrial Mineral Permits (the "Permits") comprising an aggregate of 2,720 contiguous square kilometers (272,032 ha). The Permits extend over an approximate 50kmx60km quadrant defined by R12-R17 and T97-T103, W4 Meridian.

The general area of interest is shown in Figure 1. A regional Property location sketch is presented as Figure 2, and a detailed Property sketch showing the Permits is presented as Figure 3. Permit descriptions and related details are summarized in Table 1.

The Property is located over the Birch Mountains approximately 120 kilometers to the north of Fort McMurray, Alberta, and is held 100% by DNI.

The Permits[3] were initially acquired/assembled by DNI in stages from Sep/2007 to Jan/2010. Permits comprising the western two-thirds of the Property were originally acquired during Sep/2007 and Oct/2007, but later forfeited in Dec/2009 and Jan/2010, but their geographic location was later re-acquired by DNI in 2010. In addition, DNI acquired three additional permits (T97/R14R15. T98/R13) adjoining the south end of the Property in June 2010.

Figure 1: General area of interest showing the Birch Mountains and SBH Property outline.

The Permits grant DNI the exclusive right to explore for metallic and industrial minerals for seven consecutive two-year terms subject to traditional assessment work performance biannually. Work requirements for maintenance of the permits in good standing are \$5/ha for the first term, \$10/ha for each of the second and third terms, and \$15/ha for each the fourth, fifth, sixth and seventh terms. **This Report concerns assessment work expenditures being filed toward the assessment work requirements of the permits as better detailed in Section 4 of this Report.**

The Permits are held 100% by DNI, subject to a traditional royalty retained by the Province of Alberta against production revenues therefrom as better outlined in the Metallic And Industrial Minerals Royalty Regulation. The reader is referred to DNI's NI-43-101 report for the property (Sabag 2008) for a description of the royalty, and to the Alberta Metallic And Industrial Minerals Royalty Regulation for greater details.

The Permits grant DNI use of the surface for the purposes of conducting mineral exploration work, subject to obtaining the necessary land use permits from Alberta Environment. Surface restrictions consist of minor activity restrictions which are discussed in greater detail in Section 3.4. Alberta is in the process of formulating land use plans for its various regions, and stakeholder consultations for the land use plan for the Lower Athabasca region surrounding the Property have been concluded although the Lower Athabasca Regional Plan has not yet received official cabinet support.

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[3] Alberta Metallic and Industrial Mineral Permits are acquired by application to the Alberta Department of Energy, and they are granted under the Alberta Mines & Minerals Act Chapter-17, and related Metallic and Industrial Mineral Tenure Regulation. Geographic locations of the Permits are defined per the Dominion Land Survey system based on Townships, Ranges, Sections and subdivisions thereof.

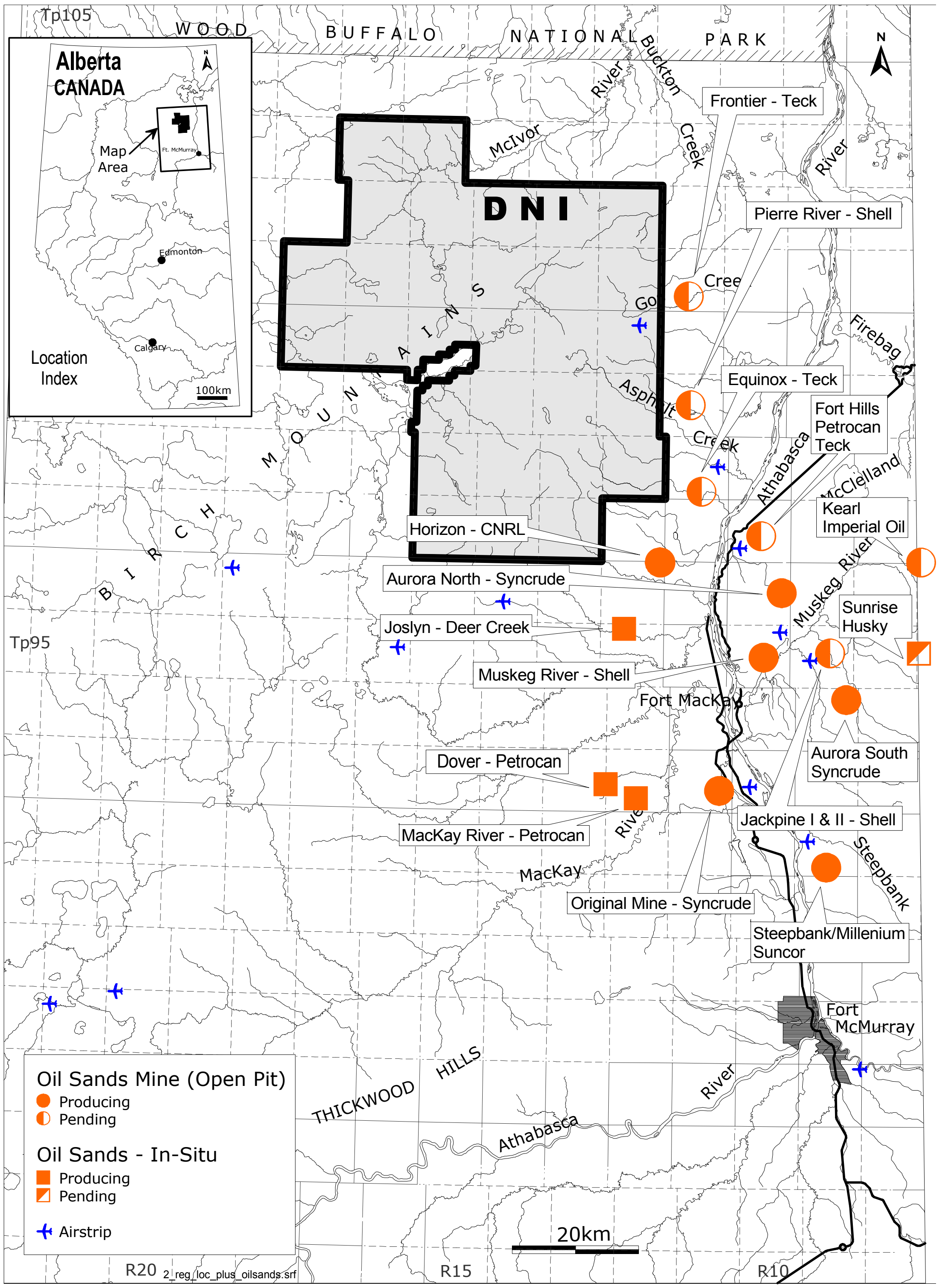


Figure 2: Regional location sketch showing DNI's SBH Property, showing also nearby oil sands operations and airstrips.

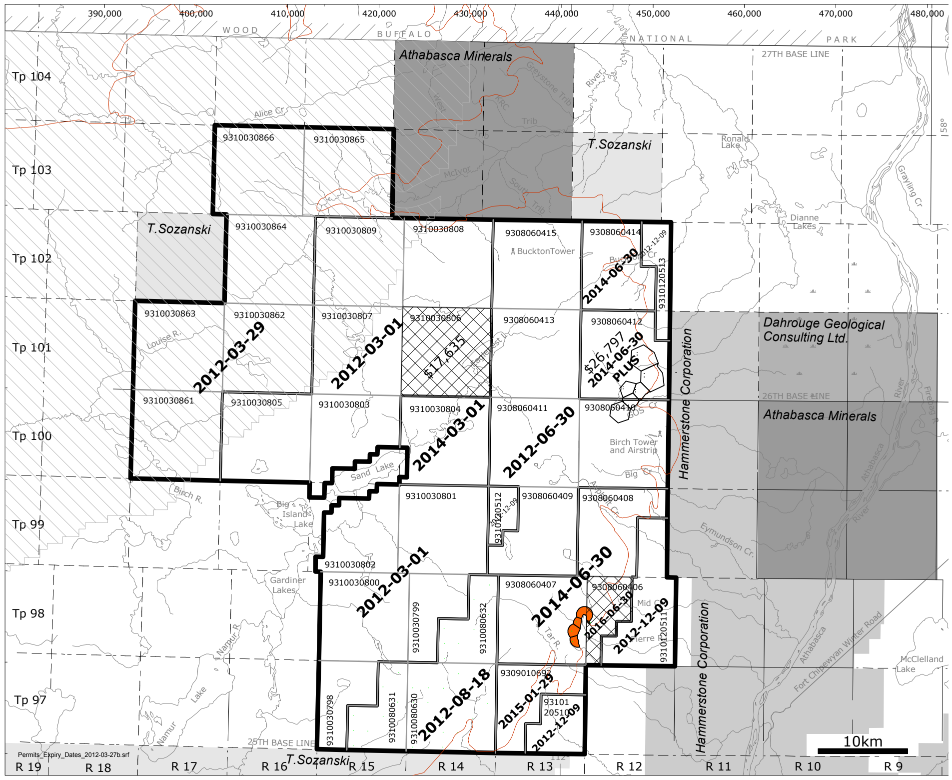


Figure 3: Sketch of Metallic and Industrial Mineral Permits, DNI's SBH Property showing anniversary dates and adjacent mineral properties.

Permit#	Commencement Date	Area (ha)	Land/ Zone Description Metallic & Industrial Minerals Permit	Special Restrictions
9310030798	1-Mar-10	4608	4-15-097: 5-8;17-22;27-34	none
9310030799	1-Mar-10	4608	4-14-098: 5-8;17-22;27-34	none
9310030800	1-Mar-10	9216	4-15-098: 1-36	none
9310030801	1-Mar-10	9216	4-14-099: 1-36	none
9310030802	1-Mar-10	6784	4-15-099: 1-5;6E;8-17;20-28;29SE;35S,NE;36	none
9310030803	1-Mar-10	7488	4-15-099: 31; 4-15-100: 5W;6-9;10N;13N;14N,SW;15-36	none
9310030804	1-Mar-10	8960	4-14-100: 1-5;6S,NE;7E;8-17;18N,SE;19-36	none
9310030805	1-Mar-10	9216	4-16-100: 1-36	18NW; 19; 20N,SW; 27NW; 28N,SW; 2934; 35N,SW CRG 001 26 are in a Caribou range
9310030806	1-Mar-10	9184	4-14-101: 1-11;12N,SW,L1,L8;13-36	12N,SW,L1,L8 are in an Historical Resources Management Area
9310030807	1-Mar-10	9216	4-15-101: 1-36	6NW; 7; 8N; 16N,SW; 17-21; 22W; 27-34; 35NW CRG 001 25 are in a Caribou range
9310030808	1-Mar-10	9216	4-14-102: 1-36	30N, SW; 31; 32W CRG 001 24 are in Caribou range
9310030809	1-Mar-10	9216	4-15-102: 1-36	2N,SW; 3-11; 12NW; 13N,SW; 14-36 CRG 001 25 are in a Caribou range
9310030861	29-Mar-10	9216	4-17-100: 1-36	2NW; 3-11; 12NW; 13-36 are in a Caribou range
9310030862	29-Mar-10	9216	4-16-101: 1-36	1N,SW; 2-36 are in a Caribou range
9310030863	29-Mar-10	9216	4-17-101: 1-36	This permit is in a Caribou range
9310030864	29-Mar-10	9216	4-16-102: 1-36	This permit is in a Caribou range
9310030865	29-Mar-10	9216	4-15-103: 1-36	1S,NW,NEP; 2-10; 11S,NW,NEP; 12SWP,NEP; 13NP,SEP; 14EP,W; 15-36 are in a Caribou range
9310030866	29-Mar-10	9216	4-16-103: 1-36	This permit is in a Caribou range
9308060406	30-Jun-08	3328	4-12-098: 6;7;17-21;28-33	none
9308060407	30-Jun-08	9216	4-13-098: 1-36	none
9308060408	30-Jun-08	7168	4-12-099: 3-10;15-22;25-36	none
9308060409	30-Jun-08	7424	4-13-099: 1-17;21-28;33-36	none
9308060410	30-Jun-08	9216	4-12-100: 1-36	none
9308060411	30-Jun-08	9216	4-13-100: 1-36	31; 32 are in an Historical Resources Management Area
9308060412	30-Jun-08	8704	4-12-101: 1-24;26-35	none
9308060413	30-Jun-08	9216	4-13-101: 1-36	5; 6 are in an Historical Resources Management Area
9308060414	30-Jun-08	6912	4-12-102: 2-11;14-22;27-34	none
9308060415	30-Jun-08	9216	4-13-102: 1-36	none
9309010692	29-Jan-09	5632	4-13-097: 5-8;16-21;25-36	none
9310080630	18-Aug-10	9216	4-14-097: 1-36	none
9310080631	18-Aug-10	4608	4-15-097: 01-04;09-16;23-26;35;36	none
9310080632	18-Aug-10	4608	4-14-098: 01-04;09-16;23-26;35;36	none
9310120510	9-Dec-10	3584	4-13-097: 01-04;09-15;22-24	none
9310120511	9-Dec-10	7936	4-12-098: 01-05;08-16;22-27;34-36. 4-12-099: 01;02;11-14;23;24	none
9310120512	9-Dec-10	1792	4-13-099: 18-20;29-32	none
9310120513	9-Dec-10	2816	4-12-101:25;36. 4-12-102: 01;12;13;23-	none

Caribou Range = Surface access subject to specific restrictions

Historical Resources Management Area = Historical resources impact assessment may be required prior to conducting surface disturbance

Table 1: Summary of Metallic and Industrial Minerals Permits comprising DNI's SBH Property.

3.2 COEXISTING OIL-GAS AND OIL SANDS RIGHTS

Rights to metallic and industrial minerals, to bitumen (oil sands), to coal and to oil/gas within the region are regulated under separate statutes, which collectively make it possible for several different "rights" to coexist and be held by different grantees over the same geographic location. Coexistence of rights is an artifact of the flat-lying configuration of subsurface geological formations within the region, and the potential of different formations for hosting different resources including oil, gas, coal and minerals.

Oil/gas leases, coal leases, oil sands leases and metallic mineral permits coexist in the Birch Mountains in the vicinity of, and under, DNI's Property. Rights to oil/gas under much of the Birch Mountains are held by third parties, including several producing gas wells and distribution pipelines over a small area in the southwestern parts of DNI's Property (Section 3.6).

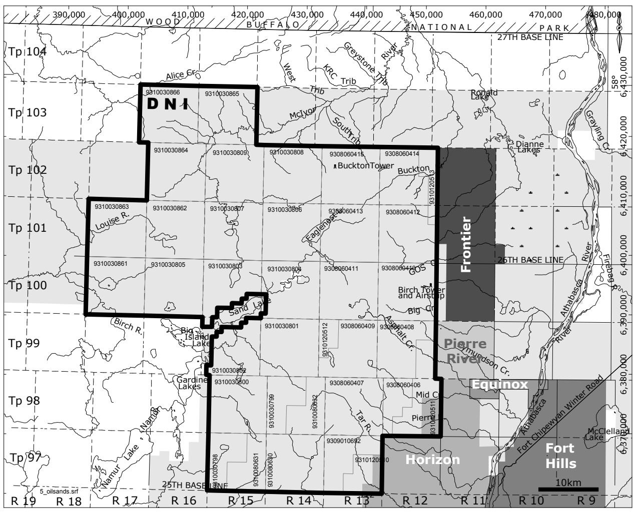


Figure 4: Summary sketch of coexisting third-party oil sands leases (shaded) under the Property. The Fort Hills, Equinox, Pierre River, Horizon and Frontier pending oil sands mines properties are highlighted. (Oil Sands permits from Alberta Energy as at May/2011).

Existing oil sands permits in the vicinity of, and under, DNI's Property, are shown in Figure 4, showing also active projects consisting of: the Fort Hills oil sands mine (construction stage), the Equinox oil sands mine (planning stage), the Pierre River oil sands mine (planning stage), the Frontier oil sands (permitting stage) and the Horizon oil sands mine (in production). Rights to oil sands in the area are confined to the McMurray Formation (approximately 400m beneath DNI's shale targets), and include rights to metals accompanying the oil sands.

Gas leases and oil sands permits over the Birch Mountains, under DNI's Property, relate to stratigraphic formations well below the metal bearing black shale formations targeted by DNI.

3.3 PRIOR OWNERSHIP

DNI acquired the Property directly, by application to Alberta Energy, and holds a 100% interest therein under metallic and industrial mineral agreements with Alberta Department of Energy.

There are no historic mineral mines or similar operations, in the area nor on the Property. All prior, historic, activities in the area consist entirely of exploration work.

DNI's Property contains several historic properties previously held and explored for metals by others, notably by Tintina Mines Limited which explored them extensively in the 1990's. A detailed outline of historic work and results have been presented in Section 6 of DNI's NI-43-101 report for the Property (Appendix B1), a summary of the foregoing is presented in Sections 6 and 8.3-8.11 of this Report. To maintain continuity with historic work, during preparation of DNI's NI-43-101 technical report for the Property, DNI elected to retain historic location names to facilitate referencing of prior year results by referring to the Buckton, Asphalt and Eaglenest historic properties previously named and explored by Tintina. This convention is retained throughout this report.

3.4 LAND USE AND ENVIRONMENTAL MATTERS

Land use in the area is regulated by the Alberta Department of Environmental Protection, which regulates issuance of land use permits for surface disturbances, with participation from a structured process of local community consultation. Due permitting (and subsequent site reclamation) is necessary for all "invasive" and mechanized work which might disturb the surface (e.g. drilling, road building).

Despite the coexistence of metallic and hydrocarbon mineral tenure in the region, conflicts in precedence of land use are minimal and are as yet untested due to the scarcity of previous exploration for non-hydrocarbon minerals.

Minor sensitivities exist in the region which affect exploration activities and land use to an extent comparable to elsewhere in Canada. These include due attention to wolf migration, moose and caribou calving seasons, traditional land use and miscellaneous trapping rights. Wood Buffalo National Park is located 10km to the north of the northernmost boundary of DNI's Property. There are no aboriginal claims pending in the region, although due consultation with five first nations groups, notably the Fort McKay community which is the nearest to the Property, is a pre-requisite to land use permitting.

Surface restrictions consist of minor activity restrictions over portions of the Property, as follows: (i) the surface over the western one third of DNI's Property (Figure 5) is subject to seasonal activity restrictions in connection with caribou calving and migration routes requiring the annual recess of field activities during the four month period March 1 through July 1; (ii) a small acreage on Permit# 9310030806 is set aside as a historic site over a portage to the south of Eaglenest Lake; and (iii) a small area on Permits# 9308060411 & 9308060413 is set aside under historic management.

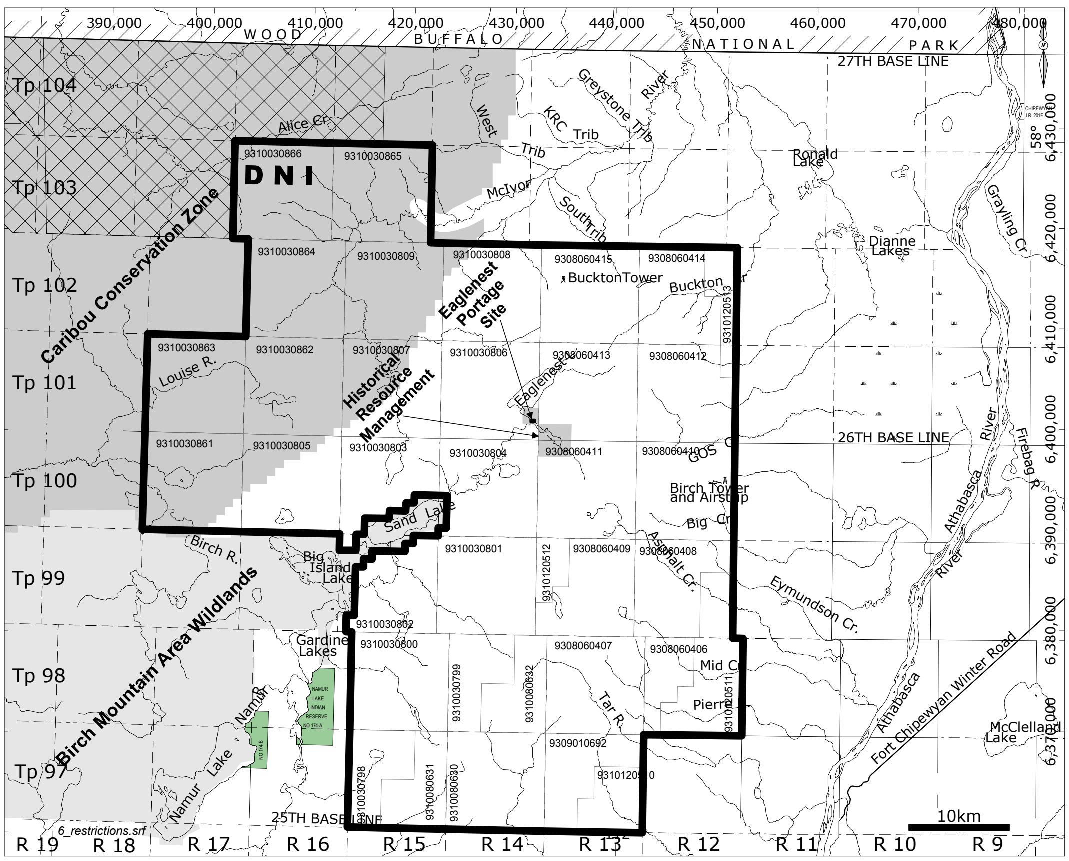


Figure 5: Summary sketch of activity restrictions on the SBH Property. Adjacent areas withdrawn from disposition in 2010 are cross-hatched.

There exist known gas accumulations in the region, especially in areas surrounding Fort McMurray. Low pressure gas has been documented from the Viking Formation known to occur at depths of 100m-200m beneath surface in the Birch Mountains under portions of the Property. This Formation is lower (deeper) in the stratigraphy than DNI's targeted shales and has not previously been a hindrance to exploration. Higher pressure gas has been documented from deeper in the stratigraphy, from the McMurray Formation (host to Oil Sands), approximately 500m-600m below the surface of the Birch Mountains. Scattered gas pockets are common throughout region, hence taking due precaution during drilling is common practice.

Timber rights for a considerable portion of the region, including the Birch Mountains, are held by various groups under Provincial Forest Management Agreements. Rights in the Birch Mountains Area are held mainly by Alberta Pacific, necessitating compensation payable by way of timber damage assessment (TDA) in the event any clearing is made during preparation of drill pads and access.

As part of its efforts to formulate regional land use plans across Alberta, the Province of Alberta has recently (May/2010) withdrawn large tracts of land from future mineral dispositions pending finalization of regional plans. The withdrawals do not impact the Property, although lands immediately to the west of the Property, and a 10km corridor to its north, adjacent to the southern boundary of Wood Buffalo Park, have been withdrawn (Figure 5). For the purposes of pending regional plans, the Property is located in the Lower Athabasca Region.

3.5 ADJACENT METAL EXPLORATION PROPERTIES

Historic exploration work conducted by Tintina in the Birch Mountains substantially represent the only exploration efforts in search for metals in the area. Together with work conducted by the Alberta Geological Survey and the Geological Survey of Canada, it forms the only baseline geoscience available from the area.

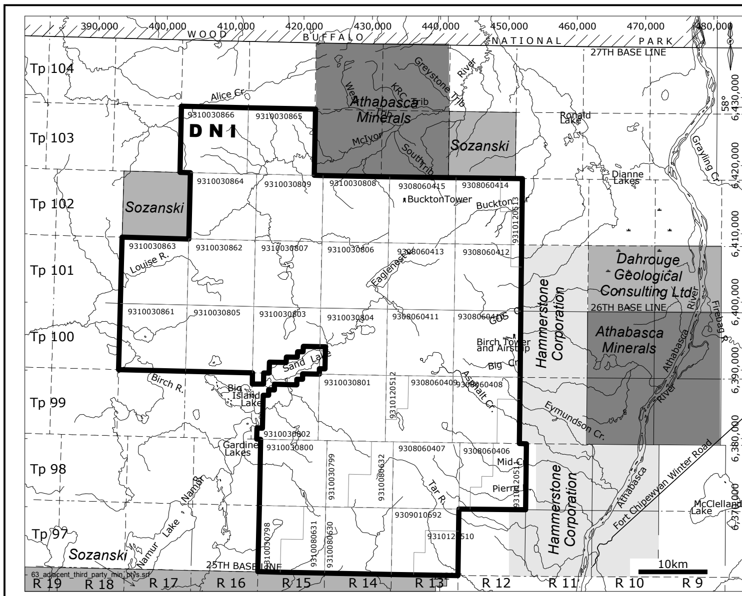


Figure 6: Sketch of third-party mineral properties adjacent to the Property.

Athabasca Minerals Inc. holds metallic and industrial mineral permits adjacent to the north boundary of DNI's Property (Figure 6). Athabasca's property represents the only recent exploration activity adjacent to DNI's Property, although there has been no activity thereupon within the past several years. Athabasca's corporate filing documents indicate that it has been pursuing diamond potential of its property over the McIvor River and vicinity through reconnaissance field work and airborne geophysics. Status of current exploration on other third-party permits adjoining the eastern boundary of the Property is unknown.

3.6 ADJACENT OIL/GAS AND OIL SANDS EXPLORATION AND DEVELOPMENT PROPERTIES

Unlike metals exploration, there has been considerable oil/gas exploration activity in and, especially, around the Birch Mountains during the past decade, in addition to oil sands exploration and development activities as many new oil sands extraction operations advance toward production. A series of gas production wells are currently in operation over the southwestern quarter of DNI's Property, serviced by a network of pipelines (Figure 7).

A number of pending, proposed and construction stage oil sands mines surround the eastern and southern erosional edge of the Birch Mountains (Figure 7), and are adjacent to the east and south boundaries of DNI's Property as follows:

- Silver Birch Resources (formerly UTS Energy Corporation) holds a number of Oil Sand Leases over, and adjacent to, the northern and northeastern portions of DNI's Property, adjacent to their Frontier Project in joint venture with Teck Cominco. The Leases are under active exploration in drilling and development stages.

- The Frontier Project, a joint venture between Silver Birch Resources (formerly UTS Energy Corporation) and Teck-Cominco, roughly comprises a three township long property abutting the northern two-thirds of the east boundary of DNI's Property. This Project is the site of the proposed Frontier Oil Sands Mine which is on the threshold of permitting, with estimated resources of 1,051 million barrels of Discovered Petroleum Initially-In-Place of bitumen (Best Estimate). Plans are to construct a mine as well as bitumen extraction and processing facilities. Production is projected to start in 2015-2017 at a daily rate of 100,000bbl-160,000bbl. The Frontier project is adjacent to, and immediately downhill from, DNI's Buckton Zone.

- The proposed Pierre River Mine property comprises oil sands leases held by Shell Canada Limited over a single township abutting against southern portion of DNI's eastern property boundary. Proposed construction is scheduled to begin in 2010 toward planned production in 2018 at a projected daily rate of 200,000 bbl bitumen. Shell Canada plans to construct a bridge across the Athabasca River to provide access to the Pierre River oil sands mine. This will significantly enhance access to DNI's Property, and the Asphalt Zone.

- The proposed Equinox Oil Sands Mine property is near the southern end of DNI's eastern boundary. The property is under development as a joint venture between UTS Energy Corporation and Teck Cominco, with estimated resources of 350 million barrels of Discovered Petroleum Initially-In-Place of bitumen (Best Estimate; Low Estimate of 270 million barrels, High Estimate of 400 million barrels). The property is under active exploratory drilling to advance toward an operation with anticipated production rate of 50,000 bbl per day.

- The Horizon Oil Sands Mine, held by Canadian Natural Resources Ltd. is located approximately 10km to the south of DNI's Property. Leases and properties comprising the mine abut DNI's south boundary. The $10 billion Horizon Project commenced production in late 2008 at 100,000bbl per day, and is currently nearing phase-2 in its advance toward a 232,000bbl per day peak production.

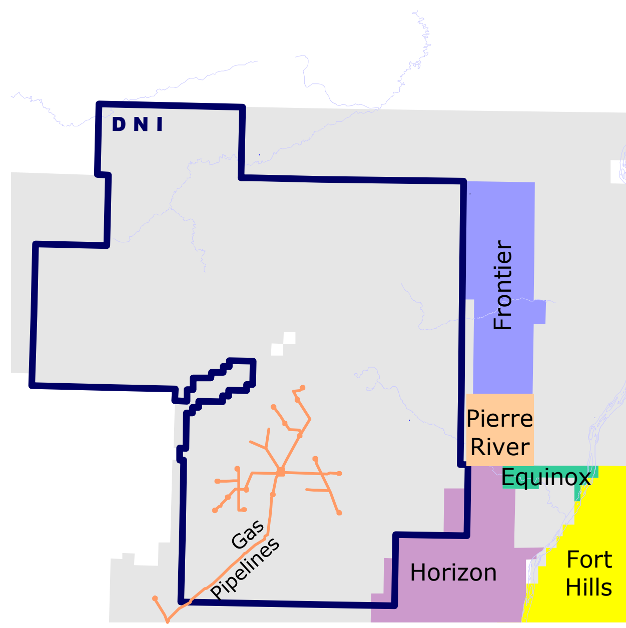


Figure 7: Sketch of third-party oil sands mines which are operating, under construction, pending or planned adjacent to the Property.

- The Fort Hills Oil Sands Mine is under intermittent construction as a joint venture among UTS Energy Corporation, Teck Cominco and Petro-Can (currently Suncor), and is located approximately 10km to the east of DNI's Property. The $15 billion Mine (more recent estimate: $23 billion) represents the largest oil sands operation to date with an estimated 4 billion barrel resource, projected to come on stream in phases expanding output from 140,000 bbl per day to 300,000 bbl per day by 2012-2014. Development of this mine is currently delayed.

The collective of oil sands mines under construction adjacent to the Property, and those which are operating nearby, provide useful comparative operational and cost benchmarks to DNI's planning. In addition, ongoing, planned and pending enhancements to road access and local infrastructure related to the above projects considerably enhance access to the Property.

4. DNI ASSESSMENT WORK EXPENDITURES 2010-2012

DNI commenced its exploration work on the Property prior to commencing its land assembly in September 2007, and has since actively continued its work to advance development of the Property. This report summarizes exploration expenditures incurred during the period Jul1/2010-Jan31/2012 at the Property.

DNI filed a Notice of Intention to File Assessment Work (the "Notice") on February 7, 2012, to apply assessment expenditures accumulated during the foregoing period to renew them to anniversary dates as shown in Table 2. The amounts being filed vary slightly from amounts shown in the Notice. Excess expenditures are being filed against two of the permits (#9310030804 and #9308060406) which amounts will be used at a future date against future renewals.

While DNI's earlier work mainly entailed data consolidation and review, DNI quickly progressed into extensive laboratory based activities focusing almost entirely on investigating metal extraction and recovery testwork studies to formulate an economically viable flowsheet for extraction of collective base metals from the mineralized shales. This work entailed completion of BioLeaching as well as conventional inorganic leaching testwork. Much of this testwork is advancing to its expanded stage and is expected to continue through the balance of 2012 toward scaling up of what is currently benchtesting through column leaching tests toward pilot heap leaching tests. DNI is in the process of planning several field and research and testwork programs for 2012-2013.

The above expenditures were incurred toward the following:

1. General analytical work and assaying related to prior sampling previously reported in Alberta Mineral Assessment Report MIN20100017;
2. Stage2 Bioleaching testwork and related Study (2011-2012);
3. Stage2 Leaching testwork relying on CO_2 and related Study (2011-2012);
4. Winter 2010-2011 Drilling Program and related permitting, community consultation, road construction, coring, geological support and analytical work;
5. Initial (Maiden) Resource Study, Buckton Zone, relating to Base Metals, Uranium and Lithium;;
6. Supplemental Resource Study Buckton Zone, relating to Specialty Metals and REE contained in the Maiden resource;
7. Permitting work related to a second drilling program initially planned for winter 2011-2012 but deferred;
8. Ongoing data review, monitoring and consolidation related to the above.

Expenditures incurred in 2012 toward planning and preparations of pending work due to start shortly have been captured into this assessment report filing even though the respective field work has not yet begun.
An aggregate of $2,150,231 was spent on the above permits during the period Jul1/2010-Jan31/2012 (incl a 10% administrative overheads provision). Work expenditures distribution over the areas to be renewed is shown in Table-2 below. Renewals requested vary from a single term to two term period.

Bulk of the expenditures incurred relate DNI's 2010-2011 winter drilling program and subsequent resource studies. The program was implemented under metallic mineral exploration permit MME100007 and related water use permits #0028574 and #0028579.

The drilling was conducted over Permits#930806412 and #9308060407 and the subsequent related resource studies extend over Permits #9308060412 and #9308060410. DNI's leaching testwork was conducted on samples from the foregoing drilling or on samples from prior sampling located over the foregoing permits. The foregoing expenditures are distributed over the permits comprising the entire Property.

Work expenditures distribution over the areas to be renewed is shown in Table 2. Property permits sketch showing renewal terms requested is shown in Figure 8.

Permit#	Commencement Date	Area (ha)	Expenditure Required			Expenditures Previously Filed Aug15/2010	Expenditures Filed This Report	Aggregate Exp After This Report	Renewal Requested	
			Term1	Term2	Term3				Term	Renewal To
9310030798	1-Mar-10	4608	$23,040	n/a	n/a		$23,040	$23,040	1	1-Mar-14
9310030799	1-Mar-10	4608	$23,040	n/a	n/a		$23,040	$23,040	1	1-Mar-14
9310030800	1-Mar-10	9216	$46,080	n/a	n/a		$46,080	$46,080	1	1-Mar-14
9310030801	1-Mar-10	9216	$46,080	n/a	n/a		$46,080	$46,080	1	1-Mar-14
9310030802	1-Mar-10	6784	$33,920	n/a	n/a		$33,920	$33,920	1	1-Mar-14
9310030803	1-Mar-10	7488	$37,440	n/a	n/a		$37,440	$37,440	1	1-Mar-14
9310030804	1-Mar-10	8960	$44,800	n/a	n/a	$44,800	$25,000	$69,800	Exs	1-Mar-14
9310030805	1-Mar-10	9216	$46,080	n/a	n/a		$46,080	$46,080	1	1-Mar-14
9310030806	1-Mar-10	9184	$45,920	n/a	n/a	$17,635	$28,285	$45,920	1	1-Mar-14
9310030807	1-Mar-10	9216	$46,080	n/a	n/a		$46,080	$46,080	1	1-Mar-14
9310030808	1-Mar-10	9216	$46,080	n/a	n/a		$46,080	$46,080	1	1-Mar-14
9310030809	1-Mar-10	9216	$46,080	n/a	n/a		$46,080	$46,080	1	1-Mar-14
9310030861	29-Mar-10	9216	$46,080	n/a	n/a		$46,080	$46,080	1	29-Mar-14
9310030862	29-Mar-10	9216	$46,080	n/a	n/a		$46,080	$46,080	1	29-Mar-14
9310030863	29-Mar-10	9216	$46,080	n/a	n/a		$46,080	$46,080	1	29-Mar-14
9310030864	29-Mar-10	9216	$46,080	n/a	n/a		$46,080	$46,080	1	29-Mar-14
9310030865	29-Mar-10	9216	$46,080	n/a	n/a		$46,080	$46,080	1	29-Mar-14
9310030866	29-Mar-10	9216	$46,080	n/a	n/a		$46,080	$46,080	1	29-Mar-14
9308060406	30-Jun-08	3328	$16,640	$33,280	$33,280	$83,200	$18,463	$101,663	Exs	30-Jun-16
9308060407	30-Jun-08	9216	$46,080	$92,160	$92,160	$138,240	$92,160	$230,400	3	30-Jun-16
9308060408	30-Jun-08	7168	$35,840	$71,680	$71,680	$107,520	$71,680	$179,200	3	30-Jun-16
9308060409	30-Jun-08	7424	$37,120	$74,240	$74,240	$37,120	$148,480	$185,600	2 & 3	30-Jun-16
9308060410	30-Jun-08	9216	$46,080	$92,160	$92,160	$46,080	$184,320	$230,400	2 & 3	30-Jun-16
9308060411	30-Jun-08	9216	$46,080	$92,160	$92,160	$46,080	$184,320	$230,400	2 & 3	30-Jun-16
9308060412	30-Jun-08	8704	$43,520	$87,040	$87,040	$157,357	$60,243	$217,600	2 & 3	30-Jun-16
9308060413	30-Jun-08	9216	$46,080	$92,160	$92,160	$46,080	$184,320	$230,400	2 & 3	30-Jun-16
9308060414	30-Jun-08	6912	$34,560	$69,120	$69,120	$103,680	$69,120	$172,800	2 & 3	30-Jun-16
9308060415	30-Jun-08	9216	$46,080	$92,160	$92,160	$46,080	$184,320	$230,400	2 & 3	30-Jun-16
9309010692	29-Jan-09	5632	$28,160	$56,320	$56,320	$84,480	$56,320	$140,800	2 & 3	29-Jan-17
9310080630	18-Aug-10	9216	$46,080	$92,160	$92,160		$46,080	$46,080	1	18-Aug-14
9310080631	18-Aug-10	4608	$23,040	$46,080	$46,080		$23,040	$23,040	1	18-Aug-14
9310080632	18-Aug-10	4608	$23,040	$46,080	$46,080		$23,040	$23,040	1	18-Aug-14
9310120510	9-Dec-10	3584	$17,920	$35,840	$35,840		$17,920	$17,920	1	9-Dec-14
9310120511	9-Dec-10	7936	$39,680	$79,360	$79,360		$39,680	$39,680	1	9-Dec-14
9310120512	9-Dec-10	1792	$8,960	$17,920	$17,920		$8,960	$8,960	1	9-Dec-14
9310120513	9-Dec-10	2816	$14,080	$28,160	$28,160		$14,080	$14,080	1	9-Dec-14
	TOTALS	272,032	$1,360,160	$1,198,080	$1,198,080	$958,352	$2,150,231	$3,108,583		

Note: Exs=Only excess expenditure filed

Table 2: Expenditures and Renewals distributions, expenditures Jul1/2010-Jan31/2012, SBH Property

The expenditures, as related to work programs (work category) are summarized below in Table 3, which also shows the expenditures as re-stated according to Alberta Department of Energy cost categories. The bulk of the expenditures related to completion of a winter drilling program and related logistical and geological support. The expenditures also include several leaching testwork programs and two mineral resource studies. Expenditures related to the leaching testwork represents costs that are over and above general analytical/assaying category shown in the attached summary. The expenditures are supported by DNI's accountng records.

July/2010 - Jan/2012		1. Prospecting	2. Geological Mapping & Petrography	3. Geophysical Surveys	a. Airborne	b. Ground	4. Geochemical Surveys	5. Trenching and Stripping	6. Drilling	7. Assaying & whole rock analysis	8. Other Work:
Data Compilation & Review	$ 128,283		128,283								
Reporting	$ 84,605		84,605								
General Analytical & Assaying	$ 4,838									4,838	
Special Studies - BioLeaching	$ 88,636									88,636	
Special Studies - CO2 Leaching Stage2	$ 46,497									46,497	
Special Studies - Resource Study	$ 289,596										289,596
Winter Drilling Program (2010) - Consultation & Permits	$ 81,086								81,086		
Winter Drilling Program (2010) - Roads & Pads	$ 378,442								378,442		
Winter Drilling Program (2010) - Drilling & Geol	$ 692,341								692,341		
Winter Drilling Program (2010) - Analytical	$ 160,432								160,432		
STTL	$ 1,954,756	-	212,888	-	-	-	-	-	1,312,302	139,970	289,596
Adminstrative Overhead Allowance 10%	$ 195,476	-	21,289	-	-	-	-	-	131,230	13,997	28,960
Total Expenditures Filed	$ 2,150,231	-	234,177	-	-	-	-	-	1,443,532	153,967	318,556

Table 3: Expenditures work category distribution summary, showing also summaries per Alberta Department of Energy Categories.

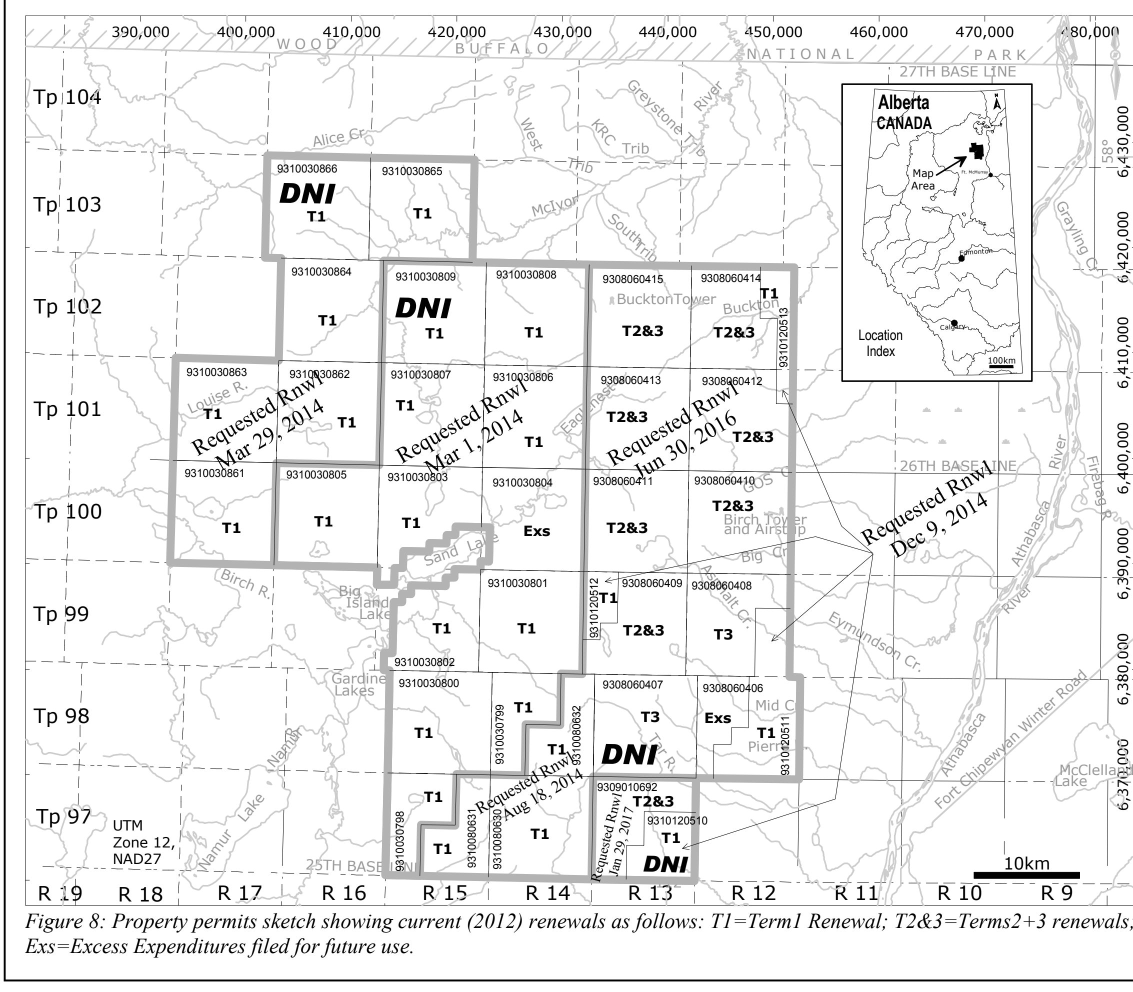


Figure 8: Property permits sketch showing current (2012) renewals as follows: T1=Term1 Renewal; T2&3=Terms2+3 renewals; Exs=Excess Expenditures filed for future use.

5. ACCESS, CLIMATE, PHYSIOGRAPHY, LOCAL INFRASTRUCTURE

5.1 ACCESS AND LOGISTICS

Fort McMurray is nearly at the center of the region and is accessible by highway from Edmonton (350km away) and by regular daily commercial flights from Edmonton, Calgary and Toronto. Principal access is by road, although discussions emerge from time to time to re-commission the historic CN rail service.

Fort McMurray is well supplied and offers all necessary support services to exploration work in the area, inclusive of expediting, fixed and rotary air support, communications, medical and equipment supplies. Radio as well as telephone communications are also excellent throughout the region. Cellular telephone coverage is good throughout the region, with good reception to localities as far away as the Birch Mountains air strip and fire tower (especially via Telus carrier).

The Athabasca and the Clearwater rivers represent the two principle waterways in the region with countless other streams and smaller rivers draining into them, the majority of which are characterized by jagged shapes consisting of many relatively straight water courses, reflecting in most part underlying faults and joint systems. The Athabasca River bisects the region and provides relatively good water access across most of the region and also a barge service over its northern portions to the north of Fort McMurray. The Athabasca River flows north into Lake Athabasca.

Access throughout the region is relatively good, facilitated by a network of highways, secondary roads and old seismic lines which serve well as winter roads and bush roads, and in some cases are also accessible by all-terrain vehicles. Past exploration activities have occasionally gained access to the west shore of the Athabasca River by ice-bridge constructed from a locality near Bitumont, as a joint effort between forestry harvesting and mineral exploration. Future programs will, however, benefit from considerable road construction in progress to support several dozen pending oil sand operations which are in various stages of development.

Access throughout the east and west flanks of the Athabasca River are in a state of rapid development, providing road access to several pending oil sand projects skirting the Birch Mountains over localities adjacent to the south and east boundaries of DNI's Property, to as far north as its northeast corner (the Property is surrounded on its east and south by four oils sands mines under development). Significant pending developments include Shell Canada's planned construction of a bridge across the Athabasca River to access its Pierre River oil sands mine (permitting stage), adjacent to the east boundary of DNI's Property. This will significantly enhance access to the Property, since the planned Pierre River Mine is downslope from the Asphalt and Buckton metal bearing Zones (see also Section 3.6).

The Birch Mountains have traditionally been accessed in the summer months by barge/boat via the Athabasca River, although the principal mode of access has been by rotary aircraft or by fixed wing aircraft landing on the half mile long Birch Mountain Airstrip which also houses a seasonally manned Fire Tower and telecommunications relay station. There are other private airstrips throughout the region, the nearest being Shell Canada's at its Pierre River Project, and Canadian Natural Resources Horizon oil sands project to the south of the Property. Winter access is via the Birch Mountain Winter Road which passes northerly from the village of Fort MacKay and provides a sinuous path which, over its northern parts, is better negotiable after freeze-up as it crosses several streams and over wet muskeg.

Access throughout (within) the Birch Mountains is best by rotary aircraft, although countless old seismic lines offer adequate, albeit selective, access throughout much of the area. Past drilling has typically confined itself to the winter months when old trails and seismic lines could be cleared of snow and graded, with minimal surface disturbance, to gain access to localities within the Birch Mountains Area for the mobilization of crews and equipment.

5.2 Physiography, Vegetation and Climate

Physiography over the general region around Fort McMurray, is variable and is characterized by low, often swampy, relief punctuated by a handful of features protruding above the otherwise flat terrain. The Birch Mountains are the most conspicuous topographic features in the region and are located in the north of the region, to the south of Wood Buffalo National Park. DNI's Properties cover most of the Birch Mountains.

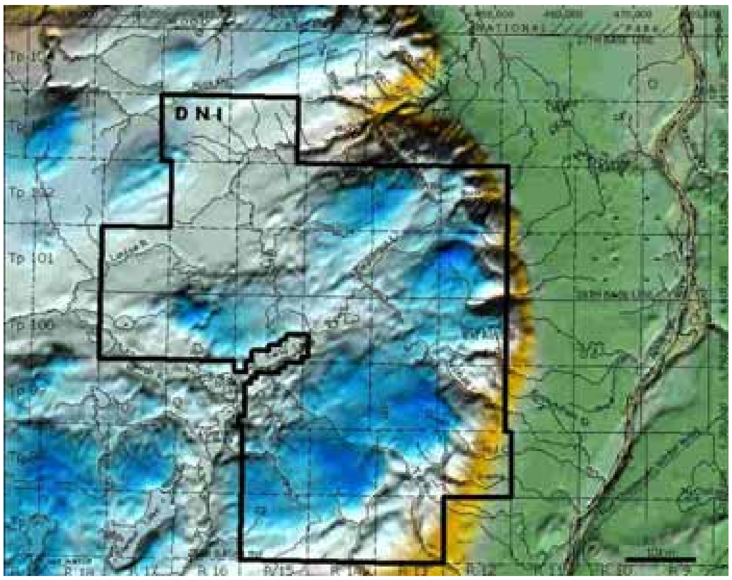


Figure 9: Topographic relief image and sketch of the Property and surrounding Birch Mountains. NAD27-Zone12.

By far the greatest topographic relief in the region are the Birch Mountains (elev 750m-820m asl) which protrude conspicuously some 500m-600m above the surrounding areas (250m asl), with a distinct sharp erosional edge. The Birch Mountains are characterized by many river and creek incisions in poorly consolidated stratigraphy susceptible to active landslides and slumps. River valley incisions in the area are progressively deeper as they near the erosional edges of the Birch Mountains and the drainage in the area defines an approximate radial pattern outward from the Birch Mountains. Localized radial drainages are also present within the Birch Mountains area, characterized by creeks flowing outward from what appear to be 1km-2km diameter circular domes (Figure 9).

Given the relatively flat-lying stratigraphy in the region, the Birch Mountains provide excellent vertical exposures, especially in river valleys, across relatively long sections of nearly flat-lying stratigraphy which are otherwise buried to the west and eroded to the south and east.

The McIvor River Valley is the most formidable topographic feature in the Birch Mountains, representing a 20km long east-northeasterly trending valley which opens to a width of some 10km at its eastern extremity. Unlike other sharply incised valleys in the Birch Mountains area, it is a relatively flat-bottomed feature dominated by the McIvor River with its many braided meanders and countless tributaries. The valley is surrounded by zones of active slumpage representing broad zones of continual sediment recharge such that the active flow channel of the McIvor River is in a continual state of flux within the central section of the river valley, shifting back and forth within several hundred meters of valley bottom. The McIvor River flows north into Lake Claire. Only the headwaters of this river are on DNI's Property.

Glacial history of the region is complex and not clearly understood. Principal ice direction throughout the northeastern portion of the region is southwesterly, although ice flow is believed to have splayed around (and over) the Birch Mountains such that throughout the balance of the region crosscutting composite directions are common, manifested as multiple tills. Considerable work has been completed in the area by the Alberta Geological Survey toward investigation of quaternary geology.

Northeast Alberta weather is somewhat cooler than Canadian central provinces. Winter temperatures are cold, averaging -20 degrees C (min -40 degrees), and summers are warm averaging 17 degrees C (max 30 degrees C) and are typically short (Jun-Aug), much like northern Canada. Average annual precipitation for Fort McMurray is approximately 460mm. The Birch Mountains, by virtue of elevation, are somewhat cooler than rest of the region, and are susceptible to fog during long periods of wet weather.

6. PRIOR EXPLORATION HISTORY

6.1 PRIOR OWNERSHIP HISTORY - HISTORIC PROPERTIES

DNI acquired the Property directly, by application to Alberta Energy, and holds a 100% interest therein under metallic and industrial mineral agreements with Alberta Energy.

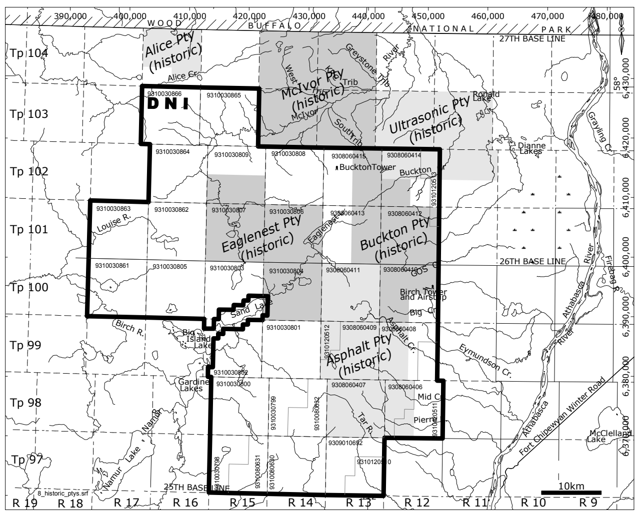


Figure 10: Property location sketch showing historic properties previously held by third parties under DNI's SBH Property Permits.

The Property contains the historic Buckton, Asphalt and Eaglenest Properties, which were previously held by Tintina Mines Limited, and extensively explored by Tintina during the 1990's. The Property also contains a single township permit (T97/R13) previously held by Ells River Resources, and the southern parts of an early-stage property previously held by Ultrasonic Industries. These are shown in Figure 10 and additional details of the third party tenure are summarized in DNI's NI-43-101 report (Sabag 2008).

Geological databases from historic work conducted over the above properties, and their vicinities, together with work conducted by the AGS and GSC, are the only geological information available from the area toward the exploration for metals. They are incorporated in sections below on geology of the Property and vicinity. To maintain continuity with historic work, DNI has elected to retain historic location names to facilitate referencing of prior year results by referring to the Buckton, Asphalt and Eaglenest historic properties.

6.2 PREVIOUS WORK HISTORY – METAL EXPLORATION

The area under DNI's Permits and the broader Birch Mountains Area, were aggressively explored during the period 1993-1999 by Tintina Mines Limited as part of its exploration programs over a much larger (3 million acre) land position it then held across northeast Alberta covering approximately 135 townships. Tintina's exploration programs were active until late 1999 and comprised multi-phased multifaceted campaigns straddling several years. Tintina collected several thousand multimedia samples in addition to conducting drilling and consolidating considerable other information from various studies, surveys and other testwork completed on its behalf by various professional geoscientists and consulting groups.

Tintina discovered the metal bearing black shales (DNI's targets) by accident in 1995 while searching for metal bearing permeability traps in redox fronts across northeast Alberta. Tintina started its regional work in 1993, focusing on the Cretaceous-Devonian unconformity, but discoveries it made in the Birch Mountains in 1995 in extensive carbonaceous shales shifted focus of its subsequent work to exploration of the black shales as prospective redox fronts which could accumulate considerable metals at their base. Intrinsic potential of the shales as hosts to metals was not recognized until after 1997 drilling designed to probe beneath the lower contact of the shales, but which discovered metal enrichment within the black shales instead. What started out in 1993 as a search for carbonate hosted gold-copper bearing redox systems similar to roll-front Uranium deposits, ultimately led over a four year period to the discovery of a formidable metalliferous black shale assemblage at the Lower-Upper Cretaceous unconformity associated with considerable subaerial venting and previously unknown extinction markers.

Tintina's work spanned the full spectrum of exploration activities ranging from grass roots reconnaissance and systematic regional sampling (1994-1995), through in-fill sampling, anomaly identification and follow-up (1995-1997), to confirmation drilling (1996-1997) and preliminary metallurgical testwork, leaching and benchtests (1997-1999). Diamond indicator investigations and extensive check assaying work (1997-1999) were also completed. Results from all of these work programs are collated in a series of Alberta Mineral Assessment Reports all of which are publicly available[4]. Ells River Resources conducted minimal sampling in 1996 over its single permit property (T97/R13).[5]

Historic exploration work conducted by Tintina over DNI's Property and the broader Birch Mountains, comprise the following: (i) LANDSAT remote imagery analysis (1994); (ii) Airphoto imagery analysis (1995); (iii) Lake sediment/water geochemical sampling (1994); (iv) Stream sediment geochemical sampling (1994); (v) Stream sediment heavy mineral concentrate sampling (1994), and follow-up heavy mineral concentration testwork (1994-1995); (vi) Lake Sediment/Water geochemical infill sampling (1995); (vii) Stream sediment geochemical infill sampling (1995); (viii) Stream sediment infill heavy mineral concentrate sampling (1995); (ix) Lithogeochemical reconnaissance sampling (1994) and follow-up heavy mineral concentration; (x) Lithogeochemical reconnaissance sampling (1995); (xi) Stratigraphic compilation and modeling (1995); (xii) Soil geochemical sampling (1995); (xiii) Follow-up Soil geochemical sampling (1996); (xiv) Winter drilling (1996-1997); (xv) High resolution aeromagnetic survey (1997); (xvi) Preliminary flotation, leaching, and sequential/selective leaching tests (1997-1998); (xvii) Diamond indicator resampling and analytical work (1998); (xviii) Check assaying program (1998-1999).

Concurrently with Tintina's efforts, the Alberta Geological Survey (AGS) and the Geological Survey of Canada (GSC) also completed sampling and mapping programs over the Birch Mountains, and elsewhere over northeastern Alberta, to characterize bedrock and till. Some of the work by the AGS focused on expanding upon Tintina's discoveries of metal enriched Cretaceous shales as it might apply to Cretaceous shales elsewhere in Alberta. Some of this work was conducted under the 1992-1995 Canada-Alberta Agreement on Mineral Development, initially a federal project with provincial participation, though studies therefrom were completed and results ultimately released in reports by the Alberta Geological Survey.

Many of the samples collected by AGS over the Birch Mountains and the Property duplicated samples from exposures also sampled by Tintina and, as such, provide good corroboration for results documented in Tintina databases and reports. The concurrent work included review and sampling of Tintina drill core as well as a joint Tintina-GSC program focusing on characterizing composition and morphology of alluvial gold and related native metals and minerals discovered by Tintina in the Birch Mountains drainages. Results from all of these studies are publicly available as traditional Geological Reports, as geological articles technical journals, and as posters/abstracts contributions to various geological conferences.

Tintina ceased its exploration activities in 1999 and allowed its permits to subsequently gradually lapse. There was no further activity on the Property until 2008 when the last of the original permits previously held by Tintina expired and were re-assembled by DNI during 2008.

Geological databases from historic work conducted by Tintina over its properties and vicinity, together with work conducted by the AGS and GSC, form the substance of the only geological information available from the Birch Mountains and the Property toward the exploration for metals. The foregoing data were consolidated by DNI into its NI-43-101 report for the Property (Sabag 2008[6]), and represent the foundation of DNI's work on the Property. The historical work results straddle exploration work programs completed during six years over different geographic locations (see Sabag 2008). Salient portions of the historic work are reiterated herein in sections of this Report describing geology and re-interpretations thereof by DNI in 2008.

[4] Alberta Mineral Assessment Reports: MIN9611, MIN9612, MIN9613, MIN9802 and MIN9928.
[5] Alberta Mineral Assessment Report: MIN9605.
[6] Technical Report On The Polymetallic Black Shale SBH Property, Birch Mountains, Athabasca Region, Alberta, Canada. NI-43-101 Technical prepared for Dumont Nickel Inc. by S.F.Sabag, October 28, 2008.

DNI commenced its exploration work on the Property in September 2007 prior to commencing its land assembly, and has since actively continued its work on the Property to advance its development. A detailed report of DNI's work for the period 2007-2010 was filed in Alberta Mineral Assessment Report MIN20100017 in August 2010 (Sabag 2010), outlining considerable work completed by DNI during the period 2007-2010 including the following: (i) Regional and Property scale geological data synthesis and compilation, including synthesis of information from the Western Canada Sedimentary Basin with specific focus on northeast Alberta the Birch Mountains (2007-2008); (ii) Consolidation of the information from geological data synthesis and compilation into databases as well as preparation of a NI-43-101 compliant Technical Report for the Property (2008); (iii) Preliminary review and inventory of historic third-party drill core archived at the MCRF from the Property (2008); (iv) Review, cataloguing and resampling of historic third-party drill core archived at the MCRF from the Property (2008-2009); (v) Verification analytical work of historic third-party drill core archived at the MCRF from the Property (2009); (vi) Expansion of subsurface geological database, related synthesis and subsurface stratigraphic modeling (2008-2010); (vii) Strategic field sampling program and related analytical work (2009); (viii) A number of leaching and mineral testwork as follows: Initial cyanidation testwork (2009); Micro scaled mineral (MLA) study of samples from the Property (2009-2010); Bio-Organism cultivation, culture adaptation and BioLeaching study – ARC (2009-2010); CO_2 Sequestration study – ARC (2009-2010); BioLeaching testwork – BRGM (2009-2010); and Sulfuric acid leaching testwork (2010); (ix) Strategic field sampling program and related analytical work (2010). Results from the foregoing work programs have been incorporated into summaries in this report.

6.3 Previous Work History – Diamond Exploration

Kimberlite indicator minerals were incidentally reported in, and documented from, stream sediment heavy mineral concentrates from the Birch Mountains and the Property from Tintina's stream sediment heavy mineral sampling programs, though not followed up by additional field work. Tintina, however, set aside duplicate samples from many of its stream sediment sampling surveys for future use.

Discovery by third parties of kimberlites and diamonds to the southwest of the Birch Mountains (Legend Kimberlite Pipes; Buffalo Head Hills Kimberlites), and similar contemporaneous Cretaceous shales in Saskatchewan (Fort a la Corne), prompted Tintina Mines to take a closer look at the diamond potential of the Birch Mountains in the 1990's, especially given the availability of sample material it had previously collected therefrom.

DNI's focus is the development of precious metals, base metals, rare metals and uranium hosted in the black shales identified on its Property. Diamond exploration is, accordingly, beyond the scope of its objectives. Historical exploration work for diamonds has been outlined in Sabag 2008 (DNI's NI-43-101 technical report for the Property). The reader is also referred to Dufresne et al 1994 for additional details.

6.4 Sample Archives From Historic Metals Exploration Work

Considerable sample material is currently archived in storage at the Mineral and Core Research Facility (MCRF), Edmonton, from sampling programs conducted by Tintina in the 1990's. The samples collectively provide a broad variety of duplicate sample material all of which are available for reference, verification and for future testwork. The archives include split drill core from Tintina's 1997 drilling in addition to material from thematic sampling suites, ranging from regional reconnaissance work to follow-up and in-fill sampling, in addition to mineral concentrates from various heavy mineral sampling surveys.

Split half of the entire drill core footage from Tintina's 1997 drill programs over the Asphalt and Buckton Zones were donated to the MCRF facility by Tintina in late 1997. Small portions of the footage, confined mainly to Second White Specks intersections, were recalled by Tintina in 1999 during its check assaying work (holes BK04, BK06, BK02 and AS02).

DNI completed an inventory of core footages archived at the MCRF in July 2008 to identify sample material which might be available for future testwork. All available footages archived were photographed, catalogued and downhole lithology was cross-checked against drill logs by DNI's senior structural geologist, Dr.J.P.Robinson PGeo. The split core was found to be in good condition, and their inventory is consistent with the MCRF records. Drill holes with sections of Second White Speckled Shale intact are AS01, BK01, BK03 and BK05; holes lacking Second White Speckled Shale sections are AS02, BK02, BK04 and BK06. The inventory noted no significant discrepancy between downhole lithology as documented in original drill logs and that noted in core boxes archived. The inventory noted no evidence of disruption which might be expected to compromise core sample integrity. The MCRF retains no formal record of past review of the core by others. Available drill sections were subsequently sampled by DNI in 2009 as part of its verification sampling and analytical program (see Sabag 2010).

6.5 Previous Work History – Oil and Gas Exploration

A suite of samples were collected by Mr.Leckie of the Geological Survey of Canada (Calgary) in 1997 from historic Tintina drill holes 7BK01 and 7BK02 for initial Rock-Eval analyses and for a preliminary micropaleontological study. Results from Mr.Leckie's study are included as a stand-alone report in Alberta Mineral Assessment report MIN9802 (Sabag 1998), and summarized in Sabag 2008 (Section 6.4 of DNI's NI-43-101 technical report for the Property). The data is preliminary and is beyond the scope of this Report and DNI's focus which is the search for metals, rather than oil and gas in the area. It is, however, significant to note that the preliminary micropaleontological study revealed an unexpected 4-6 million year gap between the top of the Second White Specks Formation and the base of the overlying LaBiche Formation suggesting a period of significant uplift and erosion, and suggesting that the Formation overlying the Speckled Shale in the area is the Lea Park Formation.

Mr.Leckie had considerable input into the identification of diagnostic criteria particular to the Second White Specks and Fish Scales Formations, all of which were instrumental during logging of often similar looking and apparently featureless material.

There has been other exploration in the area for gas in Formations beneath the black shales which are DNI's targets. There are existing active gas operations over the southwestern corner of DNI's Property and to its south.

7. REGIONAL GEOLOGICAL SETTING

7.1 GENERAL GEOLOGICAL AND TECTONIC SETTING

Alberta geology is dominated by sedimentary sequences of the Western Canada Sedimentary Basin which unconformably overlie a relatively stable Precambrian platform with localized zones of reactivation. The sedimentary pile is bounded by the Canadian Shield in the east and the thrust-fold foothills and the Rocky Mountains in the west. The Sedimentary Basin extends southward into the US Great Plains Basin, and many Albertan stratigraphies have US counterparts (Figure 11).

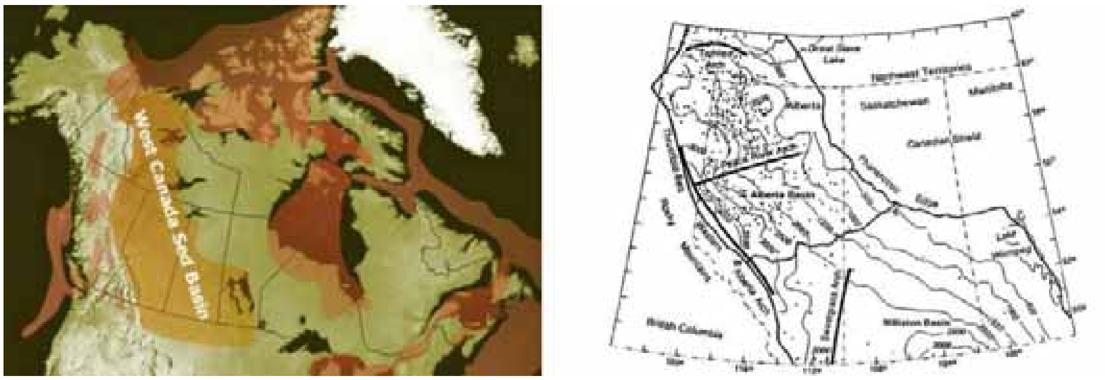


Figure 11: Generalized sketch of the Western Canada Sedimentary Basin (WCSB) across Alberta and Saskatchewan (left). General sketch of WCSB sub-basins after Bachu 1992, showing also Alberta sub-basin (right).

The Western Canada Sedimentary Basin consists of smaller sub-basins separated by a network of arches. One of the sub-basins is the Alberta sub-basin which dominates geology across northeast Alberta, consisting of a wedge of sediments, thickening from 200m in the east to over 6,000m in the west (Figure 12). Gross stratigraphy of the sedimentary pile comprises sediments unconformably overlying the Precambrian shield which is exposed approximately 150km to the northeast of Fort McMurray, and which is buried by progressively thicker sedimentary formations southward and southwestward.

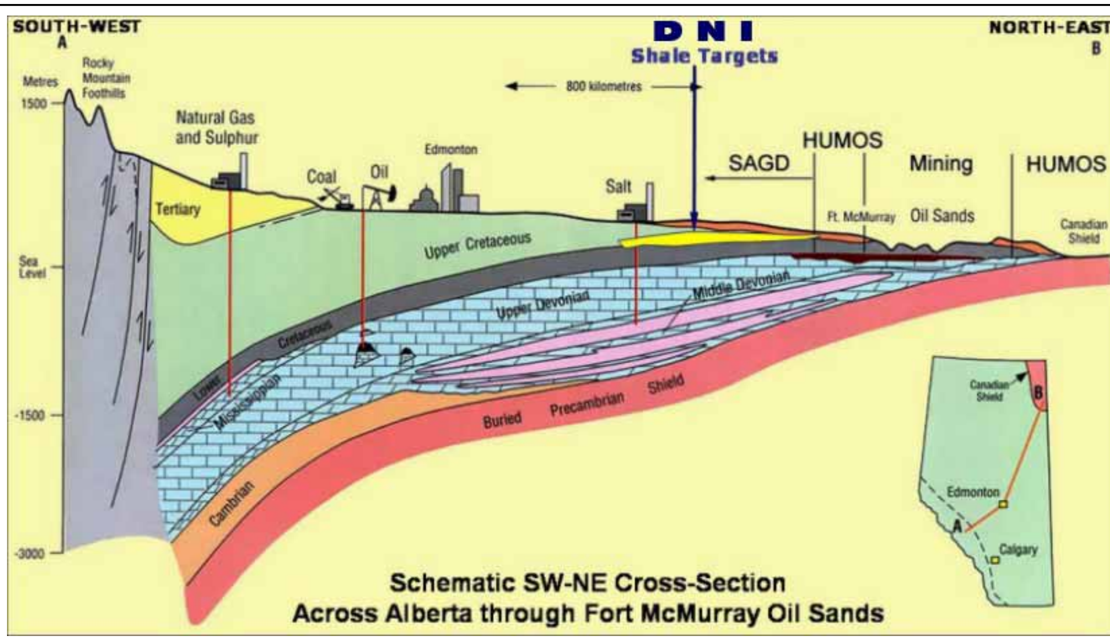


Figure 12: Generalized SW-NE cross-section sketch across Alberta (looking northwesterly). Sabag 2008

The Western Canada Sedimentary Basin across Alberta is a prolific source of minerals though it is best known for its hydrocarbon potential, notably for hosting the Alberta Oil Sands Deposits.

Tectonic setting for northeast Alberta is shown in Figure 13. Recognized basement hot-spots are shown in Figure 14. Generalized geology of northeast Alberta and regional cross section are shown in Figure 15.

In broad terms, regional geology of northeastern Alberta is represented by a sequence of substantially flat-lying Devonian carbonates overlain by equally flat-lying predominantly clastic Cretaceous and younger sediments. The Devonian sequences unconformably overlie the Precambrian Shield which is sporadically exposed only in the northeasternmost part of the region near the Saskatchewan border, from whence southwestwards the Precambrian is buried by progressively thicker sedimentary formations of the Western Canada Sedimentary Basin.

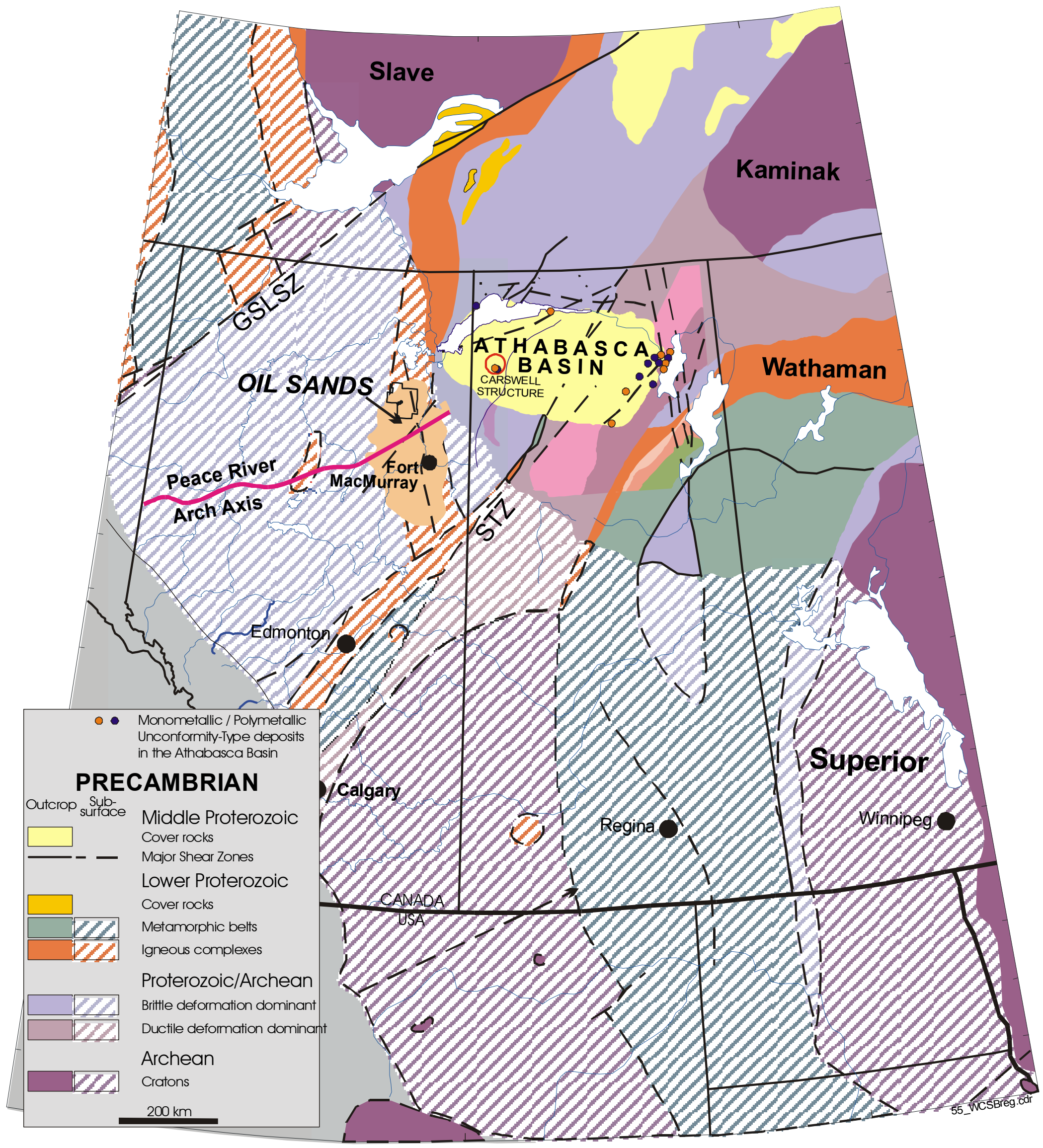
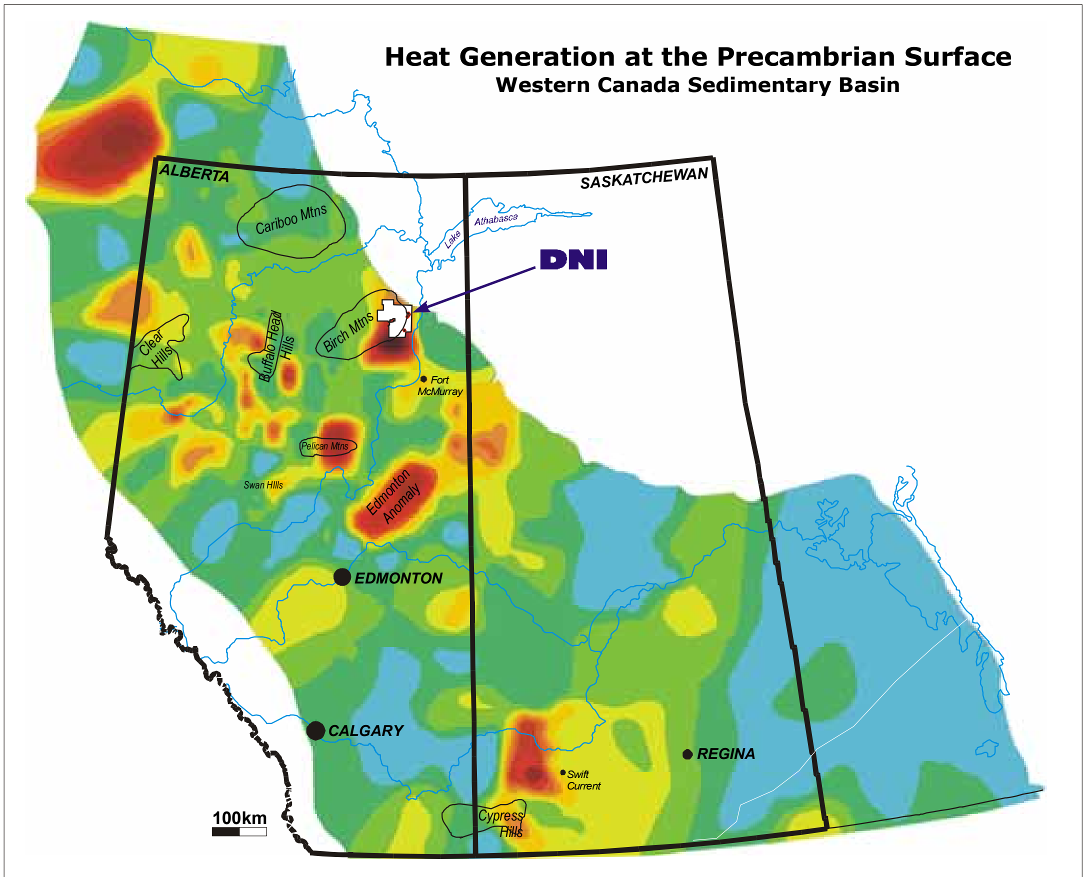


Figure 13: Generalized tectonic setting of the West Canada Sedimentary Basin, Litho-structural units of the exposed Shield, and inferred crystalline basement beneath the Western Canada Sedimentary Basin. STZ=Snowbird Tectonic Zone; GSLSZ=Great Slave Lake Shear Zone. Sabag 2008.

The sedimentary pile consists of Devonian sequences (carbonates, evaporite and red beds), which are unconformably overlain by Cretaceous clastic sediments, the lowermost of which (McMurray Formation) host to the oil sands deposits. The Lower Cretaceous sequences transition upward through a series of unconformities and disconformities to Upper Cretaceous clastic sequences separated from same by a principal extinction marker (the Fish Scales Marker Bed, Shaftesbury Formation) and a lesser known extinction horizon, the Second White Specks Formation.

Precambrian rocks underlying the region belong to the Talston Magmatic Arc (TMA) and the Rae Province. The TMA is a major crustal suture zone marking the boundary between the Archean Rae Province to the east and the Proterozoic Buffalo Head Terrain to the west (Ross and Bowring, 1991), and it is characterized by a sinuous aeromagnetic fabric consistent with the geology of its exposed portions in the northeast of the region where large anastomosing mylonitic shear zones cut through large (up to 50km diameter) granitic batholiths intruding 2.0-1.8Ga old ortho and paragneisses. The TMA can be traced north for several hundred kilometers from the Snowbird Tectonic Zone (~100km southeast of Fort McMurray) to the Great Slave Lake Shear Zone where it is displaced to the northeast and continues as the Thelon Magmatic Zone.

A number of "hot-spots" have been recognized in the Precambrian, believed to reflect heat generation by the decay of radioactive elements at the top of the Precambrian basement beneath the Western Canada Sedimentary Basin Property (Mossop and Shetsen, 1994). The Birch Mountains, and the Property, lie over one of the more significant hot-spots recognized.



After Figure 30.2, Geological atlas of the Western Canada Sedimentary Basin, 1994

Figure 14: Distribution of heat generation by the decay of radioactive elements at the top of the Precambrian basement beneath the Western Canada Sedimentary Basin. After Figure 30.2, Geological atlas of the Western Canada Sedimentary Basin; the Canadian Society of Petroleum Geologists and the Alberta Research Council, ARC-AGS 1994. Mossop and Shetsen 1994. Showing also DNI's Alberta Property.

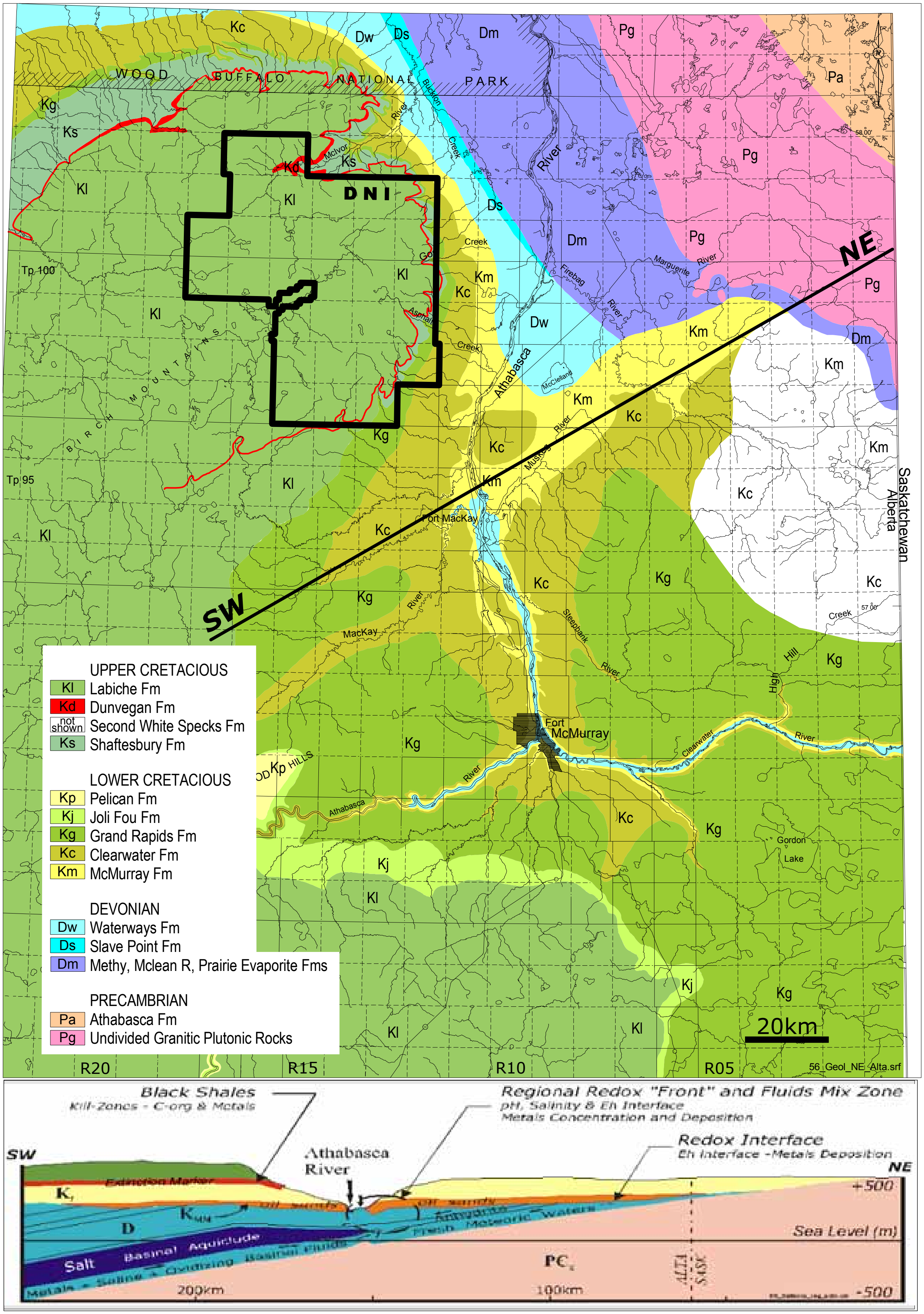


Figure 15: Generalized geological sketch of northeast Alberta, and schematic SW-NE cross-section (Bachu and Underschultz 1993). Geology after Alberta Mineral Assessment Report MIN9611, Sabag 1996a. Second White Speckled Shale is not shown but its trace is proxied by trace of the Dunvegan Formation.

Studies of Basement Heat Flow in the Western Canada Sedimentary Basin (Bachu 1992) suggest the TMA in northeast Alberta to be a relatively young (2.0-1.8Ga) magmatic arc, characterized by high geothermal gradients suggestive of an upper layer of thermal activity in the crust. The studies also show a trend of progressive increase in calculated basement heat flows north-northeastward to a maximum in northeast and northern Alberta. Anomalously high geothermal gradient characterizes the area around Fort MacKay, the outline of which approximates extents of the oil sands region. Similar geothermal anomalies characterize the area over the Great Slave Tectonic Zone underlying the Pine Point deposits.

The overall region is better known for its oil sands operations than for its mineral potential, although co-product metals (V, Ti) in oil sands deposits (and tailings)[7] have from time to time attracted passing attention.

7.2 Formational Fluids and Brines

The Western Canada Sedimentary Basin contains approximately 1.75 trillion barrels of crude oil and is one of the most prolific hydrocarbon domains in the world. Northeast Alberta is within one of a number of its sub-basins, and is located over the northeasternmost "feather" edge of the Basin.

The Athabasca oil sands deposits are, in general terms, believed to have been concentrated by fluids flowing up-dip from the west-southwest which were trapped into local reservoirs, and were subsequently biodegraded and washed by meteoric waters introduced from local flow systems (Bachu and Underschultz 1993, Hackbarth and Nastasa 1979). Regional geological discussions of northeast Alberta are, accordingly, meaningless in isolation from discussions of formational waters and related processes.

The Devonian Prairie Evaporite Formation, occupying a substantial portion at the mid-section of the stratigraphy in northeast Alberta. It is the most prominent major hydrogeological feature throughout the region, and is a regionally extensive aquiclude which impedes hydraulic communication between surface and near surface (shallow) waters and those flowing beneath it trapped above the underlying impermeable Precambrian basement. Post-Prairie Devonian aquifers and pre-Prairie aquifers are recognized in the region, the latter characterized by northeasterly up-dip flows (southwest to northeast) and the former by flows mostly in response to local physiography. Pre- and post- Prairie fluids have markedly different chemistries. Pre-Prairie flows at the base of the stratigraphy are saline brines and flow within, and through, sedimentary sequences dominated by shales and red-bed sequences, whereas post-Prairie flows are primarily within carbonates (Figure 15). Pre-Prairie fluids are, furthermore, oxidizing fluids which are anomalously enriched in metals - Ni, V, Cu, Zn, Co, U, Ti, Fe, Mn, Au, Ag and PGE (Bachu 1994)[8].

Over portions of the region (e.g. to the north of Fort McMurray), Salt dissolution within the Prairie Evaporite is advanced, and salt removal from the unit is nearly complete to the east of the Athabasca River. The dissolution creates considerable collapse breccias, and the dissolution front (subsurface scarp) represents a major break in the aquiclude allowing the mixing of pre-Prairie formational waters with those above the formation, thereby bringing into contact waters of markedly different salinities, acidity, Eh and elemental compositions.

Transport and deposition of metals is known to be a function of Eh/pH, and their transport is dependent upon the availability of complexing agents such as halides, bisulfate or other organic species. Transporting complexes are highly dependent on, and sensitive to, variations in Eh/pH, and characteristic complexes gain prominence under different chemical conditions. Abrupt changes in ambient chemistry, therefore, present chemical “fronts” which can cause precipitation of metals via redox reactions.

The Prairie Evaporite dissolution front, as well as major structures within, and across it, represents a significant permeability breach allowing hydraulic communication between pre-Prairie metalliferous

[7] eg: Titanium Corporation

[8] Distribution of Transitional Elements In Formation Waters in Northeastern Alberta: by S.Bachu, Alberta Geological Survey, Alberta Research Council; July 1994. Special Study Commissioned by Tintina Mines, included in Appendix A in Alberta Mineral Assessment report MIN9611, Sabag 1996a.

oxidizing fluids with post-Prairie "shallow" fluids, and can be regarded as a chemical environment conducive to the accumulation (precipitation) of metals where: (i) basinal fluids first mix with the shallow waters of markedly different chemistry; or (ii) the basinal fluids first come into contact with (are discharged against) surfaces of contrasting chemistry, especially surfaces of reducing strata such as carbonaceous material (e.g. the oil sands or the black shales). Historic work programs by Tintina focused on exploration of the projection of the dissolution front across the region in search for metal deposits along redox fronts.

7.3 STRUCTURAL GEOLOGY

Structural elements in northeast Alberta are represented by a broad variety of regional and localized features, many of which are within the Precambrian but others are confined to the overlying stratigraphic sequence in general, or the Devonian in particular. Many major structures extend into Alberta from neighboring Saskatchewan (Figure 13). Broad structural highlights are as follows:

- The boundary between the Archean Rae Province (approx. 4Ga) and the much younger Talston Magmatic Arc (approx. 2Ga) is the principal tectonic feature in the region, passing through its northeastern portion. This boundary is known to have undergone some readjustments. Other major Precambrian structures in the area comprise a series of north-northwesterly features, currently only viewed as lineaments, two of which are known downdropped faults and have been correlated from measured offsets in deep oil well data.

- In broad terms, at least three different principal orientations of faulting are recognized in the basement underlying northeast Alberta as follows: (i) northerly trending sinuous shear zones of the TMA (inferred from the aeromagnetic signatures of the area) characterized by mylonites of varying stages of deformation ranging from early, broad, Granulite facies to more brittle, late stage, greenschist facies, many of which structures are suspected reactivations of brittle structures; (ii) northeasterly extension of the Peace River Arch passing through the region, broadly through the Birch Mountains, possibly also with a splay trending through the Fort MacKay area, and seen in northeast trending offsets in aeromagnetic contours as well as in vertical offsets documented from scant drilling; (iii) northwesterly, potentially fluid bearing, faults inferred from faults observed in the Andrew Lake region of northeastern Alberta wherefrom several late stage (cross-cutting) faults with extensive silicification and hematization of crushed country rock have been documented (Langenberg, 1993).

- Studies of jointing patterns within the sediments in the area conclude that several of the patterns are conformable with structures in the underlying Precambrian basement, reflecting also several readjustments in the Precambrian which have been generally recognized (see Babcock 1975, Babcock and Sheldon 1976).

- Younger structures in the area, apparently restricted to the sedimentary sequence, are dominated by a series of regional northeasterly trending faults, several of which pass through the Fort MacKay area and vicinity. The principal member of this family of faults is a dextral strike-slip fault (Martin and Jamin 1963, see also Figure 16) whose location and trend are based on interpretations from stratigraphic correlation of oil/gas well data. Other members of the northeasterly group of linear trends are interpreted per broad surficial features and per major offsets in regional aeromagnetic data, and have not been corroborated by stratigraphic correlations, although it is of note that all metallic occurrences reported to date from the region are from locations which are at, or in the immediate vicinity of, northeasterly features, particularly where these features cross certain other Precambrian trends, or where they intersect the Prairie Evaporite Dissolution front (scarp).

- The limited drilling penetrating the Precambrian suggests that at least some of the northeasterly structures noted in the sediments reflect Precambrian features, and that offsets along the structures also include a substantive vertical component defining a complex horst/graben framework.

- By far the largest zone of disturbance in the region is the **Peace River Arch**, which is a major regional tectonic zone extending east-northeasterly from the Front Ranges in northeastern British Columbia over approximately 750 kilometers across north-central Alberta to the Saskatchewan border. It comprises a 140km wide zone of structural disturbances which were active from as early as the Late Paleozoic to the Late Cretaceous, with no readily discernible aeromagnetic or gravity expression, although a subtle crustal uplift at the Moho, partially coincident with its axis, is suggested by seismic studies. All inidications are that the Arch is not the result of a discrete Precambrian structure but is rather the end product of the confluence of a variety of complex and episodically active structures. The origin(s) of the Arch are poorly understood and mechanisms suggested as to its development range from thermal to entirely flexural (non-thermal) hypotheses. It suffices to say that it represents a deep structural feature with a complex tectonic history characterized by periodic reactivation and episodic crustal extension.

  The Peace River Arch trends across northeastern Alberta within a wide zone passing to the north of Fort MacKay, across the southern parts of the Birch Mountains. Although the sedimentary record in the area suggests that it was an emergent feature during the late Devonian and principally a zone of subsidence during the Cretaceous, work completed by Tintina and the AGS in the 1990's in the Birch Mountains suggest many localized variations, suggesting also that at least portions of the north flank of the Arch were the locus of considerable uplift during the Early-Late Cretaceous transition, coincident with the development of extinction marker horizons and abundant bentonites in the area.

- Other young structures within the region comprise a variety of localized faulting and jointing patterns reflected in surface (and paleo) topography, some of which as linear trends, and others as circular features attributed to salt dissolution sinkholes. A number of the larger (20km-30km diameter) circular features are evident in LANDSAT remote sensing imagery from the region although their nature remains unresolved (eg: Figure 26).

More specific structural features, as they relate to metallic exploration in the region, were compiled by Tintina through a variety of studies including remote sensing imagery analysis and subsurface stratigraphic modeling. Principal features identified by the foregoing are summarized in Figure 16.

Some of the structural features across the region, and those crossing the Property, cannot be discussed in isolation from subsurface stratigraphy which is presented in greater detail in Section 7.6 of this Report. The most significant of these features is the subsurface salt scarp created by salt bed dissolution within the Devonian Prairie Evaporite, and it attracted considerable prior exploration attention. The Prairie Evaporite (Prairie Lake Fm, Middle Devonian Elk Point Group) dominates the mid-section of the Devonian sequence in northeast Alberta, and it is characterized by salt beds, anhydride and gypsum.

The Prairie salt beds are a substantive regional feature, known to extend southward into North Dakota. Parts of the salt beds have been dissolved and are responsible for the creation of collapse breccias up-stratigraphy, and dissolution within the beds defines a northwesterly linear regional band across northeast Alberta and is regarded as a dissolution front, or subterranean scarp, to the east of which salt members of the evaporite have been removed. Fort MacKay is located above the foot of the dissolution scarp, east of which salt removal is nearly complete, and it is believed that some 75m of salt were removed from the Prairie Evaporite by dissolution.

The Prairie Evaporite represents a major basinal hydrogeological feature, acting as a regional aquiclude, below which saline and metal enriched oxidizing basinal fluids flow updip northeasterly into the region until they are discharged along the dissolution scarp representing the main breach in the hydrological system (Figure 15). Leakage of fluids along faults crosscutting the Prairie Evaporite also provide localized communication between metal enriched oxidizing basinal fluids with meteoric "shallow" waters. The Prairie Evaporite Salt Dissolution scarp is, accordingly, the most significant redox front in the region as the locus of "first-contact" between ascending metal bearing oxidizing formational waters and descending meteoric or subformational flows, and also the point of contact of oxidizing metalliferous basinal fluids with any overlying organic rich stratigraphy.

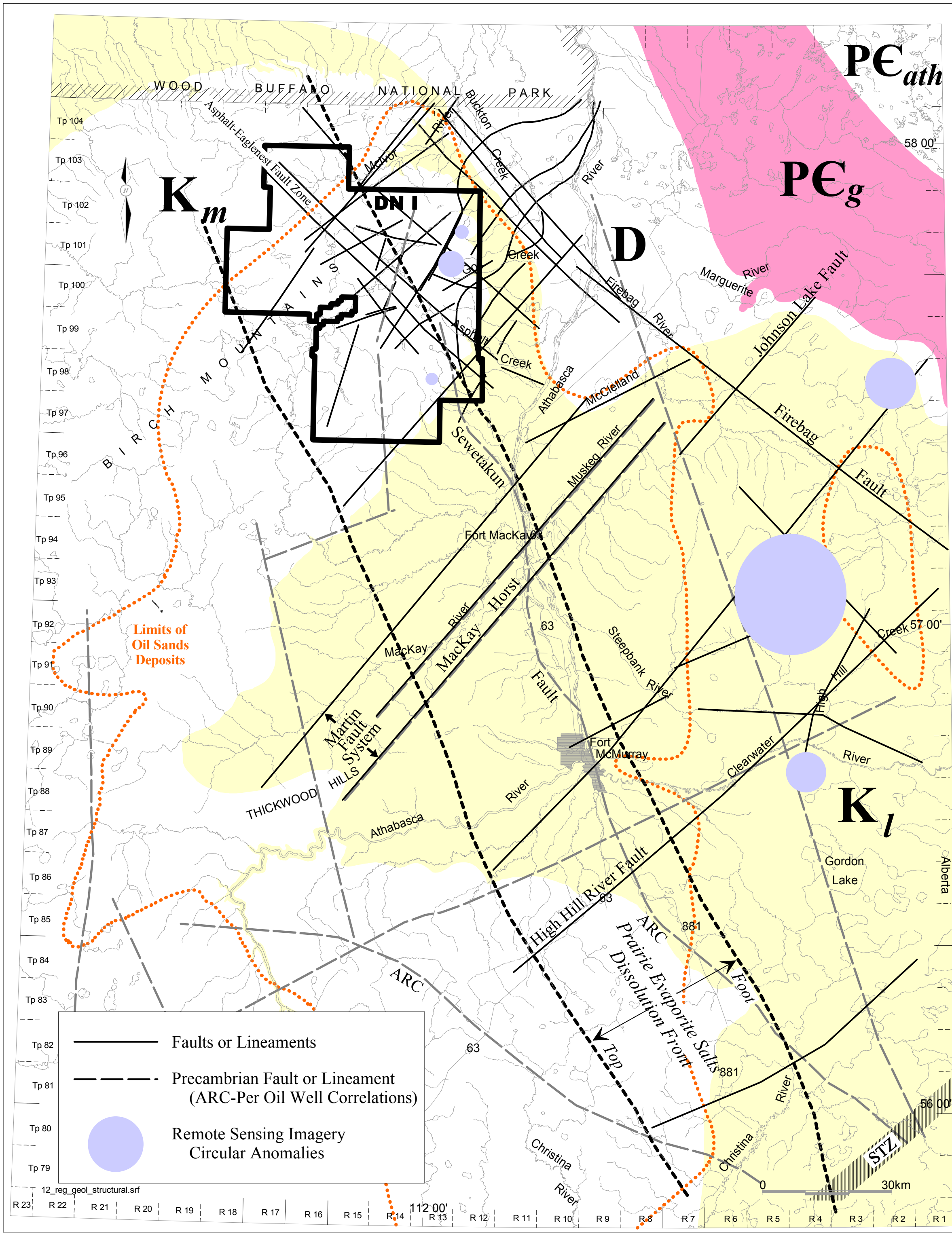


Figure 16: Summary sketch of regional structural trends and the projected trace of the Prairie Evaporite Salt Dissolution front indicating the top and foot of the projected subsurface scarp face, showing also other structural features compiled and interpreted for northeast Alberta by Tintina, including: Athabasca basin sandstone (PCath), Precambrian (PCg), Middle Devonian (D), Lower Cretaceous (Kl), and Middle Cretaceous (Km), the distribution of the oil sands deposits, principal structural elements and the Snowbird Tectonic Zone (STZ). Select circular anomalies also shown from remote sensing imagery studies. After Figure 6, Alberta Mineral Assessment report MIN9802, Sabag 1998.

Prior work across the region by Tintina Mines (1993-1995) focused on the search for gold and copper accumulations controlled by redox processes. It, accordingly, targeted junctures of the Prairie salt scarp with crosscutting features, given the potential of such localities for hosting metal accumulations deposited via redox reactions in stratigraphic and structural traps. Localities were targeted relying on extensive stratigraphic subsurface modeling of information from regional oil/gas prior drilling databases. Based on this work, the Prairie Evaporite Salt Dissolution scarp, as projected to surface, defines a surface trend which extends southeasterly across the region, southeast from Wood Buffalo National Park, across the Birch Mountains, to approximately Township 65 at the Saskatchewan border. The Birch Mountains, and surrounding areas including the areas currently under the Property, overlie junctions of the Prairie Evaporite Salt Dissolution front with other northeasterly faulting as interpreted from regional aeromagnetics. The area also generally overlies projected extensions of the Peace River Arch.

Details of the structural setting of the Birch Mountains area and the Property are discussed in Section 8.4 of this Report, and include details related to subsurface stratigraphic modeling across the Property.

7.4 Glacial Setting

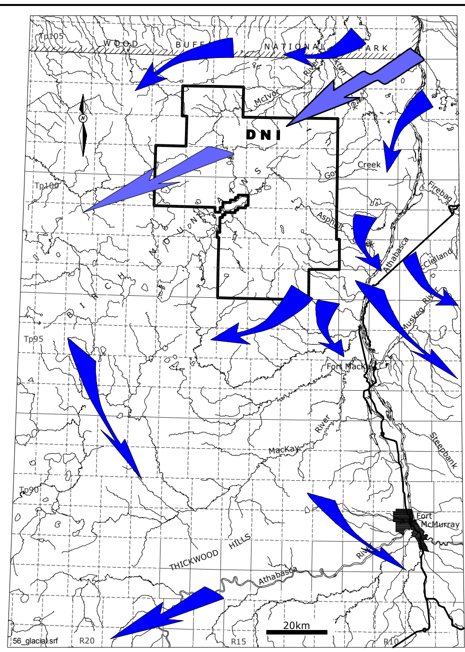


Figure 17: Summary of principal ice directions, Northeast Alberta (Dufresne et al 1994).

Glacial history of northeast Alberta is complex. In gross terms, multiple glacial advances from the east/northeast/north (Laurentide source) and the west (Cordilleran or Rocky Mountain source) have been recognized, as have been also considerable interactions between the two principal ice directions (Dufresne et al 1994).

Transverse advances in glacial directions in response to localized topography have been documented and work suggests that the Birch Mountains have had a significant affect on local ice directions in the area. Generalized principal ice directions are shown in Figure 17.

Principal ice direction throughout the Birch Mountains Area is southwesterly and can be seen in large scale glacial scouring across the area (Figure 18), although ice flow is believed to have splayed around, and over, the Birch Mountains such that crosscutting composite directions are common to its south, manifested as multiple tills.

The reader is referred to various work reports by the AGS toward resolution of Quaternary geology over the region.

7.5 Regional Geophysical Overview

Regional aeromagnetics of northeastern Alberta are characterized by a series of northerly and northwesterly features, offset along several conspicuous northeasterly trends. Many of these trends extend well into neighboring Saskatchewan.

On a sub-regional scale, aeromagnetics typically define elongate northerly trends of relatively gentle magnetic relief, locally disrupted by abrupt offsets in magnetic contours, by flexures and by dilative features. Many of these features can be correlated with other surficial as well as remote sensing imagery information and are commonly regarded to be manifestations of reactivated structures deeper within the precambrian, many with lateral offsets of 10-30km. Some of the interpreted structures are also suspected to be associated also with considerable vertical movement ranging 50m to 100m.

Preliminary reviews of digital regional aeromagnetic data were conducted by Tintina during its 1994-1995 regional exploration activities to better resolve discontinuities and lineaments (faulting) over the region and across the Birch Mountains, relying on first and second derivative manipulations of the available digital regional data. Discussion of the foregoing magnetic trends over the Birch Mountains and the Property are discussed in Section 8.6 of this Report in conjunction with subsurface stratigraphic and other related surface anomalies over the Property.

Gravity Bouguer Anomalies in the region define many trends corroborated by supporting aeromagnetics, and in general depict Bouguer configurations compatible with horst-graben subsurface geometry suggesting block movements, especially in the general vicinity of, and to the north of, Fort McMurray.

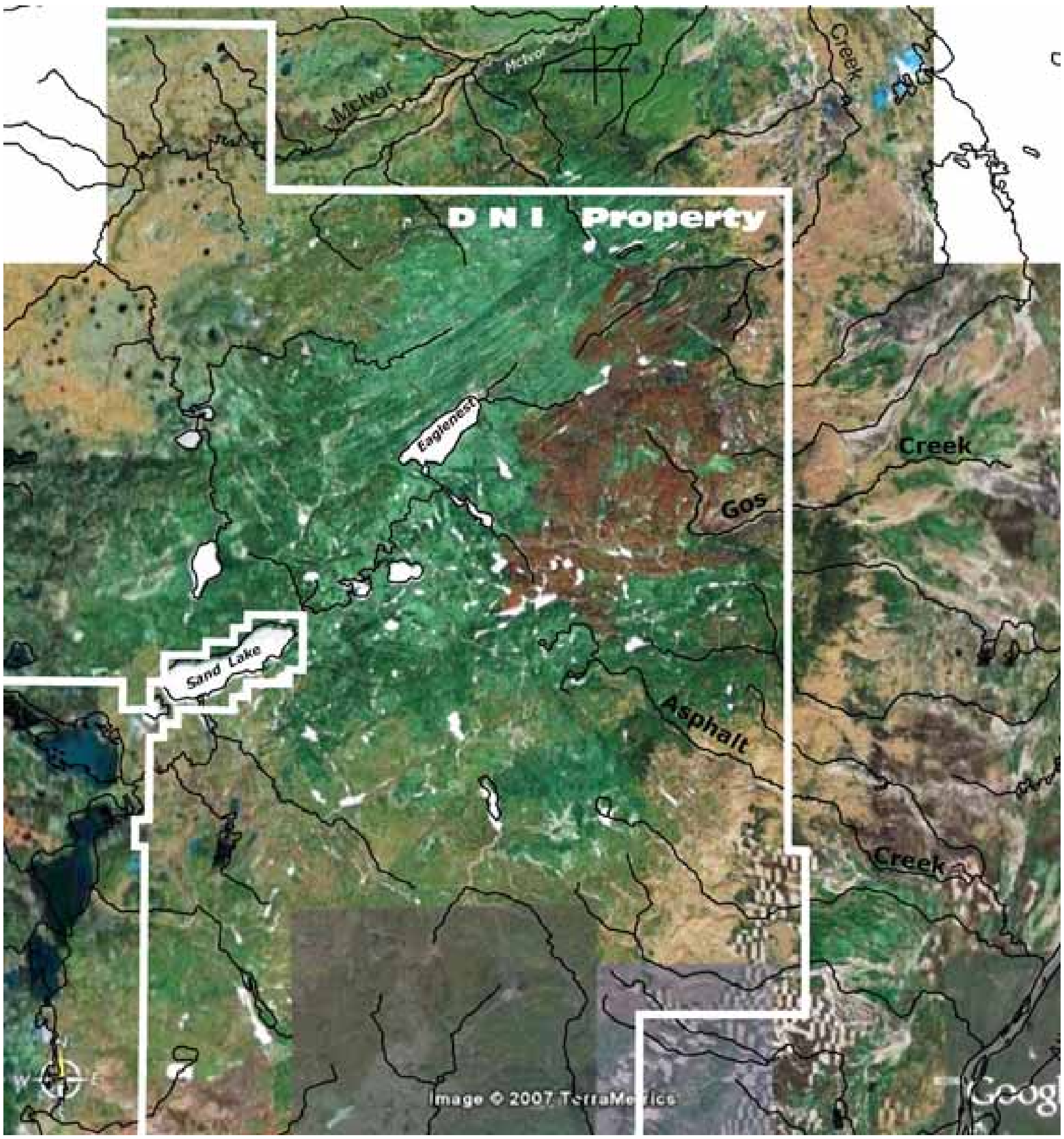


Figure 18: Remote image of the Birch Mountains showing glacial scouring. From Google Earth image bank.

7.6 Regional Sedimentary Stratigraphy

Overall stratigraphy within the region has been documented in most part from subsurface data collected from oil well formational picks due to the scarcity of exposures of the typically flat-lying stratigraphy which can be observed only in river valley walls. A stratigraphic column for the region is summarized in

Figure 19, and a regional north-south cross-section is presented in Figure 20 which extends southerly from the McIvor River, across the Property, to as far south as Fort MacKay. A southeasterly section across the Birch Mountains and the Property is presented in Figure 21.

An overview of the sedimentary pile is described below, extending upward from the Devonian sequences at its base, to the Cretaceous Formations which dominate the Birch Mountains and the area under and around the Property.

Devonian Carbonates

Devonian units immediately overlie the Precambrian across the region, and consist primarily of near flat-lying (dipping ~4° west) Middle and Upper Devonian strata, unconformably overlain by Lower Cretaceous sequences. In the center of the region, in the vicinity of Fort MacKay, the Devonian is a 300m thick sedimentary sequence dominated by siliceous carbonates near the surface giving way, through evaporite and dolomitic rocks, to progressively more clastic units and shales or red-beds at depth, all of which are separated from the Precambrian basement by a thin regolith unit. The Precambrian paleosurface dips gently (~ 5°-7°) to the southwest, such that the Devonian sequence is thinner in the northeast portion of the region where it has an estimated thickness ranging 50m-100m in the Firebag River area.

The Devonian sequence is divided into the **Lower to Middle Devonian Elk Point**, **Middle to Late Devonian Beaverhill Lake** and **the Late Devonian Woodbend Groups**. The Elk Point Group consists of a lower succession of shales, red beds and salts and an upper section of platform carbonates and evaporites. The Beaverhill Lake Group and the Woodbend Group are composed of alternating calcareous shales and argillaceous limestones.

Of particular interest within the Elk Point Group are the **Keg River Formation** and overlying Prairie Evaporite Formation. In the Fort McMurray area, the Keg River Formation has been pervasively altered to sparry tan dolostone and dolomitic limestone, and can be seen in outcrops along the Firebag River just east of the Athabasca River. The Keg River Formation hosts the Pine Point Pb-Zn deposits located adjacent to Alberta's northwest corner.

The Keg River Formation is conformably overlain by an evaporitic succession, the **Prairie Evaporite Formation**, consisting primarily of extensive thicknesses of salt and lesser interbedded anhydrite/gypsum, which thicken to the northwest from 160m to 275m. Thinner intervals along this trend are the result of reef build-ups in the underlying Keg River Formation.

Portions of the salt beds within the Evaporite horizon, have been dissolved and are responsible for the creation of collapse breccias up-stratigraphy. The Prairie salts are a substantive regional feature, known to extend southward into North Dakota, and dissolution within the salts defines a north-northwesterly trending regional linear domain regarded as a dissolution front, or subterranean scarp, to the east of which salt members of the evaporite have been removed (e.g. Fort MacKay is located over the foot of the dissolution scarp, east of which salt removal is nearly complete, and it is believed that some 75m of salt have been removed from the Prairie Evaporite by dissolution).

The eastern lateral boundary of the Prairie Evaporite Formation is the salt dissolution scarp which comprises a 20km-25km wide band extending north-northwesterly across the region (see Figure 12). The scarp defines an abrupt facies change from anhydrite to salt and has been progressing basinward since the end of Middle Devonian time. Salt dissolution within the Prairie Evaporite Formation has traditionally been credited for the bulk of karsting and brecciation in overlying Formations throughout the region, often to the detriment of the resolution of other structures of purely tectonic affinities.

The Prairie Evaporite represents a principal basinal hydrogeological feature acting as a regional aquiclude below which saline and metal enriched oxidizing fluids flow updip northeasterly into the region until they are discharged along the dissolution scarp representing the main breach in the hydrological system. Leakages of fluids along faulting crosscutting the Prairie Evaporite also provide localized communication between "shallow" waters with deeper formational fluids flowing beneath the sedimentary pile.

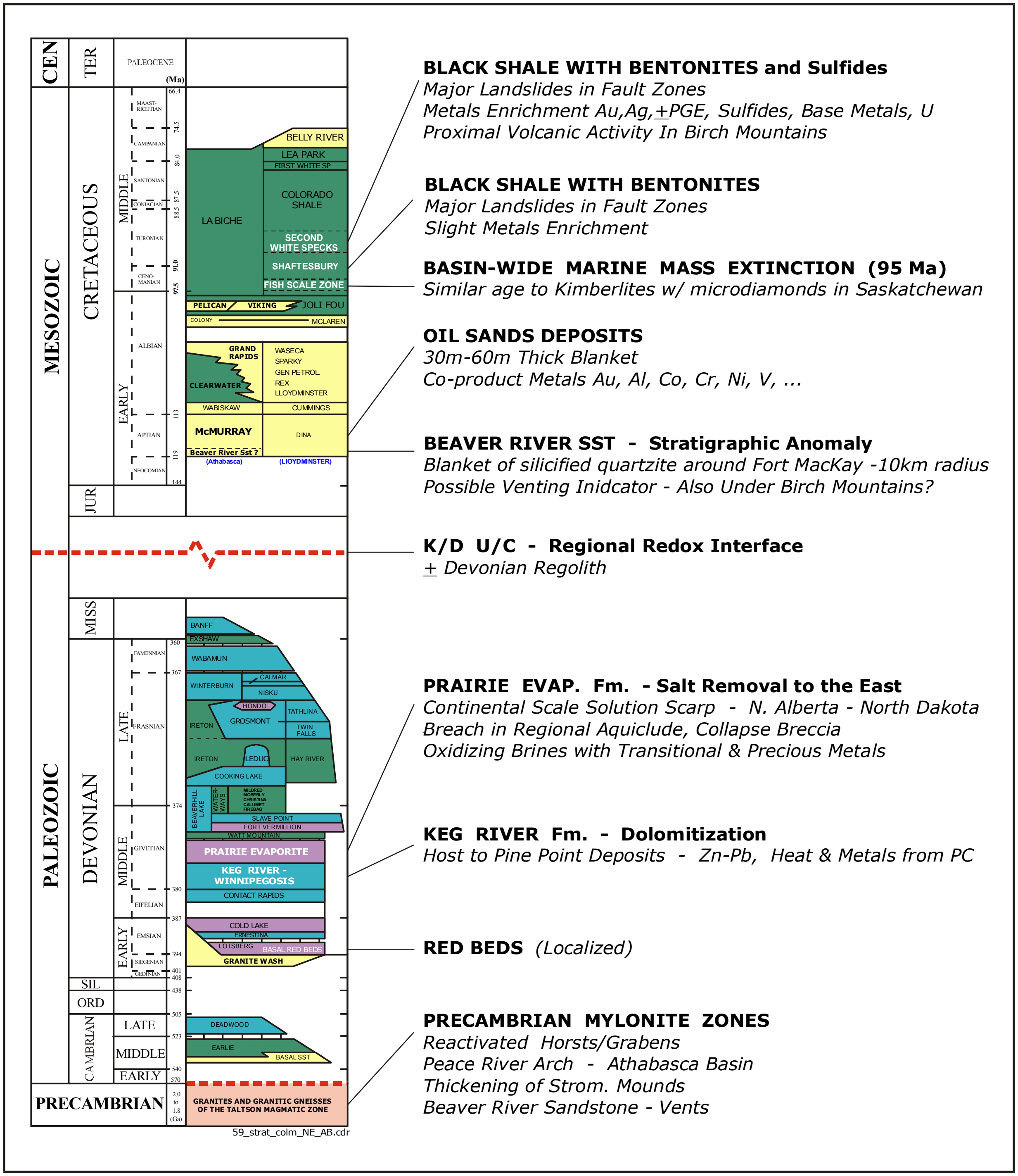


Figure 19: Stratigraphic column - Northeast Alberta. After Figure 59, Sabag 2008; and Figure 14, Alberta Mineral Assessment Report MIN9802, Sabag 1998

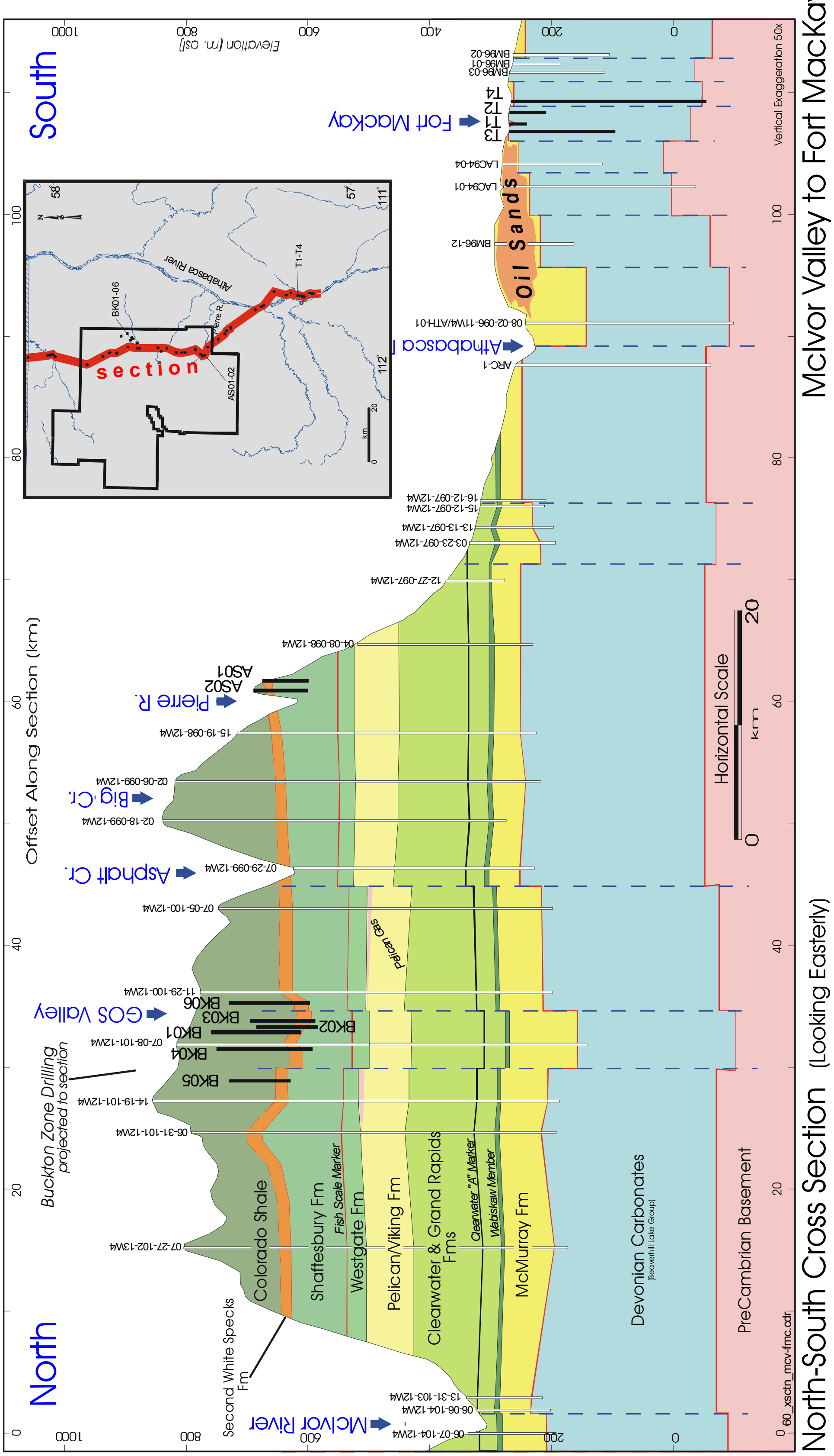


Figure 20: Regional North-South geological cross-section across the Birch Mountains and the Property, McIvor River to Fort MacKay. After Figure 60, Sabag 2008; and Figure 13, Alberta Mineral Assessment Report MIN9802. Sabag 1998.

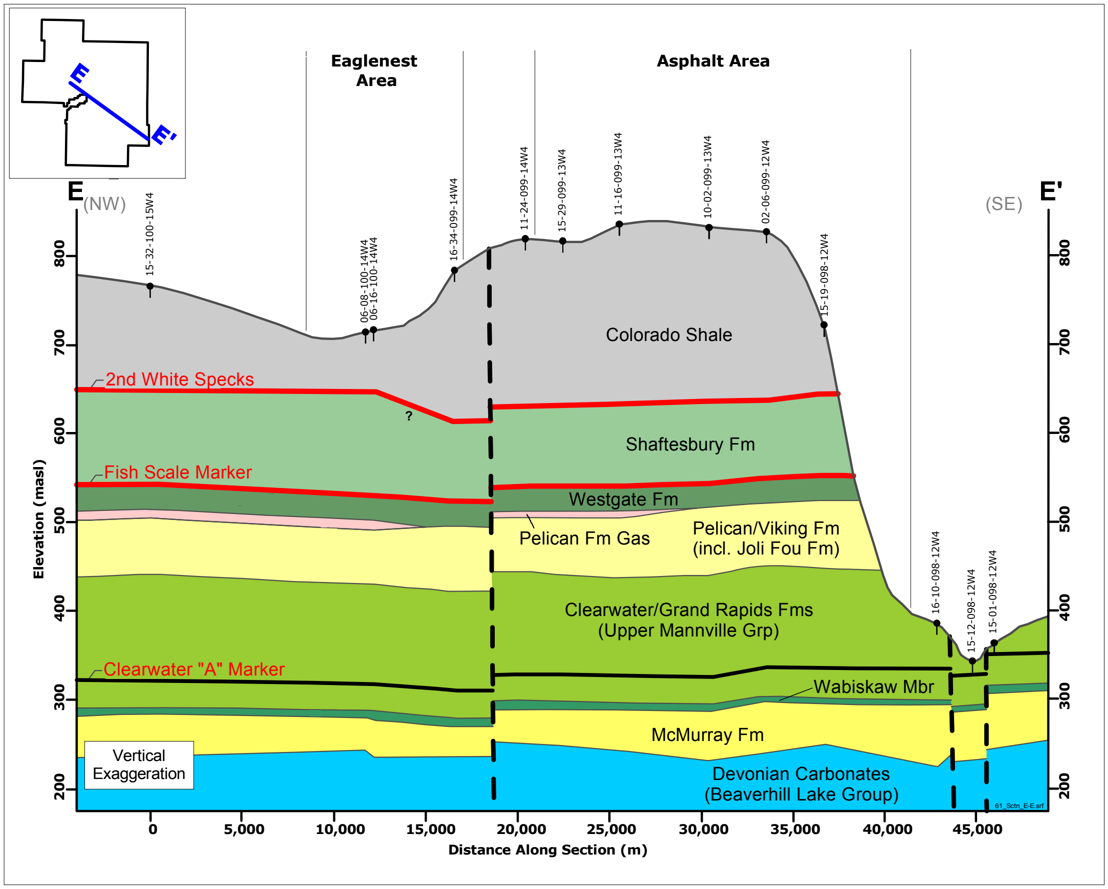


Figure 21: Cross section E-E', southeasterly across the Property. After Figure 61, Sabag 2008; and Drawing D4.3, Alberta Mineral Assessment Report MIN9613, Sabag 1996b.

Cretaceous Clastics

The **Mannville Group** and the **Colorado (or Alberta) Group** dominate the Cretaceous sequences of northeast Alberta. The two Groups are described below.

The **Mannville Group** represents the first major depositional sequence of the Cretaceous throughout Alberta, following a long period of uplift and erosion of older strata. This Group consists in ascending order of the **McMurray Formation**, the **Wabiskaw** member, the **Clearwater Formation**, and the **Grand Rapids Formation**.

The **McMurray Formation** is the most well known of these units. It is a basal deltaic, quartzitic sandstone deposit which unconformably overlies the Devonian Carbonates. The McMurray Formation hosts the Athabasca Oil Sands deposits, centered around Fort McMurray, representing the largest accumulation of hydrocarbons worldwide. It attains a maximum thickness of approximately 50m north of Fort McMurray, but thins slightly and undergoes a facies transition to a more terrestrial sequence of shales and coal in the area of the Firebag River. Accumulations of near-economic are known to occur in the Formation.

The base of the McMurray Formation marks the Cretaceous-Devonian unconformity representing a principal temporal marker within the region, though one that is poorly understood and complicated by the localized presence of horizons and rocktypes which represent stratigraphic or temporal anomalies of unknown age and provenance. This unconformity is well-exposed near Fort MacKay, and is occupied by the Beaver River Sandstone, a silicified 1m-3m thick "blanket" of crystalline quartz sandstone of assumed Jurassic or Lower Cretaceous age. This unit, though previously assumed to be confined to the Fort MacKay area, has also been noted by Tintina in oil/gas well drill cuttings at the base of the McMurray Formation from areas of active structural and geochemical disturbances within the Birch Mountains, and interpreted to represent a decalcification marker in areas overlying venting or hot springs activity.

The Wabiskaw member is a transgressive siltstone to sandstone which overlies the McMurray Formation and is part of the transitional sedimentation into the overlying Clearwater Formation.

The Clearwater Formation is a collection of fine grained marine clastic sediments which developed as a result of a transgressive event which saw the end of the development of the McMurray delta. The Formation also contains several shale units used as stratigraphic markers, these include in ascending order (above the Wabiskaw member) the **Clearwater "A" marker** and the **"Regional Marine Shale"**.

The Clearwater Formation grades laterally and vertically into the Grand Rapids Formation which represents the contemporaneous development of a prograding barrier bar complex which thins to the northwest. The Grand Rapids Formation sandstones are easily distinguished from those of the underlying Clearwater Formation due to the usually considerable amount of glauconite and shaley interbeds in the latter.

The Lower to Middle Cretaceous (Albian-Santonian) **Colorado Group** represents the second major clastic depositional sequence throughout the Alberta Sedimentary basin. It consists of a lower section comprising the **Joli Fou Formation**, which envelops the **Pelican** or **Viking Formation**, and an upper section which is dominated by the **LaBiche Formation**. The LaBiche Formation has been subdivided into the **Westgate, Fish Scale, Belle Fourche, Second White Specks**, and **Colorado Formations**. All outcrops mapped and sampled in the historic work in the Birch Mountains, and on the Property, are exposures of the foregoing Cretaceous units.

The various members of the Colorado Group represent depositional events which extended over much of North America over a period of approximately 25-30 million years during a time when sea levels were high and the North American craton was experiencing a regional down warping (Leckie et al, 1992). As a result, the Colorado Group is dominated by marine shales which are occasionally punctuated by coarser sediments deposited during brief high-stands.

The Colorado Group reaches a maximum thickness of approximately 1500m in northwest Alberta and is generally thickest nearer the Cordillera. The erosional edge of the Colorado Group in northeast Alberta is represented by a shale dominated package of strata which reaches a maximum thickness of approximately 450m-500m in the Birch Mountains (the Colorado Group underlies all of DNI's Properties in the Birch Mountains, and dominates near surface exposures).

The stratigraphy of the Colorado Group is complicated by: (i) different terminologies often used in different areas; (ii) the shale dominated sequence can only be sub-divided by micropaleontological work rather than gross lithologic features, and (iii) the sequence is not well exposed and thus not well understood lithologically, particularly in northeast Alberta. The Colorado group of northeast Alberta is best described, in ascending order, in terms of the **Joli Fou, Viking (or Pelican), Westgate, Fish Scale, Belle Fourche, and Second White Specks Formations** (Bloch et al, 1993).

The Upper Albian **Joli Fou Formation** in northeast Alberta unconformably overlies the Clearwater-Grand Rapids Formations of the Mannville Group, and is composed of gray, non calcareous, marine shale with minor fine to medium-grained sandstone. The Joli Fou Formation is not well exposed in the region.

Sandstones of the **Viking Formation** overlie the Joli Fou Formation and they are more commonly known as the Pelican Formation in northeast Alberta. The Formation represents an eastward thinning wedge of coarse clastic detritus which extends from British Columbia to Saskatchewan. In central Alberta the thickness of the Viking Formation ranges 15m-30m and is known to thicken southward to more than 75m. Within the region, the Pelican Formation represents somewhat of a stratigraphic anomaly as exposures of medium to coarse-grained, clean, quartzitic sandstones, and minor interbedded shales and mudstones, with a thickness of up to 80m have been mapped and sampled in the Birch Mountains (T104/R13/W4M).

The uppermost 5-10m of the Formation are known to locally (e.g. Birch Mountains) carry accumulations of low-pressure gas which are generally uneconomic.

The remainder of the Colorado Group consists almost entirely of shale and mudstone and has been subdivided based on two distinctive basin-wide stratigraphic markers, the **Fish Scales Zone** and the **Second White Specks Zone**. The shales that conformably overlie the sandstones of the Viking Formation, but lie beneath the Fish Scale Zone, belong to the **Westgate Formation** which is described primarily from outcrops in the Peace River area, as a laminated to bioturbated mudstone to siltstone with a thickness of approximately 20m-25m. (Bloch et al, 1993). Above the Westgate Formation are the Fish Scale bearing shales of the **Shaftesbury Formation**, which represents the stratigraphic interval between the Fish Scales Zone and the Second White Specks Formation, and comprises the **Fish Scale Formation**, near its base, and the overlying **Belle Fourche Formation**.

The **Fish Scales Formation** consists of a concentration of fish debris, such as bones, teeth and scales, within shales (and lesser amounts of sandstone) with relatively high total organic Carbon values of 5-10%. It is generally less than 20m thick. The Formation can contain >75% fish debris, and may represent either an anoxic event at the Albian-Cenomanian boundary which prevented the normal decay of the bioclastic material or as a transgressive lag deposit. It is ill understood and poorly delineated.

The **Belle Fourche Formation** overlies the Fish Scale Formation, and it consists of massive shales and mudstones characterized by low amounts of total organic Carbon. A distinctive foraminiferal assemblage, and a lack of bioclastic material set it apart from the underlying Fish Scale Zone and the overlying Second White Speckled Shale (Bloch et al, 1993). The **Belle Fourche Formation**, occasionally also referred to as the Upper Shaftesbury Formation, is not well exposed in the region with the exception of many slump zones throughout the Birch Mountains which contain masses of gray shales and mudstones. Although little detailed lithological information can be extracted from mapping/sampling of the slumps, it is noteworthy that the upper portions of the Shaftesbury Formation are locally characterized by the occurrence of numerous large (0.5m-2m) rounded, calcareous concretions containing abundant sulfides (predominantly FeS) as disseminations and as nodules. Both the shales and the concretions of the Shaftesbury Formation locally contain abundant pyrite nodules which range 0.5cm-5cm and are generally rounded agglomerations of individual crystalline grains.

The **Second White Speckled Shale** (or **Second White Specks Formation**) is another basin-wide subsurface stratigraphic marker within its shales given its radioactivity which can be easily detected in down-hole drill logs. The Second White Specks is so named for the common occurrence of coccoliths. This unit, and its surrounding shales, commonly form large slumping outcrops toward the top of many of the creeks draining the Birch Mountains. It is characterized by a distinctive coarse grained (occasionally conglomeratic), sub-rounded, chert and quartz sandstone which usually contains abundant fish debris similar to that of the Fish Scale Zone. The cherty bioclastic sandstone, referred to as the Siliciclastic Bone Bed or SBB (thus differentiating it from the Fish Scales Marker bone bed - FSMB), ranges in thickness from a few centimeters up to 1.2m, and is normally calcite cemented. Just above the SBB there is usually a thin (approx. 10cm) limestone or carbonate cemented siltstone layer followed by a 5m to 10m interval marked by numerous thin (1cm-20cm) bentonite seams. The shales in this interval are characterized by elevated total organic Carbon contents exceeding 10% by weight. The shales of the Fish Scales-Second White Specks section are also characterized by the large (0.5m-2m) rounded, calcareous concretions.

The LaBiche Formation, overlying the Second White Speckled Shale is poorly studied given lack of exposures in the area and in the Birch Mountains. Two small and badly slumping outcrops of massive gray Colorado or LaBiche Formation shale previously observed well above those of the Second White Specks Formation have been assumed to represent LaBiche Shales and the youngest Cretaceous strata preserved in the Birch Mountains area of northeast Alberta. Locally, the LaBiche shales have been eroded due to periods of uplift (eg: micropaleontological examination of LaBiche Formation from Birch Mountains drilling at the Buckton Zone suggests an unexpected 4-6 million year gap between the top of the Second White Specks Formation and the base of the LaBiche Formation, and indicates that shales previously logged/mapped as LaBiche are likely part of the Upper Cretaceous Lea Park Formation).

8. PROPERTY GEOLOGY

8.1 INTRODUCTION

The Property is large (2,720 sq km) and substantially covers the eastern half of the Birch Mountains, including its eastern and southern erosional edges. Geology of the Property is, therefore, also the geology of the Birch Mountains.

To the extent that the historic work completed by Tintina in the 1990's, combined with work by the AGS of the same vintage, comprise the substance of descriptive geological knowledge from the Birch Mountains, discussions of descriptive stratigraphy over the Mountains and under DNI's Property are extracted from reports by the foregoing groups. General geology of the area was previously presented in Figure 15. Available exposures and "named" stratigraphic lithosections previously mapped in detail and sampled shown in Figure 40, Section 8.7. A stratigraphic column for the Birch Mountains Area juxtaposed with lithogeochemical profiles for select elements is presented in Figure 41, Section 8.7.

8.2 STRATIGRAPHY

Bedrock exposures throughout the Birch Mountains are scarce (<2%) and, given the flat-lying stratigraphy, they are restricted to valley walls of the many creeks and rivers which define incisions confined to the eastern and southeastern erosional edge of the Birch Mountains, over a 5-10km wide arcuate band defining a 70km long arcuate lobe of the Mountains. The available exposures throughout the area, nonetheless, enable intermittent observation and sampling across 300m-350m of Cretaceous stratigraphy, extending upward from the top of the Manville to well into the Colorado Group, straddling the Albian-Cenomanian boundary, providing exposures of five Formations: the Clearwater/Grand Rapids Formation, the Viking/Pelican Formation, the Westgate Formation, the Fish Scales Formation, and the Second White Specks Formation. Many of these Formations are eroded to the east of the Birch Mountains and to its south, and their exposures can be seen in cliffs and escarpments along the eastern and southern erosional edges of the Birch Mountains, and in valley walls of rivers and streams draining the Mountains.

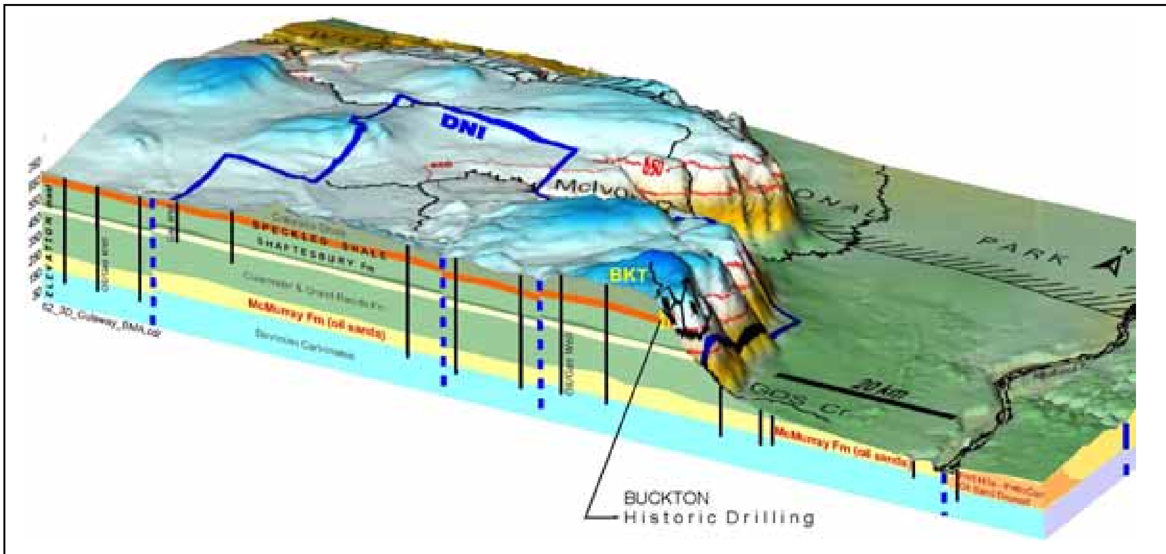


Figure 22: East-West 3-Dimensional cutaway block diagram across the Birch Mountains and the Property, showing generalized stratigraphy and Buckton Zone historic drilling. After Figure 62, Sabag 2008.

The five Formations which have been mapped and sampled in historic work over the Birch Mountains are described below, capturing information from a large area extending north from the vicinity of Pierre River, through Asphalt Creek, across the Buckton Creek area to the McIvor River and its tributaries located immediately to the north of the Property.

The Clearwater/Grand Rapids Formation can be seen throughout the Birch Mountains area in exposures at the lowest elevations (e.g. KRC-A exposure, to the north of the McIvor River on KRC Tributary, the McIvor-A exposure and the South Tributary, Figure 40). The Formation is generally characterized by thinly interbedded, dirty glauconitic sandstones, silty shales and mudstones with occasional interbedded channel sandstones which range in thickness from 5-50cm and are massive in appearance with occasional cross bedding and contain lags of very coarse grained sand with coal, occasional bivalve coquina, and locally abundant ammonites (e.g.McIvor-A, Figure 40). The interbedded sandstones and shales are locally cut by channel-filled sands which are often carbonate cemented and appear as prominent iron stained pods between 10-50cm in thickness and 1-5m in width. Minor disseminated pyrite has been observed in samples from this unit.

The Viking/Pelican Formation is shown in the regional geology map of northeast Alberta (Green et al, 1970) to be part of the Grand Rapids Formation which is clearly not the case. This Formation has been mapped and sampled in the Birch Mountains at ten lithosections located along Pierre River, Mid Creek, Asphalt Creek, Buckton Creek and Greystone Creek. By far the best lithosections are located in the Asphalt and Greystone Creek valleys. These exposures are characterized by sections of a clean, unconsolidated, medium to coarse grained, well rounded, massive, quartzitic sandstones with minor interbedded shales. The predominance of quartz and its massive appearance are distinctive features which differentiate this Formation from the glauconitic sands of the underlying Clearwater Formation. Based on outcrop and subsurface measurements, the Formation has a relatively consistent thickness in the area varying 40-45m.

The contact between the Pelican Formation and the overlying Westgate Formation shales can be seen in lithosections Mid Creek-B, Asphalt-A to -E, and Greystone-B (Figure 40), and is characterized by a 5m of interbedded quartzite and mudstone with abundant iron staining which is progressively more pervasive nearer the contact. Minor silicification has been observed at the top of the Formation at Greystone-B, and pervasive iron staining along with massive "manganese wad" development has been noted at Mid Creek-B. While no significant geochemical anomalies have been identified in the Pelican Formation, highlights from historic work include 2 samples from a 1m(±) thick shale bed exposed near the top of the Greystone-B lithosection, with 18.7% and 22.7% organic Carbon. Other highlights include up to 10ppb Au at Asphalt-E, 53ppm Cu and 43ppm Co on Asphalt Creek, 153ppm V at Greystone-B, and 227ppm Zn at Asphalt-A.

The Westgate Formation in the area is represented by a handful of poor exposures of badly slumping shales and mudstones which apparently overlie the Pelican Formation and which are devoid of fish debris and can hence be assumed to underlie the Fish Scales (or Shaftesbury) Formation. The Westgate Formation has been characterized (Bloch et al 1993) as a laminated-to-bioturbated, heterolithic mudstone to siltstone that typically contains less than 2% organic Carbon and underlies the Fish Scales Zone (or Formation). Identification of the Westgate Formation from field relationships alone has to date proven difficult due to the lack of a diagnostic lithological break between it and the overlying Shaftesbury Formation, and due to its unconsolidated nature.

The full extent of the Formation is exposed in the Greystone-B section, north of McIvor River (Figure 40), as a massive (20m) poorly consolidated dark gray mudstone overlying the Pelican Formation. The mudstones are interbedded with thin (<1cm) discontinuous (10-20cm long) fine-grained sandstone and siltstone lenses within their uppermost 5m, and the top of the Formation is marked only by the sudden appearance of fish scales. Westgate mudstones are frequently iron and sulfur stained, and yellowish sulfates (jarosites?) can be seen near its base at the Greystone-B lithosection in abundant irregular 2m-4m long and 1cm-3cm wide fractures.

The Westgate Formation is characterized by relatively subdued geochemical variations: Vanadium contents range 50ppm-150ppm and average 115ppm; Zinc contents vary 2ppm-366ppm and average 89ppm; Ni contents range 2ppm-186ppm and average 27ppm; Au and PGE contents are sporadic; and indicator elements such as Cu, Mo, As and Sb are marginally anomalous.

The Fish Scales (or Shaftesbury) Formation is normally characterized as a fish scales bearing mudstone or claystone, with minor associated sandstones and conglomerates, with up to 8% organic Carbon (Bloch et al 1993). The Formation is defined as the stratigraphic interval from the base of the Fish Scales bearing section to the base of the Second White Specks section, and is also referred to as the Shaftesbury Formation, which includes the Fish Scale and Belle Fourche Formations of Bloch et al (1993).

The Fish Scale bearing section is marked by the sudden appearance of fish scales and other skeletal debris in an otherwise massive unit of silty shales and mudstones, representing a conspicuous marker bed - the Fishscales Marker Bed (FSMB). The FSMB, described in sections from the Peace River area as a coarse grained sandstone with large concentrations of fish debris surrounded by organic Carbon-rich shales, is noticeably absent in the Birch Mountains where it is proxied for by fish scales bearing black shales.

Exposures of the FSMB are rare in the area and have been positively identified only at Greystone-B, although other occurrences have also been noted in badly slumped exposures along Asphalt Creek. At Asphalt-F (Figure 40), a section of the Creek is characterized by the presence of an unusual abundance of friable float slabs and blocks up to 5cm thick, composed of a concentrated bed of fish scales (>80% by volume) (e.g. samples F067AT222 and F067AT257, Sabag 1996a), at an elevation of approximately 530m, consistent with projected FSMB exposure per oil well picks compiled in the subsurface stratigraphic database. The exposure is located well away from exposures of the overlying Second White Specks Formation. Samples of this material are characterized by up to 5% P; 16% Fe; by slightly elevated base metal concentrations; by elevated Pt, Pd, Mo, As and Sb; and 20ppb and 17ppb Au.

Lithogeochemistry of the FSMB, to the extent represented by the scant surface sampling collected throughout the Birch Mountains, show it to be a potential trap of metals with an apparent correlation between the better metal contents with the higher C-org content of samples. While the samples indicate that the Formation is enriched in metals relative to underlying units, U and Th concentrations are surprisingly low and insufficient to produce the typical radioactive anomaly characterizing the FSMB picks in oil well down-hole geophysical logs. U and Th concentrations average only 10.2ppm and 9.9ppm, respectively, and only 3 of 57 historic samples collected report U exceeding 50ppm. It is likely, therefore, that the FSMB as "picked" from well logs is not fully exposed in the Birch Mountains area, or that same has not yet been definitively located.

Geochemically significant anomalies from the FSMB have been identified at the Greystone-C exposure, reporting upward to 10.5% C-org, 117ppm Cu, 228ppm Ni, 942ppm V, 761ppm Zn, and 12ppb Au. While very anomalous relative to other samples from the FSMB within the region and those from all other Formations, the exposure may be material slumped from the overlying Second White Specks Formation.

Of particular significance is the presence throughout select localities in the Birch Mountains area of spherical and quasi-spherical carbonate concretions ranging in size upward to 2m spatially associated with the FSMB. The concretions consist predominantly of black calcite and carry considerable sulfide mineralogy as disseminations of predominantly FeS and as pyrite nodules ranging in size upward to 5cm, consisiting of aggregations of crystalline grains. In addition, presence of concretions typically characterize all exposures located by tracing sulfide-rich alluvial material upstream, especially those carrying also alluvial gold. By far the best location to observe the carbonate concretions is KRC-B wherein gravel bars along the KRC tributary to the McIvor River host countless carbonate concretions surrounded by alluvial material consisting of upward to 50% sulfides. Carbonate concretions can also be seen at the Greystone-B lithosection, strewn about in slumped shales and muds carrying also considerable pyrite nodules.

The Second White Specks Formation is described by Bloch et al (1993) from outcrops in the Peace River area of northwest Alberta and from sub-surface data from around the Alberta Basin as consisting of a calcareous shale or siltstone with organic carbon rich shales commonly associated with a bentonite up to 20cm thick, in turn associated with a carbonate concretionary layer. With the possible exception of an abundance of carbonate matrix, the Second White Specks Formation has been identified at many exposures throughout the Birch Mountains, and it is relatively well exposed in the creeks and rivers. The

Formation has been mapped and sampled at exposures between the 600m and 650m elevations (asl) along Mid, Asphalt, Gos, Greystone, and Current Creeks.

Asphalt-H, located toward the headwaters of Asphalt Creek, represents a typical section of the Second White Specks Formation in the area, consisting of a succession of lithologies commencing at the bottom with a Siliciclastic Bone Bed (SBB) characterized by a coarse grained, sub-rounded, poorly sorted, carbonate cemented, black chert and glassy quartz sandstone, which often contains large concentrations of fish debris. A thin, 10cm-20cm thick, carbonate concretionary unit overlies the SBB (normally within ±1m), and is itself overlain by bentonite or a zone of bentonitic shale.

At Asphalt-H (Figure 40), a distinct zone of bentonites are evident immediately above the SBB, continuing for 3m-5m up-section, in which the thicker bentonite seams are, upon close inspection, seen to be composed of countless thin bentonites in a 15cm-20cm zone. The bentonites are hosted in a shale matrix with variable C-org content ranging from trace upward to 29% (avg 3%). Calcareous shales are patchy at Asphalt-H, although several sections were found to contain white specks or coccoliths and fossils such as fish debris including teeth (shark?), bivalve coquina, and Inoceramus imprints. (Asphalt-H was resampled by DNI in 2009 and samples were tested during 2009-2010 leaching R&D testwork - Sabag 2010).

Whereas the SBB in the area typically varies in thickness 10cm-20cm, it attains a thickness exceeding 1m at the Gos-C lithosection exposure, near the Buckton Zone, wherein it is also associated with metals enrichment in surrounding shales (Gos-C is at the eastern flank of a principal stratigraphic disturbance in the area). It is of note that SBB has been documented in the area from several elevations varying 600m-640m (asl), and that the variations are probably the result of multiple slumping. Repetitive sedimentary/extinction events cannot, however, be entirely ruled out.

Samples of the Second White Speckled Shale Formation have to date reported by far the most anomalous concentrations of base as well as precious metals from the Birch Mountains, in addition to yielding native gold grains from certain localities (e.g.GOS1 gossan, Gos Creek-C and Current Creek, Figure 40). Geochemical anomalies identified from the Formation define relatively systematic base metal enrichment zones, dominated by Ni-Cu-Mo-V-Zn (±U-Co-Cd-Ag-Au), spatially associated vertically with the more carbonaceous sections immediately overlying the SBB, and a suggested lateral association with proximity to certain faults in the Birch Mountains. Considerable intraformational geochemical inhomogeneities notwithstanding, Asphalt-H, GOS1 and Gos-C present by far the best metal enrichment localities documented from the Second White Specks Formation in the area.

8.3 SUBSURFACE STRATIGRAPHIC DATABASE AND MODELLING

8.3.1 Subsurface Stratigraphic Database and Model - 1995

A study of drilling records of all historic oil/gas wells from the Birch Mountains (currently areas under the Property) was completed by M.Attala PGeol, Attala Soft Rox[9], in 1995 for Tintina Mines to build a three dimensional stratigraphic model and database for the area, to aid identification of stratigraphic disturbances toward resolution of faulting and doming patterns identified by remote sensing and air-photo studies. Drilling and downhole logging records of approximately 1850 wells were critically reviewed.

Of the wells reviewed, only 207 were selected to form the basis of the database and model. Wells which were eliminated from the database and model were: (i) wells which lacked sufficient geological subsurface information to be of use, or (ii) wells whose drill records lacked sufficient quality, or (iii) wells which were drilled mainly for oil sands exploration over the flanks of the Birch Mountains and were, accordingly, collared at elevations below the Upper-Middle Cretaceous Formations being investigated. Lithologic picks, downhole geochemistry and geophysical logs were recorded and compiled by Attalla into an extensive database. Attalla's mandate was to identify principal structural breaks above Prairie Evaporite Salt Scarp, and particular attention was also paid to picking base of the Fishscales (Shaftesbury). The data was also contoured and rendered in a series of structural and isopach maps for the Birch Mountains, for select

Formations extending downward from the Upper Cretaceous to the Precambrian basement. Stratigraphic surface selection was based primarily on delineating major depositional breaks within the stratigraphic column which are identifiable on well logs as follows:

- Base of drift
- Base Second White Specks
- Base Fish Scales Zone
- Top Viking Formation
- Base Viking Formation
- Base Clearwater A Marker
- Top Wabiskaw Member
- Base Regional Marine Shale
- Top Sub-Cretaceous Unconformity
- Top Woodbend Group
- Top Beaverhill Lake Group
- Top Calumet Member
- Top Elk Point Group
- Top Precambrian

Of particular interest to DNI's work are structural and isopach maps characterizing the Second White Speckled and the Shaftesbury Formations. The study paid special attention to identification of the top and bottom of the Shaftesbury Formation, which was suspected at the time (1995) to be the source of abundant sulfides and alluvial gold identified by Tintina from its sampling programs over the Birch Mountains. The top (upper contact) of the Speckled Shale was not specifically mapped (picked) in the study, partly since it was not of central interest and partly since the upper contact is often an impossible feature to readily pick from oil well downhole logs. Subsequent work completed by Tintina in 1996-1997, however, indicated that the principal source of the metals is in fact the Second White Speckled Shale whose lower contact marks the upper contact of the Shaftesbury Formation.

The subsurface database and subsurface stratigraphic model are outlined in greater detail in Attalla's stand-alone report appended to Alberta Mineral Assessment report MIN9611 (Sabag 1996a). Structural contour maps for the base of the Second White Speckled and the sub-Cretaceous Unconformity are shown in Figure 23. Isopach maps of the Shaftesbury Formation and of the Base of Second White Speckled Shale to the Sub-Cretaceous Unconformity are shown below in Figure 24. An isopach map of depth from surface to the base of the Second White Speckled Shale Formation is shown as Figure 25. Two cross sections across the Birch Mountains are shown in Figures 20 and 21 in Section 7.6 of this Report.

The Attalla study was successful in identifying a number of structural disturbances in the Birch Mountains and over the Property, in addition to several large structural corridors portions of which were demonstrated by subsequent surface soils sampling by Tintina to be zones of metal diffusion (see Section 6.2.9 of DNI's NI-43-101 report for the property, Sabag 2008). The study also identified large areas of abnormal thickening in the Cretaceous sedimentary pile. Several of the isopach anomalies coincide with topographic domed features with radial drainage patterns reporting polymetallic geochemical anomalies in Tintina sampling, accompanied also by native gold and abundant sulfides in stream sediments and in stream sediment heavy mineral concentrates downstream from the domes.

All of the features identified by the Attalla study are material to metal exploration in the area, since many of them correlate well with metal enrichment zones identified by results of surface geochemical and lithogeochemical sampling conducted by Tintina over the area. Specific anomalies and anomalous areas are presented in Section 8.8, and Figure 38, in conjunction with all surface anomalies identified by Tintina in the Birch Mountains under DNI's Property.

Although there has been additional drilling for oil/gas in the Birch Mountains since the Attalla study, (especially over its eastern lobe and southern portions) the historic database continues to offer a reliable and relevant guide to subsurface structural disturbances at the Property.

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[9] Stratigraphic Compilation and Modeling, Subsurface Database Report, Northwest Sector: by Attalla Soft Rox; 1995. In Appendix D, MIN9611, Sabag 1996a.

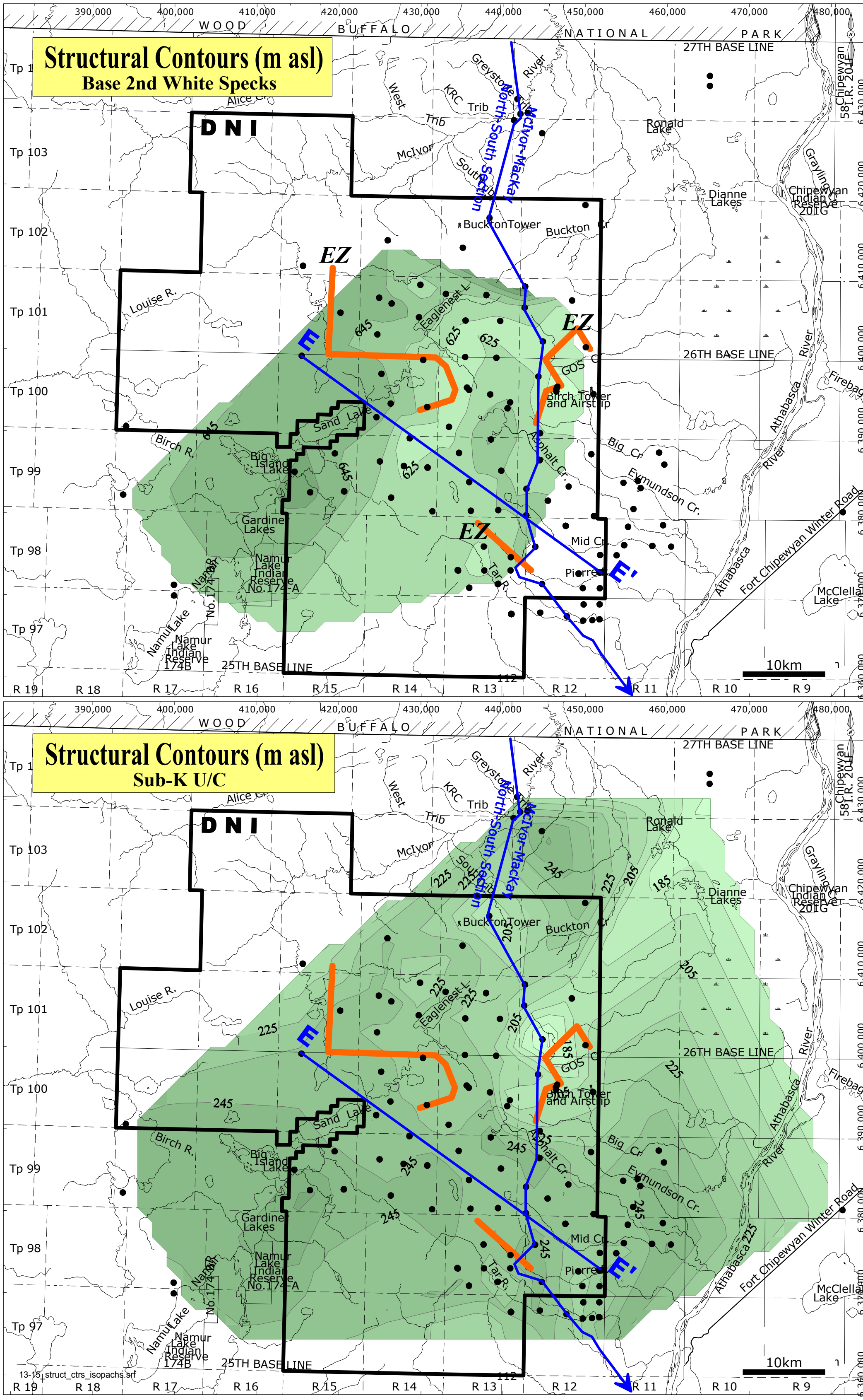

Figure 23: Structural maps of Base of Second White Speckled Shale (above) and the Sub-Cretaceous Unconformity (below), showing also oil-gas well locations, regional cross-sections and soil sampling transects(EZ). After Figure 13, Sabag 2008; and Attala 1995, Alberta Mineral Assessment report MIN9611, Sabag 1996a. Regional cross section shown in Figure 20.

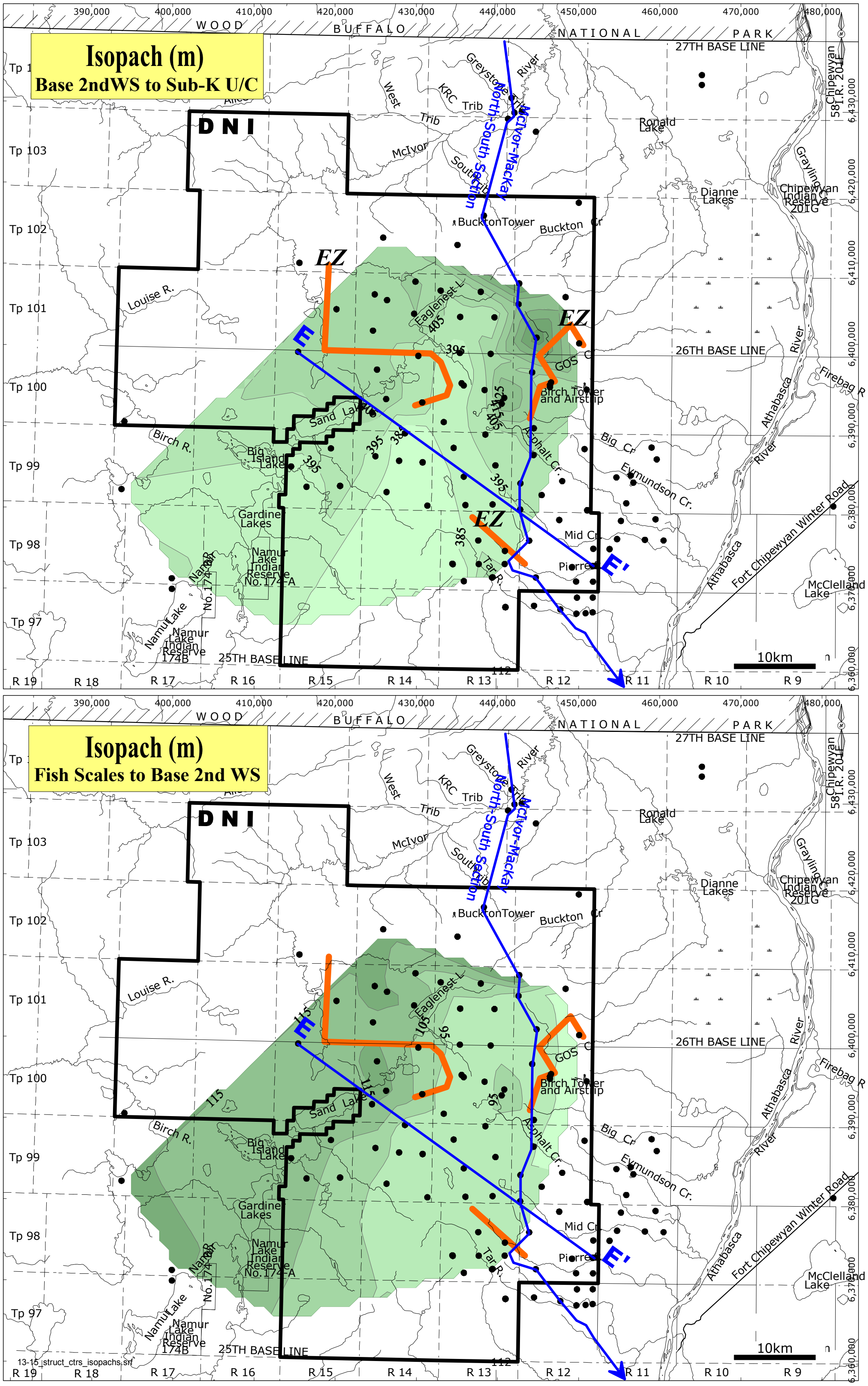

Figure 24: Isopach maps the Shaftesbury Formation (below) and base of the Second White Specks to Sub/K Unconformity Interval, showing also oil-gas well locations, regional cross-sections and soil sampling transects(EZ). After Figure 14, Sabag 2008; and Attala 1995, Alberta Mineral Assessment report MIN9611, Sabag 1996a. Regional cross section shown in Figure 20.

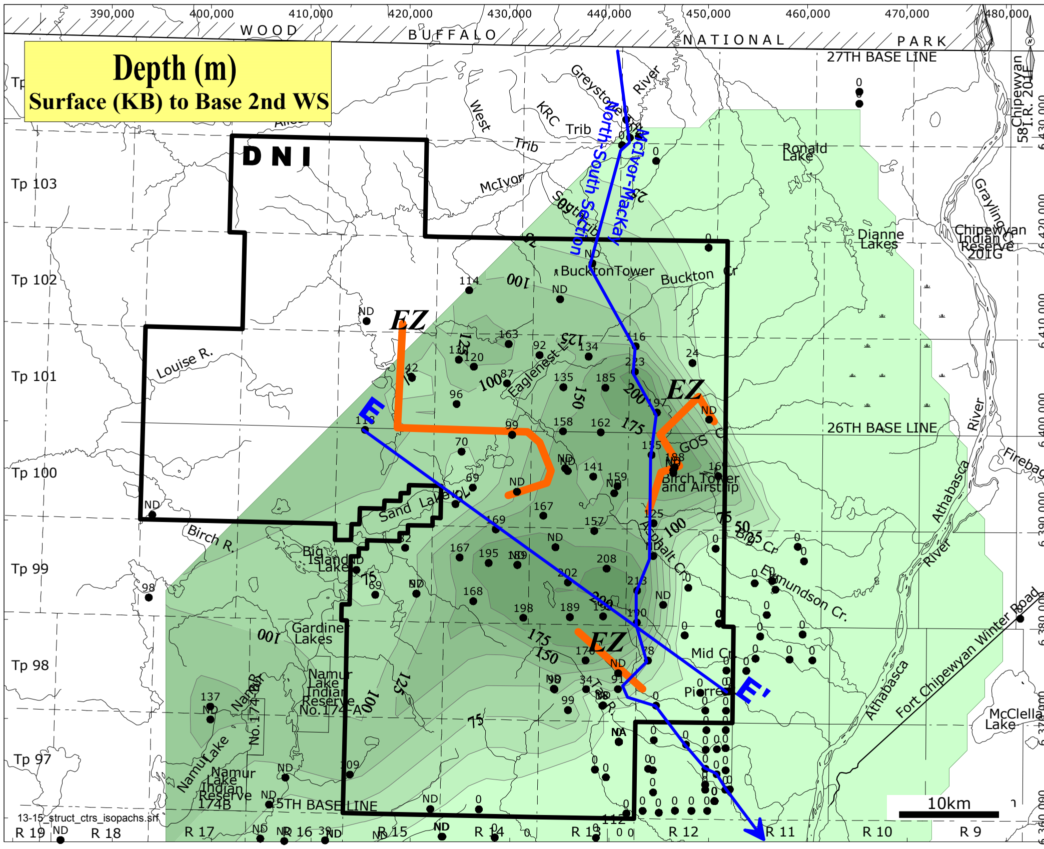

Figure 25: Isopach map of depth to base of Second White Speckled Shale Formation, showing also oil-gas well locations, regional cross-sections, and soil sampling transect locations(EZ). After Figure 15, Sabag 2008; and Attala 1995, Alberta Mineral Assessment report MIN9611, Sabag 1996a. Regional cross section shown in Figure 20.

8.3.2 Subsurface Stratigraphic Database Expansion and Synthesis Study - 2010

APEX Geoscience, Edmonton, was retained by DNI in late 2009, to review all available ERCB/EUB oil/gas well records to expand the Attalla 1995 subsurface stratigraphic database by extracting information from drilling postdating the 1995 historic databases. During its work, APEX maintained consistency with picks from the historic work, but also extracted information for downhole stratigraphic picks for the top of the Second White Speckled Formation which had been omitted in 1995 (bottom picked only in 1995) since the principal focus of work at the time had been the Shaftesbury Formation then believed to be the host to the metallic mineralization in the area. This work identified 591 in the Birch Mountains which had sufficiently complete downhole geologic records to be of use. 156 of the oil/gas well also contained subsurface picks for the Second White Speckled Shale Formation (of 207 wells comprising the 1995 historic database, only 56 wells contained reliable information on the Second White Speckled Shale Formation)[10].

Details of the above study including supporting database and related computer-generated isopach and structural contour maps are included in Alberta Mineral Assessment Report MIN20100017. Location of oil/gas wells comprising the current subsurface database is shown in Figure 26 showing also locations with subsurface information for the Second White Speckled Shale Formation. Salient findings from the foregoing study are summarized below.

[10] During its consolidation of well information, APEX noted some flaws in Provincial databases due to the inconsistent reporting of kelly bushing elevations of the wells, at times representing elevation variations ranging between 10 and 15 meters. Though these variations can be material to the correlation of Formations with thicknesses in the 10's of meters, APEX noted that inconsistent kb records are scarce and wells with poor records can be readily identified (an opinion shared by DNI's internal review of the data by Dr.J.P.Robinson as discussed in the next Section)

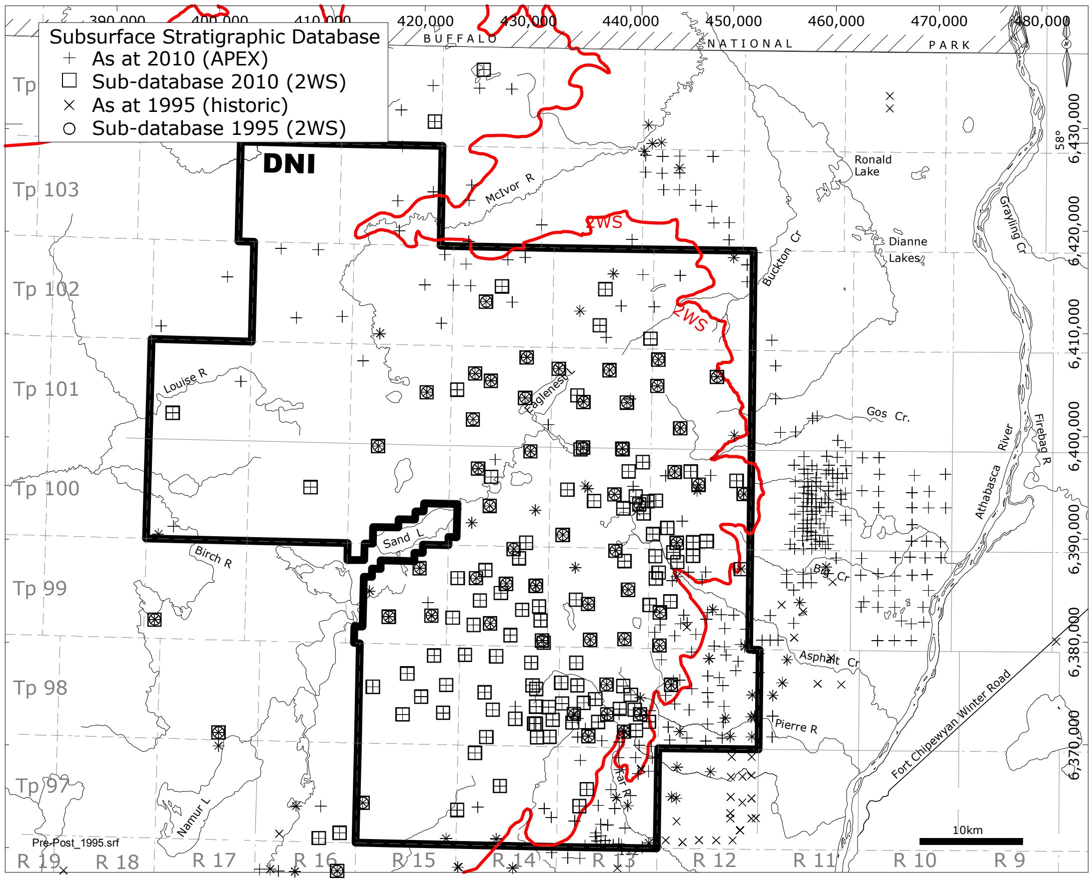

Figure 26: Location sketch showing oil/gas wells comprising the subsurface stratigraphic database as at 2010. The historic (1995) database's well locations also shown for comparison (see also Section 8.3).

A global summary of APEX's isopach and structural maps of depth to the top of the Second White Speckled Shale and its thickness throughout the Property per the above 2010 database is shown in Figure 27. The figure presents depths to the top of the Formation in generalized triangulated contours which show that the principal localities with the least cover rocks (including overburden) at the Property are: (i) areas to the north-northwest of the Buckton Potential Mineral Deposit, (ii) the Eaglenest area, (iii) Buckton South, and (iv) areas to the southwest of the Asphalt Potential Mineral Deposit. These localities are, accordingly, priority targets wherein any mineralized polymetallic black shale zones beneath the surface might be conducive to extraction by open pit. It is of note that the Formation is thickest over locations with the deeper cover.

APEX made a number of general conclusions based on its review and synthesis of the expanded database, and presented some of its findings in Figure 28 which serves to summarize groups of structural features which can be discerned across the Property. APEX's findings and conclusions are summarized below as extracted directly from their report.

Figure 28 shows a generalized view of consistent structural features that appear in many, but not all formations, especially point-like features **"s1", "s2", "s3"** and **"d"** which are interpreted as follows**:**

- Features **s1** through **s3** are sinkholes. **s2** and **s3** appear in all formation tops; **s1** appears in all surfaces below the top of the Second White Specks Formation, indicating that it was no longer active at that time;

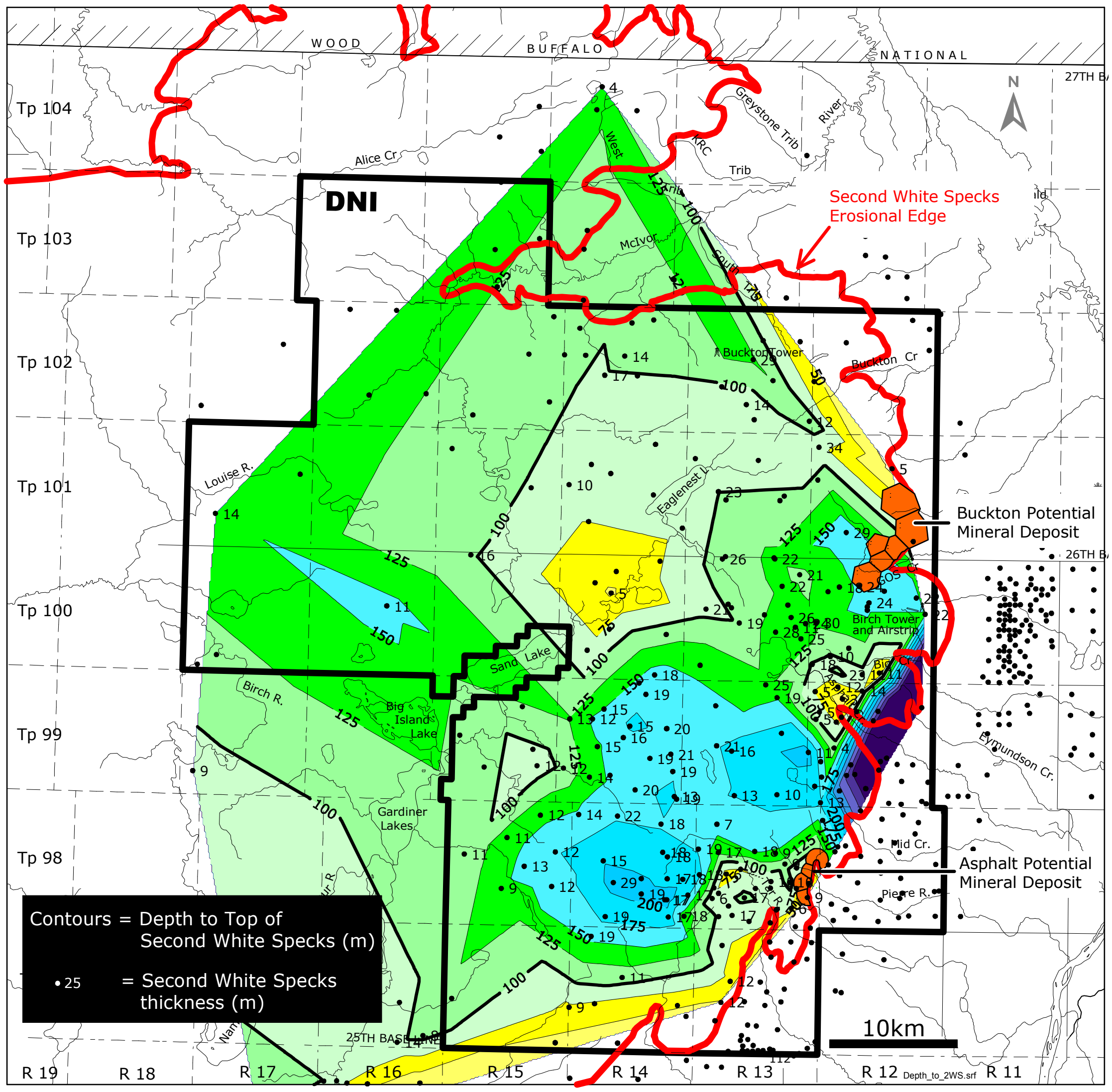

Figure 27: Sketch of the contoured depth to the top of Second White Speckled Shale and spot records of its thickness, showing also oil/gas wells comprising the subsurface stratigraphic data coverage as at May 2010, Subsurface Stratigraphic Synthesis programs 2010.

- The dome-like feature **d** is conspicuously missing on the top of the Devonian surface and top of the Joli Fou Formation. Other features are developed much better in certain formations, such as the NW trending ridges **L4**, **H4**, **L5**, **H5**, **L6**, which are weakly discernable from the Wabiskaw to the Second White Specks Formations, but especially clear in the top of the Viking Formation.

APEX also noted the following and highlighted related features which are shown in Figure 28:

- A large consistently present ridge (H1) within T198-102 / Rg 15-16W4. This feature shifts from trending NNW on the Devonian top surface to trending NNE on the Second White Specks top, in so shifting the northern end of the ridge laterally shifts about 15 km, whereas the southern end does not shift laterally; the most "rapid" shift occurs between the base of the Fish Scales and the base of the Second White Specks. The ridge is always associated with a parallel trough directly to the east (L2), and usually with a parallel trough directly to the west (L3).

- All mapped surfaces contain both linear features and blotchy point-like features, however, blotchy features are much more prevalent to the east of township 15W4, and in general seem to be bound on the west by ridge H1.
- After NNE to NNW trending linear structures, the next most common structural trend direction is ENE. Prominent ENE trending features include H2, L3, L7, and H6.
- The fact that dissolution does not shift towards the west, and superficially appears to shift towards the east, indicates that although Devonian dissolution was ongoing through the Cretaceous, as indicated by sinkholes that are evident in formation top contour maps and as thick accumulations on isopachs, dissolution does not seem to have progressed strongly westward during the Cretaceous, at least within the DNI property.
- Faulting parallel to the Peace River Arch has been recognized in Paleozoic and Mesozoic strata elsewhere in northern Alberta. It is evident from the structural maps and isopachs that ENE trending structures are prevalent in Cretaceous strata of the property area, which appear to be fault bound grabens and horsts. Given the location and direction of these features, as well as the similarity to features mapped in the Devonian strata just to the southeast of the property, it is considered very possible, if not likely, that these features represent rejuvenated Precambrian fault zones associated with the Peace River Arch.

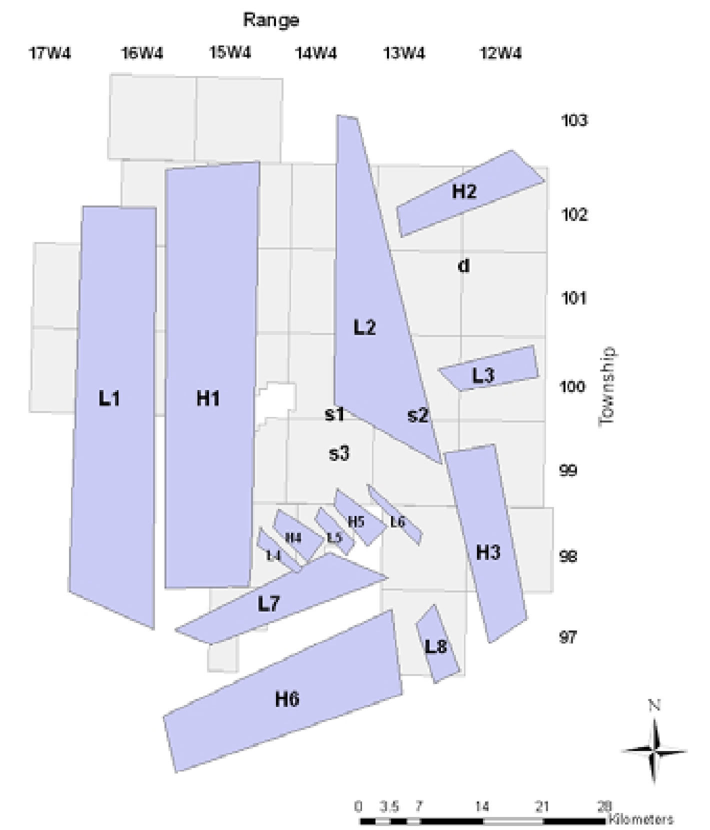

Figure 28: Generalized map of consistently high and low features in Cretaceous Formations at the Property. H refers to high area (polygon), L refers to low area (polygon), s refers to sinkhole (point feature), and d refers to dome (point feature). From Figure 31, APEX 2010.

- Basin subsidence associated with dissolution also appears to have been ongoing through the Cretaceous, likely accompanied by faulting parallel to the edge of dissolution. Most isopachs indicate thicker accumulations east of Ridge H1, with the notable exceptions of the Grand Rapids and Shaftsbury isopachs, which are actually inverted (thicker accumulations associated with the higher ridge, and thinner accumulations associated with the lower trough); these two isopachs may represent local scouring of topographically lower areas on the Grand Rapids and Second White Specks Formation tops.

APEX overall concluded that two main structural trend directions exist within the property area, one set trending NNW to NNE, interpreted to be related to dissolution of the underlying Devonian strata, and another set trending ENE, possbly related to reactivated deep faults associated with the Peace River Arch. APEX suggested that faulting within the area can be expected to be normal and bi-directional, reflecting these two structural trend directions.

In addition to the above, APEX noted that each formation bears some resemblance to formations underlying it, reflecting the same structural evolution, and in some cases possibly morphological inheritance. The Second White Specks Formation shows the most significant changes from the underlying formations, which is difficult to explain without invoking partial erosion of the formation and a shift in the pattern of Devonian dissolution; in any case, the underlying structural controls are interpreted to be the same as in the underlying formations. Comparison of all the formation tops indicates that Devonian dissolution occurred continuously through the Cretaceous, but that the dissolution edge did not significantly shift laterally.

8.3.3 DNI Internal Subsurface Synthesis Study 2009-2010

Following expansion of the subsurface database, DNI resumed a subsurface stratigraphic synthesis study it had commenced previously, conducted by Dr.J.P.Robinson, relying on the expanded database prepared to: (i) prepare a systematic set of cross-sections across the entire Property, (ii) attempt to formulate a structural model for the Birch Mountains and the Property to guide future exploration of areas which are under-explored, and (ii) to attempt to identify localities over structures which might represent synsedimentary structures to guide future exploration for SEDEX sedimentary exhalative style sulfides. The study entailed preparation of forty-one E-W striking cross-sections at 2km spacing, in addition to six N-S striking cross-sections at 2km spacing, and three N-S striking cross-sections spaced 8km apart. Details of the study are beyond the scope of this report and are outlined in Alberta Mineral Assessment Report MIN20100017. Salient findings from the study are summarized below.

The Robinson study attempted to incorporate information from the countless interpreted sections into a broad working model for the structural geology of the Birch Mountains and the Property, intended as an iterative framework to be refined and expanded as new drilling information is collected from additional oil/gas wells in the area and from DNI's drilling of specific localities. The study concluded the following:

- Variations in the stratigraphic sequence in the study area, structural or depositional, are subtle and must be displayed with a strong vertical exaggeration (100:1) to be discernible. Displacements along the normal faults are interpreted to be between <10 and 50 meters and are mostly on the smaller end of that range. As such, interpretation of structural disturbances are frustrated by inaccuracies inherent in the Provincial records, and the dataset extracted by APEX, due to the inconsistent reporting of kelly bushing elevations at the wellhead. These inconsistencies can vary 10m-15m, although APEX noted in its report that the majority of the well elevations are probably accurate within a few meters, a conclusion which is corroborated by the Robinson detailed study noting that data from questionable wells stood out from patterns defined by other surrounding wells in many areas and can be excluded from the interpretation (can be seen in cross-sections across the Property).
- Many of the variations in bedding orientations and the variable thickness of lower Cretaceous strata, primarily the McMurray Formation, can be explained by two distinct events of high-angle domino-style north- to north-northeast-striking normal faulting. The older faulting event displaces the sub-Cretaceous unconformity surface and appears to be truncated at the base of the Wabiskaw Formation, which overlies the McMurray Formation. A younger faulting event displaces and rotates strata in the entire stratigraphic section.
- the area can be divided into several structural blocks, which are bounded by E-W structures of uncertain geometry as shown on Figure 29. The blocks are envisaged to be domains with internally consistent fault orientations and continuity. Proposed block boundaries are reinforced by the fact that faults appear to truncate against them or would require an unnatural bend to continue into the next adjacent block.
- structures bounding the blocks could represent near-vertical transfer faults that accommodate different amounts of extension in a developing fault system and would not represent a distinct faulting event. Alternatively, the interpreted bounding structures could be an artifact of gaps in the dataset which might be eliminated with additional data.

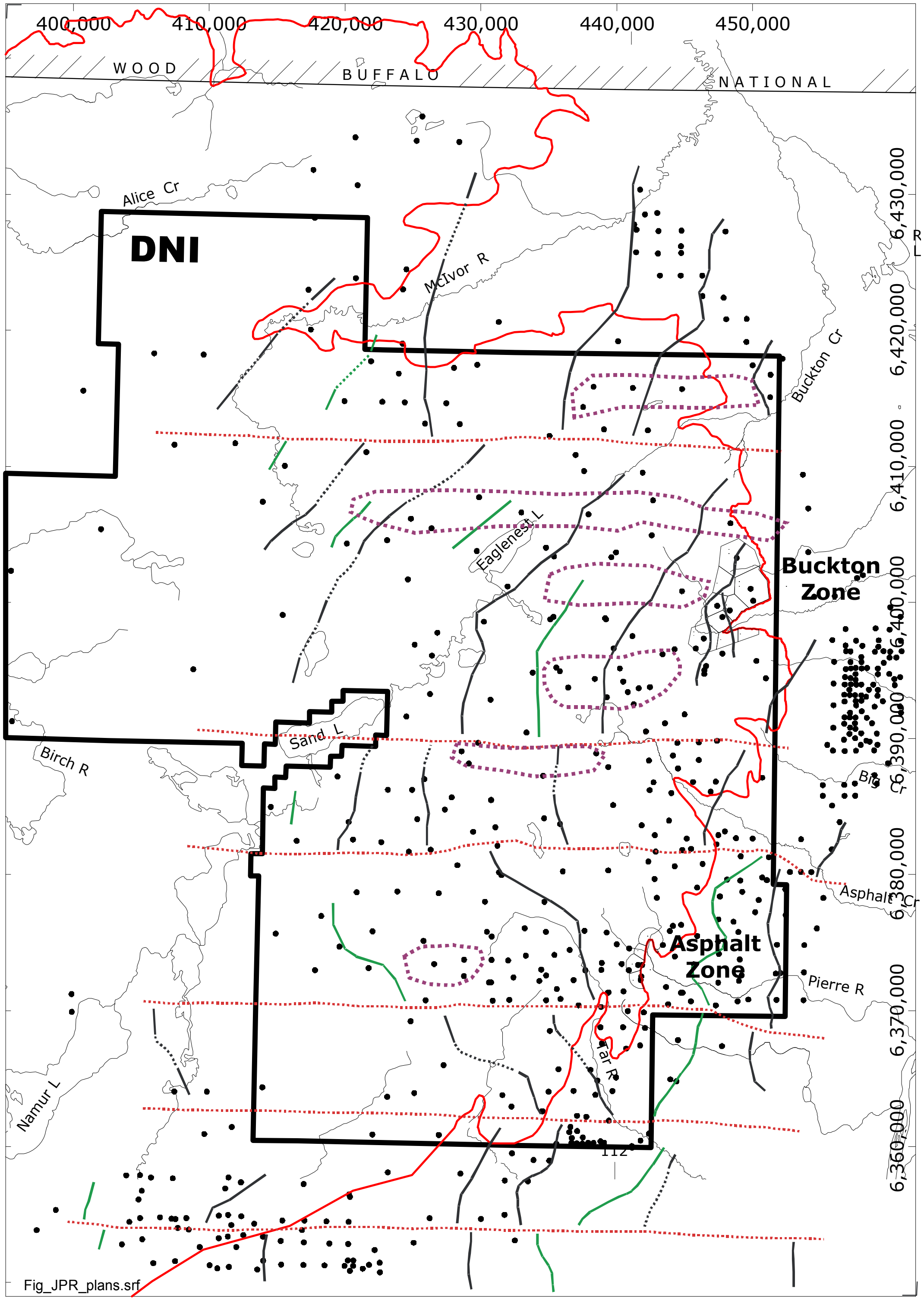

Figure 29: Generalized sketch of interpreted structural blocks and transverse fault traces across the Property, showing also domains of maximum thickening in the Second White Speckled Shale. After Figure 5, Subsurface Stratigraphic Synthesis Study, Robinson 2010.

- East-striking cross-sections commonly display a series of sub-parallel high-angle normal faults that dip west. This includes two distinct generations of faults, the older set cuts only strata older than the Wabiskaw Formation and the younger set displaces the entire stratigraphic section.
- North-striking cross-sections include the high-angle normal faults that appear in the east-striking sections, as well as near-vertical transfer faults (dotted red lines on Figure 29). In general, the high-angle normal faults display consistent displacements of the contacts along the length of the fault. A thickened section on the down-dropped blocks of these normal faults would be consistent with syn-sedimentary faulting which might have been active during deposition of the strata.
- The younger faults shown in cross-sections were possibly active during deposition of the strata, although formation thicknesses throughout the project area are relatively consistent across the faults. This could reflect a combination of slow deposition rates, subtle fault movement during deposition, and post-depositional faulting.
- Displacements displayed along the near-vertical transfer faults are not consistent along the lengths of the faults. The apparent sense of slip on these faults is strike-slip, although these are not primary structures. Apparent displacements across these faults likely reflect variably dipping beds created by movement along the normal faults and local depositional features.
- The proposed normal fault model, though based on relatively sparse dataset over a large area, is supported by the historic high-resolution aeromagnetic survey results over the eastern part of the Property. The proposed fault pattern displays variable, but locally strong, correlation with the pattern of magnetic anomalies In general, elongate zones of magnetic lows follow proposed normal faults. This correlation is particularly strong in the area between UTM 6,383,000N and 6,409,000N. Structural maps created by contouring the elevations of various stratigraphic horizons do not display patterns that correlate with the aeromagnetic data (due to attenuation of otherwise subtle disturbances during contouring, or due to scarcity of dataset).
- The apparent correlation between proposed normal faults and areas of magnetic lows might have value in targeting future exploration programs, if anomalous metal zones are shown to be spatially associated with either faults or magnetic lows.
- some of the topographic relief within the entire stratigraphic column displayed in the sections can be attributed to block rotation and tilting by normal faults.
- the Second White Speckled Shale Formation's thickness across the Property commonly ranges between approximately 10m and 40m. Laterally continuous sections with thicknesses that are greater than 25m occur locally and are shown in Figure 29. Cross-section 6,407,000N appears to display the thickest continuous section of the Second White Specks Formation, commonly on the order of 35 meters thick.
- The study suggested that the faults delineated can be relied upon as a first order approximation as potential sites with synsedimentary structures, representing targets to explore for SEDEX style sedimentary exhalative sulfides.

8.3.4 Subsurface Stratigraphic Synthesis and Modeling – Closing Remarks

The subsurface database expansion and synthesis studies completed by APEX and by Robinson(DNI) were successful in significantly expanding the subsurface database to assist future drilling and to support localization of future drilling to more accurately target the Second White Speckled Formation. The two foregoing synthesis and modeling studies, however, reached markedly different conclusions and interpretations of subsurface geology while relying on the same database, both of which interpretations are different still from that previously formulated in historic work for the area (much of it interpretations by the author of this Report). Salient features of the three interpretations are:

- Historic work (1990's) advocated a structural setting dominated by orthogonal NW-NE structures the junctions of which were proposed to be locations of exploration interest. The historic modeling relied almost entirely on surface lineament analysis combined with various renditions of aeromagnetic trends and the smaller (1995) subsurface stratigraphic database. The historic work reviewed and interpreted data in plan view in contoured mode;

- APEX's 2010 study formulated a multi-block model proposing that the Birch Mountains area can be divided into several irregular shaped uplifted and down-dropped blocks, whose boundaries might reflect synsedimentary structure. APEX's work relied mostly on the expanded (2010) subsurface database which was reviewed and interpreted in plan view in contoured mode, drawing also on considerable prior experience by APEX geoscientists (notably D.Cottirill) and their familiarity with regional stratigraphic setting and other subsurface work in the region;

- J.P.Robinson's 2010 synthesis, based on the expanded (2010) subsurface, relied entirely on methodical interpretations of the data in cross sections to propose a structural block configuration which is bounded by E-W structures, a marked departure from all other work.

It is impossible at this juncture, with the available data, to critically rate the three above models and interpretations, given that the subsurface stratigraphic continues to be sparse (at best a handful of oil/gas wells per township) despite its expansion, and that the database lends itself to different equally plausible interpretations all of which can be supported by one or another set of geo-information. The foregoing models are best regarded as works in progress which will no doubt be refined on an area-by-area basis as additional exploratory drilling information is gathered by DNI focusing on the Second White Speckled Shale Formation and its surrounding stratigraphy.

8.4 STRUCTURAL AND STRATIGRAPHIC DISTURBANCES AND ANOMALIES

A number of large - regional scale - stratigraphic features were identified by Tintina's stratigraphic model and subsurface database over the Birch Mountains based on interpretations from drill logs from historic oil-gas drilling augmented by broad geophysical trends and by remote sensing imagery analysis. They fall broadly into three categories as follows:

- isopach anomalies representing abnormal thickening of the Cretaceous stratigraphic pile, or its uppermost portions, only locally associated with karsting in the Devonian, but more often associated with interpreted readjustments in Precambrian faulting and suspected arching active well into the mid-Cretaceous. These anomalies would also be compatible with existence of very localized venting by way of hot springs, volcanic vents or pipes;

- linear, predominantly northeasterly, trends reflected as sharp lateral discontinuities in structural contours of lower as well as middle Cretaceous well picks, interpreted to represent rotational faulting with possible considerable strike-slip component;

- localized closures in structural contours particularly in the top of the Devonian, all of which interpreted to represent advanced karsting.

Structural and stratigraphic anomalies identified in historic work on the Property are incorporated into summary sketches in this report (in greater detail in Alberta Mineral Assessment Report MIN20100017), for principal anomalous target areas which can be identified based on all available work across the Property. Structural elements are presented, either as interpreted faults zones, fault block boundaries or as "closed" features contoured based on the data from the subsurface stratigraphic database. The "closed" shape of some of the anomalies may be an artifact of contour noding and it is possible that they reflect faulted blocks, although the closed shapes have support from coincident roughly circular domed topographic relief features.

Of particular interest in the above context are findings of a LANDSAT remote imagery analysis study conducted by Demofrac Geo-System International, across northeast Alberta, in 1994[11], which identified many gross regional structures across the region and over the Property. More localized structural zones and a variety of circular structural features were also identified by the study. Demofrac's findings are

[11] Report: Geologic Structural Interpretation of Satellite Imagery For Mineral Exploring Using Demofrac System, Athabasca Region, Northeast Alberta. Demofrac Geo-System International, 1994. In Appendix B, MIN9611, Sabag 1996a.

outlined in its stand-alone report included as Appendix B in Alberta Mineral Assessment report MIN9611 (Sabag 1996a). Summary interpretations therefrom, over the Property, are excerpted in Figure 30.

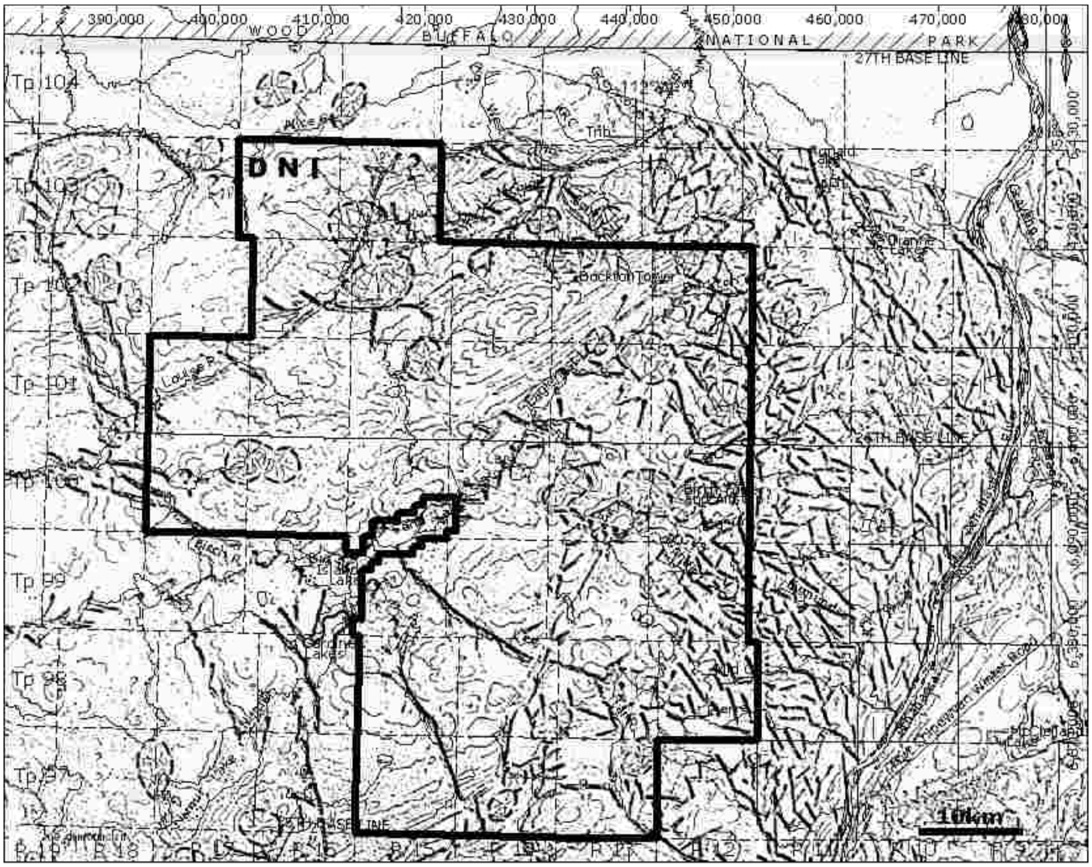

Figure 30: LANDSAT remote imagery analysis, of the Property and surrounding Birch Mountains. After Figure 26, Sabag 2008; and Demofrac 1994, in Alberta Mineral Assessment report MIN9611, Sabag 1996a.

A follow-up study completed in 1995 by J.D.Mollard and Associates[12] focused on the Birch Mountains, and entailed detailed interpretation of air-photographs for the area integrating also findings of reconnaissance work from the area. This study reinforced structural zones previously identified by Demofrac, and was successful in highlighting certain structures and composite structural corridors for ground follow-up.

The Mollard study was carried out with the benefit of results from surface geochemical sampling conducted by Tintina over the Birch Mountains, and a detailed stratigraphic model and subsurface database developed for the area based on a review of drilling records of all oil/gas wells in the area. The study identified a variety of lineaments and other circular features in the area, some of which are spatially associated with stratigraphic and surface geochemical features.

The Mollard findings are outlined in its stand-alone report included as Appendix B2.1 in Alberta Mineral Assessment report MIN9611 (Sabag 1996a). Summary is excerpted in Figure 31.

Many of the circular features identified by Mollard and Demofrac are consistent with a Digital Elevation Model (NAD27-Zone12[13]) for the Birch Mountains (see Figure 9) which readily shows a series of 5-10km diameter circular domed features which comprise the most conspicuous topographic relief anomalous areas in the area.

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[12] Report: Remote Sensing and Geoscience Data Integration Study. J.D.Mollard and Associates Limited, 1995. In Appendix B, MIN9611, Sabag 1996a.

It is of special note that nearly all of the historic surface geochemical and mineral anomalies discovered on the Property are in structural zones which are interpreted based on stratigraphic disturbances (e.g. Asphalt-Eaglenest Fault Zone), or are on the flanks of circular (domed?) stratigraphic disturbances (e.g. Buckton and Asphalt polymetallic Zones). Should the "closed" shaped stratigraphic anomalies ultimately be demonstrated to represent faulted blocks rather than domes, considerable significance would be placed on fault junctions, and junctions among fault swarms, as prospective and likely conduits for any volcanic exhalative venting in the Birch Mountains and on the Property. The many fault junctions on the Property, accordingly, present high priority future exploration targets for volcanic vent related exhalative mineralization on the Property.

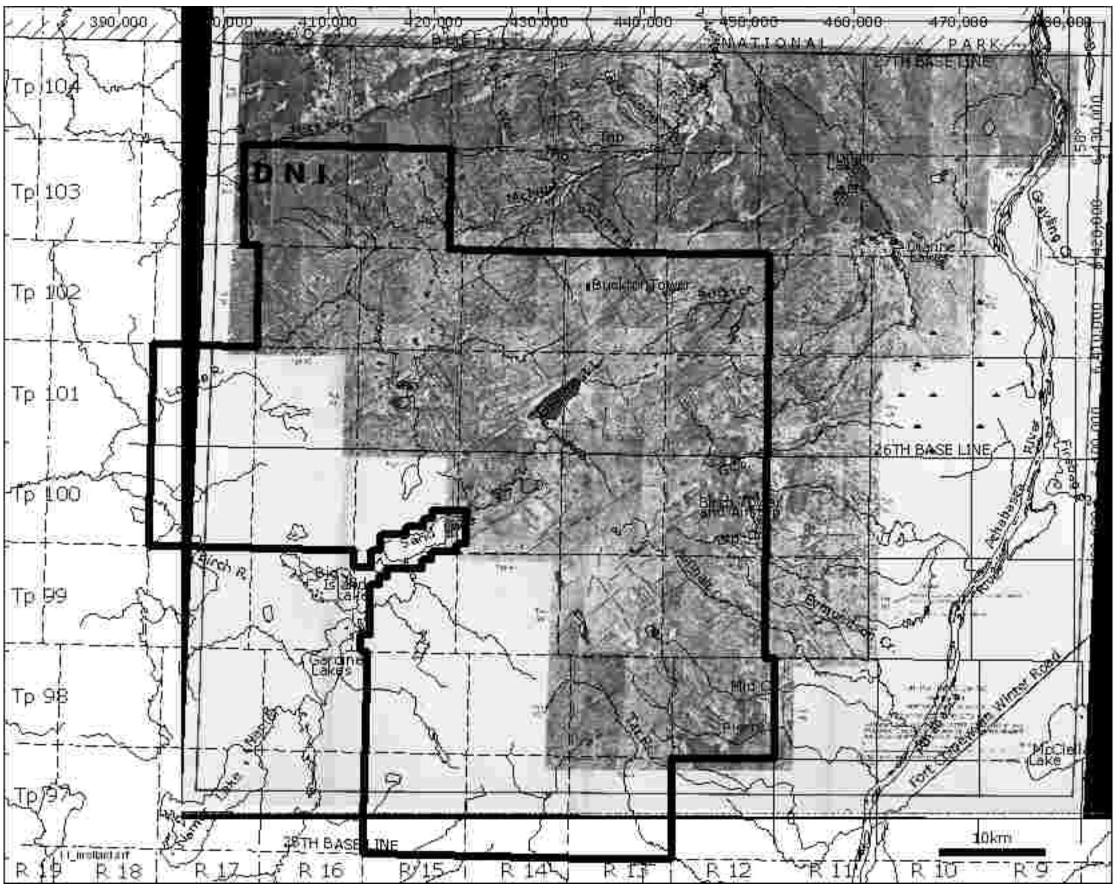

Figure 31: Summary of Remote Sensing and Geoscience Data Integration Study over the Property. After Figure 11, Sabag 2008; and Mollard 1995, in Alberta Mineral Assessment report MIN9611, Sabag 1996a.

[13] Alberta digital information has since migrated to NAD83.

8.5 SURFACE GEOCHEMICAL TRENDS AND ANOMALIES - LAKES, STREAMS AND SOIL

Surface geochemical information for the Property consist entirely of lake sediment, lake water, stream sediment, and stream heavy mineral sampling surveys completed by Tintina Mines during the 1990's. Details of the surveys are presented in Sabag 2008 (Section 6 of DNI's NI-43-101 technical report for the Property, Sabag 2008) figures from which are reiterated herein with revisions to Property outlines. All available lakes and drainages were sampled by the foregoing surveys and many databases therefrom offer a solid surface geochemical baseline geochemical framework. Similar sampling was also conducted by Ells River Resources in 1996 over T97/R13 currently under a permit at the southeast corner of the Property. Sample coverage of the various historic surveys are shown in Figure 32. Salient findings and anomalies identified by this work are summarized below and related anomalies are shown in Figures 33 and 34 for lakes and streams sampling surveys, respectively.

- The Birch Mountains are characterized by major zones of landslides and widespread slumps from poorly consolidated Cretaceous muddy clastic sequences. As a result, interpretation of lake geochemical anomalies is complicated by the intermixing of diffusion and hydromorphic phenomena, to the extent that lake geochemical data (to a lesser extent stream geochemical data) cannot be interpreted in isolation and must be reviewed in conjunction with geochemical and mineral information from sampling of surrounding streams, soils and bedrock exposures. In addition, many lakes are likely only poorly drained muddy depressions directly overlying equally muddy bedrock, and there is considerable seasonal compositional variation in stream as well as lake sediments due to the continual recharge of streams in the area by fresh sediments from slumps at all exposures.
- Lakes from the Birch Mountains report by far the strongest and most consistent anomalies documented from the region, characterized by elevated concentrations in most of the base and precious metals (notably Ni,Co,V,Cr,Cu,Zn,Au,Ag), generally defining trends associated with a number of structures, and locally from lakes with high natural acidity (pH 3-4) attributed to abundant sulfides therein. Contoured results from sampling of Birch Mountains lakes are presented in Figure 29 for select elements.
- Overall, lakes geochemical sampling surveys define a principal northwesterly trend of metals diffusion anomalies along the Asphalt-Eaglenest corridor, associated also with Hg. Two lesser crosscutting trends were also identified, one of which extends northeast from the Pierre River headwaters across Asphalt Creek, and another along the Sand-Eaglenest Lakes trend (at the centre of the Property) extending northeast to the vicinity of Buckton Creek. The anomalies are characterized mainly by elevated Zn, Ni, Hg and to a lesser extent by Ag, Au and Cu. There are virtually no outcrops in the vicinity of the anomalies, although several subsurface stratigraphic disturbances (fault swarms) can readily be interpreted from the subsurface stratigraphic model for the area. Association of the anomalies with local structures is also corroborated by results of soil sampling completed in the vicinity of Eaglenest Lake, at Gos Creek and at Pierre River. These are discussed in Section 8.5 of this report.
- Other lakes geochemical anomalies identified include a series of lakes with elevated Ag (upward to 3ppm) to the southwest of Eaglenest Lake, Zn enrichment at the headwaters of the Tar River and numerous multielement anomalies over the area between the Pierre River and Mid Creek.
- The Birch Mountains area is characterized by major zones of landslides and widespread slumps from poorly consolidated Cretaceous muddy clastic sequences. Due to the continual recharge of streams in the area by fresh sediments from slumps, stream sediments sampling provides a particularly useful "real time" mapping "tool" to quickly characterize entire drainages.
- Nearly all previously identified stream sediment geochemical and mineral anomalies in the Birch Mountains are downstream from exposures of the Second White Speckled Shale and the Shaftesbury Shale Formations which are exposed within a range of elevations varying approximately 520m-650m asl.

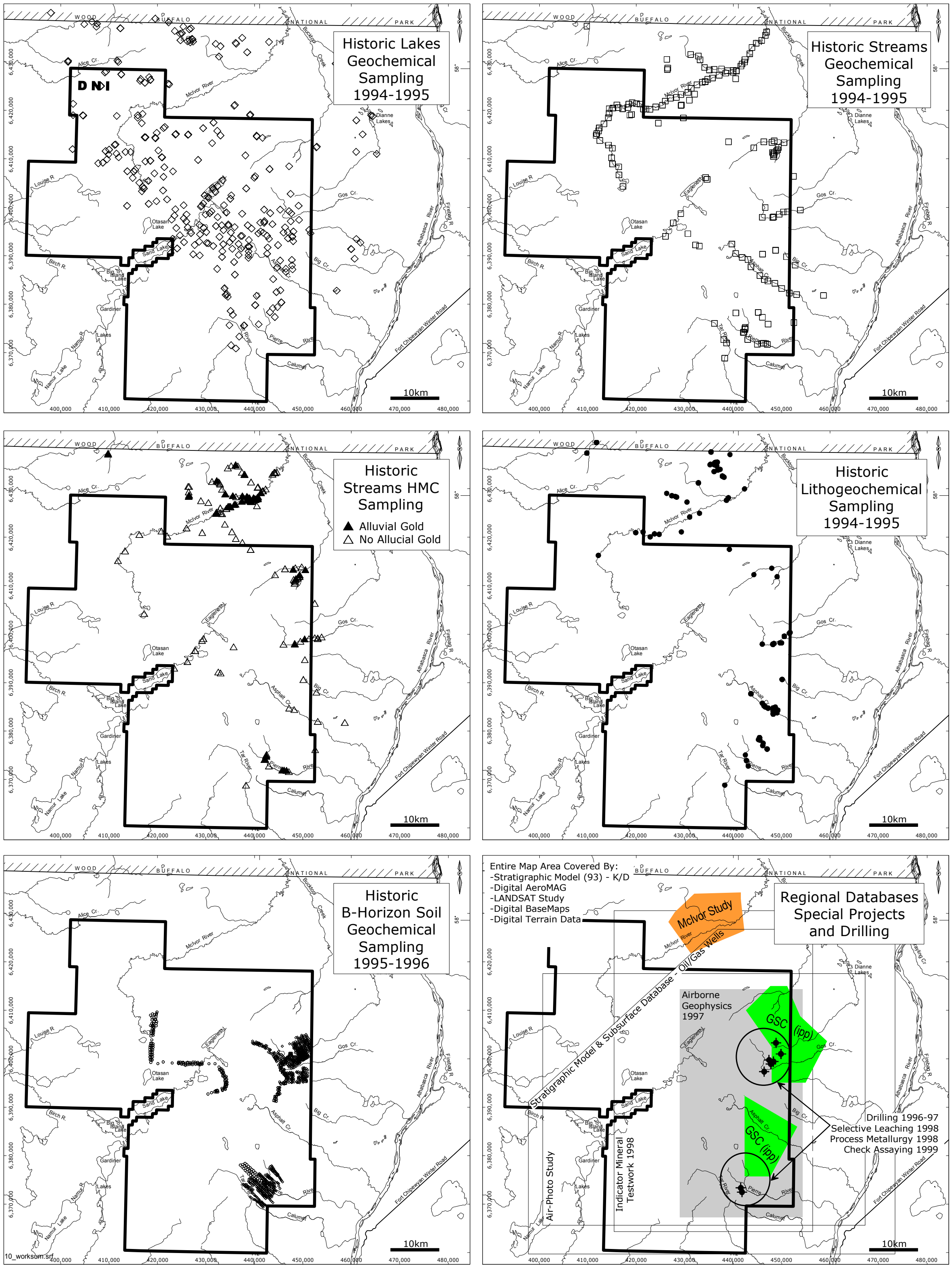

Figure 32: Summary of historic work databases available over the Property. After Figure 10, Sabag 2008; and Alberta Mineral Assessment Reports MIN9611, MIN9613, MIN9612, MIN9610, MIN9609, MIN9802 MIN9928, Sabag 1996a, 1996b, 1996c, 1996d, 1996e, 1998 and 1999, respectively, AGS 2001 and Ells river MIN9605.

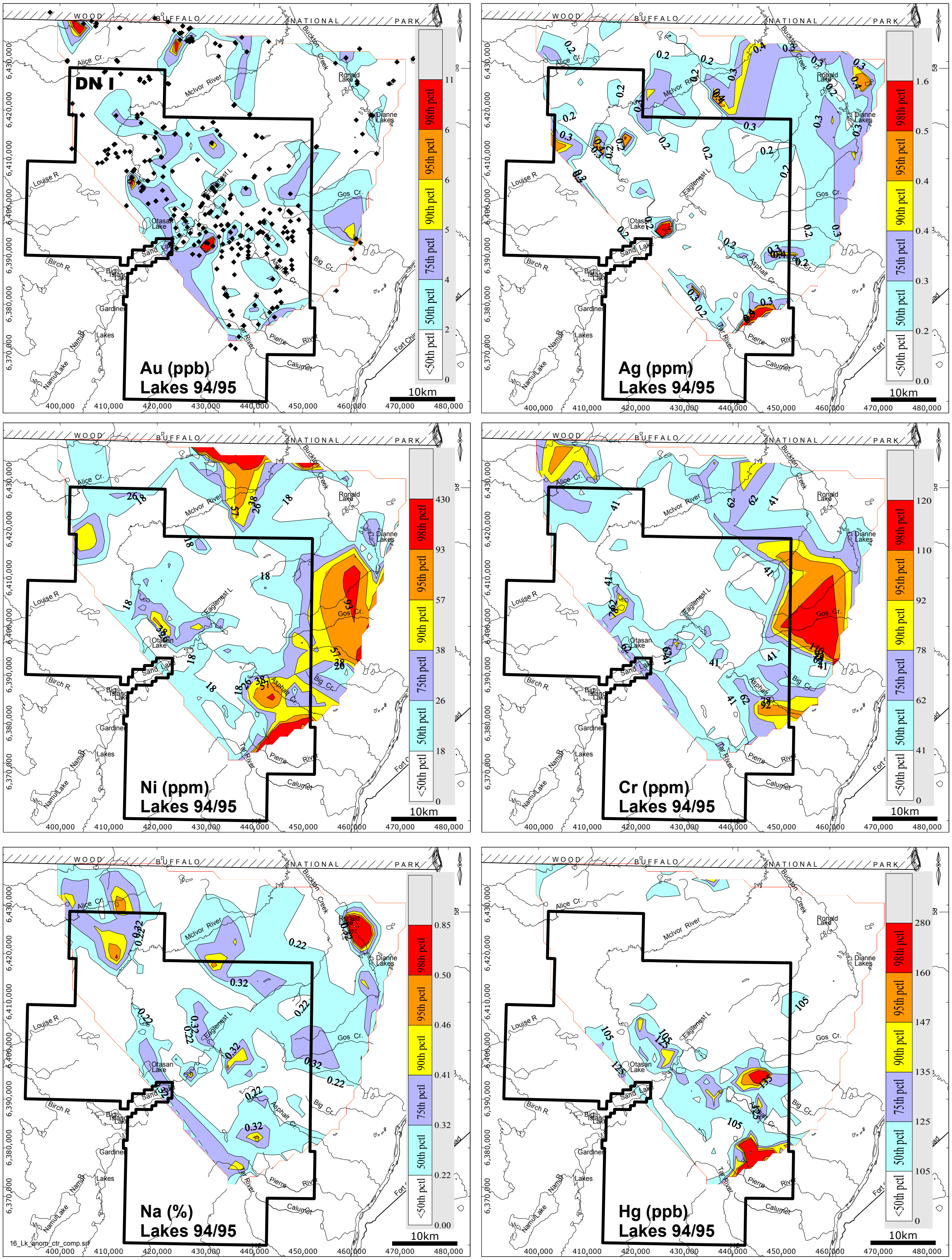

Figure 33: Lake sediment geochemical anomalies for select elements, historic sampling, Birch Mountains, After Figure 16, Sabag 2008; and Alberta Mineral Assessment report MIN9611, Sabag 1996a.

- Nearly all metal geochemical anomalies over the Birch Mountains are congregated over its erosional edges, in sections of the rivers/streams which are at, or below, approximately the 520m-650m elevations, in streams draining the Speckled Shale and Shaftesbury Formations.
- The most consistently anomalous waterways identified in the area are the Pierre River, Mid Creek and Asphalt Creek, characterized by coincident multimetal anomalies in addition to gold. Pierre River, Tar River and Mid Creek broadly radiate from an area at the headwaters of Pierre River which is also characterized by strong geochemical Zn-Cu-Ni diffusion anomalies in soils. These localities are also mineralogically anomalous even in the context of the Birch Mountains reporting a variety of base metal sulfides, gold and, locally, cinnabar, from stream sediment heavy mineral concentrates (See Section 6 DNI's NI-43-101 report for the property, Sabag 2008).
- While the majority of stream geochemical anomalies in the area are polymetallic, anomalies in Gos Creek, adjacent to the Buckton Zone, are mainly characterized by elevated Ni which can be attributed to Ni-enriched exposures of Cretaceous shales upstream, which also carry native gold. Native gold grains have been also recovered from Gos Creek by Tintina and others.

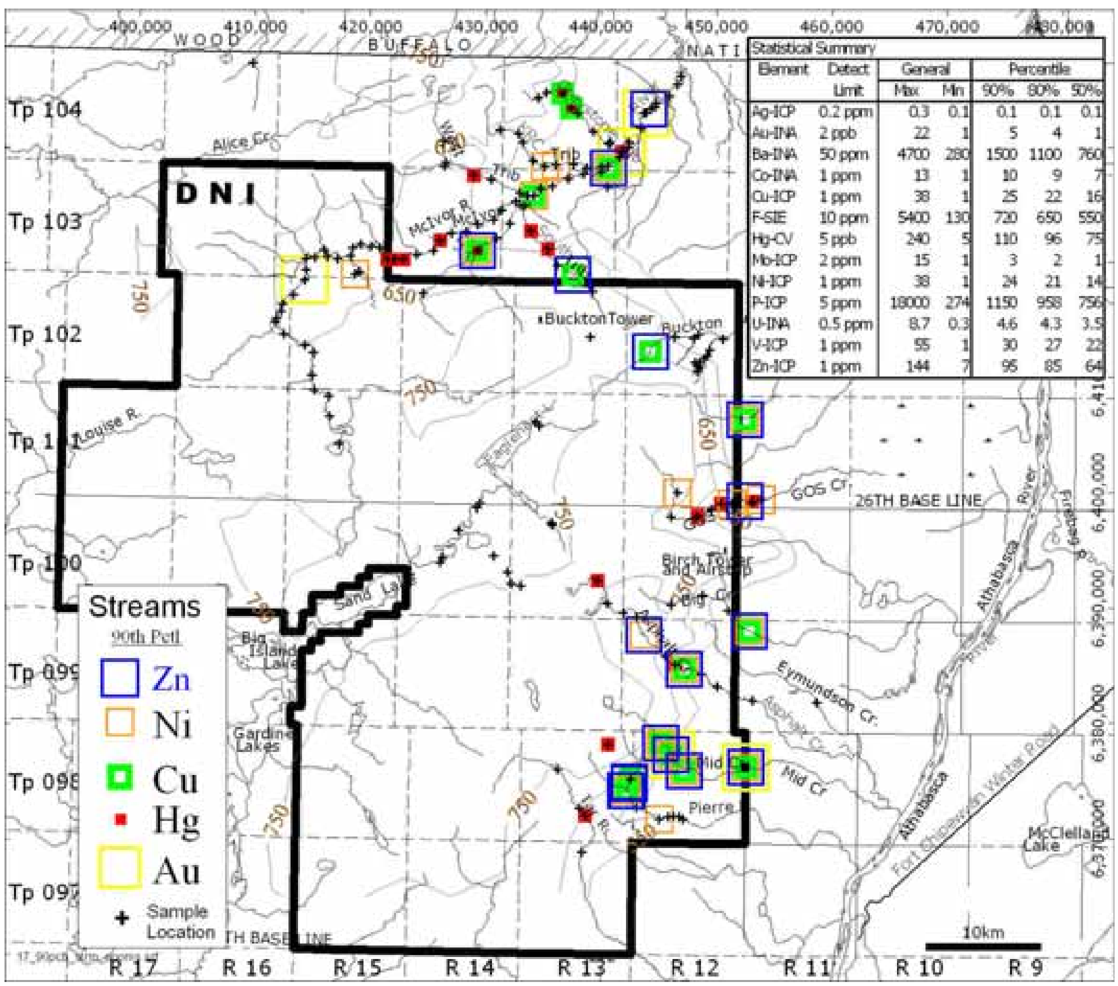

Figure 34: Streams sediment geochemical >90th percentile anomalies, historic sampling, Birch Mountains. After Figure 17, Sabag 2008; and Figure C34, Alberta Mineral Assessment Report MIN9611, Sabag 1996a. The 650m asl contour demarcates general trace of the Second White Speckled Shale exposures.

- Inter-elemental variograms included in Tintina reports (Sabag 1996a) show good correlation among most of the metal species in addition to relatively good correlation between Au and other base metals. Au is also correlated with Ba, and good correlation exists between the base metals (especially V) with Al and LOI (attributed to fine clay in stream sediments from muddy exposures predominating the area).
- For many of the elements, concentrations within the coarse and fine stream sediment fractions (>80mesh and <80mesh) are nearly identical within limits of analytical/sample precision normal to stream sediments (±20%). By contrast, Al, Zn, V, Zr and Ni demonstrate affinity for the finer fraction, and were attributed by Tintina to fine clay in stream sediments from muddy exposures predominating the area. The affinity of Zr for the finer fraction is consistent with the presence of abundant very fine Zircon grains in outcrops and river sediment in the general area (Sabag 1996a, AGS 2001).
- Au and Cd demonstrate affinity for the coarser stream sediment fraction, supported by recovery of alluvial gold grains measuring upward to 1mm (well above 80mesh) from heavy mineral concentrates from the area, especially from the McIvor River immediately to the north of the Property. This general trend is reiterated by the scarcity of Au geochemical anomalies (<80mesh fraction analyzed) from sites throughout the McIvor River and some of its tributaries, many of which carry abundant alluvial Au grains recovered from heavy mineral samples.
- Nearly all heavy mineral concentrates collected from streams mineralogically "mimic" corresponding results from the stream sediment geochemical sampling, and mineral anomalies discovered also corroborate corresponding geochemical anomalies identified by the stream sediment geochemical sampling results.
- The most productive stream sediment sampling sites, reporting high contents of metals from Tintina's stream HMC sampling programs across most of northeast Alberta, are those from drainages in the Birch Mountains, yielding high proportions of good heavy mineral concentrates often characterized by abundant sulfides (upward to 80% of the HMC by volume) giving way downstream to concentrates with abundant magnetite/Ilmenite often accompanied also by alluvial gold grains.
- Nearly all stream sediment heavy mineral anomalies in the Birch Mountains and over the Property, especially those with abundant sulfides, are downstream from exposures of the Second White Speckled Shales and the Shaftesbury Formations which are exposed within a range of elevations varying 520m-650m asl.
- The most consistently anomalous waterways at the Property are the Pierre River, Mid Creek and Asphalt Creek, which are also mineralogically anomalous even in the context of the Birch Mountains, returning a broad variety of base metal sulfides from HMCs in addition to cinnabar and gold. (Soil geochemical sampling surveys indicate that Pierre River, Tar River and Mid Creek broadly radiate from an area at the headwaters of Pierre River which is also characterized by soil geochemical Zn/Cu/Ni diffusion anomalies, which are presently regarded to reflect shallow buried portions of the Asphalt Zone).

In addition to anomalies identified via lake and stream geochemical sampling, a number of anomalous areas were also identified relying on soil geochemical sampling programs, two of which areas were drill tested by Tintina in 1997 and demonstrated to host near surface metallic mineralization in large volumes surrounding the Asphalt and Buckton Zones (the two Zones are believed to host two Mineralized Zones as proposed by DNI's NI-43-101 technical report for the Property. See also Section 9.8 of this Report). A number of other anomalies identified by Tintina have not yet been drill tested. Details of the soil sampling work are outlined in Section 6 of DNI's NI-43-101 report for the Property, Sabag 2008).

8.6 GEOPHYSICAL ANOMALIES

The only aeromagnetic information available from the Birch Mountains, and the Property, is coarse scaled national airborne geophysical data series and related maps. Preliminary reviews of the foregoing data relying on first and second derivative manipulations to resolve discontinuities and lineaments are shown in Figures 44 and 45, showing also general anomalous target areas previously identified by the historic work.

The only detailed airborne geophysical information from the Property comprises a high resolution aeromagnetic survey commissioned by Tintina in 1997 over the eastern one third of the Property, over the Asphalt and Buckton Zones, to better resolve the many structural trends in the area, and to investigate the suspected presence of vents which might be related to diamond indicator minerals discovered in the two areas.

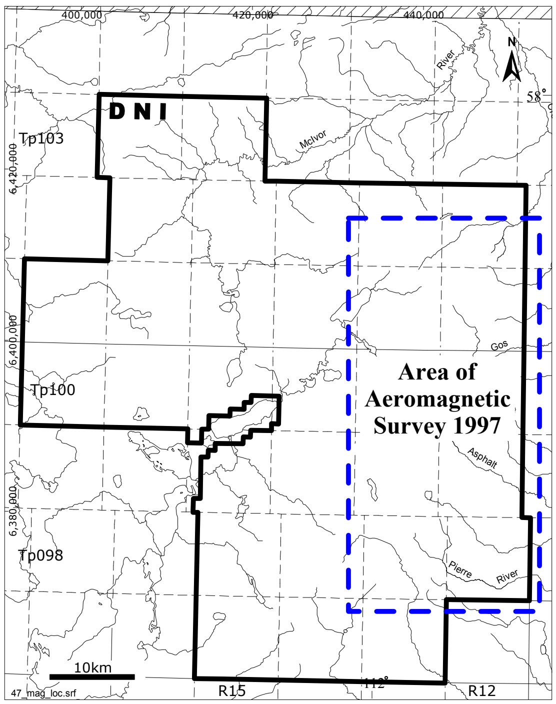

Figure 35: Historic aeromagnetic survey location sketch, Asphalt and Buckton areas, Alberta Mineral Assessment Report MIN9802, Sabag 1998.

The surveyed area consists of an eight township quadrant bounded by UTM coordinates: 451381E-6369640N; 431620E-6369920N; 432331E-6413610N; 451889E-6413460N (Figure 35). For greater details the reader is referred to the Section 6 of DNI's NI-43-101 technical report for the Property, Sabag 2008.

Results from the 1997 airborne work are summarized as follows:

(i) contoured Total Magnetic Intensity (TMI) results from the survey are shown in Figure 36, showing also locations of all previous historic sampling and drilling conducted in the area; and

(ii) Total Magnetic Intensity (TMI) for the Shallow Pseudo Depth Slice 1 (PDS1), is shown in Figure 37, as a representation of nearest surface variations in magnetic susceptibility which also offer a level of magnetic detail otherwise obscured in TMI contours.

In general terms, the area is characterized by a number of broad (5-10km wide) bands of contrasting magnetic relief trending north-northwesterly across the Asphalt Zone in the southern parts of the area, and northeasterly across the Buckton Zone in its northern half. The trends were interpreted to reflect features in the precambrian basement some 1000m below surface.

TMI results in Figure 36 exhibit a number of small near-circular or "closed" magnetic features over mineralized or geochemically anomalous portions of the Asphalt and Buckton polymetallic Zones at the historic Asphalt and Buckton Properties. The most conspicuous of these features are an easterly oblong anomaly at the top of the Pierre River valley over the Asphalt Zone, and a circular anomaly immediately to the north of GOS-1 gossan over the Buckton Zone.

Other magnetic features of interest are:

(i) an area of acute high magnetic susceptibility at the southeastern corner of the survey area located to the east of the Asphalt Zone;

(ii) a northwesterly broad band of magnetic disruptions paralleling the Asphalt Creek valley and coinciding with the Asphalt-Eaglenest Fault Corridor; and

(iii) a series of northeasterly trends which appear to disrupt or offset magnetic contours.

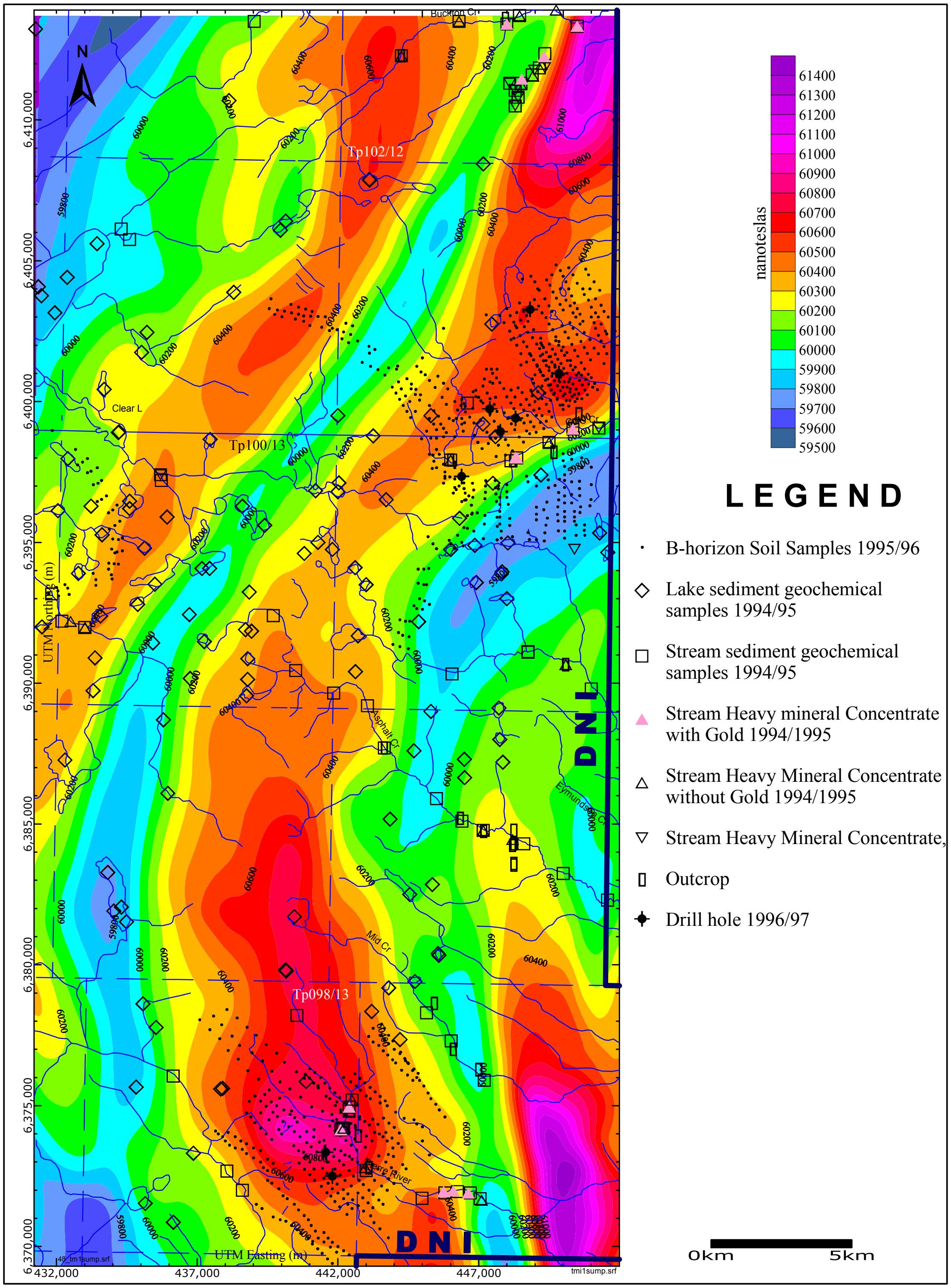

Figure 36: Summary of aeromagnetic total magnetic intensity (TMI) anomalies, historic aeromagnetic survey 1997, Asphalt and Buckton areas. After Figure 48, Sabag 2008. Showing also location of all prior historic sampling in the area, after Figure 59, Alberta Mineral Assessment Report MIN9802, Sabag 1998.

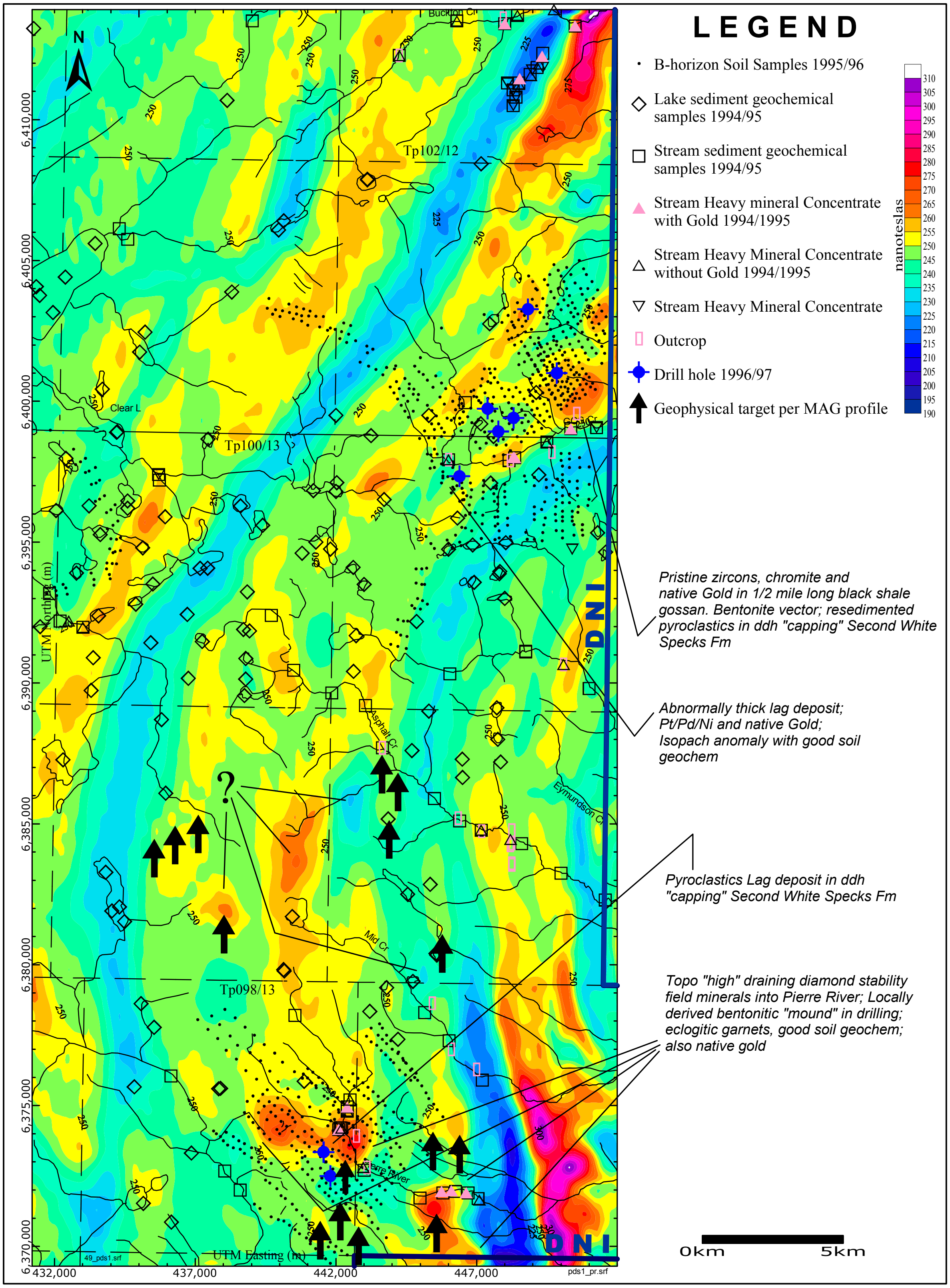

Figure 37: Summary of aeromagnetic shallow pseudo-depth slice anomalies. Historic aeromagnetic survey 1997, Asphalt and Buckton areas. After Figure 49, Sabag 2008. Showing also location of all prior historic sampling in the area, after Figure 60, Alberta Mineral Assessment Report MIN9802, Sabag 1998.

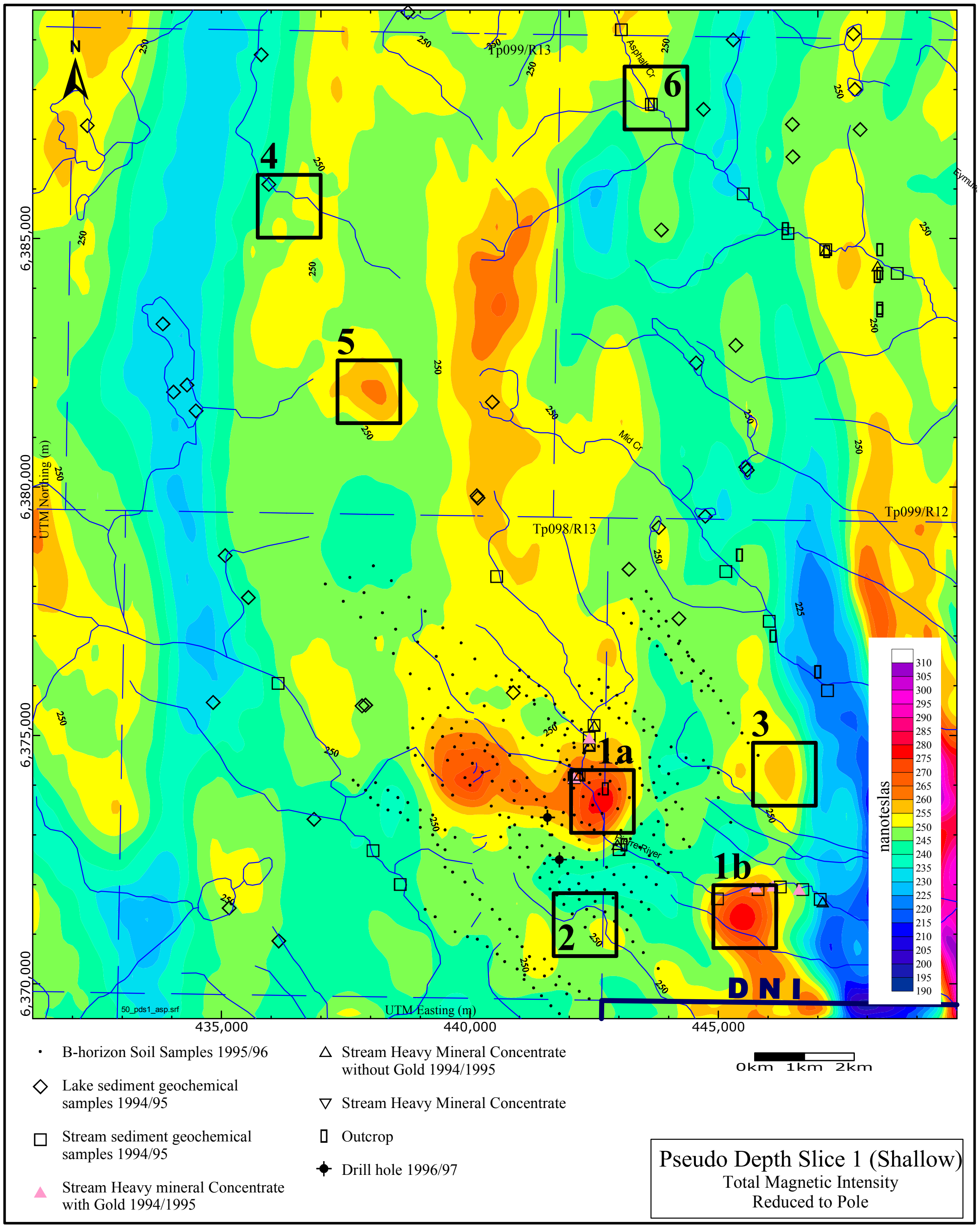

Figure 38: Summary of aeromagnetic shallow pseudo-depth slice anomalies and localities selected for additional field inspection (Oct/97 for kimberlite mineral indicator sampling, Asphalt Zone area). Historic aeromagnetic survey 1997. After Figure 50, Sabag 2008. Showing also location of all prior historic sampling in the area, after Figure 61, Alberta Mineral Assessment Report MIN9802, Sabag 1998.

Subsequent detailed reviews of the geophysical data were conducted in the context of exploring for diamonds in the area. Review of the geophysical data together with other physical information from the area concluded as follows:

- that diamond stability field minerals were indeed recovered from surface sampling in the area, that same are probably locally derived, and that they are derived from surface exposures of ejecta from diatremes introduced during Cretaceous sedimentation;
- that the diatremes would be reflected in the geophysical data as "blind" intrusives;
- that several small magnetic anomalies can be discerned in the geophysical data indicative of circular intrusives at the precambrian surface, and that two of these anomalies which measure approximately 1500m in diameter are indicative of zoned intrusives at the precambrian surface beneath the Asphalt and Buckton Zones;
- that a number of anomalies can be discerned to be investigated by field visits, including anomalies in the Pierre River area associated with several conspicuous circular topographic features, and associated also with alluvial gold discovered at several sites immediately downstream in the Pierre River during 1995 stream sediment sampling work (Sabag 1996a);
- that reviewing the data in line profiles rather than contours reveals additional anomalies which could reflect discreet shallow sourced magnetic bodies such as kimberlitic intrusions or related proximal volcanics. The foregoing review identified seven general areas over the southern part of the aeromagnetic survey (Asphalt Zone and northern vicinity) that several of the magnetic anomalies selected could well be indicative of near-surface intrusions or related volcanic vents. These localities are shown in Figure 38.

Additional details for the above reviews and re-interpretations of the geophysical data are outlined in Section 6 of DNI's NI-43-101 technical report for the Property (Sabag 2008). Though the above work was carried out focusing on exploration for diamonds or related exhalative venting on the Property, the contemplated venting would be equally relevant to location of possible vents associated with SEDEX style massive sulfide mineralization on the Property, and is as such relevant to DNI's exploration objectives of searching for metallic mineralization on the Property.

8.7 Lithogeochemical Sampling and Mapping

Current understanding of geology and lithogeochemistry of the Property, and the Birch Mountains in general, relies on geological mapping and lithogeochemical sampling programs conducted by Tintina Mines together with similar concurrent work by the AGS-GSC in the mid-late 1990's, which collectively provide an exhaustive database of all that is exposed and available to sampling across the Property. Mapping and sampling completed by the AGS-GSC expands beyond the former work programs' scopes to also investigating the Second White Speckled Shale as well as the Shaftesbury and related Cretaceous Formations westward from the Birch Mountains and the Property to west-central Alberta (Figure 39).

The above historic prior work included reconnaissance sampling programs as well as detailed sampling and mapping of individual exposures with special focus on systematic mapping and sampling of measured stratigraphic lithosections (Figure 40) exposed as cliff-faces, confined mostly to the erosional edge of the Birch Mountains, within a 5km wide arc over the eastern lobe of the Mountains.

The above mapping and sampling surveys comprise the only mapping and lithogeochemical sampling conducted over the Property toward exploration for metals, and results therefrom form the only lithogeochemical databases available from the Property.

Bedrock exposures throughout the Property are scarce (<2%), and are restricted to creek/river valleys which define incisions confined to the erosional edge of the Birch Mountains, forming a narrow 5-10km wide arcuate band over the eastern lobe of the Mountains. The Cretaceous strata exposed in the area are dominated by poorly consolidated recessive sequences of shales and mudstones, exposed in terraces

(Plates 1 and 2) partly obscured by considerable slumped material or mud-flows (especially at their base), all of which are highly susceptible to landslides and slumping.

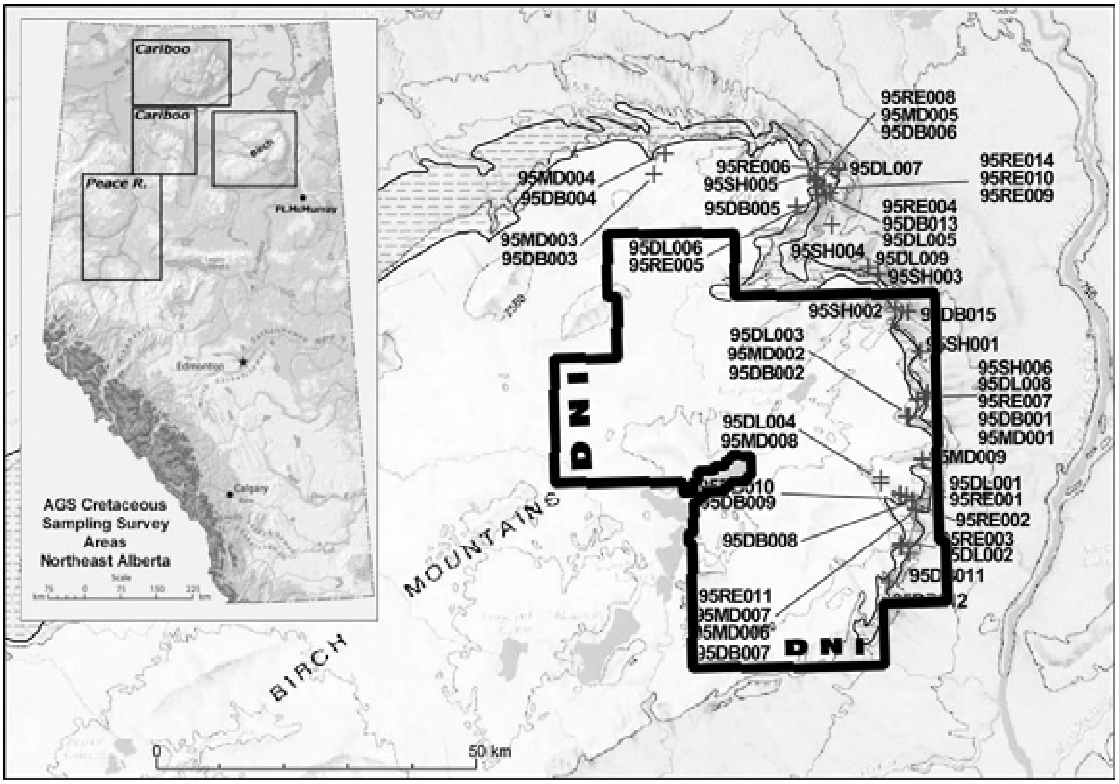

Figure 39: Mapping and lithogeochemical sample coverage, northeast Alberta and the Birch Mountains, AGS-GSC programs, After Figure 27, Sabag 2008; and AGS 2001. Stratigraphic lithosections 95DL003 and 95DL004 were sampled by DNI in 2009 and 2010.

Nearly all bedrock exposures in the Birch Mountains are in various stages of active mass wasting, and are transformed during prolonged wet weather periods into mudflows requiring the frequent rescue of sinking crew-members from slimy sinkholes (Plate 3).

Plate 1: Typical terraced exposures of recessive sequences, Cretaceous Formations, Northeast Alberta. Asphalt Creek Valley, Birch Mountains (Right). Images from Sabag 1994-1999.

In many cases slumpage is sufficiently advanced to introduce uncertainties to the definitive determination of stratigraphic position of often similar looking exposed units, especially for shales.

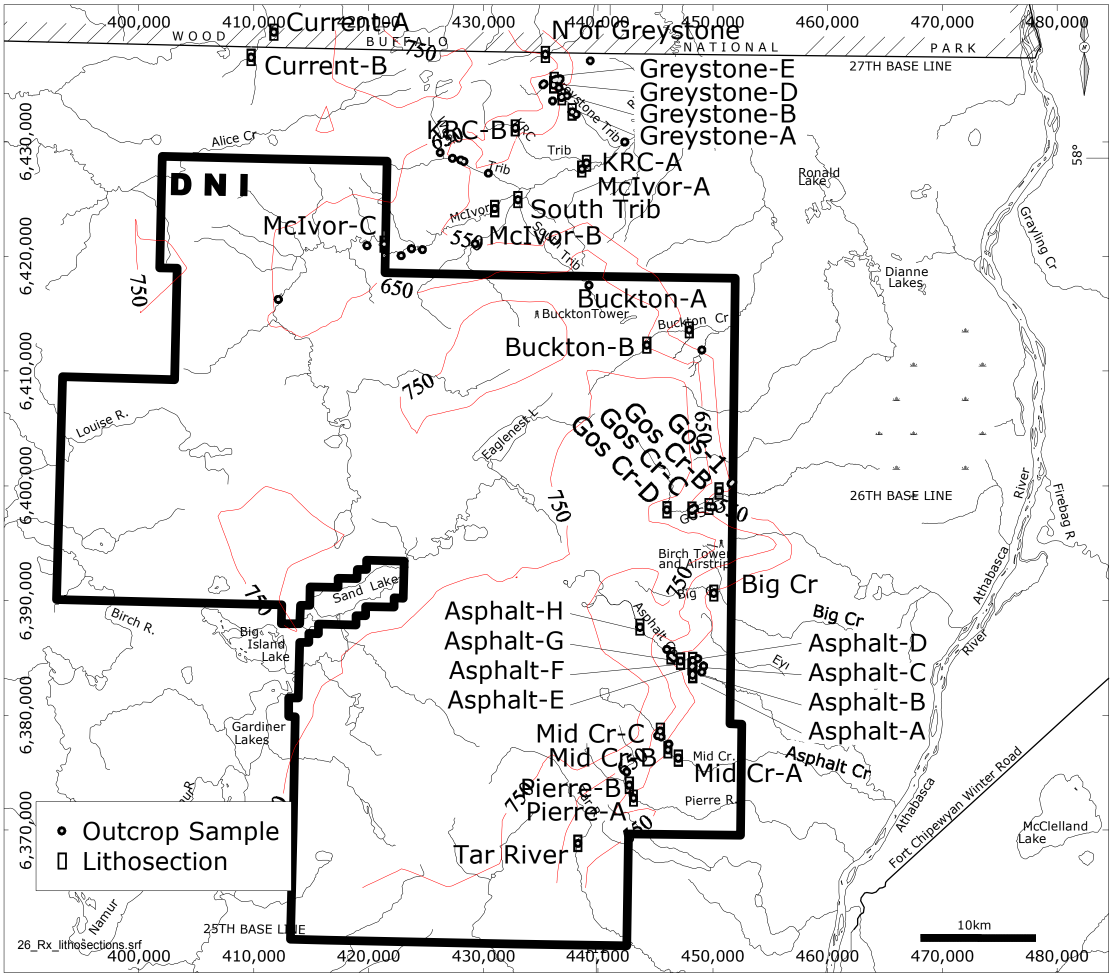

Figure 40: Historic mapping and lithogeochemical sample coverage, outcrops and stratigraphic lithosections, Tintina 1994-1995 programs, Birch Mountains, showing "named" stratigraphic sections. After Figure 25, Alberta Mineral Assessment Report MIN9611, Sabag 1996a. Stratigraphic lithosections Asphalt-H and GOS-Cr.-C were sampled by DNI in 2009 and 2010.

Exposures available throughout the Birch Mountains enable observation and sampling of approximately 300-350 vertical metres across the Cretaceous stratigraphy, extending upward from the top of the Manville to well into the Colorado Group. This section straddles the Albian-Cenomanian boundary, and provides exposures of five Formations: the Clearwater/Grand Rapids Formation, the Viking/Pelican Formation, the Westgate Formation, the Shaftesbury Formation, and the Second White Speckled Shale Formation. All available lithosections and "un-named" lithosections previously mapped and sampled are shown in Figure 40 (DNI has retained historic location names for continuity).

Significant highlights from historic work from areas under the Property include:

- The discovery of large flat Fe-phosphate and Fe-sulfide rich float slabs in Asphalt Creek, immediately below slump zones of suspected Shaftesbury Formation (e.g. sample site 1039). Many of the slabs containing upward to 75% Fe-sulfides by volume, reporting also several hundred ppm of Ni, Zn and lesser amounts of Cu and Ag. Microanalytical investigation of some subsamples by the GSC reported native Ni as overgrowths on some FeS grains[14] (GSC, S.B.Ballantyne). FeS±Ni mineralization was also discovered in fractured carbonate float in Asphalt Creek and McIvor River, similarly also reporting Ni as overgrowths on some FeS grains from microanalytical inspection.

[14] Miscellaneous poster sessions, S.B. Ballantyne 1994-1995, GSC.

Plate 2: Typical stratigraphic section and related slump, Cretaceous Shales, Birch Mountains, Alberta. (Repel mapping by the author)

- The discovery of highly angular sulfide bearing siliciclastic float, with upward to 90% Fe-sulfides by volume, locally also with fish remains in several drainages, representing the siliciclastic bonebed basal member of the Second White Speckled Shales Formation.

- The discovery of the GOS1 gossan, a large reddish gossan, at the headwaters of GOS Creek, (southeast portion of T101/R12) and the discovery of native pristine gold grains with encrustations and inclusions of Fe-Cu-Sulfides from some samples of the gossan (Sample E5100, E5100B, GOS1 Gossan, Second White Specks Formation).

- The GOS1 gossan, subsequently recognized to be part of the Buckton Zone, comprises Ni/V/Zn-enriched carbonaceous and muddy shales, which have also reported abundant euhedral zircons, chromite and Mn-wads accompanying a variety of FeS morphologies including crystals, specular composites and spheres, many of the latter studded also by 1µm-5µm granules of native Ni. Orientation XRD from Tintina's work for sample E5100 reported a predominance of illite clay, accompanied by smectite and locally glauconite in the shale (Alberta Mineral Assessment Report MIN9611, Sabag 1996a);

Plate 3: Typical mudflows (left) and crew rescue, GOS1 Gossan (right), Second White Speckled Shale, Birch Mountains.. Images from Sabag 1994-1999.

The GOS1 gossan, over the Buckton Zone, represents the largest and most continuous exposure of the Second White Speckled Shale Formation in the Birch Mountains and on DNI's Property. It comprises a 1km long intermittent exposure of conspicuous brick red carbonaceous shales over a ledge, and related slumps, between the 600m-630m (asl) elevations along the northern slopes of the Gos Creek valley. The Formation is also exposed at Gos Creek-B exposure, also on the north flank of the GOS valley, and at the Gos Creek-C exposure which is located at its closure. Due to its distinct coloration and the abundant metallic content, GOS1 was initially regarded as a zone of advanced auto-oxidation, although subsequent work indicated that the coloration is likely due to an old extensive forest fire.

With the exception of the uppermost 5m-10m of the gossan ledge, the bulk of GOS1 comprises slumped material consisting of slimy muds or dislocated pieces of hillside in various states of disaggregation. Bedrock exposed along the uppermost ledge is characterized by carbonaceous shales, with bentonite seams and other seams of sulfur and sulfates. The gossan is over an area characterized by junctions of several faults.

Shales at GOS1 contain varying amounts of sulfides (mainly FeS) with a broad range of morphologies ranging from perfectly spherical pyrite/marcasite balls to twin pyramidal and specular aggregations. The FeS is accompanied by abundant euhedral Zircons, chromite and Mn-wads, all of which are hosted in muddy shales predominated by illite clay, accompanied also by smectite and (locally) glauconite. Orientation microanalytical investigation of some subsamples indicate also the presence of 1µm-5µm granules of native Ni as overgrowths on FeS grains (especially those spherical). Native gold grains have been reported in heavy mineral concentrates from the exposure, representing an equivalent grade of nearly 1ppm based on volumetric/gravimetric estimates (by tabling and by panning, Sabag 1996b). The gold grains recovered are characterized by encrustations and inclusions of Fe±Cu-sulfides in various states of oxidation. The gossan has been sampled in great detail by Tintina, and the presence of native gold grains in the shales is corroborated by independent AGS sampling (AGS 2001).

The GOS1 and Gos Creek-C localities expose poorly consolidated shales and mudstones (with variable organic components), a thin bentonite (3-5cm), a thin discontinuous carbonate cemented siltstone/concretion (10-15cm thick), and a Siliciclastic Bone Bed (SBB). The bone bed is interpreted as a transgressive lag deposit and is characterized by a calcite cemented, medium to very coarse grained, black chert and glassy quartz sandstone, containing variable amounts of fish debris. While the bone bed is generally a thin (10cm-20cm) unit in the area, and elsewhere in the sedimentary basin, it comprises as many as three distinct chert and quartz sandstone units at the Gos Creek-C exposure, with an overall thickness exceeding 1m, which are interbedded with sandy organic-rich shales. The sandstones of the bone bed are fairly massive and exhibit few sedimentary structures with the exception of vague cross-bedding and occasional mudstone "rip-ups". (exposures of bonebed at the base of the GOS-Cr-C lithosection were sampled in detail by DNI in 2009. See Section 11.5 of this Report).

The GOS1 gossan and the Gos Creek-C exposures are enriched in Zn/V, locally in Ni, and also by elevated Cd, Co, Cr and Cu (Sabag 1996). Metal enrichment over the eastern portion of GOS1 can be correlated with increasing organic carbon content, although results from its western extremities are characterized by metal enrichment patterns which are independent of C-org supporting metals concentration in forms other than those organic. Lithogeochemical anomalies documented from the gossan by Tintina include 2.8ppm Ag, 36ppb Au, 7ppb Pt, 7ppb Pd, 120ppm Cu, 85ppm Mo, 300ppm Ni, 1051ppm V, and 845ppm Zn. Samples of the Second White Specks Formation have also reported up to 29% organic Carbon, 250ppm U and 33ppm Th. Samples from the Gos Creek-C exposure reported up to 67ppb Au, by fire assay, and 11ppb Pd and 14ppb Pt. Despite recovery of gold grains in heavy minerals from samples of the gossan, routine INA or fire assay analyses have not returned equally high grades (GOS Creek C was resampled by DNI in 2009 and 2010 to collect material for leaching testwork - Section 11.6).

Detailed geochemistry, geological findings and conclusions from historic lithogeochemical sampling programs are discussed in Section 7.7 of DNI's NI-43-101 technical report for the Property appended herein as Appendix B1 in the context of stratigraphy and geology of the Birch Mountains and the Property. A statistical summary of lithogeochemical results from prior work is shown in Table 4, and presented also in Figure 41, juxtaposed against a generalized stratigraphic column for the Birch Mountains. Extensive additional data are available also in AGS 2001.

The reader is referred to Alberta Mineral Assessment Reports MIN9611 and MIN9802, Sabag 1996a and Sabag 1998, respectively; in addition to AGS 2001, for a very detailed and exhaustive review of all lithogeochemical trends identified by the historic work, a presentation of which is well beyond the scope of this report. A summary of findings and conclusions from the collective foregoing historic work by Tintina and the AGS over DNI's Property, and the surrounding Birch Mountains, is as follows:

- Tintina concluded from its sampling that metals enrichment zones in the Birch Mountains are hosted in carbonaceous shales of the Second White Speckled Shale Formation, and to a lesser extent in the Shaftesbury Formation beneath it, associated vertically with marine extinction markers, and laterally associated with certain large structural disturbances (fault zones or doming). Metal enrichment zones are characterized by enrichment Ni/Cu/Zn/V/Ag/Mo/(U) accompanied by Au.

- The Second White Speckled Shale Formation and, to a lesser extent, the Shaftesbury Formation, are carbonaceous shales containing up to 29% and 10% organic carbon, respectively (Table 4). Though there is some correlation between metal enrichment in the Second White Speckled Shale Formation with organic carbon, general consensus is that the metals substantially occur in the shale in sulfide or metallic forms rather than as organometallic compounds. As such, the relationship suggested by bulk chemistry between C-org and metals may be incidental.

- Tintina concluded based on its lithogeochemical work that the Second White Speckled Shale and the Shaftesbury Formations, by virtue of their elevated organic carbon contents, present conditions which are highly conducive to scavenging of metals via redox processes from oxidizing metal rich fluids which might be circulating within the stratigraphic pile. (Source of the fluids being oxidizing metal enriched basinal fluids seeping upstratigraphy through the Prairie Evaporite salt scarp beneath the Birch Mountains). Tintina further concluded that scavenged metal accumulations in these shales can be expected to have tabular geometry, characterized by relatively restricted thicknesses but with potential to have vast lateral dimensions ranging upward to $100km^2$, occupying the near-surface sections of the stratigraphy dominated by Second White Specks and Shaftesbury shales.

- Based on detailed review of interelemental correlations and variograms, Tintina concluded that there exists good overall correlation among most of the metals, and noted possible bimodal distribution of some of the metals. Two modal groups identified comprised a Ni-Co-Zn±(Cu,Cd) group and a group V-Ag±Cu. No further conclusions could be derived from the data regarding more detailed metal partitioning.

- The AGS reported from its sampling of mid-Cretaceous bedrock units sampled in northern Alberta over the Peace River, Buffalo Head Hills, Caribou Mountains and Birch Mountains areas that the Second White Speckled Shale Formation in the Birch Mountains reported the highest concentrations of precious and base metals from amongst the units sampled in these areas across northern Alberta. It further reported that, for the most part, sampling of the Shaftesbury Formation did not report significant concentrations of metals, and yielded no significant difference in precious or base metal concentrations, among samples collected from the Peace River, Buffalo Head Hills, Caribou Mountains and Birch Mountains areas.

- The AGS concluded that the Second White Speckled Shale Formation shale exhibits a different geochemical pattern when compared to the Shaftesbury Formation shale and most other shales in northern Alberta. While the majority of shales in northern Alberta, including the Shaftesbury, exhibit a strong correlation between metals and Al, elevated metal concentrations in the Speckled Shale are better correlated with elevated organic carbon content and with elevated S and Fe. In comparison, only Ag, V, Mo and Br in the Shaftesbury shale display a positive correlation with organic carbon, suggesting that different controls for metal concentrations exist in Second White Specks shale (Birch Mountains area) versus the other shales.

Element	Ag	As	Au	Au	Pd	Pt	Cu	Mo	Sb	Cd	Co	Cr	Ni	V	Zn	Al	Ba	Ca	Mg	Sr	Na	K
Method	ICP	INA	Fa	INA	Fa	Fa	ICP	ICP	INA	ICP	INA	INA	ICP	ICP	ICP	ICP	INA	ICP	ICP	ICP	INA	ICP
Det.Limit	0.2ppm	0.5ppm	1ppb	2ppb	3ppb	5ppb	1ppm	2ppm	0.1ppm	0.5ppm	1ppm	5ppm	1ppm	2ppm	1ppm	0.01%	50ppm	0.01%	0.01%	1ppm	0.01%	0.01%
All Birch Mountains Area Formations (n=634)																						
MIN	0.1	0	1	1	1.5	2.5	2	1	0.1	0.3	1	1	2	2	2	0.01	25	0.01	0.01	5	0.01	0.01
MAX	3.6	1200	138	65	14.0	22.0	181	228	51.0	42.4	100	150	315	1051	845	11.08	29000	44.29	12.72	2804	1.47	3.35
AVERAGE	0.4	35	4	4	2.2	2.8	32	16	3.6	2.3	12	65	44	185	121	5.00	951	6.32	0.74	210	0.29	1.35
95th %'ile	1.5	98	12	12	5.0	5.0	85	72	16.0	11.1	32	120	141	627	358	8.95	1735	31.19	1.57	467	0.61	2.37
90th %'ile	1.0	76	8	9	4.0	2.5	69	49	9.3	6.3	25	110	88	447	267	8.24	1300	23.56	1.19	345	0.53	2.24
75th %'ile	0.5	49	4	5	2.0	2.5	41	14	4.7	2.1	15	96	52	233	147	7.37	898	6.63	0.92	235	0.37	1.93
50th %'ile	0.2	17	2	2	2.0	2.5	24	2	1.3	0.7	10	71	30	118	91	5.57	670	1.22	0.69	168	0.27	1.52
Second White Specks (n=354)																						
MIN	0.2	1	1	1	1.5	2.5	3	1	0.1	0.3	1	1	3	4	5	0.28	25	0.05	0.03	23	0.03	0.11
MAX	3.6	1200	138	65	14.0	22.0	181	228	51.0	42.4	100	150	315	1051	845	11.08	29000	44.00	3.47	1203	0.73	2.65
AVERAGE	0.6	52	6	5	2.5	3.0	43	27	5.8	3.5	15	70	61	263	158	5.19	1232	8.89	0.68	230	0.26	1.40
95th %'ile	1.8	130	15	12	5.0	6.0	93	116	19.4	14.0	39	120	195	692	401	9.18	2810	33.31	1.20	487	0.50	2.36
90th %'ile	1.4	91	10	10	4.0	2.5	80	65	14.7	10.5	29	110	122	581	333	8.51	1400	30.10	1.07	365	0.42	2.26
75th %'ile	0.7	67	6	7	3.0	2.5	57	36	6.6	3.9	19	100	72	344	205	7.43	1000	12.77	0.89	254	0.35	2.02
50th %'ile	0.4	39	3	4	2.0	2.5	35	11	3.8	1.6	11	79	44	216	122	5.67	760	3.33	0.65	190	0.26	1.56
Fish Scales / Shaftesbury (n=57)																						
MIN	0.2	2	1	1	1.5	2.5	6	1	0.1	0.3	1	5	2	6	13	0.28	180	0.08	0.03	55	0.06	0.05
MAX	2.7	170	55	22	11.0	10.0	117	51	16.0	30.8	49	120	228	942	761	9.51	4800	37.50	3.20	1601	0.67	2.51
AVERAGE	0.3	21	6	3	2.4	2.8	26	6	1.5	1.5	9	58	28	115	101	4.77	951	6.72	0.76	302	0.31	1.19
95th %'ile	0.8	74	21	17	6.0	5.0	75	27	6.7	4.6	23	110	79	376	288	8.19	1900	31.71	1.76	916	0.59	2.38
90th %'ile	0.5	57	14	10	3.4	2.5	47	14	2.0	1.4	21	110	53	170	173	7.80	1640	30.05	1.01	442	0.56	2.06
75th %'ile	0.2	16	5	3	2.0	2.5	25	5	0.9	0.8	10	80	28	95	96	7.05	1100	7.52	0.88	289	0.41	1.57
50th %'ile	0.2	10	3	1	2.0	2.5	21	2	0.6	0.3	7	55	17	73	63	5.17	740	1.00	0.78	205	0.28	1.25
Westgate (n=88)																						
MIN	0.2	1	1	1	1.5	2.5	3	1	0.1	0.3	1	2	2	2	2	0.11	61	0.02	0.01	7	0.01	0.03
MAX	1.1	420	15	12	5.0	5.0	59	69	13.0	4.6	40	150	122	200	366	9.06	1900	44.29	4.00	2804	1.11	3.35
AVERAGE	0.2	16	2	3	1.9	2.5	22	3	0.8	0.6	9	78	26	106	83	6.25	639	1.49	0.81	189	0.34	1.68
95th %'ile	0.5	20	5	8	2.6	2.5	45	9	1.4	2.1	16	120	56	177	151	8.62	987	5.13	1.12	310	0.57	2.41
90th %'ile	0.4	17	4	6	2.0	2.5	30	4	1.0	1.1	13	110	41	168	120	8.37	896	0.86	1.02	179	0.53	2.35
75th %'ile	0.2	14	2	4	2.0	2.5	25	2	0.8	0.7	11	94	31	125	103	7.76	760	0.55	0.95	156	0.44	1.88
50th %'ile	0.2	11	1	1	2.0	2.5	21	1	0.6	0.3	8	82	25	110	79	7.10	620	0.43	0.84	137	0.34	1.78
Pelican (Viking) (n=79)																						
MIN	0.2	0	1	1	1.5	2.5	2	1	0.1	0.3	1	1	2	2	2	0.05	25	0.01	0.01	5	0.01	0.01
MAX	2.2	64	7	10	4.0	2.5	53	13	2.0	5.8	43	100	63	153	227	9.49	1100	23.39	1.15	899	0.49	1.96
AVERAGE	0.2	7	2	2	1.8	2.5	11	2	0.3	0.4	7	30	16	45	48	2.58	334	0.83	0.30	83	0.12	0.71
95th %'ile	0.4	21	4	6	2.0	2.5	24	3	0.8	1.0	21	80	45	123	145	7.07	892	1.48	0.90	208	0.36	1.72
90th %'ile	0.2	12	3	4	2.0	2.5	21	3	0.6	0.7	16	75	31	103	104	6.60	676	0.83	0.83	160	0.32	1.66
75th %'ile	0.2	8	2	2	2.0	2.5	17	2	0.5	0.3	10	55	21	76	73	4.91	495	0.34	0.57	105	0.20	1.37
50th %'ile	0.2	4	1	1	1.5	2.5	7	1	0.3	0.3	5	17	12	32	35	1.18	240	0.16	0.14	47	0.05	0.48
Clearwater/Grand Rapids (n=15)																						
MIN	0.2	3	1	1	1.5	2.5	9	1	0.3	0.3	3	23	11	33	21	1.59	430	0.44	0.81	124	0.10	0.40
MAX	0.5	25	4	7	2.0	2.5	32	2	1.1	0.7	15	120	38	128	105	10.42	940	26.86	4.07	361	1.47	2.59
AVERAGE	0.3	11	2	2	1.7	2.5	20	1	0.7	0.3	8	67	25	86	66	5.78	555	5.57	1.56	194	0.57	1.62
95th %'ile	0.5	19	4	6	2.0	2.5	31	2	1.0	0.6	14	101	37	120	104	10.41	772	18.48	2.82	299	1.12	2.56
90th %'ile	0.5	16	4	5	2.0	2.5	29	2	1.0	0.5	13	92	36	114	100	9.94	676	14.33	2.15	252	0.96	2.40
75th %'ile	0.4	13	3	2	2.0	2.5	27	1	0.9	0.3	11	86	33	108	85	7.50	630	7.26	1.73	206	0.68	2.15
50th %'ile	0.2	10	1	1	1.5	2.5	18	1	0.8	0.3	9	76	27	98	80	6.34	510	2.06	1.28	181	0.57	1.93

* Statistics are generated from data wherein values below detection were replaced by a value equal to 50% of the detection limit. Sabag 1996a.

Table 4: Statistical summary of historic lithogeochemical sampling results, Cretaceous Formations, Birch Mountains. After Table 2, Sabag 2008; and Alberta Mineral Assessment Report MIN9611, Sabag 1996a.

Element	U	C-org	P	S	Fe	Mn	La	Ce	Nd	Eu	Yb	Lu
Method	INA	Leco	ICP	Leco	INA	ICP	INA	INA	INA	INA	INA	INA
Det.Limit	0.5ppm	0.001%	0.001%	0.001%	0.01%	1ppm	0.5ppm	3ppm	5ppm	0.2ppm	0.2ppm	0.05ppm
All Birch Mountains Area Formations (n=634)												
MIN	0.3	0.00	0.00	0.0	0.1	7	0	2	3	0.1	0.1	0.0
MAX	250.0	29.10	7.22	30.1	36.3	>det	470	720	490	28.8	63.6	8.4
AVERAGE	15.4	2.30	0.34	2.9	4.9	667	45	78	36	2.0	3.7	0.6
95th %'ile	59.4	9.81	1.43	10.3	15.6	1646	110	164	90	5.4	8.9	1.4
90th %'ile	39.0	7.16	0.65	6.2	10.0	1018	78	120	65	3.9	6.6	1.0
75th %'ile	16.0	2.17	0.23	3.8	5.1	434	48	88	38	2.0	3.9	0.6
50th %'ile	5.2	1.12	0.10	1.5	3.5	190	37	72	28	1.4	3.0	0.5
Second White Specks (n=354)												
MIN	0.3	0.00	0.00	0.0	0.5	29	2	4	3	0.1	0.1	0.0
MAX	250.0	29.10	7.22	30.1	35.7	5112	470	720	490	28.8	37.9	5.7
AVERAGE	23.9	3.04	0.44	4.2	5.4	424	54	90	45	2.5	4.5	0.7
95th %'ile	72.4	11.24	1.75	13.6	15.3	1440	120	170	100	6.2	10.8	1.7
90th %'ile	54.7	9.14	0.91	8.7	10.5	974	92	140	84	4.9	7.8	1.2
75th %'ile	31.0	4.43	0.34	4.9	5.6	497	59	99	50	2.9	5.2	0.8
50th %'ile	12.0	1.23	0.15	3.1	4.0	235	42	78	32	1.6	3.4	0.6
Fish Scales / Shaftesbury (n=57)												
MIN	0.5	0.05	0.02	0.1	0.6	34	8	16	6	0.3	0.6	0.1
MAX	100.0	10.50	6.42	26.3	33.4	4956	400	690	320	22.0	63.6	8.4
AVERAGE	10.2	1.95	0.58	2.9	5.4	442	44	79	33	1.8	4.2	0.6
95th %'ile	39.0	6.92	4.80	16.0	22.3	1280	99	124	70	3.8	7.8	1.1
90th %'ile	25.2	3.67	0.78	5.1	13.8	999	58	108	47	2.5	5.8	0.9
75th %'ile	7.3	2.17	0.23	2.3	3.9	392	43	85	35	1.7	3.9	0.6
50th %'ile	4.9	1.49	0.09	1.3	3.2	181	35	64	25	1.2	2.6	0.4
Westgate (n=88)												
MIN	0.3	0.02	0.02	0.0	0.1	9	2	5	3	0.1	0.2	0.0
MAX	65.0	6.78	3.40	7.9	36.3	2407	190	260	150	7.4	16.4	2.4
AVERAGE	4.7	1.55	0.12	1.4	3.8	186	39	74	30	1.4	3.0	0.5
95th %'ile	9.5	2.44	0.19	3.6	6.7	287	46	94	38	1.8	3.9	0.6
90th %'ile	5.3	2.31	0.11	2.2	4.1	227	45	92	37	1.7	3.7	0.6
75th %'ile	4.4	1.74	0.09	1.5	3.4	168	42	82	33	1.5	3.4	0.5
50th %'ile	3.7	1.46	0.07	1.0	3.1	135	39	74	29	1.3	3.0	0.5
Pelican (Viking) (n=79)												
MIN	0.3	0.01	0.00	0.0	0.1	7	2	2	3	0.1	0.1	0.0
MAX	28.0	22.70	6.22	1.8	12.9	23086	140	210	120	7.6	12.9	2.0
AVERAGE	2.6	1.09	0.17	0.4	2.5	1219	22	43	19	0.9	2.0	0.3
95th %'ile	5.9	2.62	0.39	1.5	8.8	4752	54	111	48	2.3	4.9	0.7
90th %'ile	5.2	1.51	0.20	1.0	5.6	1887	44	90	36	1.7	3.5	0.6
75th %'ile	3.9	0.89	0.09	0.5	3.3	358	34	64	27	1.3	2.9	0.4
50th %'ile	1.7	0.42	0.05	0.2	2.0	133	15	30	15	0.7	1.6	0.2
Clearwater/Grand Rapids (n=15)												
MIN	0.3	0.22	0.04	0.0	2.3	183	11	17	6	0.4	0.8	0.1
MAX	4.1	8.75	0.30	1.9	22.5	2992	48	100	34	1.9	3.3	0.6
AVERAGE	2.2	1.95	0.09	0.4	7.0	700	26	52	21	1.1	2.4	0.4
95th %'ile	3.5	6.87	0.19	0.9	21.3	2041	42	80	31	1.7	3.2	0.5
90th %'ile	3.1	4.80	0.12	0.5	17.3	1559	37	71	30	1.5	3.2	0.5
75th %'ile	2.9	1.50	0.09	0.4	7.8	920	29	60	28	1.4	2.9	0.5
50th %'ile	2.5	1.10	0.08	0.3	4.0	292	27	57	24	1.2	2.5	0.4

Note: Statistics are generated from data wherein values below detection have been replaced by a value equal to 50% of the detection limit. Sabag 1996a.

Table 4 (continued): Statistical summary of historic lithogeochemical sampling results, Cretaceous Formations, Birch Mountains. After Table 2, Sabag 2008; and Alberta Mineral Assessment Report MIN9611, Sabag 1996a.

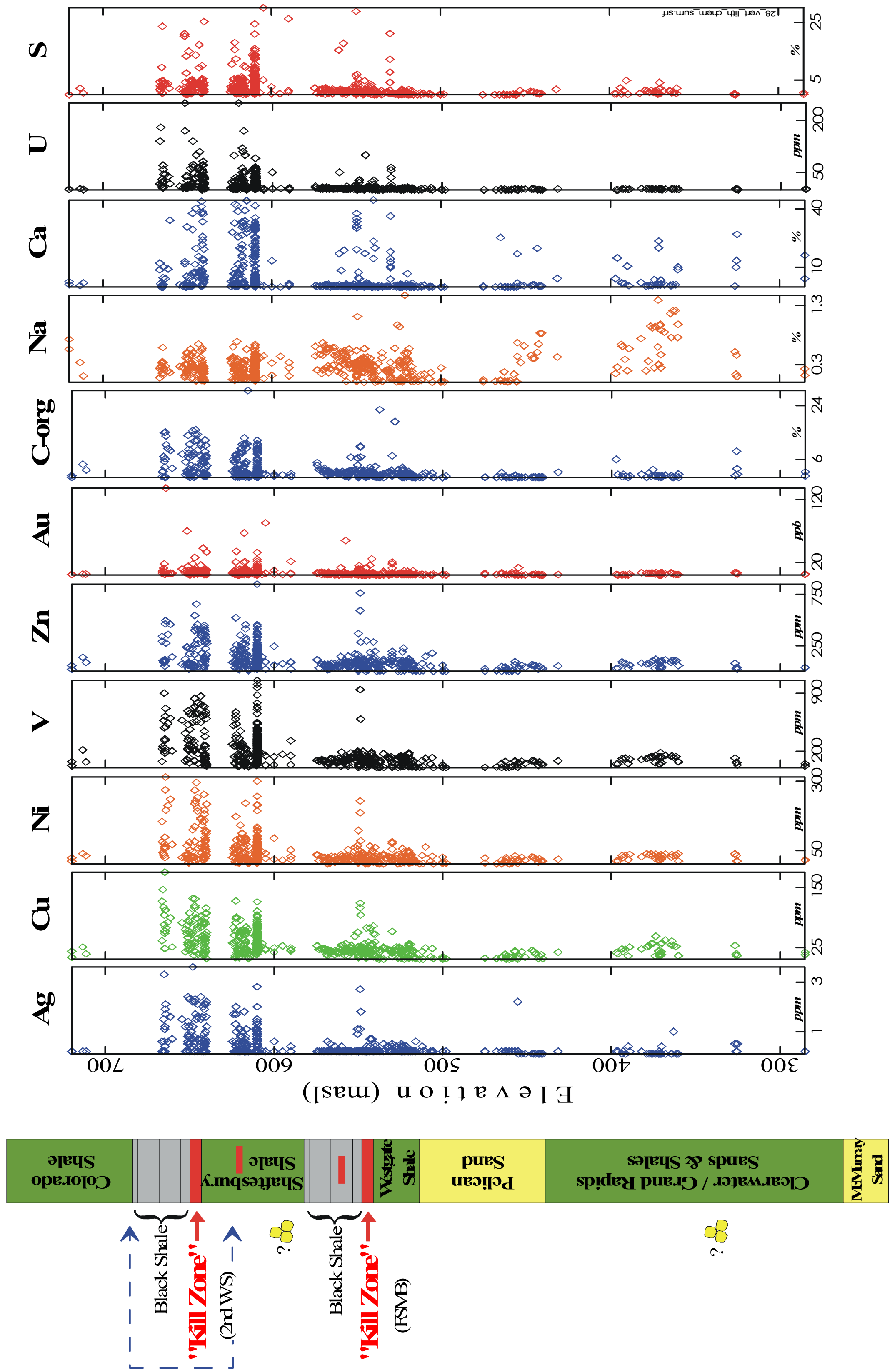

Figure 41: Summary of surface lithogeochemical vertical trends, historic sampling, Birch Mountains. After Figure 28, Sabag 2008; and Figures 36 and 37, Alberta Mineral Assessment Report MIN9611, Tintina Mines, Sabag 1996a. 2ndWS=Second White Speckled Shale Formation, FSMB=Fish Scales Marker Bed (Shaftesbury Formation).

- The AGS concluded that samples, from the Birch Mountains, regardless of lithology, contain a significantly different shale-normalized REE profile when compared to samples from over the Peace River, Buffalo Head Hills, Caribou Mountains. Most samples from the Birch Mountains, particularly those from the Second White Specks Formation, display a slightly negative Ce anomaly and a distinctly positive Eu anomaly, in conjunction with elevated to highly anomalous concentrations of Ba (shale samples reported Ba contents ranging from an average of 1,568ppm to a maximum of 31,000ppm). The AGS concluded that the REE patterns, the highly anomalous Ba and other metals enrichment patterns displayed by many samples from the Birch Mountains suggest a strong influence of low temperature hydrothermal precipitates in the Birch Mountains.

- Tintina concluded from its sampling that metals grades documented from lithogeochemical reconnaissance in the Birch Mountains are relatively low for individual metals when reviewed in the context of conventional mono-metallic base metal deposits. It proposed, however, that the grades are significant when considered on a combined basis, as a polymetallic assemblage of Mo+Ni+Co+Cu+Zn+V+U±Ag±Au, from the perspective of large bulk mining operations, especially those for poorly consolidated deposits which might be developed in most part by low cost earth-moving bulk-mining methods.

- Tintina and the AGS concluded that the metallic budget in the area might be associated with suspected proximal exhalative venting activity in the Birch Mountains, possibly also related to multiple vents. They further concluded that the Second White Speckled Shale and the Shaftesbury Formations, straddling the Albian-Cenomanian transition may have affinities to resedimented kimberlitic material. Tintina further suggested that the possible association of metals enrichment zones throughout the Birch Mountains with interpreted hot springs activity and marine extinction markers is compatible with proximal submarine subaerial venting.

There is general consensus among all who sampled and mapped the Birch Mountains and the Property, that there is excellent potential for discovery of metal deposits in the Second White Speckled Shale Formation in the Birch Mountains, but to a lesser extent in the underlying Shaftesbury Formation.

8.8 Geological Working Models - 1996 and 2008

A geological working model was formulated for the Birch Mountains by Tintina in 1996[15], based on its surface work programs and composite anomalies identified, as a guideline for ongoing exploration of Cretaceous horizons in the area (Figure 42). The working model was based on the following premises:

(i) that deep sourced pre-Prairie oxidizing metalliferous basinal fluids could leak into the Birch Mountains through the countless cross-structures intersecting the Prairie Evaporite salt scarp which is projected to cross the Mountains and underlie it;

(ii) that carbonaceous shales across the Birch Mountains, provide good redox interfaces as collectors of metals via redox processes from the oxidizing fluids seeping up from a source beneath the shales; and

(iii) that metal concentration in the Birch Mountains can be envisaged to be is controlled primarily by redox processes acting on metal bearing oxidizing fluids circulating through fault zones or fault junctions.

Possible (suspected) hot-springs or volcanogenic activity in the area was not incorporated into the model due to the scarcity of reliable spatially resolved information.

For the purposes of the Birch Mountains Model, stratigraphy of the area was regarded as a sedimentary package consisting of alternating permeable sequences (sandy – eg: Pelican sands) enveloped within impermeable horizons (carbonaceous – Speckled and Shaftesbury Shales).

[15] Alberta Mineral Assessment Report MIN9611, Sabag 1996a.

The Model anticipated that metal bearing fluids would circulate upward within the permeable units and would precipitate their metal content against overlying carbonaceous contacts and in permeability traps created by a number of faults and domed locations identified in the course of stratigraphic correlations for the area.

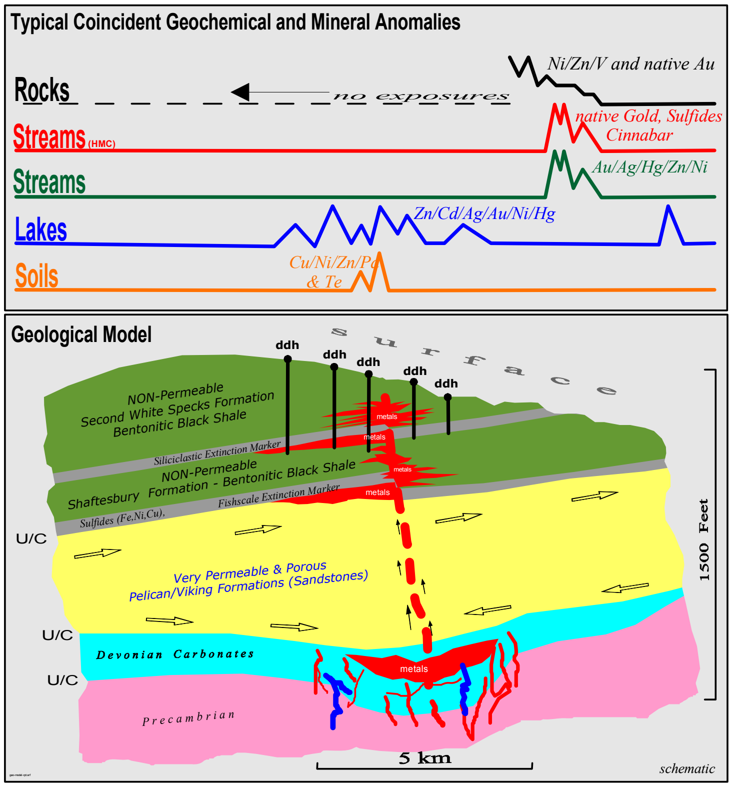

Figure 42: Geological model for metals enrichment, Birch Mountains. Showing typical geochemical and mineral anomaly profiles from historic multimedia surface sampling programs from areas over and near shale hosted metals enrichment zones. From Figure 23, MIN9802, Sabag 1998.

Basinal dewatering was regarded as the source of metal rich fluids which would travel up-stratigraphy through the permeability breach created by dissolution of the Prairie Evaporite salt beds.

Extrapolations from the model suggested that the lower contacts of the Second White Speckled Shales and Shaftesbury Shale Formations, the principal carbonaceous units in the area, present equally good redox interfaces for the accumulation of metals beneath their lower contacts and, accordingly, offer equally prospective exploration targets.

Tintina tested the proposed model by the drilling of a series of holes positioned to cross an anomalous locality and related faulting over each of the B-Mid (Buckton) and A-South (Asphalt) targets, to test beneath the base of the Second White Speckled Formation. This Formation is nearer the surface, and was regarded as an adequate proxy for any redox processes which might be active in the area and which would be expected to affect both Formations.

The drilling confirmed that the surface composite anomalies A-South and B-Mid indeed reflect buried metal mineralization in shales beneath the surface, over a 8km cross-section across the Buckton Zone at B-Mid and over a 900m cross-section across the Asphalt Zone at A-South. The drilling confirmed the presence of metal enrichment in the Second White Speckled Shale, but indicated that sections beneath its bottom contact are relatively unmineralized, contrary to the proposal of the geological working model formulated for the area.

The drilling, accordingly, disproved the model and demonstrated that the Second White Speckled Shale, and to a much lesser extent also the Shaftesbury Formation beneath it, is ***itself*** the primary host to the metals and related anomalies documented from both areas. The drilling and related downhole geology/geochemistry of the Asphalt and Buckton Zones are discussed Section 8.11.

Based on its 2008 compilation and a re-assessment of the collective historic information from the Birch Mountains area and the Property, DNI proposed a general geological working model attributing a central role to local Middle Cretaceous volcanism or exhalative venting as the source to sedimentary debris as well as metallic mineralization (enrichment) captured in Second White Speckled Shale Formation discovered in the area (Sabag 2008). The foregoing proposal is reinforced by work from the Alberta Geological Survey published after Tintina's efforts (AGS 2001) demonstrating that the Birch Mountains are unique in the foregoing regard and that Formations such as the Second White Speckled Shale are better mineralized over the Mountains when compared to elsewhere in northeast Alberta, a conclusion which is consistent with buried "hot spot" (Figure 14) beneath the Birch Mountains.

As a general geological working model, DNI proposed that the Birch Mountains, and the Property, overlie considerable exhalative venting, that the Middle-Upper Cretaceous formations incorporate considerable material from nearby venting events into their sedimentary record, and that culmination of the Second White Speckled Shale Formation depositional cycle coincided with a significant increase in venting, also marking the inset of a hiatus of volcanic activity in the area.

DNI also proposed that metallic mineralization in the Birch Mountains, and the Property, is congregated around several vents yet to be localized, which are characterized by considerable exhalative activity venting through select block-faults or their junctions, and that the Second White Speckled Shale Formation, at least at the Buckton and Asphalt Zones, incorporates exhalative debris and metals from nearby venting. Under this scheme, the Asphalt and Buckton Zones can be envisaged to represent "aprons" of their respective nearby vents, and both Zones support speculation of the nearby existence in the area of yet undiscovered sedimentary exhalative - SEDEX style – sulfide mineralization.

All of the available historic data support the above proposal, and there exist no data, to the author's knowledge, that constrain the model or refute the proposal. There has been no prior exploration for sulfide deposits in the Birch Mountains and on the Property, since the bulk of the historic work has focused on a formational fluid dependant redox model for the area which was disproved by the 1997 drilling. All work subsequent to the historic drilling focused entirely on evaluating metallic potential of the black shales themselves without any attention to their provenance.

8.9 Composite Anomalies

A number of anomalous localities were identified in the Birch Mountains by Tintina from the collective of its 1994-1995 exploration programs (Figure 43), comprising areas extending over 20-40 sq km each, which were defined based on results from multimedia sampling and other geological work, They are areas characterized by multiple and coincident, or spatially proximal, surface geochemical and mineral anomalies, typically located over structural or subsurface stratigraphic disturbances. The majority of the localities are located over fault zones or are on their flanks, or are associated with zones of stratigraphic disruption or thickening. Many of the anomalous localities are also adjacent to, or occupy, a topographic "high", and some are associated with magnetic anomalies (Figures 36, 37 and 38). Lithogeochemical metal enrichment trends over the anomalous localities were interpreted to reflect enrichment vectors suggesting an intimate association between structural disruptions and metals enrichment in the Birch Mountains.

Repeated references are made in this Section to various anomalies based on which the areas were designated by Tintina. The anomalies are summarized herein, though considerable details are presented in DNI's NI-43-101 for the property (Sabag 2008). The reader is referred to the foregoing report for details, namely; to the following respective Sections as follows: Subsurface stratigraphic model and anomalies - Section 6.2.5; Lake sediment anomalies - Section 6.2.6; Stream sediment geochemical and mineral anomalies - Sections 6.2.8 and 6.2.9, respectively; Soil geochemical anomalies - Section 6.2.9; Lithogeochemical anomalies - Section 6.2.10. The composite anomalous areas are described in Tintina reports referenced by Tintina's (then) property names, and comprise the principal anomalies identified to date on DNI's Property by the historic work. The anomalous areas are "named" in this Report for easy reference and are described in pages following.

Historic results are consolidated into a 1:50,000 general compilation Drawing #A3 for the Property which is appended herein in Appendix A3. The Drawing also shows details of DNI's drilling program presented in Section 13 of this report.

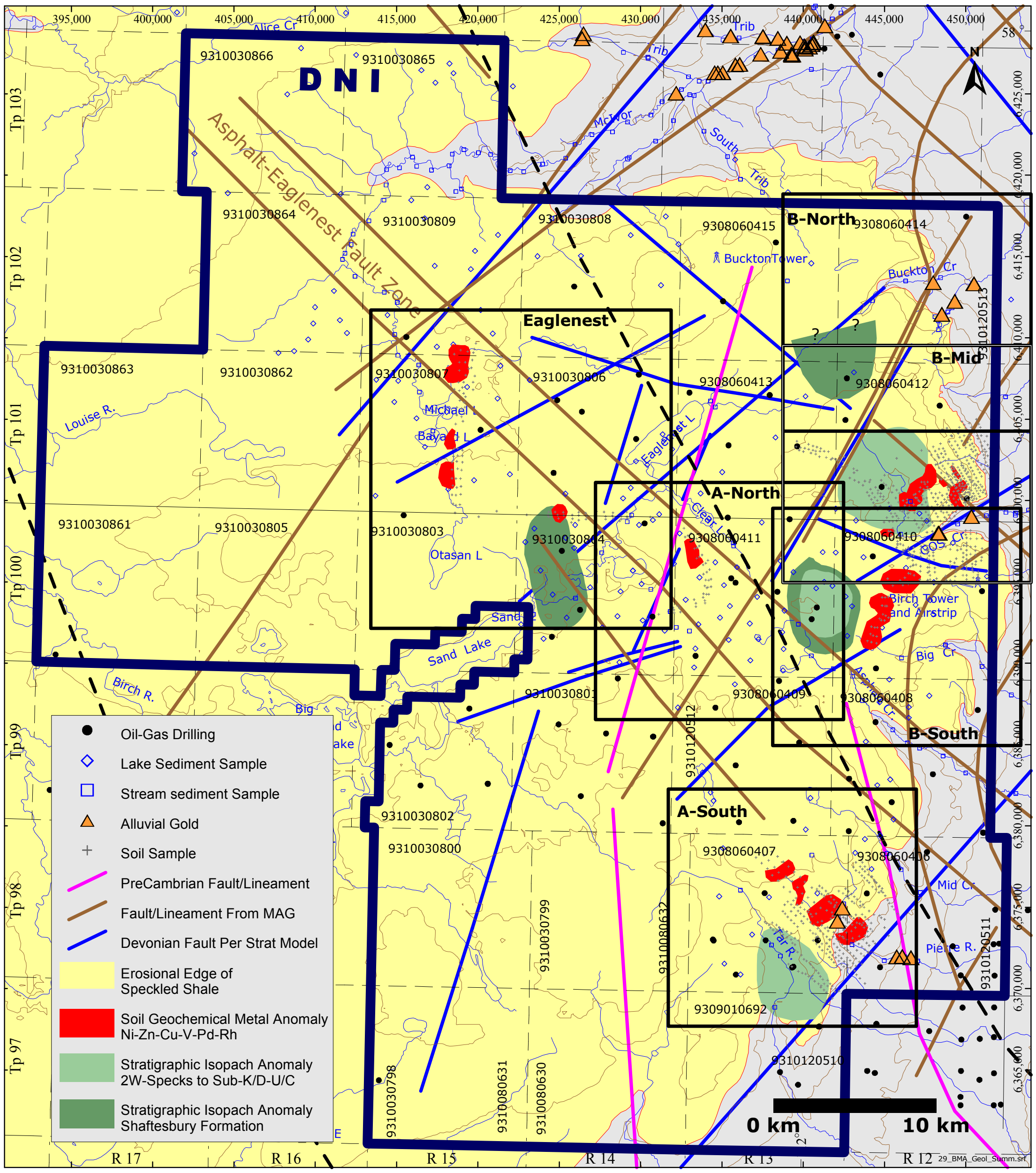

Figure 43: Summary of historic composite anomalous areas ranked by Tintina, Birch Mountains. After Figure 29, Sabag 2008; and Drawing 97-B3, Alberta Mineral Assessment Report MIN9802, Sabag 1998.

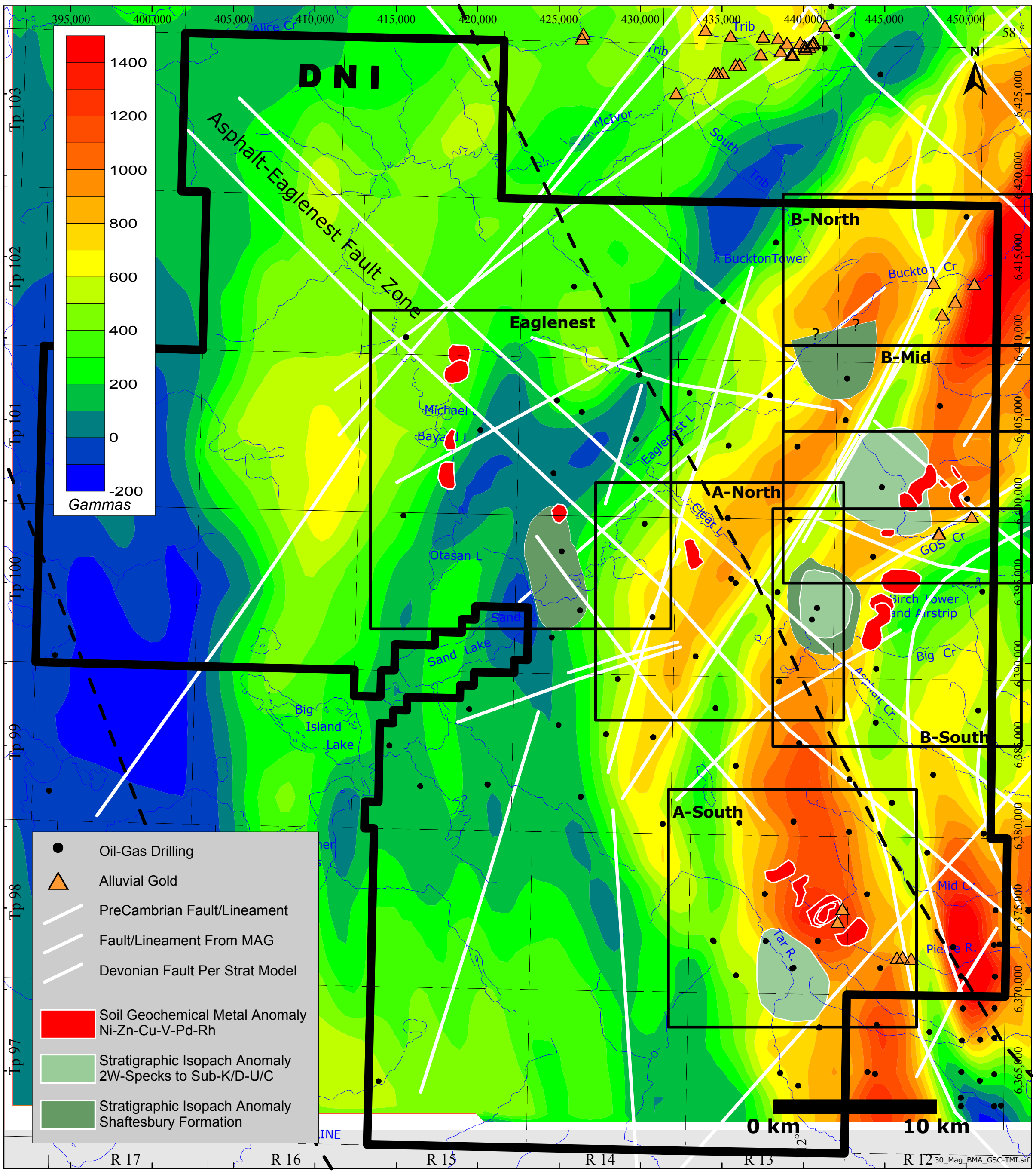

Figure 44: Total Residual Total Field Aeromagnetic trends, showing Tintina composite anomalous areas and major interpreted structures and anomalies, Birch Mountains. After Figure 30, Sabag 2008. Aeromagnetics after GSC Magnetic Anomaly Map, No.12-AM. Other sampling and features after Alberta Mineral Assessment Report MIN9802, Sabag 1998.

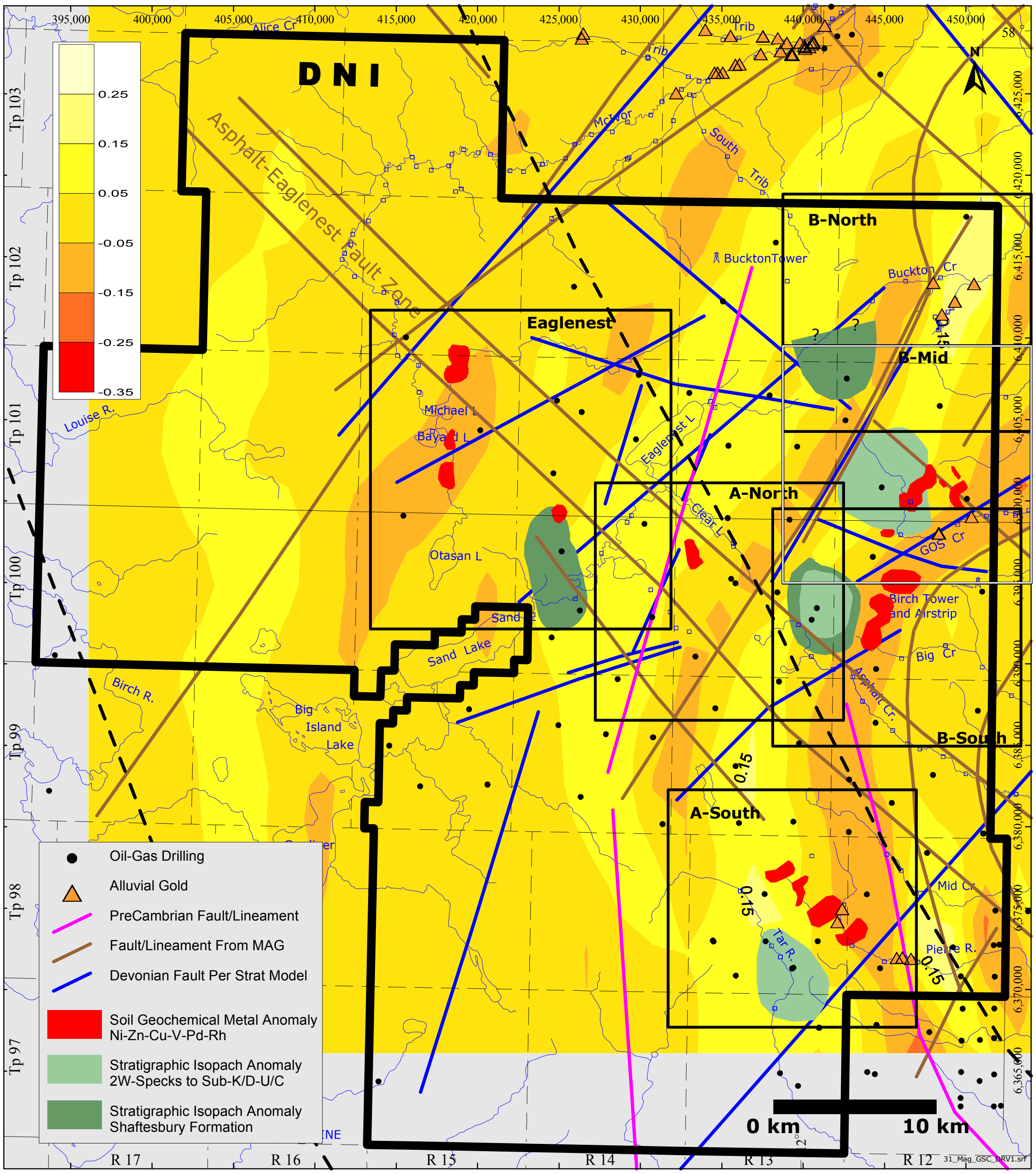

Figure 45: First Derivative of Total Residual Total Field Aeromagnetic trends, showing Tintina composite anomalous areas and major interpreted structures and anomalies, Birch Mountains. After Figure 31, Sabag 2008. Derivatives based on data digitized from GSC Magnetic Anomaly Map, No.12-AM. Other sampling and features after Alberta Mineral Assessment Report MIN9802, Sabag 1998.

Composite Anomalous Area Ranking: Tintina ranked anomalies and prioritized the B-Mid and B-South targets, located over the central and southern portions of its historic Buckton Property, as the most prospective near-term drilling targets, characterized by a predominance of Ni/Cu enrichment over the former and of Zn over the latter. The ranking also similarly prioritized A-South, over the southern portion historic Asphalt Property, as a highly prospective target characterized predominantly by Zn enrichment accompanying native gold. The Eaglenest anomaly was not explored beyond the reconnaissance stage despite the many favourable anomalies identified.

The B-Mid and A-South target areas were subsequently drill tested in 1997, hence defining the Buckton and Asphalt Zones, both of which are DNI's current highest priority targets under active exploration.

8.10 DNI'S TARGET AREAS – "SUB-PROPERTIES"

8.10.1 Overview of DNI's Target Areas

The Property has considerable potential for hosting metals, and contains a number of targets which have excellent potential for hosting immense quantities of metals in near-surface black shale hosted zones. The Property also contains areas with potential for hosting metals in yet undiscovered, though suspected, sediment hosted exhalative - SEDEX style - sulfides. As such, advancement of the exploration and development of the potentials of the Property entail combined efforts to explore and develop the various shale-hosted targets and to advance them toward their ultimate potential, while concurrently also conducting early stage work to evaluate the potential of SEDEX style sulfide mineralization over several parts of the Property.

Based on review and re-assessment of all historic information from the Property, DNI re-interpreted anomalous target areas previously defined by Tintina to formulate a basis for its own future work on the Property. Based on the foregoing work, DNI regards the Property to consist of six contiguous sub-properties with similar characteristics, but which provide two different, though apparently related, types of prospective exploration and development targets, namely; (i) metal enriched polymetallic black shales and (ii) possible source(s) to metals therein, proposed herein to be nearby exhalative vents with potential to host sediment hosted exhalative volcanogenic sulfides.

The six proposed sub-properties with potential for hosting polymetallic black shales are in different stages of development, ranging from areas which have reconnaissance level anomalies which have not been explored, through drill-ready target areas, to Mineralized Zones proposed herein to exist at two of the sub-properties. The sub-properties range in size 100-300 sq km each and their size is appropriate for the principal type of polymetallic mineralization being sought by DNI; namely, nominal 5kmx5km or larger zones of polymetallic enrichment in flat-lying near-surface "blankets" of polymetallic black shale. The additional potential of the overall Property to host yet undiscovered exhalative sediment hosted sulfides has never been evaluated.

The combined historic work provides data coverage over only the eastern two-thirds of the Property, and had by 1996 defined six target areas over composite surface and subsurface anomalies (see Section 8.9). The historic target areas were consolidated by DNI into four principal areas based on its reinterpretation of historic results with the benefit of other historic work postdating their initial designation in 1996.

Unlike the eastern parts of the Property, the northwestern one third of the Property is unexplored and lacks sufficient prior oil-gas drilling to provide any subsurface stratigraphic information. Historic LANDSAT imagery interpretation, however (Figure 30) identified conspicuous features over this area, two of which merit field follow-up since similar features similarly identified over the eastern two-thirds of the Property were demonstrated by historic field work to host metal enrichment or near-surface polymetallic zones.

The six sub-properties identified by DNI are the focus of its exploration work programs and are as follows:

- Two of the sub-properties, designated herein as the **McIvor West** and **North Lily Anomalies**, comprise large 50-100 sq km anomalies selected based on interpretations of general information, and have not been investigated in the field in any measure of detail to determine if they host mineralization. They are in the reconnaissance stages.

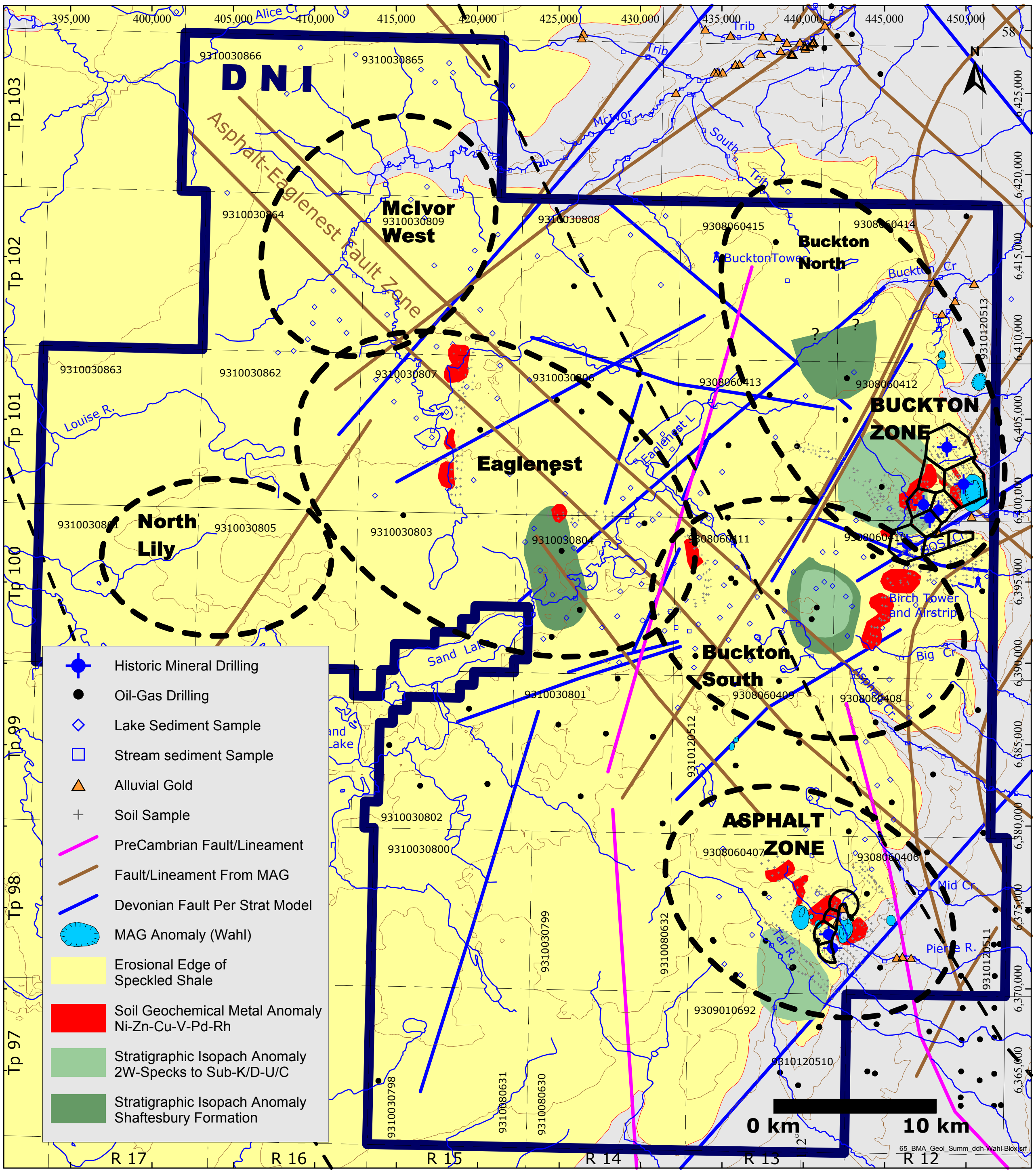

Figure 46: Summary compilation of all historic anomalies over the Property, showing also the composite target areas - "sub-properties" - comprising the principal exploration targets on the Property. The Buckton and Asphalt Mineralized Zones are also shown. See also Figures 36-38 and 44-45 for aeromagnetic geophysical anomalies over the Property. After Figure 65, Sabag 2008.

- Two of the sub-properties, designated herein as the **Buckton South** and the **Eaglenest Target Areas**, comprise large areas which have undergone considerable prior historic surface work which has identified prospective targets to be tested by future drilling to probe for suspected buried polymetallic mineralized shale beneath the surface of each Target Area. Additional field work will not substantially, nor materially, alter conclusions which have already been reached by the historic work suggesting considerable potential for both. Portions of both Target Areas also present reconnaissance level potential to prospect for the presence of exhalative vents. The Buckton South Target Area presents the additional potential of hosting southerly extension of the Buckton polymetallic Mineralized Zone over a 6km distance, or an altogether separate polymetallic mineralized Zone.
- Two of the sub-properties, designated herein as the **Asphalt** and **Buckton Zones**, and respective Asphalt and Buckton Mineralized Zones, represent near-surface (partly exposed) polymetallic zones which have been confirmed by widely spaced historic drilling and which are proposed herein to contain significant Mineralized Zones to be upgraded to classified resources by in-fill drilling. Both Zones present additional targets with by way of suspected sources to their respective metallic mineralization believed to be nearby exhalative venting. Historic work results from the Buckton Zone further provide metal enrichment vectors directing the search for exhalative venting to its north.

Based on the above, DNI's six sub-properties require work to investigate physical and geochemical surface anomalies interpreted/identified from reconnaissance field work, or to localize the source of surface metal anomalies discovered, or to confirm suspected buried metal enrichment beneath surface geochemical anomalies identified, or to advance mineralized Zones previously identified to a classified resource. The target areas typically measure 100-300sqkm each and are centered around circular, or closed, physical or stratigraphic features associated with metals enrichment in one form or another either over them or on their flanks. DNI regards the six areas as distinct properties in their own right. The target areas are presented in Figure 46. The reader is referred to Sabag 2008 and Sabag 2010 for a detailed discussion of all of the six target areas. To the extent that this report relates only to work conducted on the Asphalt and Buckton Zones, the discussion following focuses only on details relating to the two Zones.

8.10.2 Buckton Zone, Projected Extensions and The Buckton Mineralized Zone

The Buckton polymetallic Zone was discovered by Tintina Mines in 1997 by drilling which was conducted to verify suspected metallic mineralization buried beneath a composite set of anomalies identified by extensive prior surface sampling over an approximate 50 sq km area (Figure 47). The Zone and its vicinity were previously designated as Composite Anomaly Area B-Mid by the historic work, and it is located in S½ T101/R12 (see Section 8.9).

The Buckton Zone represents polymetallic enrichment in Mo-Ni-U-V-Zn-Cu-Co-Ag-Au, hosted in, and confined to, the Second White Speckled Shale Formation which is a substantially flat unit ranging 18m-26m in true thickness as intersected in the drilling. The Zone's thickness based on drilling is consistent with its exposures adjacent to the drilling along the north and south valley walls of Gos Creek at elevations ranging from 600m to 624m asl, although the exact position of the Formation is difficult to discern from the valley wall exposures alone due to considerable slumping locally "telescoping" its actual thickness to an apparent thickness exceeding 40m. More recent work completed by DNI has recognized potential of this Zone to also host Rare Earth Elements as well as Specialty Metals (eg:Li,Sc,Th).

Based on the historic drilling, the Zone is at least approximately 8km-9km long and 2km-3km wide. It is open beyond the portion drilled to the north, to the west and to the south, but is eroded away to the east as it sits on the erosional edge of the Birch Mountains. Metal enriched exposures of the Second White Speckled Shale along valley walls as far away as 4km to the east of the Zone's southern extremity suggest it may be 2-3 times wider over its southern parts than demonstrated by the drilling. Other surface anomalies to its north and, especially the south, support speculations that it may be 2-3 three times longer than demonstrated by the drilling, although the areas to its south, previously designated as Composite Anomaly Area B-South by the historic work (Sabag 2008), may represent an altogether separate buried mineralized zone which has not yet been verified by drilling. Potential extensions are discussed later in this Section.

The Buckton Zone is located on the eastern flank of a 5km diameter subsurface stratigraphic isopach anomaly representing abnormal thickening in the stratigraphic pile above the sub-Cretaceous Unconformity (to base of Second White Specks) associated with faulting. Cross-sections across the anomaly indicate considerable structural complexity characterized by the junction of a multitude of faults converging toward the general southern portions of the isopach anomaly, defining an overall partial radial pattern. The isopach has been interpreted as a "closed" feature based on contouring of subsurface stratigraphic information from oil-gas well picks, although its interpreted shape may be an artifact of data noding, and it may well instead be a large fault block rather than a domed feature. Metal enrichment patterns in exposures sampled along the Gos Creek valley by the historic work suggest progressive enrichment nearer the isopach, as do a series of soil geochemical anomalies characterized by acute Ni-Cu diffusion accompanied by Te enrichment over areas straddling the flanks of the isopach.

The Zone is intermittently exposed along the north and south valley walls of Gos Creek. The GOS1 gossan, located in the north valley wall, represents by far the most continuous exposure of the Zone. The gossan comprises a nearly 1km ledge exposure of metals enriched Second White Specks Formation, lying over the eastern flank of this isopach feature. Mudflow sediments from the gossan drain directly into Gos Creek which is characterized by >90th pctl stream sediment geochemical anomalies in Ni±Zn±Hg, accompanied by alluvial gold in stream sediment HMCs. Native gold has been repeatedly recovered from the GOS1 gossan and from the Gos-C lithosection (in the south valleywall), both of which locations are uphill from stream samples reporting also native gold in Gos Creek. Metal enrichment over the western extremities of the GOS1 gossan are supported by Ni/Cu/Pd and halogens (Br/I) diffusion anomalies in overlying soils. The gossan can be regarded as a geochemical halo, related to broader metal accumulation nearby.

Outcrop exposures of sulfide bearing Speckled Shale adjacent to the Buckton Zone and the adjacent isopach anomaly are enriched in Mo-Ni-Cu-Zn-V-Co-Ag±Au±Pt±Pd, especially over its upper portions and near its lower contact defined by the siliciclastic bone bed representing a marine extinction marker horizon. The siliciclastic bone bed is typically a few centimeters thick but is abnormally thickened upward to 1m nearer the isopach anomaly.

Tintina's examination of available archived drill core and cuttings from two oil/gas wells in the area (07-08-101-12W4 and 15-14-101-13W4) reported the presence of abundant sulfides in some Cretaceous sections. The historic work also noted presence of Beaver River Sandstone immediately above the sub-Cretaceous unconformity, enveloped in altered shale with up 50% sulfides by volume immediately adjacent to its contacts (shown in Figure 47 as BRSS). This highly silicified sandstone also outcrops elsewhere in the region and is generally regarded as a hot springs alteration marker carrying ZrO in addition to gold, base metals, sulfides and iodides (Fenton and Ives 1982, 1984, 1990). Its presence in the Birch Mountains spatially associated with stratigraphic thickening and with metal enrichment zones can be considered to be diagnostic and suggestive of the localized presence in the area of broad alteration zones overlying nearby centers of hot springs or other metal bearing fluid venting activity (fumeroles?).

The Buckton Zone was discovered by six 3-inch diameter vertical holes (a total of 749.63m) drilled by Tintina in 1997 to verify suspected metallic mineralization buried beneath the anomalies described above which collectively represent a 5kmx8km composite anomalous target area (Area B-Mid). The holes were collared along an approximate 8km long fence as a cross-section over the southeast flank of the isopach anomaly. This fence can, alternatively, be regarded to comprise two separate parallel 4km to 5km long "staggered" cross-sections 1km-2km apart, which also radially parallel Gos Creek and its valley walls 1km-2km to the southeast. The fence is regarded as a cross-section for the purposes of this Report.

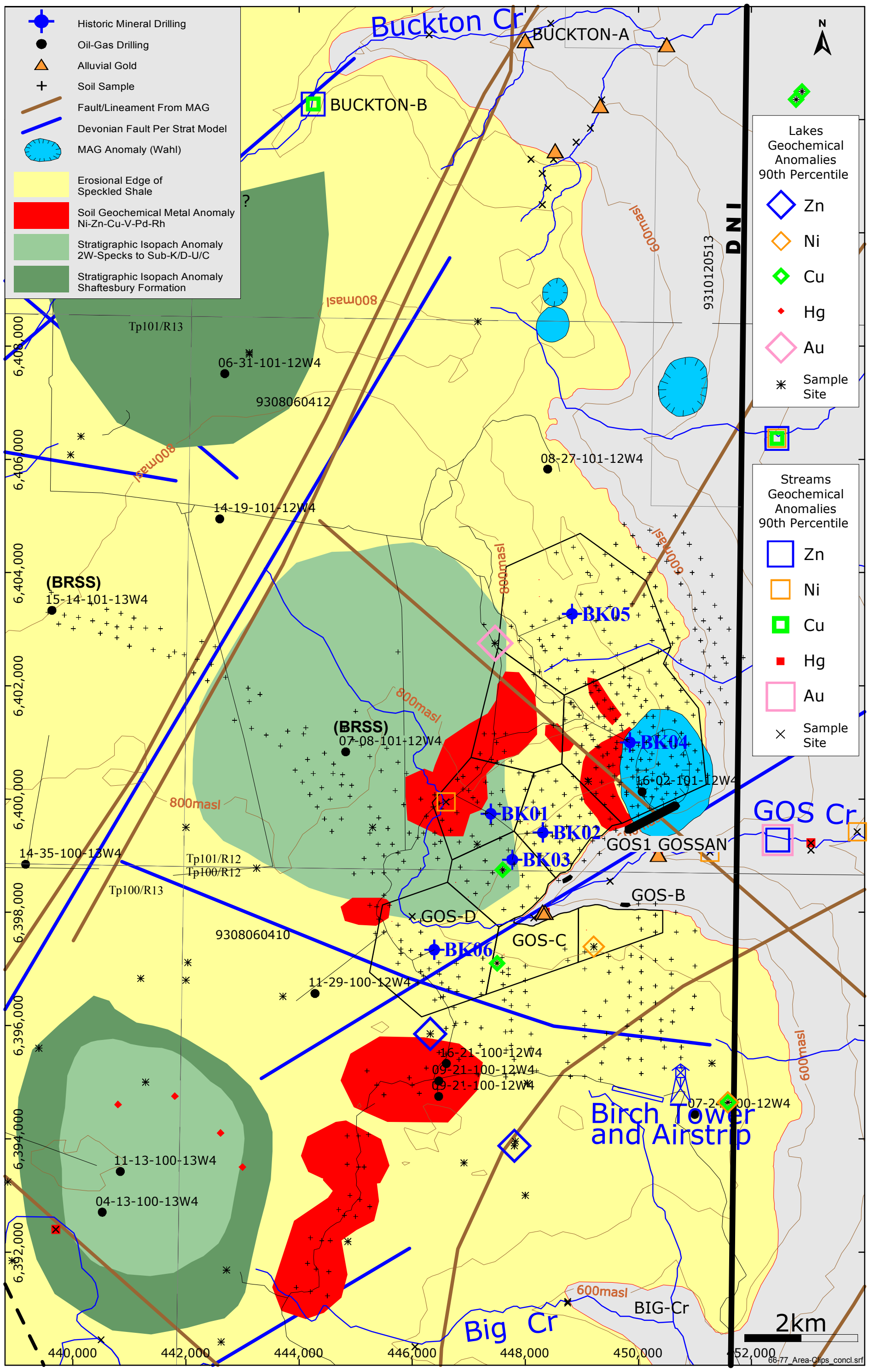

Figure 47: Summary of the Buckton Zone and vicinity, showing also historic anomalies and the Buckton Mineralized Zone (polygons). After Figure 66, Sabag 2008. See also Figures 36-38 and 44-45 for aeromagnetic anomalies over the Property. BRSS=Beaver River Sandstone.

Drill hole spacing ranged 700m to 2400m. Four of the holes (BK06, BK02, BK04 and BK05) were spaced approximately 2km-2.4km apart, whereas the remaining two holes (BK01 and BK03) were collared within an approximate 700m radius of hole BK02 to assess local “on-section” and “off-section” variations. Hole depths varied 75m-150m to probe from surface (approximate elevation of 700m-750m asl) down to the base of the Second White Specks Formation (approximate elevation of 600m-630m asl). All holes reached their targets, with the exception of hole BK01 which was collared too high to reach the bottom contact of the Second White Speckled Shale. Drill core was sampled under geological control and sample intervals varied 4cm to 1.51m averaging 0.53cm. Details of the drilling are described in Section 6 of DNI’s NI-43-101 report for the property (Sabag 2008).

Weighted average grades of select metals and elements across the entire thickness of the Second White Speckled Shale Formation are summarized in Table 5, arranged in sequence from southwest (BK06) to northeast (BK05) in the same order as they are positioned along the drilled fence. Results for individual drill intercepts are summarized in Table 10.

Hole No.	From (m)	To (m)	Interval Thickness (m	Mo-ICP (ppm)	Ni-ICP (ppm)	U-INA (ppm)	V-ICP (ppm)	Zn-ICP (ppm)	Cu -ICP (ppm)	Co-INA (ppm)	Ag-ICP (ppm)	Corg-Leco (%)	Fe-INA (%)	S-Lec (%)
BK06	107.6	130.2	22.6	72	133	30	668	282	78	21	0.8	7.2	4.6	4
BK03	75.0	101.2	26.2	62	121	30	623	289	73	19	0.4	6.0	4.1	3
BK01*	133.0	154.3	21.3	86	160	37	776	360	83	21	0.4	7.1	4.0	4
BK02	60.8	79.2	18.4	66	126	34	648	305	70	21	0.5	6.0	4.5	3
BK04	120.6	141.7	21.1	67	129	27	645	282	73	23	0.3	7.2	4.7	3
BK05	76.8	95.2	18.4	77	152	25	722	318	77	24	0.7	7.6	5.0	4
Weighted Average			21.3	71	135	30	673	302	75	21	0.5	6.8	4.5	4

*Hole BK01 did not reach bottom of the Formation, EOH at 149.1m. Its thickness estimated to be 21.3m projected from adjacent holes

Hole No.	From (m)	To (m)	Interval Thickness (m	Mo-ICP (lb/st)	Ni-ICP (lb/st)	U-INA (lb/st)	V-ICP (lb/st)	Zn-ICP (lb/st)	Cu -ICP (lb/st)	Co-INA (lb/st)	Ag-ICP (g/t)
BK06	107.6	130.2	22.6	0.14	0.27	0.06	1.34	0.56	0.16	0.04	0.8
BK03	75.0	101.2	26.2	0.12	0.24	0.06	1.25	0.58	0.15	0.04	0.4
BK01*	133.0	154.3	21.3	0.17	0.32	0.07	1.55	0.72	0.17	0.04	0.4
BK02	60.8	79.2	18.4	0.13	0.25	0.07	1.30	0.61	0.14	0.04	0.5
BK04	120.6	141.7	21.1	0.13	0.26	0.05	1.29	0.56	0.15	0.05	0.3
BK05	76.8	95.2	18.4	0.15	0.30	0.05	1.44	0.64	0.15	0.05	0.7
Weighted Average			21.3	0.14	0.27	0.06	1.35	0.60	0.15	0.04	0.50

Table 5: Weighted average grades of select metals and elements across the entire thickness of the Second White Speckled Shale Formation, historic drilling, Buckton Zone. After Table 15, Sabag 2008; and Alberta Mineral Assessment Report MIN9802, Sabag 1998. For additional details see also Table 4, Section 6.2.12 of this Report.

There is good consistency in the average grades among the drill holes, especially when considering their wide spacing. This is typical of the lateral consistency displayed by black shales worldwide. There is, however, variability in grades vertically within the Shale as expected, depicting orderly trends, and such is also typical of black shales worldwide. The vertical trends are material to helping identify better grading portions within the Buckton Zone to guide future drilling toward identifying similar material.

Downhole metal grades are shown in Figure 48 for each of the holes for a qualitative review (see Table 10 for detailed data). Holes are sequenced in the Figure from the southwest (BK06) to the northeast (BK05) in the same order in which they are located in the drilled cross section. Metal grades are shown sequenced downhole for the drill intercepts from the top of the upper contact of the Shale Formation downward to its base.

The relative grade for each metal, ranging between its maximum and minimum, is represented by the size of the bar in the Figure. The progressive enrichment of Mo-Ni-U-(Ag) upstratigraphy is well defined in the Figure and is consistent with progressively more bentonitic sections seen in the drill core which carry more abundant sulfides. V-Zn-Cu-Co, however, exhibit mixed trends one of which is enrichment upstratigraphy and the other is enrichment midsection in the Formation, which is pronounced for V which is concentrated mostly in the midsection. There is no discernible trend in Au grades, and no correlation between analyses from fire assay as compared to those by INA.

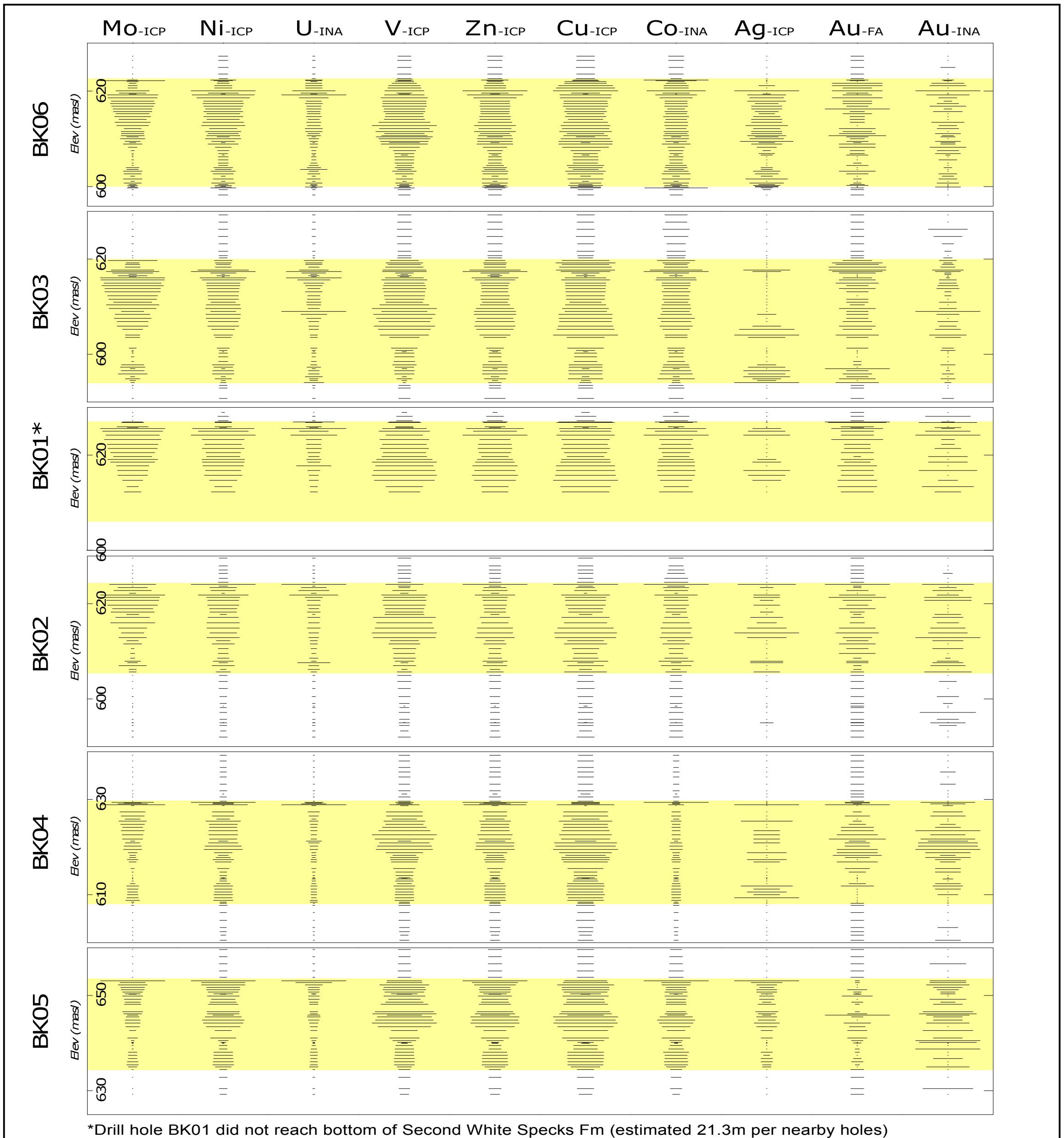

Figure 48: Downhole grades for select metals across the thickness of the Second White Speckled Shale Formation (shaded), Buckton Zone historic drilling. After Figure 67, Sabag 2008. Data from Alberta Mineral Assessment Report MIN9802, Sabag 1998.

Downhole grades for single metals over the drilled cross-section, compared among the holes, are presented in Figure 49. Holes are sequenced in the Figure from the southwest (BK06) to the northeast (BK05) in the same order in which they are located in the cross section. Metal grades are shown sequenced downhole from the top of the upper contact of the Shale Formation downward to its base. The bars depicting grades for any given metal are sized in the Figure to a common scale for all of the holes to enable relative comparisons from one hole to the next and over the cross-section.

Figure 49 shows consistency among downhole grades from one hole to the next over the length of the cross-section with a subtle progressive increase in U-Mo-Ni grade to the northeast in the uppermost sections of the holes in BK04 and BK05.

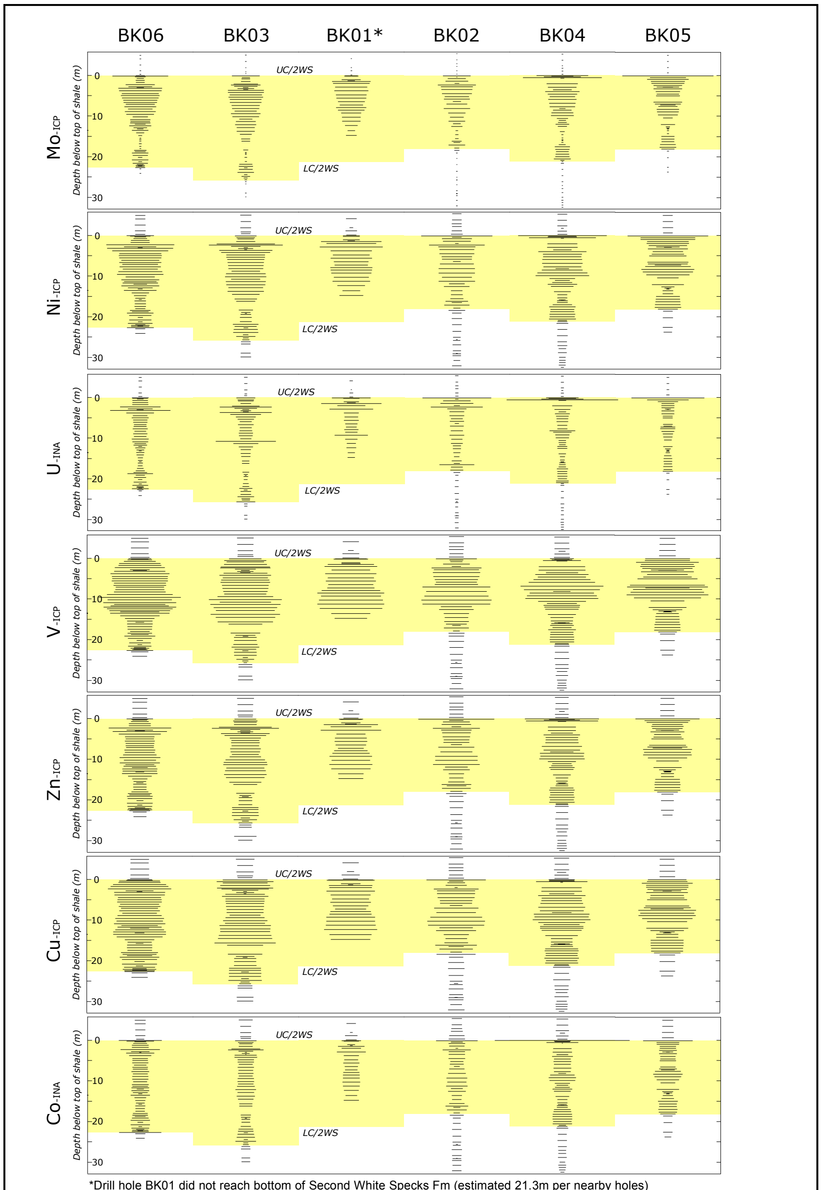

Figure 49: Downhole grades for select metals across the thickness of the Second White Speckled Shale Formation (shaded), Buckton Zone historic drilling. After Figure 68, Sabag 2008. Data from Alberta Mineral Assessment Report MIN9802, Sabag 1998.

The above trends are very general and serve only to characterize bulk patterns within the Shale and across the Zone. The trends depict the data on an absolute basis taking no consideration of sample widths and drill interval weighting.

Downhole grades for the metals are shown for hole BK02 in Figure 50, weighted to drill sample interval (gradexthickness) and presented in the order of samples extending from the top of the Formation down to its base. While the profile in Figure 50(a) characterizes the polymetallic mineralization in the Shale as substantially a V-Zn system with lesser Mo-Ni, normalization of the gradexthickness profiles to relative metal prices[16] by multiplying the gradexthickness by the respective metal price as shown in Figure 50(b) bears out the true nature of mineralization at the Zone and characterizes it as a Mo-Ni-U-V polymetallic Zone with subordinate Zn-Cu-Co.

Overall metal grade weighted averages for the drill holes, normalized to metal prices, are summarized in pie charts of Figure 51, showing the relative in-situ value represented by each metal as a % of the total in-situ value of the combined metals. The Figure reiterates that the Buckton Zone is principally a Mo-Ni-U-V dominated polymetallic Zone with subordinate Zn-Cu-Co-Ag, and that it is characterized by remarkable consistency of proportionate grades among the various metals across the entire 8 km cross-section drilled. A current depiction of the relative values represented by the various metals, based on recent metal prices used during the Buckton resource studies shows similar trends which reiterate historic conclusions (see Section 15.5 of this report).

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[16] Sabag 2008 relies on average metal prices for the year Sep/07-Aug/08; Mo ($35/lb), Ni ($12/lb), U ($75/lb), V_2O_5 ($5/lb), Zn ($1.4/lb), Cu ($3/lb), Co ($40/lb), Ag ($15/oz). V discounted to approximately 40%. This basis is retained herein for consistency with historic work although DNI's recent work omits Ag in favour of Li. See Section 15.5 of this report on a detailed discussion of the Buckton inferred resource and the relative distribution of recoverable value ascribed each of the metals.

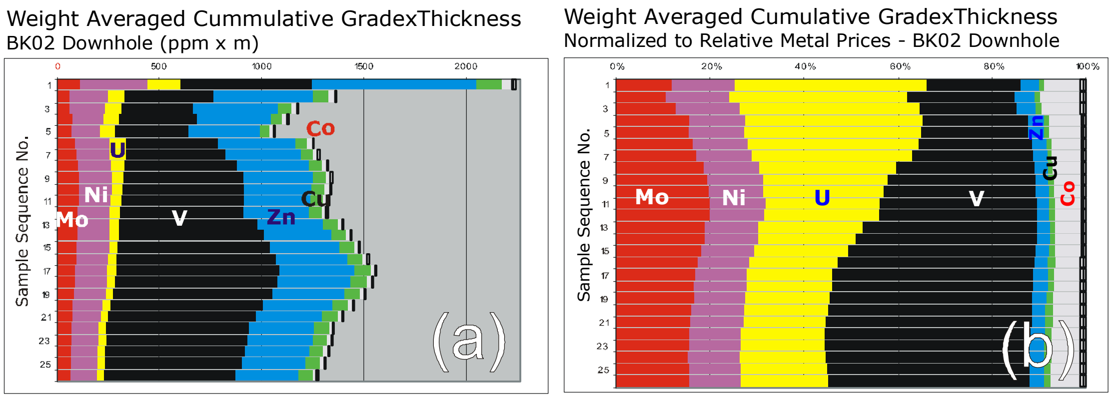


Figure 50: Downhole weighted cumulative average grade x thickness profiles (above) for select metals, and downhole weighted cumulative average grade x thickness normalized to relative metal prices (below), drill hole BK02, Buckton Zone historic drilling, After Figure 69, Sabag 2008; and Alberta Mineral Assessment Report MIN9802, Sabag 1998.

Lateral and vertical metal grade variations are best captured in downhole trends of metal grades restated as a multiple of the overall average of all of the holes. This is presented in Figure 52 showing the average downhole grade of various metals over progressive thicknesses of material beneath the upper contact of the Shale. Holes are sequenced in the Figure from the southwest (BK06) to the northeast (BK05) in the same order in which they are located in the cross section.

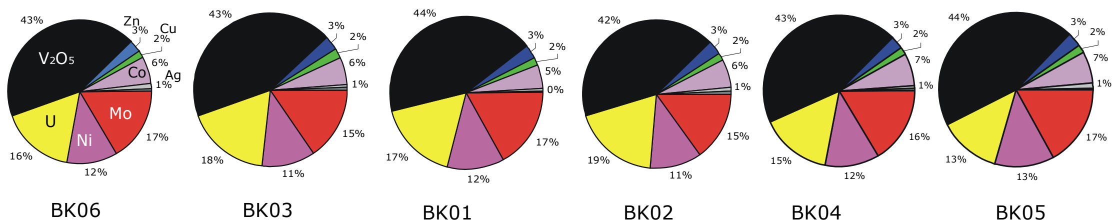


Figure 51: Pie Charts of relative in-situ value represented by select metals, Buckton Zone historic drilling, After Figure 70, Sabag 2008; and Alberta Mineral Assessment Report MIN9802, Sabag 1998.

Figure 52 shows better overall grades over the upper portions of the holes, typically representing x2 the average of all of the holes, progressively trending toward the average further downhole. Over the northeast portions of the drilled cross-section (BK02, BK04, BK05), however, the trends exhibit progressively better northeasterly increase in grades in the upper parts of the holes, accompanied also by progressive thickening of the better grading upper portions. This trend is clearly seen for U in BK01 which is nearly x3 the average in upper parts of the hole, but reaches x6 the average in BK05 where the enrichment is also accompanied by Mo (x5), Ni (x3), Co (x3) and Zn (x2). Interestingly, V contents are relatively constant throughout the downhole profiles showing no lateral (along-section) enrichment and reiterate that V enrichment is subdued and is substantially confined to the midsection in the holes as seen in previous figures.

It is of interest to note that the above discussion, holds substantially true relying on current metals pricing used during the 2011-2012 Buckton resource studies (see Section 15.5 of this report).

The metal enrichment trends in Figure 52 provide lateral enrichment vectors suggesting that future work should focus on the area to the north of the drilled cross-section for identification of better grading material which may also comprise thicker sections in the Formation northwards dominated by metals other than V. The trends are accompanied by Ba enrichment over the top of the Formation, and are also consistent with the progressive increase in frequency and size of bentonites in the upper sections of the drill core nearer the upper contact of the Second White Speckled Shale Formation, and also better development of thicker bentonite seams toward the northeast suggesting a nearby source to the northeast (discussed further later in this Section).

Should the above trends prove to be typical for the overall Property, they would serve to further characterize the true nature of metal mineralization in the Second White Speckled Shale and perhaps also the enveloping black shales across the Property as consisting of two separate juxtaposed trends: one which is predominantly a general basinal trend related to the shales' anoxic provenance and dominated by V-Cu(Zn), and another trend superimposed upon it which is dominated by Mo-Ni-U-Zn-Co enrichment, accompanied by bentonite development , related to localized volcanism and exhalative venting.

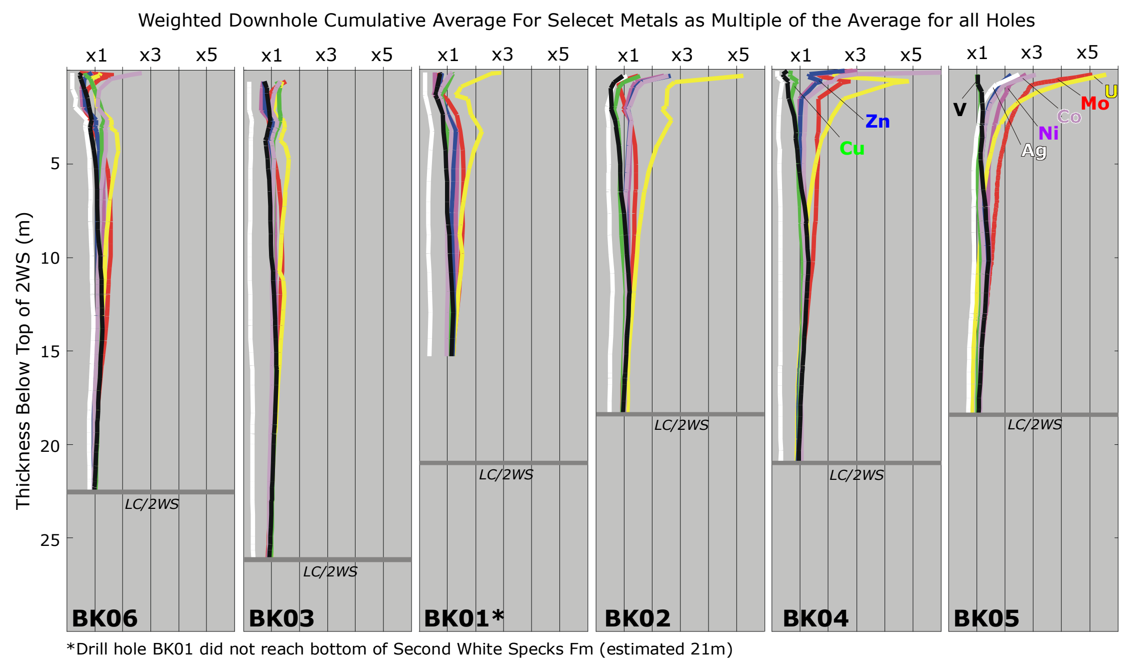


Figure 52: Weighted downhole cumulative average metal grades, normalized to relative metal prices, as a multiple of the average for all holes, for progressive thicknesses of material below the upper contact of the Second White Speckled Shale Formation, Buckton Zone historic drilling. After Figure 71, Sabag 2008. Data from Alberta Mineral Assessment Report MIN9802, Sabag 1998.

The above proposed scheme would be consistent with the overall V and Zn enrichment common to all of the black shales on the Property (LaBiche avg 243ppm V; 143ppm Zn), Belle Fourche avg 209ppm V; 132ppm Zn), even though the concentrations are notably higher in the Second White Speckled Shale (avg 680ppm V; 306ppm Zn). By contrast, the Speckled shale is considerably better enriched in Mo-Ni-U (avg 72ppm Mo, 137ppm Ni, 31ppm U) than its enveloping black shale Formations (LaBiche avg 2ppm Mo, 42ppm Ni, 5ppm U)(Belle Fourche avg 3ppm Mo, 42ppm Ni, 5ppm U).

In addition to the above, the trends in Figure 52 might also provide a general indication of the carrier mineralogy of the various metals, suggesting that Mo-Ni-U-Zn-Co are likely contained in forms or minerals (sulfides/oxides?) other than those which host the V-Cu(Zn) (likely organics and clays). This is a proposal supported by DNI's MLA detailed mineral investigations, and subsequent leaching testwork suggesting that at least some of the metals, notably rare earth elements, likely occur as charged ions adsorbed on clay.

The downhole aggregate combined in-situ value of the metals is shown in Figure 53 as a multiple of the average combined in-situ value of all of the holes, for progressive thicknesses beneath the top of the Second White Speckled Shale.

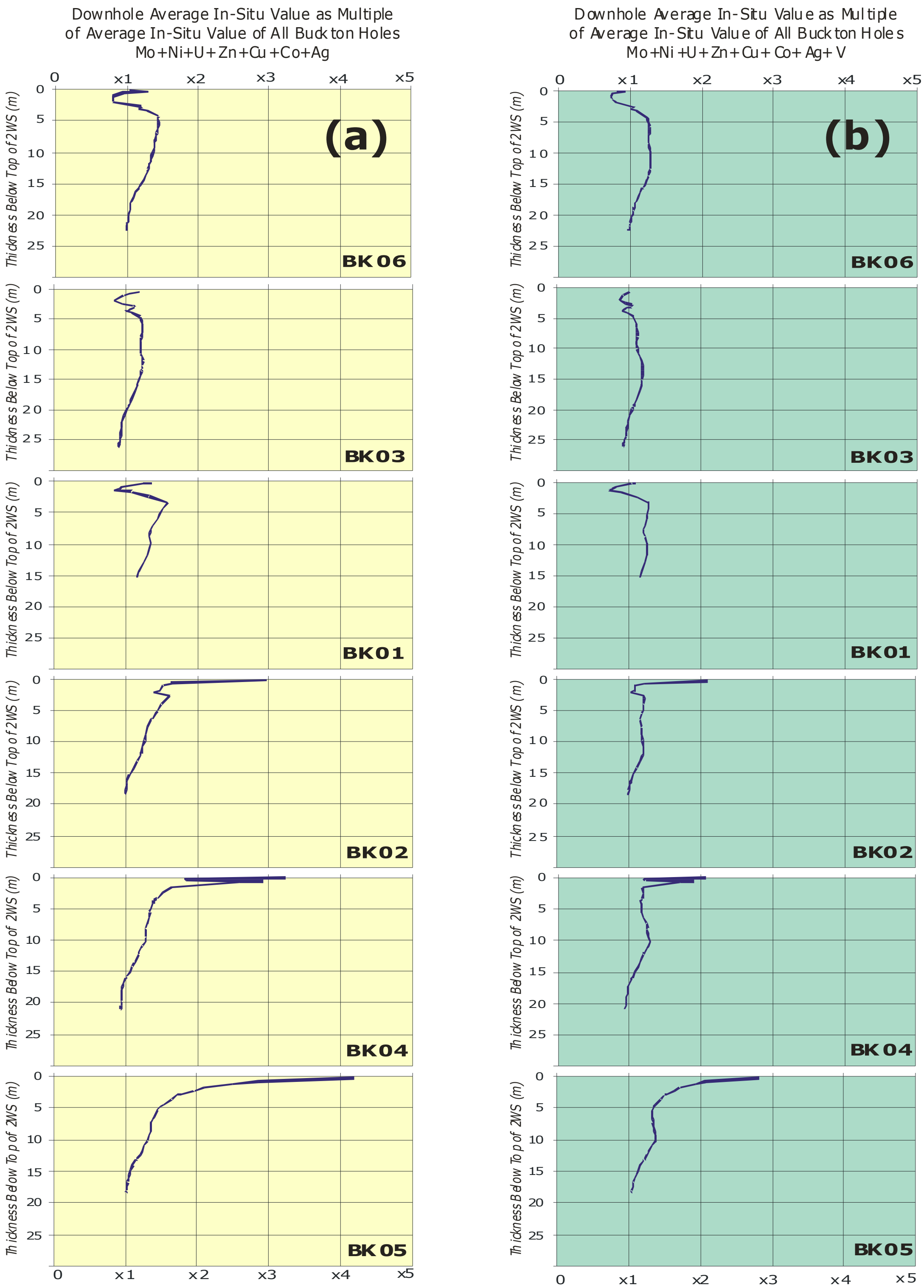


Figure 53: Downhole weighted average in-situ value of combined metals as a multiple of the average combined in-situ value of the metals for all of the Buckton holes, for progressive thicknesses of material below the upper contact of the Second White Speckled Shale Formation, Buckton Zone historic drilling. Graphs for suite of metals excluding-V (left) and including-V (right) shown for comparison. After Figure 72, Sabag 2008. Data from Alberta Mineral Assessment Report MIN9802, Sabag 1998.

Figure 53 shows trends for two groupings of metals, one including V and the other excluding it. The Figure reiterates the northerly thickening trend of the better grading material in the upper parts of the holes, but also reiterates the similar trend for the Mo-Ni-U-Zn-Cu-Co-Ag group which excludes V. This trend is relevant to future exploration toward expansion of the Buckton Zone, and to exploring the suggested potential of locating the source to metals in the shales. Recent work by DNI omits Ag from resource estimates and includes Li in addition to Specialty Metals Sc+Th and REE (see Section 15 of this report).

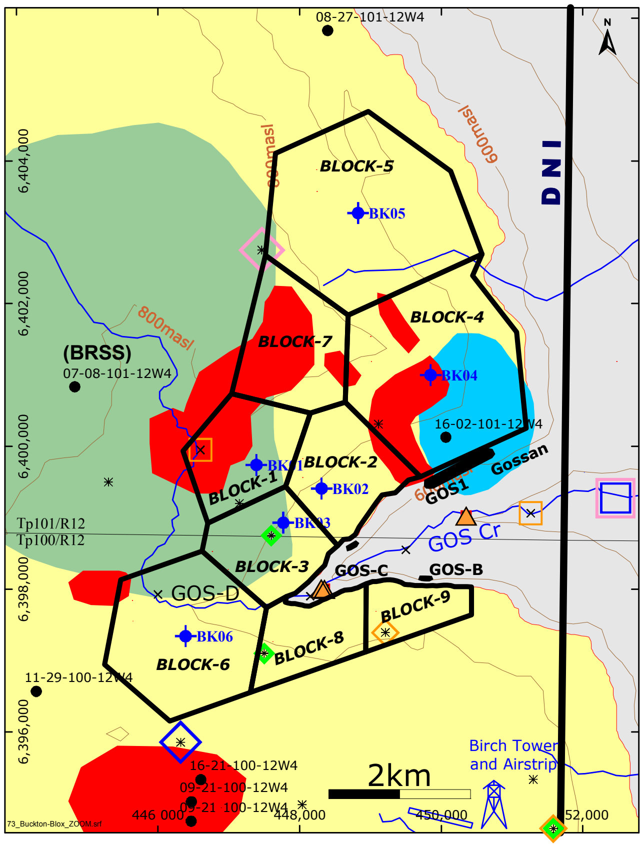


Figure 54: Buckton Mineralized Zone area sketch, showing estimated mineralized blocks. Buckton Zone. See Figure 47 for legends. After Figure 73, Sabag 2008.

Relying on the historic drilling results, reinforced also by results from a multitude of exposures of the Second White Speckled Shale Formation in valley walls near the drill-section and near the holes, and further reinforced by surface geochemical data and the remarkable lateral continuity in geology and orderly grades exhibited by the historic drilling, DNI's 2008 Technical Report for the Property (Sabag 2008) calculated an estimated volume of mineralization, as understood under NI-43-101, which is contained over a portion of the Buckton Zone. This volume is referred to herein as a Mineralized Zone[17] which is the subject of further exploration Zone as understood under NI-43-101. The proposed Mineralized Zone comprises a volume of polymetallic material contained in nine polygonal blocks (Figure 54) whose size and distribution has been estimated predicated on a geological information from the surface and subsurface all of which are outlined in detail in Sabag 2008.

Based on the above scheme, the Mineralized Zone which is proposed to be contained in the Buckton Zone extends over an approximate 3km x 8km area comprising approximately 26 square kilometers, with a thickness varying, on average, 20.5m to 21.9m, and represents an aggregate of approximately 1.2-1.3 billion short tons of mineralized material (1.1 to 1.2 billion tonnes). Estimated grades and gross contained metals are summarized as ranges in Table 6 rounded to the nearest million unit. Subsequent analytical work by DNI noted that the shale has higher specific gravity than assumed by the historic work, hence tonnages proposed in Sabag 2008 are understated. DNI's resource studies for a portion of the Buckton Mineralized Zone (in Section 15 of this report) supercede tonnage estimates reported in Sabag 2008, and serve to partly "sterilize" portions of the Zone which are under excessive overburden cover until such time as status of the overburden material (whether "waste" or mineralization) is clarified by a resource study which is in progress relating to material overlying the Second White Speckled Shale (Section 15.4 of this report).

The proposed Mineralized Zone is conceptual in nature, and the above tonnage estimate is intended solely to provide an indication of the overall potential of the Buckton Zone, and of the magnitude of mineral aggregations which the Zone might ultimately yield subject to confirmation by future in-fill grid drilling. The reader is reminded that there has been insufficient drilling conducted over the Buckton Mineralized Zone to classify it as a mineral resource, and that it is uncertain if further drilling will define a mineral resource over the Zone. DNI did, however, complete sufficient drilling during the 2010-2011 winter over a portion of the Buckton Mineralized Zone to classify a portion of the Buckton Mineralized Zone, extending over 5.7 sq km, into an initial inferred resource which is compliant with NI-43-101, representing the Buckton maiden resource discussed in Section 15 of this report. This resource supercedes the Buckton

Grade Averages and Gross Metals Content: Potential Mineral Deposit - Buckton Zone

	Grade Range (ppm)	Grade Range (lb/st)(opt)	Gross Metal/Oxide Content (lb) (oz) Low Estimate	High Estimate
Mo	62ppm-86ppm	0.12lb/st-0.17lb/st	150,000,000	225,000,000
[MoO3]		0.19lb/st-0.26lb/st	225,000,000	338,000,000
Ni	121ppm-160ppm	0.24lb/st-0.32lb/st	293,000,000	419,000,000
U	25ppm-37ppm	0.05lb/st-0.07lb/st	61,000,000	96,000,000
[U3O8]		0.06lb/st-0.09lb/st	72,000,000	113,000,000
V	623ppm-776ppm	1.25lb/st-1.55lb/st	1,511,000,000	2,027,000,000
[V2O5]		2.24lb/st-2.79lb/st	2,719,000,000	3,649,000,000
Zn	282ppm-360ppm	0.56lb/st-0.72lb/st	683,000,000	940,000,000
Cu	70ppm-83ppm	0.14lb/st-0.17lb/st	169,000,000	217,000,000
Co	19ppm-24ppm	0.04lb/st-0.05lb/st	46,000,000	63,000,000
Ag	0.3ppm-0.8ppm	0.01opt-0.026opt	12,000,000	34,000,000
Au	assumed nil	assumed nil	assumed nil	assumed nil

lb/st=lbs per short ton; opt=ounces per ton — Gross metal contents are rounded to nearest million units *

Table 6: Summary of grades and gross metal content estimates, Mineralized Zone, Buckton Zone. All metals grades expressed in ppm and restated as lb/s.t. except Ag which is expressed also as opt; all gross metals contents are expressed in lbs except Ag which is expressed in oz. Mo, U and V are also re-stated in oxide equivalents. After Table 17, Sabag 2008. ***NOTE: The terminology used in Sabag 2008 has since been revised to comply with amendments in NI-43-101, as a result the Buckton "Potential Mineral Deposit" has been renamed the Buckton "Mineralized Zone".***

Mineralized Zone and might sterilize portions of it which are under thicker overburden cover subject to resource study for overburden rocks in progress (see Section 15.4).

The reader is also reminded that while estimated Mineralized Zones can be misleading if regarded as resources, which they clearly are not, they can - conversely - also fail to capture the ultimate potential of any mineral zone given that the estimates are derived from bulk averaging of figures based on a broad range of grades, thickness and assumptions. In the latter respect, it is possible that estimation of a Mineralized Zone which may exist over any given mineralized zone may understate the ultimate potential of the zone it attempts to characterize.

In the above regard, the estimates presented herein do not selectively highlight the higher grading material (subzones) in the upper sections of the Mineralized Zone, other than by bulk averaging them along with much lesser mineralized material over the entire volume. For example, a smaller volume of material with 15%-30% better overall average grade can be blocked out as a sub-zone confined to the uppermost 10m thickness of the Buckton Mineralized Zone, equivalent to approximately 40%-50% of the overall tonnages estimated for the overall Mineralized Zone (see Figure 53). Similarly, by focusing only on the northern portion of the drilling, an even smaller tonnage can be blocked out within the uppermost 10m of the Zone as yet another sub-zone, likely representing approximately 20%-30% of the Buckton Mineralized Zone, wherein Mo-Ni-U-Zn-Co represent sufficient combined value to be of interest as a stand-alone mineralized volume. Several iterations of a variety of subzones can, accordingly, be blocked out over different portions of the Buckton Zone, each one dominated by a different metals profile. This is typical for polymetallic deposits, and is an exercise best relegated to the rigors of a preliminary economic assessment (pending) and related resource studies which are in progress.

[17] Previously referred to as a "Potential Mineral Deposit", but renamed in 2010 as a "Mineralized Zone" pursuant to amendments to NI-43-101.

The proposed Buckton Mineralized Zone is open in three directions - to the north, the south and the west - but it is eroded away to the east as it sits on the erosional edge of the Birch Mountains. Projected extensions are as follows:

Southern Extension (Buckton South): Based on historic results from surface sampling, the Mineralized Zone could realistically be extended for an additional 6km to its south over a series of soil geochemical metal diffusion anomalies collectively occupying a 2km x 6km area. The soil geochemical anomalies are reinforced by other surface, subsurface stratigraphic and structural features, and by >90th pctl lake sediment geochemical anomalies comprising elevated Zn±Ni±Cu±Ag±Hg surrounding an interpreted fault swarm related to Zn diffusion anomalies in soils, associated also with localized zones of Te enrichment. The faulting is associated with a stratigraphic isopach anomaly (in T100/R13) comprising abnormal thickening in the stratigraphic pile above the sub-Cretaceous Unconformity (to base of Second White Specks) coincident with a similar thickening exhibited by the Fishscales-Second White Specks (Shaftesbury) isopach. The combined anomalies were previously designated by historic work as Composite Anomaly Area B-South which is re-named herein the Buckton South Target Area.

This area occupies the headwaters of Asphalt and Big Creeks, radially flowing downhill from it. Both Creeks have reported exceptionally good geochemical and heavy mineral anomalies in stream sediment samples from the historic work. The headwaters of the Creeks, and the vicinity of the soil anomalies, have also reported good >80th percentile lake and stream geochemical anomalies. Asphalt Creek, additionally, represents one of the most sulfide rich drainages in the Birch Mountains, reflecting mineralogy and geochemistry from fresh sediments which can be seen slumping into the Creek from the adjacent steeply incisioned valley walls. A nearly complete section of the Second White Speckled Shale Formation is exposed in the lithosection at Asphalt-H, at the headwaters of Asphalt Creek, comprising a 10m vertical section with 67ppm Mo, 110ppm Ni, 35ppm U, 461ppm V, 254ppm Zn, 62ppm Cu, 19ppm Co and 1.1g/t Ag averaged over the lithosection as reported from historic sampling. To the extent that lithosections sampled in the historic work are "measured" true stratigraphic sections which were systematically, and substantially continuously, sampled, the lithosections reliably "proxy" as drill holes with better reliability than that represented by conventional reverse circulation holes.

Though the combined anomalies comprising the Buckton South Target Area are similar in characteristics to those over the Buckton Zone to its north (verified by drilling to reflect buried metal mineralization) it is uncertain whether the soil, and associated lakes and stream geochemical, anomalies reflect a southerly extension of the Buckton Zone, or whether they reflect an altogether separate Zone buried beneath them better associated with the coincident stratigraphic isopach anomaly nearby to their west. Should the exhalative venting geological working model proposed for the area be demonstrated to be valid, overlap or coalescence between volcanic debris from adjacent vents would be a realistic expectation, as would be contrasts in geochemistry (and any metal content) of their respective ejecta material. Arbitrary extrapolation of the Buckton Zone to the south might, therefore, inadvertently mix different metal profiles from two different zones. No attempt is, accordingly, made to extrapolate the Buckton Zone to extend south over the Buckton South Target. Recommendations are made in a later section of the Report that drill testing of Buckton South be prioritized. This target is also discussed separately further in this Section.

Northern Extension (Buckton North): The Buckton Mineralized Zone is open to the north for 5km-10km toward an isopach anomaly previously designated as the B-North Target Area by historic work, located in NW¼ T101/R12. This Area is dominated by an aeromagnetic "high" flanked on its side by a series of 1km-2km diameter circular topographic features, separated by many creeks flowing into, and comprising the headwaters of, Buckton Creek. Other than native gold reported from Buckton Creek and its tributary from historic streams sediment sampling, and a coincident Zn-Cu >90th percentile stream geochemical anomaly at the headwaters of Buckton Creek, little is known about the Area other than the acute isopach anomaly which is one of the most conspicuous subsurface stratigraphic anomalies identified in the Birch Mountains by the historic work, comprising a 60m abnormal thickening in the Shaftesbury Formation beneath the Second White Speckled Shale Formation. Whether this isopach anomaly is also related to thickening in the Second White Speckled Shale Formation is unknown, although the creeks flowing eastward from it define a radial pattern and drain slumped shale exposures in the area.

A northerly trend of better drill grades in the upper portions of the Shale was discussed earlier in this Section, along with a general trend of northward thickening of the better grading drill sections. These trends present obvious guidelines suggesting that the Zone likely extends to the north and should be tested by additional drilling. In addition, these trends, when combined with observations of northerly increasing thickness, frequency and distribution of bentonites in the drill core, make strong arguments supporting the presence of a nearby source to the volcanic debris (and metallic mineralization) incorporated into the Buckton Zone Second White Speckled Shale. Relying on the proposed volcanogenic geological working model, it is proposed that the area to the north of the Buckton Zone also holds potential for hosting exhalative metalliferous venting possibly associated with SEDEX style (massive?) sulfide mineralization hosted within the Cretaceous stratigraphy.

Nearly all of the historic surface geochemical and mineral anomalies discovered to date on the Property are in structural zones interpreted based on stratigraphic disturbances (e.g. Asphalt-Eaglenest Fault Zone), or are on the flanks of circular, or "closed", stratigraphic disturbances (e.g. Buckton and Asphalt polymetallic Zones). The "closed" shape of some of the stratigraphic, often isopach, anomalies may be an artifact of contour noding and it is possible that they reflect faulted blocks, even though the closed shapes have support from coincident roughly circular domed topographic relief features. Should the "closed" shaped stratigraphic anomalies ultimately be demonstrated to be faulted blocks (bounded by synsedimentary faults) rather than domes, considerable significance would be placed on fault junctions, and junctions among fault swarms, as potential conduits for any volcanic exhalative venting in the Birch Mountains and on the Property. Fault junctions, accordingly, present high priority future exploration targets for volcanic vent related exhalative mineralization which might exist on the Property, and to the north of the Buckton Zone. Several such targets are suggested and are shown in Figure 72 in a later Section of this Report.

Western Extension (Buckton West):

The Buckton Zone is open to the west toward, and across, the stratigraphic isopach anomaly on its western flank. There are no exposures to the west of the Zone, nor any information from the area other than a handful of lake and stream sediment geochemical anomalies. This area corresponds to area A-North designated by the historic work, and its southern parts overlap on the Buckton South Target Area discussed later in this Section.

There is no information from historic work to support or refute extension of the Buckton Zone to its west, and no information to provide any guidelines to how far the Zone might be expected to so extend. It is of note that any westward extension to the Zone would be under overburden cover, or under other overlying strata, ranging 150m-200m in thickness per the subsurface stratigraphic model for the Birch Mountains (see Figure 25). To the extent that the Buckton Zone is being explored by DNI as a potential bulk mineable target accessible by open pit, extensions of the Zone to the west beneath excessive cover may be moot.

It is evident from the above that the Buckton Zone, and the Mineralized Zone proposed to exist therein, host metal mineralization with potential for delivering large quantities of metals from immense volumes which are partly exposed at, or are near, surface. The most attractive features of the Zone, and the Mineralized Zone proposed to exist therein, are (i) the potentially immense size hence the potential as a long term source of metals, (ii) proximity to surface and unconsolidated nature hence likely amenability to extraction by low cost large scale bulk mining, and (iii) remarkable uniformity of metal grades as demonstrated by the drilling and other sampling over the large area represented by the Zone.

A simple discussion of potential overall grade for the Zone is complicated by the multiplicity of metals which will only collectively comprise the ultimate value represented by the mineralized material in the Zone. A discussion of in-situ value represented by the collective metals in the Zone is, however, beyond the scope of this Report and would be more appropriate in the context of a future economic evaluation or scoping study of the Zone in conjunction with a resource classification study. Suffices to say at this juncture that concentrations of Mo, Ni, U, V, Zn, Cu, Co in addition to other metals collectively represent sufficient in-situ value on a combined basis to place the Zone within economic reach provided the metals can be recovered on a combined basis, and provided high enough recoveries can be achieved. DNI's leaching testwork 2009-2010 has demonstrated recoverability of collective metals from the shale by bioleaching (Sabag 2010, Alberta Mineral Assessment Report MIN20100017), and resource studies completed in 2011-2012 which are presented in Section 15 of this report for a portion of the Buckton Mineralized Zone confirm that the aggregate value of recoverable metals represent sufficient in-situ value on a combined basis to place the Zone within economic reach.

8.10.3 Buckton South Polymetallic Target

The Buckton South polymetallic target represents an approximate 300 square kilometer area located to the south of the Buckton Zone. It incorporates historic composite anomalous areas previously designated by the historic work as B-South and A-North. This target area hosts a multitude of surface geochemical, lithogeochemical and mineral anomalies which are spatially associated with a composite stratigraphic isopach anomaly. Although the eastern half of the Buckton South target might host the southward extension of the Buckton Mineralized Zone, it more likely hosts a buried mineral zone altogether separate from the Buckton Zone. This area is summarized in Figure 55.

The Buckton South target area is substantially centered over a stratigraphic isopach anomaly comprising abnormal thickening in the stratigraphic pile above the sub-Cretaceous Unconformity (to base of Second White Specks) coincident with a similar thickening exhibited by the Fishscales-Second White Specks (Shaftesbury) isopach. A series of strong soil geochemical anomalies lie on the east flank of the isopach over a 2km x 6km area, dominated by Zn diffusion anomalies in soils associated also with localized zones of Te enrichment. The soil anomalies are reinforced by lake sediment geochemical anomalies comprising elevated (>80th pctl) Zn±Ni±Cu±Ag±Hg, and by stream geochemical and mineral anomalies in streams draining the area to the east and the south.

The isopach anomaly occupies the headwaters of Asphalt and Big Creeks, radially flowing downhill from it. Both Creeks have reported good geochemical and heavy mineral anomalies in stream sediment samples from the historic work. The headwaters of the two Creeks, and the vicinity of the soil anomalies, have also reported good >80th percentile lake and stream geochemical anomalies. Asphalt Creek, additionally, represents one of the most sulfide rich drainages in the Birch Mountains, and on the Property, reflecting mineralogy and geochemistry from fresh sediments which can be seen slumping from the adjacent steeply incisioned valley walls. Exposures of various sections of the stratigraphy in the area are confined to the Asphalt and Big Creek valleys, and mostly comprise slump and mudflow slopes. The Asphalt and Big Creek valleys were extensively mapped and prospected by the author during the mid 1990's.

A nearly complete section of the Second White Speckled Shale Formation is exposed in the lithosection at Asphalt-H, a 10m vertical section at the headwaters of Asphalt Creek, with 67ppm Mo, 110ppm Ni, 35ppm U, 461ppm V, 254ppm Zn, 62ppm Cu, 19ppm Co and 1.1g/t Ag averaged over the lithosection as reported from historic sampling. To the extent that lithosections sampled in the historic work are "measured" true stratigraphic sections which were systematically, and substantially continuously, sampled, the lithosections reliably "proxy" as drill holes with better reliability than would be represented by conventional reverse circulation drill holes. (Asphalt-H may be an distal part of the Asphalt Zone).

The anomalies over the Buckton South target area have similar characteristics as those over the Buckton Zone to its north which were verified by drilling to reflect polymetallic mineralization buried beneath them in the Speckled Shale. It is, accordingly, proposed that the east flank of the Buckton South isopach anomaly, especially portions with geochemically anomalous soils, also hosts yet undiscovered buried metallic mineralization hosted in Second White Speckled Shale Formation. Recommendations are made in a later section of the Report that drill testing of the eastern half of the Buckton South target be prioritized.

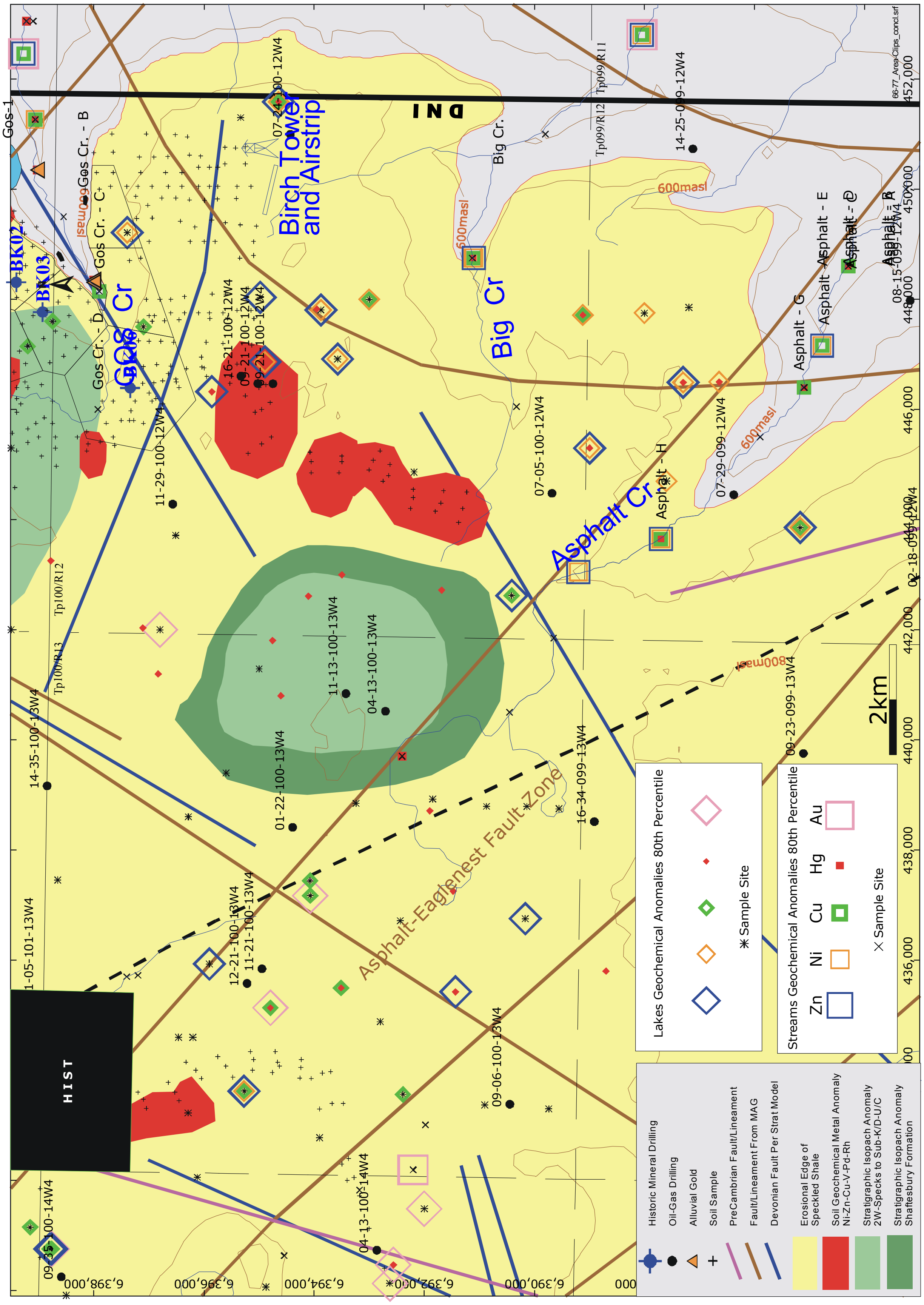


Figure 55: Buckton South Target Area, showing all historic anomalies. After Figure 74, Sabag 2008.

The west half of the Buckton South target area lies on the west flank of the subsurface stratigraphic isopach anomaly, and is in the Asphalt-Eaglenest fault corridor, a major structural feature across the Property which is coincident with many geochemical lake sediment anomalies throughout the area. There is no prior drilling in the area other than historic oil-gas exploratory wells. There are no exposures in the area and all information, and interpretations, therefrom are based on surface sampling of soil, lake and stream sediments, combined with subsurface information from the oil-gas wells. This part of the Buckton South target area was previously designated by historic work as the A-North Composite Anomaly.

The west half of the Buckton South target area is broadly characterized by lake sediment geochemical anomalies comprising elevated (>80th pctl) Zn±Ni±Cu±Ag±Hg surrounding an interpreted fault swarm associated with the coincident isopach anomalies. Notable features of the area include abundant sulfides documented from stream sediments in the headwaters of Asphalt Creek, on the west flank of the isopach anomaly, and a series of soil geochemical anomalies located in the NW$^{1}/_{4}$ T100/R13 characterized by strong Zn diffusion accompanied by elevated Pd-Rh(Ni). Spatial association of these features with faulting and the isopach anomaly has not been sufficiently resolved to enable targeting of drill holes to test the subsurface, and future initial drilling will necessarily test extrapolated, though justifiable, blind targets.

8.10.4 Asphalt Zone, Projected Extensions and Mineralized Zone

The Asphalt polymetallic Zone was discovered by Tintina Mines in 1997 by drilling which was conducted to verify suspected metallic mineralization buried beneath a composite set of anomalies identified by extensive prior surface sampling over an approximate 30 sq km area centered on the headwaters of Pierre River (Figure 56). The Zone and its vicinity were previously designated by the historic work as Composite Anomaly Area A-South located mostly in E½ T98/R13 straddling the boundary into T98/R12.

The Asphalt Zone represents polymetallic enrichment in Mo-Ni-U-V-Zn-Cu-Co-Ag-Au, hosted in, and confined to, the Second White Speckled Shale Formation which is a substantially flat unit approximately 11m thick as intersected in the drilling. The Zone is located on the eastern flank of a 4km diameter subsurface stratigraphic isopach anomaly representing abnormal thickening in the stratigraphic pile above the sub-Cretaceous Unconformity (to base of Second White Specks) associated with faulting. Northeasterly and northwesterly faults cross the area, and it is possible that the isopach anomaly closure is an artifact of noding during contouring of the subsurface stratigraphic model, and that the it in part reflects block faulting (bounded by synsedimentary faults) rather than doming.

The vicinity of the Asphalt Zone is characterized by stream sediment polymetallic geochemical anomalies dominated by Zn-Ni-Cu, especially from Pierre River and Mid Creek, associated also with alluvial gold in HMCs from Pierre River accompanied by cinnabar and base metal sulfides. Historic sampling from Pierre River and immediate vicinity has reported highly anomalous geochemistry and mineralogy which are supported also by equally anomalous geochemical anomalies in soils over the area dominated by Zn-Cu±Ni±V accompanied by Te enrichment overlying a pair of conspicuously circular aeromagnetic "highs" (see Figures 36 and 37).

Tintina's examination of available drill core and cuttings from two oil/gas wells in the area (16-21-098-13W4 and 04-08-098-12W4) noted the presence of a pink band of silicified sandstone in McMurray Formation immediately above the sub-Cretaceous unconformity (1ft thick in well 16-21-098-13W4). This sandstone, noted also in oil/gas well cuttings to the south of the Buckton Zone (at Buckton South), is identical to the Beaver River Sandstone generally regarded as a hot springs alteration marker. Its presence in the Birch Mountains spatially associated also with stratigraphic thickening as well as with metal enrichment zones is considered diagnostic and suggestive of the localized presence in the area of broad alteration zones overlying possible hot springs, or other metal bearing fluid, activity (fumeroles?).

The Asphalt Zone was discovered by two 3-inch diameter vertical holes (a total of 166.10m) drilled to verify suspected metallic mineralization buried beneath the above soil anomalies which, together with enforcing stream sediment geochemical anomalies in adjacent Pierre River and Mid Creek, collectively represent a 3kmx10km composite anomalous target area designated by the historic work as Area A-South. The holes are collared 900m apart and were to be part of a longer, 6km, cross-section extending eastward from the isopach anomaly, across the soil anomalies and Pierre River to Mid Creek. The drilling was, however, curtailed by logistical criteria.

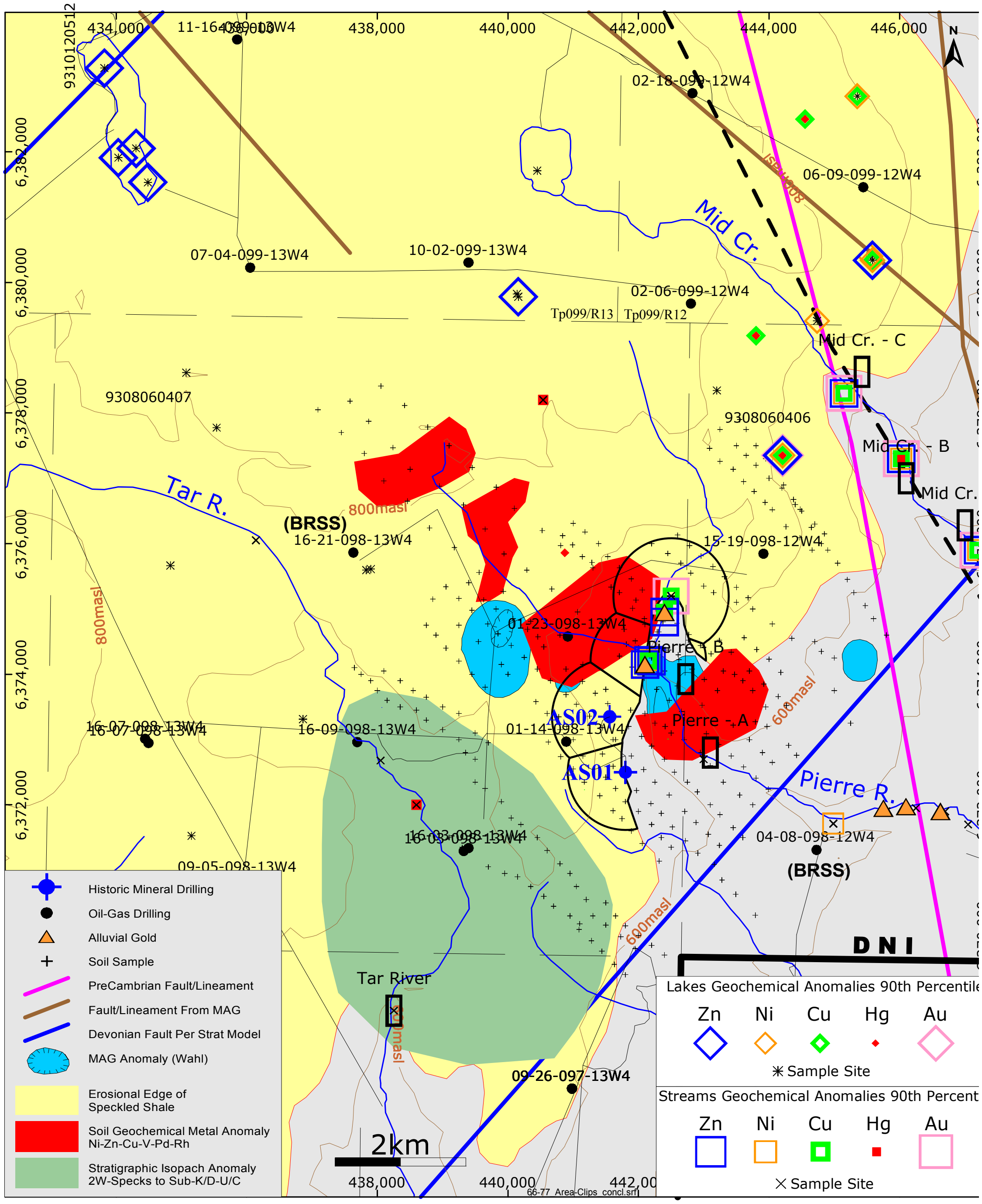


Figure 56: Summary of the Asphalt Zone and its vicinity, showing also all historic anomalies and the Asphalt Mineralized Zone. After Figure 75, Sabag 2008. See also Figures 36-38 and 44-45 for aeromagnetic geophysical anomalies over the Property.

Both Asphalt drill holes reached their targets, although hole AS01 was collared in the upper contact of the Second White Speckled Shale Formation which was unexpectedly encountered higher in the sequence than projected by the subsurface stratigraphic database and model. AS01 cored only lower sections of the Formation. The upper contact of the Formation in AS01 is in casing and only 7.22m were cored compared to 11.4m cored in AS02 (total thickness of the Formation estimated from drill logs to be 11.6m). Considering that only two holes were drilled, and one of the holes only partly cored the Formation, discussions of downhole geology for the Asphalt Zone relies heavily on observations made in hole AS02. Details of the drilling are described in Section 6 of DNI's NI-43-101 report on the property (Sabag 2008).

The drilling intersected a condensed stratigraphic section of Second White Speckled Shale Formation with gross similarities, but with some subtle contrasts, to that intersected at the Buckton Zone, although the shale is overall less sulfidic at Asphalt. The lower contact of the Formation at the Asphalt Zone is, however, complicated by various structures since sections of similar black shale with three bentonitic sections were noted approximately 5m-10m below the Formation's lower contact in the underlying Shaftesbury Formation. The structural complications were attributed by historic work to block movement in the area, or glacio-tectonic thrusting. Whether these features are responsible for apparent thinning of the Formation at the erosional edges of the Birch Mountains or whether the Formation is indeed thinner at Asphalt (than at Buckton) is unknown. For the purposes of this Report, the Second White Speckled Shale Formation is assumed to be 11.6m thick at the Asphalt Zone, of which 11.4m were cored and sampled in hole AS02.

Weighted average grades of select metals across the entire thickness of the Second White Speckled Shale Formation are summarized in Table 7. Results for individual drill intercepts are summarized in Tables 10 and 11.

Hole No.	From (m)	To (m)	Interval Thickness (m)	Mo-ICP (ppm)	Ni-ICP (ppm)	U-INA (ppm)	V-ICP (ppm)	Zn-ICP (ppm)	Cu -ICP (ppm)	Co-INA (ppm)	Ag-ICP (ppm)	Corg-Leco (%)	Fe-INA (%)	S-Leco (%)
AS01*	11.3	18.5	11.4*	73	144	47	690	376	89	20	0.3	5.9	4.4	4.1
AS02**	21.6	33.2	11.4**	63	122	31	664	282	89	20	0.3	7.0	4.5	3.5
Weighted Average Asphalt Holes				67	131	37	674	318	89	20	0.3	6.6	4.4	3.7
Weighted Average Buckton Zone				71	135	30	673	302	75	21	0.5	6.8	4.5	4.0

*Hole AS01 collared in Speckled Shale Formation, only 7.22m cored. Actual estimated to be 11.4 per projections from adjacent AS02

**Interval thickness is core interval recovered

Hole No.	From (m)	To (m)	Interval Thickness (m)	Mo-ICP (lb/st)	Ni-ICP (lb/st)	U-INA (lb/st)	V-ICP (lb/st)	Zn-ICP (lb/st)	Cu -ICP (lb/st)	Co-INA (lb/st)	Ag-ICP (g/t)
AS01*	11.3	18.5	11.4*	0.15	0.29	0.09	1.38	0.75	0.18	0.04	0.3
AS02	21.6	33.2	11.4	0.13	0.24	0.06	1.33	0.56	0.18	0.04	0.3
Weighted Average Asphalt Holes			11.4	0.13	0.26	0.07	1.35	0.64	0.18	0.04	0.30
Weighted Average Buckton Zone			20.3	0	0	0	1	1	0	0	0.5

Table 7: Weighted average grades of select metals and elements across the entire thickness of the Second White Speckled Shale Formation, historic drilling, Asphalt Zone. After Table 18, Sabag 2008; and Alberta Mineral Assessment Report MIN9802, Sabag 1998.

Even though only two holes were drilled at the Asphalt Zone, they nonetheless serve to broadly characterize the Second White Speckled Shale in the area. As noted in the Buckton Zone, the Asphalt holes also exhibit good consistency in the average grades between the holes, especially when considering their wide spacing. In addition, the average grades of the Asphalt holes are also consistent with the average grade of all historic drilling completed over the Buckton Zone located approximately 30km to the north of the Asphalt Zone. The consistency of grade is typical of the lateral consistency displayed by black shales worldwide. There is some variability in grades vertically within the Shale, as expected, although it is uncertain whether this is an inherent characteristic of the Asphalt Zone, or is an artifact of the short length of the holes, or any missing sections from the Formation due to faulting.

Comparative relative downhole metal grades at Asphalt are similar to those shown in Figure 49, save for local stratigraphic disturbances and faulting which have not be acceptably resolved.

Weight averaged metal grades for the holes, normalized to metal prices, are summarized in pie charts of Figure 57, showing the relative in-situ value represented by each metal as a % of the total in-situ value of the combined metals. The Figure shows that the Asphalt Zone is principally a Mo-Ni-U-V dominated polymetallic Zone with subordinate Zn-Cu-Co-Ag, with consistency of proportionate grades between the

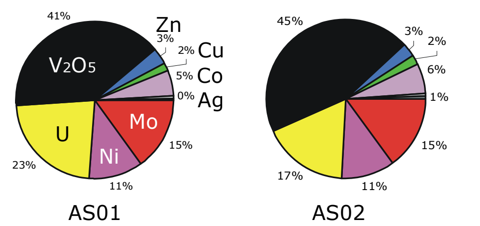


Figure 57: Pie Charts of relative in-situ value represented by select metals, Asphalt historic drilling. After Figure 77, Sabag 2008; and Alberta Mineral Assessment Report MIN9802, Sabag 1998.

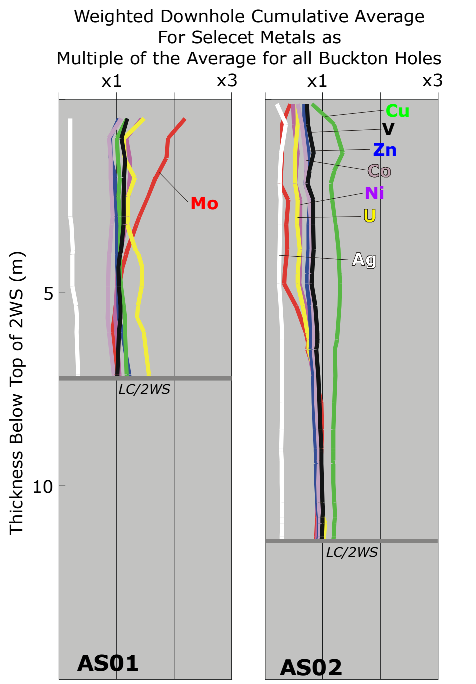


Figure 58: Weighted downhole cumulative average metal grades, normalized to relative metal prices, relative to the average of all Buckton holes, for progressive thicknesses of material below the upper contact of the Second White Speckled Shale Formation, Asphalt Zone, historic drilling. After Figure 78, Sabag 2008; data from Alberta Mineral Assessment Report MIN9802, Sabag 1998.

holes. The charts also show good consistency of the Asphalt holes with the relative metal values from the Buckton Zone drilling 30km to the north, although U represents a greater relative value for the Asphalt holes (17%-23%) than it does in the holes from the Buckton drilling (13%-15%). (Rare metals including Li recovered during DNI's recent leaching tests have not been incorporated into the above).

Vertical metal grade variations are minimal, and are shown in Figure 58 as downhole trends of metal grades, restated as a multiple of the overall average of all of the holes from the Buckton Zone drilling. Data are presented downhole over progressive thicknesses of material beneath the upper contact of the Shale. Overall, metal grades for nearly all of the metals is similar to, or lower than, the average of Buckton drill holes with no significant downhole variations. Given that only two short holes were drilled at Asphalt, no additional trends can be discerned.

Relying on the historic drilling results, reinforced also by results from by surface geochemical data and the lateral continuity in geology and grades exhibited by the historic drilling, the author proposes that the Asphalt Zone represents a Mineralized Zone as understood under NI-43-101. The reader is reminded that the proposed Mineralized Zone is conceptual in nature, and is intended solely to demonstrate the potential of identifying mineralized material at the Asphalt Zone subject to future in-fill grid drilling. The reader is further reminded that there has been insufficient drilling conducted over the Asphalt Zone to define a mineral resource, and that it is uncertain if further drilling will define a mineral resource over the Zone. DNI plans to conduct the necessary drilling to test the resource potential of the Zone.

The Asphalt proposed Mineralized Zone comprises a volume of polymetallic material contained in five blocks which are discussed in detail in Sabag 2008 and whose size and distribution is shown in Figure 59.

Based on the above scheme, it is proposed that the Asphalt Zone contains a Mineralized Zone as understood under NI-43-101. The Asphalt Mineralized Zone is proposed to extend over an approximate 1km x 4.5km area comprising approximately 4.5 square kilometers, with a thickness ranging 7.2m to 11.6m, and is estimated to represent an aggregate of approximately 109-132 million short tons of mineralized material (99-120 million tonnes). Grades and estimated gross contained metals are summarized as ranges in Table 8 rounded to the nearest million unit.

The reader is reminded that the estimated Mineralized Zone is conceptual in nature, that there has been insufficient drilling conducted over the Zone to define a mineral resource, and that it is uncertain if further drilling will define a mineral resource over the Zone, and that it is intended solely to demonstrate the potential of identifying mineralized material at the Asphalt Zone subject to future in-fill grid drilling. DNI plans to conduct the necessary drilling to test the resource potential of the Zone.

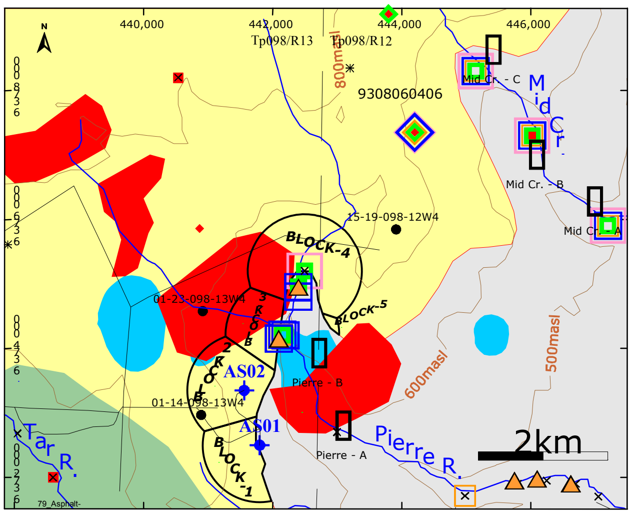


Figure 59: Asphalt Mineralized Zone, showing estimated blocks and surrounding area. After Figure 79, Sabag 2008. See Figure 56 for legends.

The Asphalt Zone holds potential to deliver additional mineralized material from areas immediately to the northwest of the Mineralized Zone over an additional distance of 5km-6km as reflected by soil geochemical diffusion anomalies identified by the historic work. The Zone also holds potential for expansion for an additional 6km northeasterly toward Mid Creek and closure of its valley at the 620m-650m elevation asl. The potential for a projected extension southward, toward and over the stratigraphic isopach anomaly located immediately to the southwest of the Asphalt Mineralized Zone, is unknown. There is, furthermore, no information to guide speculation of what the ultimate thickness of the Speckled Shale Formation might be over the proposed projected extensions of the Asphalt Mineralized Zone. It would be reasonable to propose that thickness of the Formation might be at least the same as, or thicker than, that drilled at some distance away from the erosional edges of the Birch Mountains and away from active slump zones. There is no additional information which might support or refute the foregoing proposals.

Grade Averages and Gross Metals Content: Potential Mineral Deposit - Asphalt Zone

	Grade Range (ppm)	Grade Range (lb/st)(opt)	Gross Metal/Oxide Content (lb) (oz) Low Estimate	High Estimate
Mo	63ppm-73ppm	0.13lb/st-0.15lb/st	14,000,000	19,000,000
[MoO3]		0.19lb/st-0.22lb/st	20,000,000	29,000,000
Ni	122ppm-144ppm	0.24lb/st-0.29lb/st	27,000,000	38,000,000
U	31ppm-47ppm	0.06lb/st-0.09lb/st	7,000,000	12,000,000
[U3O8]		0.07lb/st-0.11lb/st	8,000,000	15,000,000
V	664ppm-690ppm	1.33lb/st-1.38lb/st	145,000,000	182,000,000
[V2O5]		2.39lb/st-2.48lb/st	261,000,000	328,000,000
Zn	282ppm-376ppm	0.56lb/st-0.75lb/st	62,000,000	99,000,000
Cu	89ppm-89ppm	0.18lb/st-0.18lb/st	19,000,000	24,000,000
Co	20ppm-20ppm	0.04lb/st-0.04lb/st	4,000,000	5,000,000
Ag	0.3ppm-0.3ppm	0.01opt-0.01opt	1,000,000	1,000,000
Au	assumed nil	assumed nil	assumed nil	assumed nil

lb/st=lbs per short ton; opt=ounces per ton   Gross metal contents are rounded to nearest million units *

Table 8: Average grades and gross contained metal estimates, Asphalt Mineralized Zone. After Table 20, Sabag 2008. ***NOTE: The terminology used in Sabag 2008 has since been revised to comply with amendments in NI-43-101, as a result the Buckton "Potential Mineral Deposit" has been renamed the Buckton "Mineralized Zone".***

Incorporation of volcanogenic debris in the Second White Speckled Shale is suggested by considerable bentonitic material noted in the historic drilling. Though the thinner bentonite "seams" are attributed to distal sources within the overall sedimentary basin, the thicker bentonites measuring 8cm-10cm or more suggest nearby sources (similar to the Buckton drill holes). The historic work has concluded that there exists a nearby source(s) to the bentonites noted in the Asphalt drilling, although there is insufficient information from the work to resolve a directional vector to guide the search for the source. The author concurs with the historic conclusions and further suggests, relying on the proposed volcanogenic geological working model, that the immediate vicinity of the Asphalt Zone holds potential for hosting exhalative metalliferous venting possibly associated with SEDEX style sulfides hosted within the Cretaceous stratigraphy.

In the above regard, it is noteworthy that nearly all of the historic surface geochemical and mineral anomalies discovered to date on the Property are in structural zones interpreted based on stratigraphic disturbances (e.g. Asphalt-Eaglenest Fault Zone), or are on the flanks of circular (domed?) stratigraphic disturbances (e.g. Buckton and Asphalt polymetallic Zones). The "closed" shape of some of the stratigraphic, often isopach, anomalies may be an artifact of contour noding and it is possible that they reflect faulted blocks instead, bounded by synsedimentary faults, even though the shapes have support from coincident roughly circular domed topographic relief features. Should the "closed" shaped anomalies indeed be faulted blocks rather than domes, considerable significance would be placed on fault junctions, and junctions of fault swarms, as potential conduits for any volcanic exhalative venting in the Birch Mountains and on the Property. Fault junctions, accordingly, present high priority future exploration targets for volcanic vent related exhalative mineralization which might exists in the area. Several such possible targets are suggested as shown in Figure 72 in a later Section of this report.

A series of exposures on the valley walls of the Asphalt Creek also merit more detailed inspection, as they include bedded sulfides (FeS+?) and Fe-phosphates in slumping shale cliff exposures, which can also be seen in the Asphalt Creek valley floor as 1-2 inch thick sulfide rich (FeS±Ni) table-top sized slabs containing up to 75% sulfides by volume (Plate 4). Historic work reports Mo-Ni-Cu enrichment, in addition to 0.02-0.1g/t Au from samples of "slabs" (Alberta Mineral Assessment Report MIN9613, Sabag 1996b).

Plate 4: Exposures of bedded sulfides and Fe-phosphate in shale and sulfide rich valley float, Asphalt Creek valley. Images from Sabag 1994-1999.

8.11 DOWNHOLE GEOLOGY & GEOCHEMISTRY - ASPHALT AND BUCKTON ZONES

The most definitive subsurface information from the Property is that documented from diamond drilling and coring completed by Tintina Mines in 1996-1997 to test the Asphalt and Buckton Zones (Figure 60).

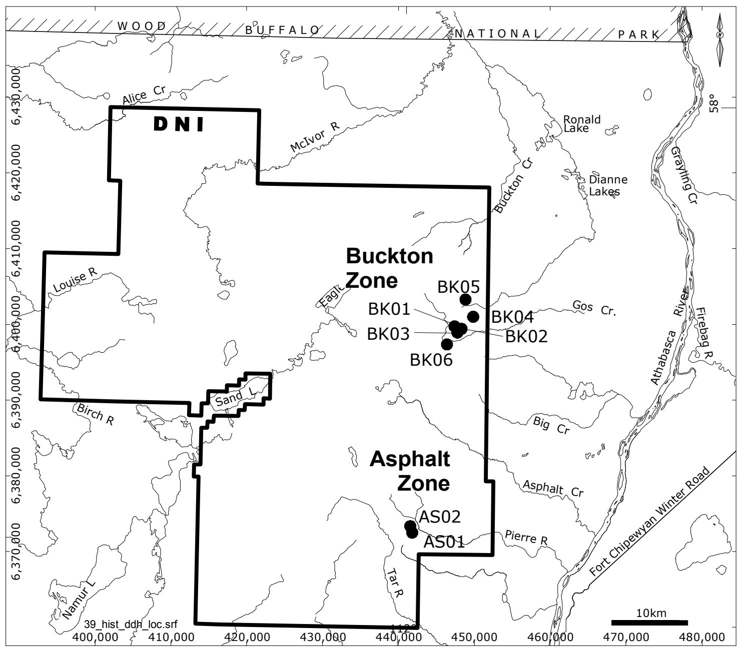


Figure 60: Historic Asphalt and Buckton drill programs location sketch, Alberta Mineral Assessment Report MIN9802, Sabag 1998.

Drill core from the drilling program provides a reliable record of down-stratigraphic lithological, textural and geochemical variations across the Second White Speckled Shale Formation, and over limited sections of the overlying LaBiche Shale and underlying Shaftesbury Formation.

The geologic records provided by the drilling are an infinite improvement over the challenges faced during surface work due to extensive slumping at most exposures which, additionally, are often incomplete and rarely offer a complete lithosection across the Speckled Shale.

Tintina carried out a 915.73m diamond drill program to test beneath the Asphalt and Buckton Zones. Details of the drill program are outlined in Sabag 2008 and 2010 (Section 6.2.12, Alberta Mineral Assessment Report MIN20100017). The drill program was implemented by Apex Geoscience, and related core logging and sampling were completed by Mr.M.Dufresne. Dill core archived from the foregoing drilling archived at the MCRF, Edmonton, was reviewed and resampled by DNI in 2009-2010 as part of its historic sample verification program (Sabag 2010).

Eight 3-inch diameter vertical holes were cored by Tintina during Jan-Feb/97, to test suspected buried metal enrichment beneath the anomalies, based on Tintina's general geological working model. Drill holes were positioned to collect complete sections of the Second White Specks Formation from its upper contact to its base, to also core sufficient sections beneath the base to test for proposed metal accumulations.

Drill Hole	UTM		Collar Elev	Depth	Elev Top	Elev Bottom	Thickness	Section/Range
Name	East	North	(masl)	(m)	2WS (masl)	2WS (masl)	2WS (m)	Location
7BK01	447390	6399740	760	149.1	627.0	not int.	est 21.3	11-03-101-12W4
7BK02	448310	6399410	685	101.5	624.2	605.9	18.4	08-03-101-12W4
7BK03	447770	6398930	695	106.9	620.0	593.8	26.2	02-03-101-12W4
7BK04	449850	6401000	750	158.2	629.4	608.3	21.1	08-11-101-12W4
7BK05	448825	6403270	730	101.2	653.2	634.8	18.4	13-14-101-12W4
7BK06	446390	6397340	730	132.7	622.4	599.8	22.6	02-33-100-12W4
7AS01	441800	6372500	675	76.3	not int.	656.5	est 11.4	06-12-098-13W4
7AS02	441560	6373350	690	89.8	668.4	657.0	11.4	11-13-098-13W4

Table 9: Summary of historic drill holes, Asphalt and Buckton Properties 1997 drilling. Showing elevation and thickness of the Second White Specks Formation (2WS). Buckton hole BK01 did not reach bottom contact of the Formation, a total thickness is estimated to be 21.3m based on projections from adjacent holes. Asphalt hole AS01 collared in Speckled Shale, total thickness estimated to be 11.4 based on projections from adjacent hole. After Table 3, Sabag 2008; and Alberta Mineral Assessment Report MIN9802, Sabag 1998.

The entire footage drilled was sampled and one half-split of the core was analyzed and the other half archived[18]. Drill hole details are summarized in Table 9, showing also intercepts of the Second White Speckled Shale Formation footages.

The drilling confirmed the presence of metal enrichment in the Second White Speckled Shale and demonstrated that the Formation is ***itself*** the primary host to the metals and related anomalies documented from both areas, as sections beneath its bottom contact were found to be relatively unmineralized, contrary to the proposal of the geological working model formulated for the area.

A summary of the drilling particulars are as follows:

Buckton Zone: a total of 749.63m in six vertical holes were cored (of 10 planned) across the Buckton Zone, collared along an 8km long fence as a cross-section across the southeast flank of the 5kmx8km B-Mid composite anomaly, to test beneath its eastern one third (Figure 61). Four of the holes (BK06, BK01, BK04 and BK05) were spaced approximately 2km-2.4km apart, whereas the remaining two holes (BK02 and BK03) were collared within approximately 700m radius of hole BK01 to assess local variations.

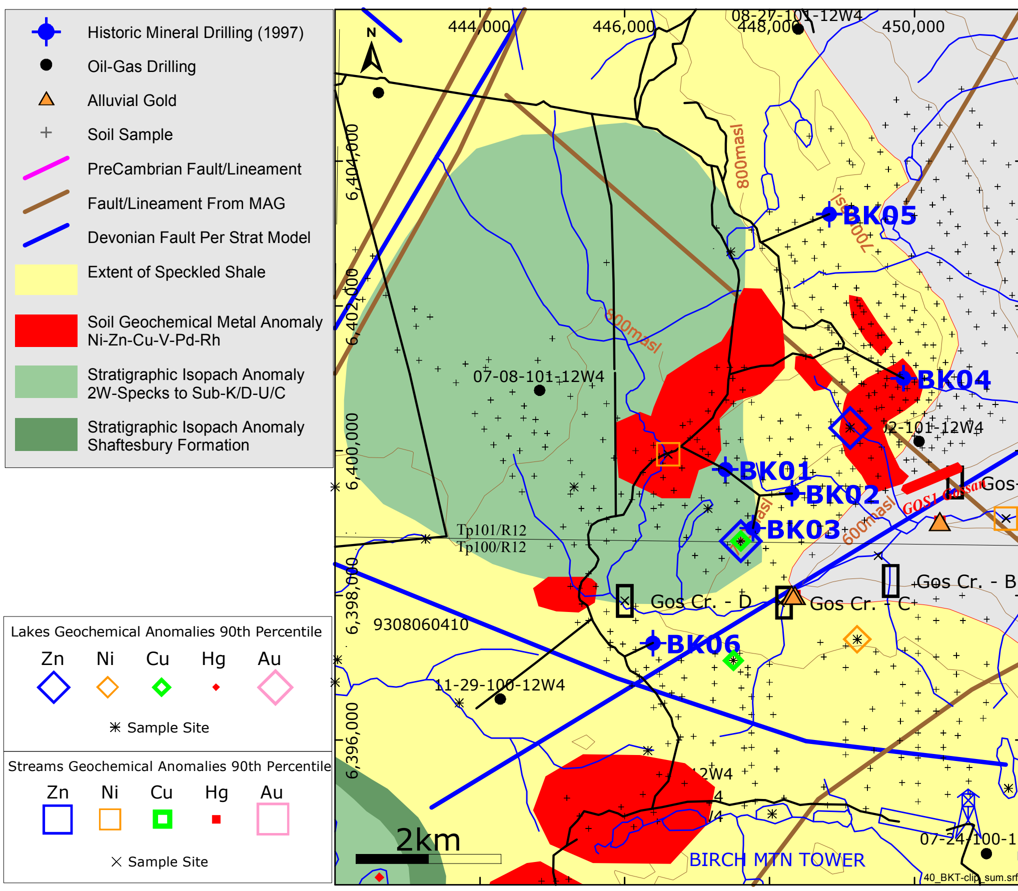


Figure 61: Historic drilling drill hole location sketch, Buckton Zone (Composite Anomaly B-Mid), Tintina Drill Program 1997. After Figure 40, Sabag 2008; and Alberta Mineral Assessment Report MIN9802, Sabag 1998.

The Buckton drill fence consists of two separate parallel 4km to 5km long "staggered" cross-sections 1km-2km apart, which also radially parallel Gos Creek and its valley walls 1km-2km to the southeast. The fence is regarded as a cross-section for the purposes of this Report.

[18] Subsequently archived by the Alberta Mineral and Core Research Facility, Edmonton, resampled by DNI in 2009 and utilized by DNI during its initial leaching and bioleaching testwork reported in Alberta Mineral Assessment Report MIN20100017 (Sabag 2010).

Drill hole cross section is presented in Figure 63, in addition to a summary downhole stratigraphy of the principal sub-Formational units. Combined downhole lithogeochemistry for all of the holes combined is presented in Figure 64 juxtaposed against downhole stratigraphy.

Hole depths varied 75m-100m to probe from surface (~700m-750m asl) down to the base of the Second White Specks Formation (~600m-630m asl). All holes reached their targets, except hole BK01 which was collared too high to reach the bottom contact of the Second White Speckled Shale (The Formation in Drill hole BK01 is 16.12m thick but is estimated to be 21.3m thick based on projections from adjacent holes.

Asphalt Zone: A total of 166.10m were drilled in two vertical holes (of 7 planned) over the Asphalt Zone, over the eastern part of the A-South composite anomaly (Figure 62). The two holes were spaced 900m apart and both holes reached their targets. The drill holes cross section is presented in Figure 63, in addition to a summary downhole stratigraphy of the principal sub-Formational units.

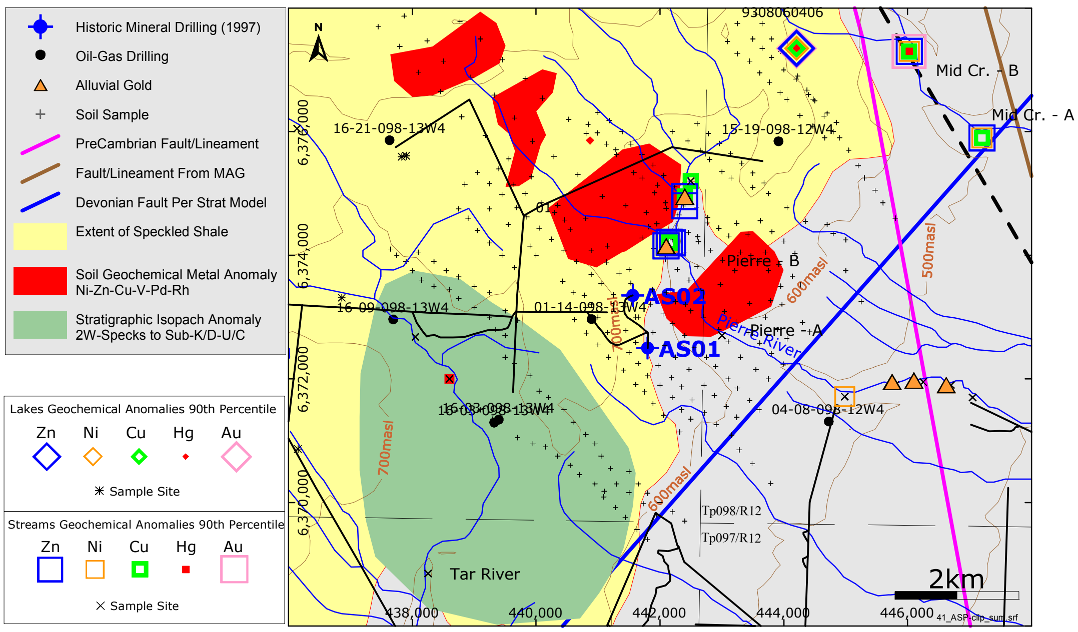


Figure 62: Historic drill hole location sketch, Asphalt Zone (historic Composite Anomaly A-South), Tintina drill program 1997. After Figure 41, Sabag 2008; and Alberta Mineral Assessment Report MIN9802, Sabag 1998.

The Second White Speckled Shale Formation was encountered approximately 40m-50m higher than expected based on interpretations from the subsurface stratigraphic database for the area. As a result, drill hole AS01 collared directly in the upper contact of the Formation and cored its lower sections. The upper contact of the Formation in hole AS01 is in casing and only 7.2m were cored compared to 11.4m cored in hole AS02 (Second White Speckled Shale Formation in AS01 is estimated to be 11.4m thick based on the adjacent hole AS02). In addition, material similar to the Second White Speckled Shale and related bentonites, were noted 5m-10m below its base in the Belle Fourche (Shaftesbury) Formation beneath it. This repetition was attributed to block movement in the area or equally likely galcio-tectonic thrusting. The holes are located at, or very near, the erosional edge of the Birch Mountains in a complex zone of faults and valley slumps.

Analytical data for select metals and elements for all drill core intercepts of the Second White Speckled Shale Formation are summarized in Table 10, which also shows comparative data from other black shales from elsewhere in the world. Of note, are data from Talvivaara black schists, Finland, which host polymetallic deposits one of which commenced production in 2008 and represents the first ever black shale hosted polymetallic deposit reaching production relying on bulk mining and bulk bio-heapleaching.

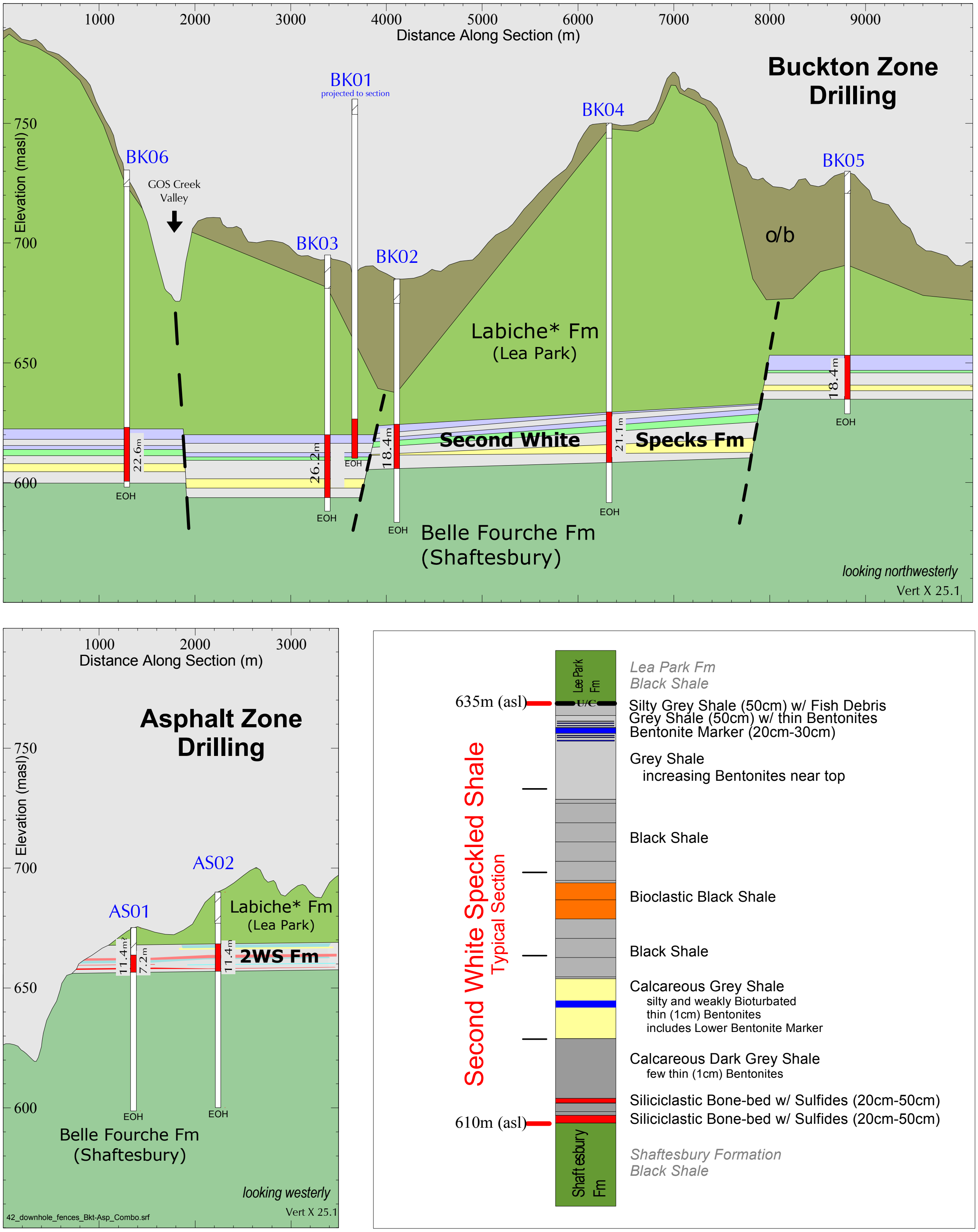


Figure 63: Drill cross-sections, historic drilling Asphalt and Buckton Zones. After Figure 42, Sabag 2008; and Figures 16a and 16b, Alberta Mineral Assessment Report MIN9928, Sabag 1998. Type stratigraphic column for the Second White Speckled Shale also shown.

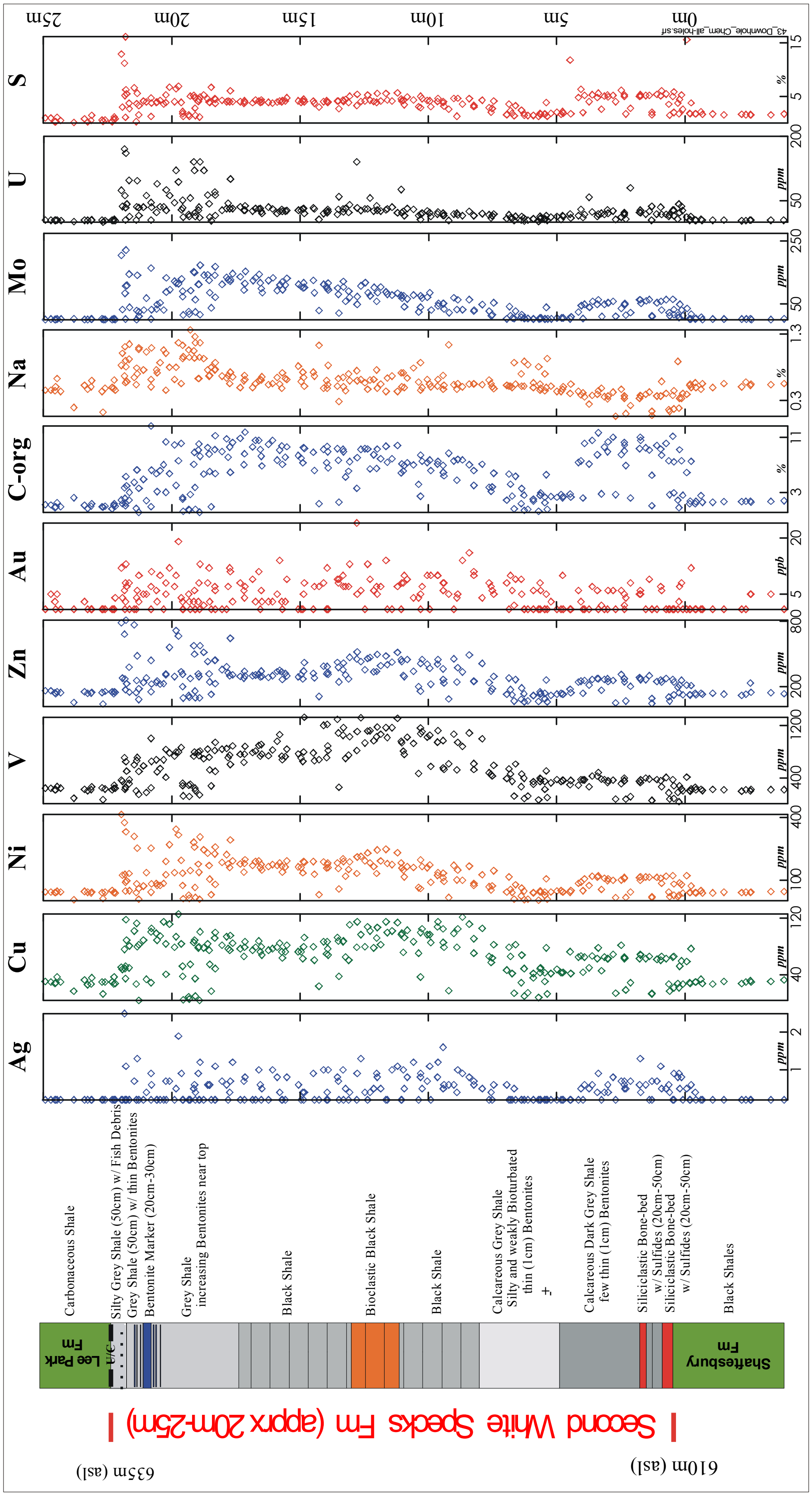


Figure 64: Composite downhole lithogeochemistry, all historic drilling, Asphalt and Buckton Zones. After Figure 43, Sabag 2008; and data from Alberta Mineral Assessment Report MIN9802, Sabag 1998. Data normalized to constant formational thickness for plotting purposes.

Sample No.	From (m)	To (m)	Length (m)	Rock Type	Ag ICP ppm	Au FA ppb	Au INA ppb	Ba INA ppm	C-org Leco %	Ca ICP %	Cd ICP ppm	Co INA ppm	Cu ICP ppm	Fe INA %	Mo ICP ppm	Na INA %	Ni ICP ppm	S Leco %	U INA ppm	V ICP ppm	Zn ICP ppm
7BK0113298	627.02	626.84	0.18	2shgsu	0.2	11	3	7800	3.1	5.1	6.0	25	89	3.8	48	0.72	75	4.0	89	495	249
7BK0113316	626.84	626.79	0.05	2shgsu	0.2	10	10	8100	6.1	2.0	5.6	20	95	4.8	53	0.87	75	4.3	36	543	221
lc	626.79	626.10	0.69																		
7BK0113390	626.10	625.83	0.27	2shrbnsu	0.2	6	1	9600	2.0	3.3	3.5	10	38	4.4	73	1.13	75	1.8	33	286	197
7BK0113417	625.83	625.65	0.18	2bnlsu	0.2	3	5	710	0.5	1.3	1.2	3	9	1.6	26	1.06	30	1.6	18	291	113
7BK0113435	625.65	625.44	0.21	2shrbnsu	0.5	9	3	5000	7.0	5.0	14.9	35	86	5.4	152	1.05	281	5.2	140	729	574
7BK0113456	625.44	624.60	0.84	2shrbnsu	0.6	6	8	2600	9.5	5.5	12.2	25	84	4.1	143	0.76	229	4.6	63	835	429
7BK0113540	624.60	623.72	0.88	2shrbnsu	0.7	6	11	7200	5.9	6.5	15.7	38	96	5.9	126	0.73	293	6.1	100	606	642
7BK0113628	623.72	622.72	1.00	2shrca	0.2	9	3	1200	10.5	7.9	8.9	20	79	3.5	133	0.56	190	4.3	32	809	303
7BK0113728	622.72	621.72	1.00	2shrcabn	0.2	5	3	1000	9.7	10.2	9.7	18	73	3.5	120	0.49	169	4.0	30	730	333
7BK0113828	621.72	621.07	0.65	2shrcabn	0.2	5	5	1500	9.5	5.5	10.6	21	80	4.1	117	0.65	191	4.5	32	797	341
7BK0113893	621.07	619.98	1.09	2shrbnlfd	0.2	6	1	930	7.3	5.0	9.0	17	70	3.7	105	0.60	159	4.2	26	711	316
7BK0114002	619.98	619.40	0.58	2shrbnfd	0.2	2	7	1100	6.0	5.0	8.1	16	61	3.5	90	0.70	152	3.9	23	746	268
7BK0114060	619.40	618.75	0.65	2shrbc	0.4	6	1	1300	9.3	6.9	12.1	21	80	4.0	118	0.57	194	4.2	31	929	351
7BK0114125	618.75	618.22	0.53	2shrbc	0.5	5	7	960	7.8	8.4	13.8	22	83	4.0	104	0.55	192	4.2	26	1063	390
7BK0114178	618.22	617.22	1.00	2shrcabn	0.2	7	1	3100	5.8	6.3	15.0	22	97	4.3	77	0.72	184	4.6	76	955	448
7BK0114278	617.22	616.22	1.00	2shrcabnfd	0.7	6	10	950	7.3	5.5	14.7	23	97	3.9	72	0.62	160	4.3	26	1020	404
7BK0114378	616.22	615.22	1.00	2shrcabn	0.6	6	1	590	7.5	3.9	16.5	22	99	4.3	70	0.54	172	4.7	19	1065	454
7BK0114478	615.22	614.10	1.12	2shrcabn	0.5	7	4	610	7.1	2.9	15.3	19	106	4.2	48	0.54	126	4.3	20	995	412
7BK0114590	614.10	612.70	1.40	2shrszbnfdgl	0.2	7	9	780	5.3	2.4	6.9	15	83	3.4	27	0.55	79	3.3	14	612	262
7BK0114824	612.70	611.76	0.94	2shrszbnfdgl	0.2	6	5	720	5.5	3.0	5.2	20	78	3.7	39	0.50	107	3.9	15	509	258
7BK0206078	624.22	623.87	0.35	2shb	1.1	10	13	13000	5.3	6.5	23.5	55	118	8.0	108	0.81	331	6.3	160	648	810
7BK0206113	623.87	623.54	0.33	2shb	0.2	2	1	1600	0.6	0.5	0.3	15	27	3.8	1	0.54	41	0.3	5	205	143
7BK0206146	623.54	623.22	0.32	2shbbnsu	0.4	2	5	22000	1.8	8.3	5.2	22	34	4.4	69	1.03	137	4.0	62	181	279
7BK0206178	623.22	622.26	0.96	2shbbnsu	0.2	4	8	12000	3.0	2.8	6.3	20	41	5.9	88	1.01	127	5.3	75	412	307
7BK0206274	622.26	622.10	0.16	2shbbnsu	0.2	1	1	840	0.2	1.4	0.8	3	5	1.6	15	0.96	12	1.3	12	132	92
7BK0206290	622.10	621.52	0.58	2shbbn	0.6	6	6	4800	8.8	4.0	14.5	37	89	5.5	150	0.94	258	4.8	120	792	497
7BK0206348	621.52	621.15	0.37	2shbbnsu	0.6	9	12	1900	8.5	5.8	9.3	21	75	4.1	125	0.67	170	4.0	43	714	315
7BK0206385	621.15	620.17	0.98	2shbbnfd	0.4	5	12	1100	9.5	8.4	8.9	21	75	4.3	121	0.56	161	4.0	32	749	297
7BK0206483	620.17	619.17	1.00	2shbbnfd	0.6	4	1	1700	9.2	9.1	8.7	22	73	4.1	117	0.62	160	4.0	32	730	285
7BK0206583	619.17	618.73	0.44	2shbcabn	0.2	6	1	1200	7.0	4.5	7.4	17	64	4.4	95	0.72	139	4.2	25	678	264
7BK0206627	618.73	617.82	0.91	2shbca	0.4	3	1	1300	7.2	5.9	7.3	18	63	4.2	101	0.73	136	4.1	31	649	268
7BK0206718	617.82	617.70	0.12	2shbcabn	0.2	2	7	590	1.3	1.4	2.9	7	24	3.5	29	1.13	31	3.0	7	678	105
7BK0206730	617.70	616.55	1.15	2shbcacc	0.7		8	900	7.6	5.7	15.2	20	88	4.3	80	0.63	156	4.2	30	1083	375
7BK0206845	616.55	615.39	1.16	2shbcabn	0.5	3	6	1100	8.4	6.1	12.0	23	78	4.7	103	0.62	166	4.1	26	964	333
7BK0206961	615.39	614.38	1.01	2shbcafd	0.8	6	9	1100	7.3	3.9	16.0	27	103	5.5	66	0.64	166	5.0	32	1019	447
7BK0207062	614.38	613.37	1.01	2shbcafd	1.2	7	10	780	7.5	3.4	16.5	25	115	5.2	52	0.62	137	4.7	24	1119	445
7BK0207163	613.37	612.37	1.00	2shbcafd	0.8	5	16	680	7.0	4.5	16.3	28	112	5.5	64	0.55	167	4.6	25	1081	490
7BK0207263	612.37	612.07	0.30	2shbcafdbn	0.2	4	8	880	3.7	4.9	5.2	15	66	3.8	27	0.61	69	3.0	17	481	235
7BK0207293	612.07	611.06	1.01	2shbszbn	0.2	6	1	770	5.6	3.7	5.2	23	79	4.6	42	0.52	116	3.6	17	541	276
7BK0207394	611.06	610.06	1.00	2shbsz	0.2	4	8	1100	2.5	1.2	1.0	13	49	3.5	6	0.55	49	1.9	14	395	151
7BK0207494	610.06	609.06	1.00	2shbsz	0.2	6	1	1000	2.3	1.2	0.7	12	42	3.1	9	0.55	51	1.8	10	364	140
7BK0207594	609.06	608.06	1.00	2shbsz	0.2	2	2	1300	2.8	2.8	0.3	20	46	3.7	10	0.49	57	2.7	21	382	164
7BK0207694	608.06	607.78	0.28	2sbb	0.7	4	6	710	8.4	1.8	3.4	30	82	7.9	36	0.47	102	6.2	12	317	308
7BK0207722	607.78	607.45	0.33	2sbbsh	0.7	4	8	1000	2.2	13.9	2.7	9	29	2.9	23	0.23	44	2.8	80	117	200
7BK0207755	607.45	606.56	0.89	2shbcafd	0.2	2	9	680	9.1	4.5	3.3	26	66	5.9	64	0.43	115	5.2	25	386	299
7BK0207844	606.56	605.85	0.71	2sbb	0.2	2	1	530	2.9	28.1	1.8	8	22	2.1	16	0.18	29	2.0	28	89	120

Table 10: Select analytical data, Buckton and Asphalt Zones historic drilling. After Alberta Mineral Assessment Report MIN9802, Sabag 1998. (Continued next page) Comparative data from select other black shales also shown (at end of table). After Table 4, Sabag 2008.

Sample No.	From (m)	To (m)	Length (m)	Rock Type	Ag ICP ppm	Au FA ppb	Au INA ppb	Ba INA ppm	C-org Leco %	Ca ICP %	Cd ICP ppm	Co INA ppm	Cu ICP ppm	Fe INA %	Mo ICP ppm	Na INA %	Ni ICP ppm	S Leco %	U INA ppm	V ICP ppm	Zn ICP ppm
7BK0307503	619.97	619.38	0.59	2shbsssu	0.2	5	7	4000	3.9	2.3	3.1	28	89	6.1	109	0.59	97	5.5	42	505	223
7BK0307562	619.38	619.04	0.34	2shbsufd	0.2	8	4	7600	6.2	2.1	5.6	20	113	4.6	29	0.79	83	3.7	36	666	252
7BK0307596	619.04	618.75	0.29	2shsu	0.2	7	5	7700	4.9	3.3	5.4	17	89	4.2	31	0.76	73	4.1	35	588	236
7BK0307625	618.75	617.84	0.91	2shbbnfd	0.2	9	6	6800	5.7	1.6	5.4	18	99	4.5	34	0.76	85	3.9	23	676	236
7BK0307716	617.84	617.53	0.31	2shbbnfd	0.7	9	12	14000	5.7	2.9	18.7	38	112	6.3	95	0.80	270	6.7	62	781	558
7BK0307747	617.53	617.26	0.27	2shrbnsu	0.5	8	10	9200	4.0	4.1	18.7	47	94	7.8	116	0.80	344	6.5	120	793	713
7BK0307774	617.26	616.90	0.36	2shbbnsufd	0.2	6	3	12000	2.2	4.7	5.7	19	52	5.0	90	0.93	134	2.2	51	322	312
7BK0307810	616.90	616.65	0.25	2shbbnfd	0.2	1	3	470	0.4	1.3	0.6	2	6	1.4	18	0.95	14	1.4	14	123	96
7BK0307835	616.65	616.37	0.28	2shbbnfd	0.2	1	1	7300	3.7	4.8	3.8	10	35	3.0	64	1.26	66	2.9	23	246	157
7BK0307863	616.37	616.23	0.14	2shbbnfd	0.2	1	1	410	0.1	1.1	0.3	1	4	1.3	16	0.95	9	1.2	11	145	93
7BK0307877	616.23	615.95	0.28	2shgszbnsu	0.2	5	2	5200	5.6	4.3	13.0	29	78	5.6	142	0.93	246	5.3	120	691	514
7BK0307905	615.95	615.24	0.71	2shgsu	0.2	6	7	3600	9.2	4.6	12.2	30	92	4.8	141	0.76	226	4.7	70	818	438
7BK0307976	615.24	614.69	0.55	2shgsu	0.2	7	7	2200	8.1	6.0	9.4	21	77	4.0	127	0.68	178	4.2	44	712	322
7BK0308031	614.69	614.14	0.55	2shgsu	0.2	4	8	1400	10.8	8.5	8.4	21	77	3.7	136	0.50	178	4.1	36	760	291
7BK0308086	614.14	613.50	0.64	2shgcasu	0.2	6	9	830	9.6	8.0	8.4	18	75	3.6	124	0.50	170	3.8	26	785	297
7BK0308150	613.50	612.70	0.80	2shgcasu	0.2	4	3	1400	9.9	9.2	7.7	21	75	4.2	124	0.54	166	3.9	35	737	282
7BK0308230	612.70	611.94	0.76	2shgcabnsu	0.2	1	3	1200	8.1	4.6	9.2	19	73	4.2	110	0.63	163	4.2	26	724	320
7BK0308306	611.94	611.23	0.71	2shgcabnsu	0.2	4	1	1300	7.9	4.7	8.5	20	73	4.1	106	0.59	160	3.9	28	701	306
7BK0308377	611.23	610.69	0.54	2shgcabnsu	0.2	4	7	1200	6.1	5.5	8.4	18	61	4.2	85	0.67	129	3.7	31	664	279
7BK0308431	610.69	610.00	0.69	2shbbcsu	0.2	3	1	1200	8.9	6.8	10.6	21	77	4.3	116	0.54	182	4.0	30	887	328
7BK0308500	610.00	609.24	0.76	2shbbcsu	0.2	6	7	860	8.9	5.5	15.4	22	88	4.3	104	0.51	190	4.1	24	1162	415
7BK0308576	609.24	608.75	0.49	2shbbcsu	0.2	4	24	1900	3.6	9.3	16.6	20	79	3.3	49	0.75	133	3.3	140	816	452
7BK0308625	608.75	608.00	0.75	2shbbcsu	0.4	4	9	1500	6.4	5.9	16.8	23	102	4.3	76	0.61	184	4.3	56	1117	465
7BK0308700	608.00	607.17	0.83	2shbbcsu	0.2	4	1	1500	7.3	5.2	13.0	27	100	5.1	81	0.64	180	4.4	31	1013	399
7BK0308783	607.17	606.64	0.53	2shbbcsu	0.2	5	8	740	7.1	5.4	16.2	22	99	4.4	69	0.51	159	4.2	22	932	428
7BK0308868	606.32	605.61	0.71	2shbbcsu	0.5	6	7	750	7.5	4.1	17.4	24	105	4.6	69	0.50	166	4.6	21	1104	449
7BK0308939	605.61	604.88	0.73	2shbbcsu	0.8	5	10	920	7.1	2.8	14.6	20	108	4.5	44	0.52	124	4.1	19	945	404
lc	604.88	604.19	0.69																		
7BK0309081	604.19	603.97	0.22	2shbbcsu	0.9	7	14	790	7.7	1.8	9.6	17	122	4.1	32	0.51	100	3.6	15	877	332
7BK0309103	603.97	603.15	0.82	2shbbcsu	0.6	4	10	840	4.0	3.5	5.7	17	71	3.9	31	0.55	85	3.4	15	528	247
lc	603.15	601.64	1.51																		
7BK0309336	601.64	601.03	0.61	2shsz	0.2	4	5	1700	3.5	1.6	2.7	13	68	3.4	16	0.52	63	2.5	13	462	185
7BK0309397	601.03	600.57	0.46	2shsz	0.2	1	6	870	1.7	0.8	0.7	12	36	2.9	3	0.57	39	1.6	8	306	116
7BK0309443	600.57	600.53	0.04	2shszbn	0.2	1	1	360	0.2	1.1	0.3	2	8	1.4	3	0.81	5	1.3	2	69	60
7BK0309447	600.53	600.00	0.53	2shgsz	0.2	1	1	1100	2.3	0.8	0.3	11	43	2.8	2	0.45	45	1.7	9	350	134
7BK0309500	600.00	599.00	1.00	2shgsz	0.2	1	1	860	2.7	1.0	0.5	11	43	2.7	6	0.44	50	1.7	7	347	134
7BK0309600	599.00	598.00	1.00	2shgsz	0.2	2	1	1100	2.2	1.4	0.3	13	44	3.0	4	0.42	50	2.0	11	372	136
7BK0309700	598.00	597.65	0.35	2shgsz	0.4	2	6	680	8.4	1.3	3.2	19	63	4.5	49	0.40	116	4.8	13	431	272
7BK0309735	597.65	597.03	0.62	2shb	0.6	1	1	650	8.8	6.8	3.6	20	63	5.1	54	0.33	99	5.3	29	331	270
7BK0309797	597.03	596.91	0.12	2sbb	0.2	10	1	140	2.6	35.5	0.7	5	14	3.9	11	0.07	17	4.0	7	81	47
7BK0309809	596.91	596.22	0.69	2shb	0.7	4	2	640	9.0	6.7	3.4	22	64	5.1	51	0.34	109	5.0	23	354	272
7BK0309878	596.22	595.52	0.70	2shb	0.6	5	5	680	9.3	4.6	3.1	24	63	5.3	63	0.34	114	5.1	23	349	280
7BK0309948	595.52	595.07	0.45	2sbb	0.7	4	1	710	1.1	25.4	1.1	5	14	1.6	10	0.14	21	1.7	37	64	87
7BK0309993	595.07	594.62	0.45	2shbfd	0.5	6	6	790	8.3	1.4	3.2	27	66	7.9	31	0.59	86	6.1	18	271	240
7BK0310038	594.62	594.32	0.30	2sbb	0.4	1	1	240	2.6	33.7	1.1	6	17	1.6	12	0.14	22	1.6	17	80	62
7BK0310068	594.32	593.77	0.55	2sbb	0.9	7	3	840	0.7	12.8	2.6	7	22	2.1	7	0.19	29	1.8	42	41	139
7BK0412060	629.40	629.33	0.07	2shbsuszglbn	0.2	4	12	31000	1.9	2.4	23.7	180	51	11.4	205	0.83	414	12.9	74	370	787
7BK0412067	629.33	629.14	0.19	2shbszsubn	0.2	4	1	27000	2.1	1.6	6.2	22	49	5.7	84	1.11	128	5.2	62	230	268
7BK0412086	629.14	629.01	0.13	2shbbn	0.2	2	8	20000	1.9	2.7	8.0	20	50	6.2	145	0.92	133	3.7	97	316	377
7BK0412099	629.01	628.76	0.25	2shb	0.7	9	1	6700	4.4	11.9	24.3	42	102	8.5	316	0.65	310	6.6	260	599	767
7BK0412124	628.76	628.67	0.09	2bnlsu	0.2	1	3	1300	0.1	1.2	0.5	1	4	1.8	11	1.07	9	1.6	16	154	78
7BK0412216	627.84	626.93	0.91	2shbcasugl	0.2	2	7	1400	9.8	7.9	10.3	24	79	4.7	122	0.62	137	4.1	45	734	289
7BK0412307	626.93	626.02	0.91	2shbcasubngl	0.2	4	8	2100	10.0	6.1	10.5	25	80	4.9	112	0.63	138	4.5	35	740	289
7BK0412398	626.02	625.72	0.30	2shgbnlsu	0.2	1	1	1000	5.7	3.0	7.4	15	49	4.1	72	0.77	81	3.7	16	502	223
7BK0412428	625.72	625.16	0.56	2shgbnl	0.6	2	1	2000	10.7	5.7	12.6	27	94	4.7	135	0.64	223	4.0	32	845	381
7BK0412484	625.16	624.38	0.78	2shgbnlsu	0.2	3	4	1500	8.6	4.8	11.2	22	79	4.5	115	0.68	180	4.2	28	763	338
7BK0412562	624.38	623.92	0.46	2shgbnl	0.2	5	6	1300	8.2	6.0	13.4	23	80	4.9	99	0.61	176	4.4	25	906	339
7BK0412608	623.92	623.00	0.92	2shbcabcsu	0.4	5	14	880	9.1	6.2	14.3	22	85	4.6	111	0.55	183	4.2	25	1055	347
7BK0412700	623.00	622.08	0.92	2shbcabcsu	0.4	6	8	890	9.3	5.9	19.3	23	93	4.4	103	0.52	187	4.0	21	1322	419
7BK0412792	622.08	621.30	0.78	2shbcabcsu	0.4	8	12	800	9.6	7.2	18.2	22	87	4.2	99	0.49	175	4.0	22	1212	383
7BK0412870	621.30	621.19	0.11	2shbcabcsugl	0.2	3	9	1200	1.6	33.4	9.2	10	38	2.7	21	0.29	59	2.8	59	263	241
7BK0412881	621.19	620.51	0.68	2shgszsu	0.4	4	13	1100	7.4	5.5	17.5	32	111	6.1	71	0.60	188	5.1	41	1025	467
7BK0412949	620.51	619.83	0.68	2shgszsu	0.2	4	13	920	9.3	6.0	16.5	36	108	6.5	85	0.47	231	5.3	31	1112	457
7BK0413017	619.83	619.15	0.68	2shgszsu	0.2	6	14	830	9.7	5.9	17.1	34	115	6.3	88	0.44	248	5.6	29	1162	478
7BK0413085	619.15	618.47	0.68	2shgszsu	0.5	6	10	790	6.9	2.6	8.2	20	93	4.1	41	0.50	116	3.5	15	759	289
7BK0413153	618.47	618.09	0.38	2shgszglbcsu	0.2	7	4	1000	4.1	3.4	4.9	15	71	4.0	25	0.58	65	3.1	16	468	197
7BK0413191	618.09	617.54	0.55	2shgszsu	0.2	4	10	940	6.1	2.2	4.2	19	86	4.0	31	0.51	90	3.1	13	575	218
7BK0413246	617.54	617.15	0.39	2shgszsu	0.5	1	6	910	5.9	3.0	6.0	26	86	5.0	51	0.47	134	4.1	21	554	262
7BK0413285	617.15	616.55	0.60	2shgszsu	0.4	6	4	900	4.7	3.4	4.8	22	79	4.5	33	0.47	102	1.4	21	524	238
7BK0413410	615.90	615.15	0.75	2shgszglsu	0.2	4	6	940	3.7	1.5	2.1	18	64	4.1	16	0.51	74	2.8	15	435	179
7BK0413485	615.15	614.40	0.75	2shgszglsu	0.2	3	6	1100	2.4	0.9	0.3	13	42	3.0	5	0.50	42	1.9	9	351	122
7BK0413560	614.40	613.60	0.80	2shgszglsu	0.2	1	1	1100	2.0	0.9	0.3	13	42	3.0	2	0.50	42	1.5	8	343	114
7BK0413640	613.60	613.51	0.09	2bngshsu	0.2	1	1	830	1.5	0.8	0.3	11	31	2.7	3	0.70	28	1.8	6	230	86
7BK0413649	613.51	613.43	0.08	2bngsu	0.2	1	1	570	0.5	1.0	0.3	4	13	1.8	3	0.93	10	1.4	5	104	58
7BK0413657	613.43	613.22	0.21	2shgsz	0.2	1	3	1100	2.4	0.9	0.3	14	42	3.3	3	0.52	45	1.9	12	328	117
7BK0413678	613.22	612.54	0.68	2shgsz	0.2	1	1	1300	2.4	1.7	0.3	14	44	3.3	5	0.51	45	2.0	13	364	125
7BK0413746	612.54	612.09	0.45	2shgsz	0.2	3	6	1000	7.3	0.8	2.4	22	65	5.9	24	0.44	86	4.8	15	291	239
7BK0413791	612.09	611.49	0.60	2shbogszgl	0.6	5	7	770	10.5	5.8	3.9	23	67	5.8	58	0.38	120	5.3	24	431	263
7BK0413851	611.49	610.89	0.60	2shbogszgl	0.4	1	6	800	10.3	7.4	3.3	25	63	5.2	53	0.37	108	5.0	21	357	243
7BK0413911	610.89	610.29	0.60	2shbogszgl	0.5	1	1	720	9.8	6.1	3.3	26	63	5.6	48	0.37	109	5.3	21	362	242
7BK0413971	610.29	609.69	0.60	2shbogszgl	0.4	1	5	880	10.5	6.8	3.5	26	68	5.9	52	0.37	117	5.1	22	372	262
7BK0414031	609.69	609.09	0.60	2shbogszgl	0.7	1	1	730	9.8	3.8	3.2	24	62	6.0	54	0.37	114	5.4	19	379	244
7BK0414091	609.09	608.49	0.60	2shbogszgl	0.2	1	1	670	11.1	5.4	3.4	25	65	5.9	65	0.38	122	5.0	28	374	263
7BK0414151	608.49	608.34	0.15	2shbogssgl	0.2	1	1	890	2.6	2.2	0.5	9	27	3.6	13	0.41	39	2.6	27	206	121

Table 10 (Continued): Select analytical data, Buckton and Asphalt Zones historic drilling. After Alberta Mineral Assessment Report MIN9802, Sabag 1998. (Continued next page). Comparative data from select other black shales also shown (at end of table). After Table 4, Sabag 2008.

Sample No.	From (m)	To (m)	Length (m)	Rock Type	Ag ICP ppm	Au FA ppb	Au INA ppb	Ba INA ppm	C-org Leco %	Ca ICP %	Cd ICP ppm	Co INA ppm	Cu ICP ppm	Fe INA %	Mo ICP ppm	Na INA %	Ni ICP ppm	S Leco %	U INA ppm	V ICP ppm	Zn ICP ppm
7BK0507680	653.20	652.93	0.27	2shbbnlsu	2.5	2	6	3900	3.6	6.6	19.9	66	76	9.4	365	0.67	375	11.2	170	707	681
7BK0507707	652.93	652.39	0.54	2shbbnlsu	1.3	2	6	13000	6.2	7.0	13.2	30	80	7.3	141	0.70	254	5.6	96	712	481
7BK0507761	652.39	652.01	0.38	2shbbnlsu	0.9	1	7	1700	12.6	1.3	14.7	29	101	5.1	164	0.62	254	4.8	46	999	438
7BK0507799	652.01	651.41	0.60	2shbbnlsu	0.7	1	5	1100	10.3	10.1	10.1	21	84	4.0	133	0.46	191	3.9	28	834	316
7BK0507859	651.41	651.01	0.40	2shbbnlsu	0.9	6	4	1400	10.1	9.1	11.4	21	84	4.2	129	0.56	195	3.9	29	864	336
7BK0507899	651.01	650.32	0.69	2shbbnl	0.9	3	3	1500	9.1	5.5	9.9	23	78	4.4	112	0.63	177	4.1	28	794	316
7BK0507968	650.32	650.27	0.05	2shbbnl	0.6	2	3	580	6.0	3.0	6.3	14	55	3.7	86	0.68	106	3.9	12	522	241
7BK0507973	650.27	650.21	0.06	2bnlsu	0.2	3	1	430	0.9	1.3	0.7	4	17	7.1	38	0.80	31	6.7	4	281	124
7BK0507979	650.21	649.57	0.64	2shbbnsu	0.7	9	1	1900	8.9	4.8	11.8	23	82	4.7	112	0.67	185	4.3	28	835	354
7BK0508043	649.57	648.78	0.79	2shbbnsu	0.7	1	6	1300	7.0	9.7	8.3	20	66	4.2	94	0.60	139	3.7	28	637	275
7BK0508122	648.78	648.39	0.39	2shbbnsu	0.5	4	3	1400	6.8	4.9	9.8	20	68	4.4	86	0.66	149	4.0	21	764	291
7BK0508161	648.39	647.80	0.59	2shbbnsu	0.8	2	5	1300	7.7	6.1	12.5	21	79	4.5	93	0.65	171	4.0	21	956	336
lc	647.80	646.80	1.00																		
7BK0508320	646.80	646.35	0.45	2shbbccasu	1.0	2	8	960	9.2	6.2	16.6	20	87	4.4	112	0.49	188	4.0	20	1198	385
7BK0508365	646.35	645.90	0.45	2shbbccasu	0.8	6	9	940	9.3	6.1	18.6	23	93	4.4	101	0.52	183	4.2	18	1289	421
7BK0508410	645.90	645.83	0.07	2shbbccasu	0.5	18	7	1300	5.2	18.3	11.2	18	65	4.3	58	0.45	120	4.5	32	696	306
7BK0508417	645.83	645.13	0.70	2shbsugl	0.9	4	5	1400	8.0	6.2	17.8	34	115	6.2	74	0.60	211	5.4	33	1102	516
7BK0508487	645.13	644.52	0.61	2shbsugl	0.8	1	5	940	9.2	6.3	15.5	39	107	6.7	86	0.49	245	5.6	28	1173	493
7BK0508548	644.52	643.82	0.70	2shbsugl	1.1	8	7	740	9.8	5.5	18.7	35	114	6.3	84	0.44	232	5.7	22	1306	512
7BK0508618	643.82	643.00	0.82	2shbsugl	0.9	5	1	780	8.4	5.9	13.8	29	100	5.5	76	0.46	198	5.1	19	1071	412
7BK0508700	643.00	642.30	0.70	2shbsuglsz	0.6	6	8	850	5.4	3.8	4.9	19	79	4.0	35	0.53	96	3.2	16	530	231
lc	642.30	641.30	1.00																		
7BK0508870	641.30	640.77	0.53	2shbsugl	0.6	6	5	790	5.7	4.4	6.0	29	83	5.3	54	0.48	146	4.2	19	592	291
7BK0508923	640.77	640.20	0.57	2shgszglsu	0.2	4	10	1100	4.2	1.4	2.0	14	66	3.7	13	0.52	57	2.4	11	462	170
7BK0508980	640.20	640.07	0.13	2shgszglsu	0.2	1	9	880	1.4	0.7	0.3	11	29	3.4	8	0.70	26	2.5	5	270	81
7BK0508993	640.07	639.99	0.08	2bngsh	0.2	3	1	550	0.4	0.9	0.3	3	10	1.8	4	0.89	7	1.5	3	90	58
7BK0509001	639.99	639.86	0.13	2bngsh	0.2	1	1	640	0.5	1.0	0.3	4	15	1.9	4	0.84	10	1.5	6	125	66
7BK0509014	639.86	639.16	0.70	2shgszglsu	0.2	1	1	1100	2.6	1.0	0.3	13	43	3.0	4	0.46	45	1.8	8	347	127
7BK0509084	639.16	638.40	0.76	2shgszglsu	0.2	2	10	1200	2.2	1.9	0.3	16	43	3.4	5	0.47	45	2.2	15	368	127
7BK0509160	638.40	637.75	0.65	2shbca	0.6	2	1	710	10.1	6.2	3.1	26	65	5.7	49	0.36	107	5.2	18	372	253
7BK0509225	637.75	637.10	0.65	2shbca	0.4	1	1	760	9.5	7.2	3.2	23	65	5.4	49	0.36	110	5.1	18	378	263
7BK0509290	637.10	636.45	0.65	2shbca	0.6	3	5	710	10.2	5.5	3.0	23	65	5.4	48	0.37	113	5.3	17	400	269
7BK0509355	636.45	635.70	0.75	2shbca	0.6	4	1	840	9.4	4.5	2.9	25	63	6.3	60	0.40	116	5.2	19	402	262
7BK0509430	635.70	635.13	0.57	2shbca	0.5	2	1	790	10.1	3.9	3.3	24	63	6.2	64	0.41	119	5.5	18	410	272
7BK0509487	635.13	634.81	0.32	2sbb	0.5	1	7	690	9.1	10.8	2.6	20	52	5.1	49	0.34	89	4.5	22	283	210
7BK0610765	622.35	622.21	0.14	2shbbnlglsufd	0.2	4	4	27000	1.3	1.6	4.5	57	48	4.0	33	1.01	125	3.0	37	351	274
7BK0610779	622.21	622.09	0.12	2ss_bnlsu	0.2	3	3	11000	1.4	1.5	1.5	36	52	13.4	221	0.90	91	16.1	34	263	167
7BK0610791	622.09	621.89	0.20	2shgbnsu	0.2	1	1	11000	3.0	1.1	0.3	15	81	3.7	39	1.15	50	2.7	13	374	146
7BK0610811	621.89	621.33	0.56	2shbbnsu	0.2	8	10	6400	3.6	2.2	3.1	18	83	4.0	25	1.09	60	3.3	34	500	177
7BK0610867	621.33	620.87	0.46	2shgbnsu	0.6	8	11	5000	6.2	2.1	6.3	22	106	4.6	32	1.09	83	3.8	35	653	222
7BK0610913	620.87	620.38	0.49	2shbbnsu	0.2	5	1	4600	7.0	1.8	5.2	22	115	4.8	31	1.06	85	3.7	36	675	223
7BK0610962	620.38	619.70	0.68	2shgbnsu	1.9	8	19	6800	7.5	2.6	22.7	52	126	8.9	114	1.17	316	6.9	93	796	664
7BK0611030	619.70	619.42	0.28	2shgbnsu	0.2	4	1	9000	2.7	3.1	5.8	24	55	5.5	92	1.36	147	5.1	56	303	271
7BK0611058	619.42	619.29	0.13	2bnl	0.4	1	1	1500	0.5	1.1	1.0	2	10	1.7	25	1.17	18	1.5	14	209	95
7BK0611071	619.29	619.05	0.24	2shbszsu	1.2	5	13	4800	8.2	4.1	16.3	37	101	5.3	173	1.17	307	4.9	140	811	574
7BK0611095	619.05	618.08	0.97	2shbbnlszsugl	1.1	8	6	2400	11.2	6.7	13.7	29	100	4.7	168	0.87	259	4.5	63	939	441
7BK0611192	618.08	617.64	0.44	2shbbnsu	1.2	5	3	1200	10.2	8.4	9.2	20	85	4.0	146	0.66	193	4.1	32	888	307
7BK0611236	617.64	617.09	0.55	2shgbn	0.8	5	7	1300	11.7	10.0	9.2	20	87	3.8	153	0.62	199	3.9	38	880	296
7BK0611291	617.09	616.54	0.55	2shbbnsu	1.0	4	11	950	10.5	8.8	9.8	21	88	4.3	144	0.60	193	4.2	31	892	313
7BK0611346	616.54	615.99	0.55	2shb	1.0	10	3	1100	10.5	11.5	8.7	16	77	3.5	133	0.56	175	3.8	31	824	297
7BK0611401	615.99	615.42	0.57	2shbsuog	0.8	3	9	1200	9.6	7.7	9.0	20	82	4.9	131	0.62	193	4.8	27	835	295
7BK0611458	615.42	615.04	0.38	2shbbnlsuog	0.6	5	1	1500	8.3	4.6	8.4	19	73	4.2	113	0.82	164	4.2	28	765	287
7BK0611496	615.04	614.26	0.78	2shbbn	0.9	3	1	1600	8.8	6.2	9.4	23	80	4.2	125	0.73	190	4.1	33	780	321
7BK0611574	614.26	613.84	0.42	2shbbng	1.0	3	1	1500	6.5	5.2	10.4	19	68	4.0	94	0.83	161	4.0	25	820	310
7BK0611616	613.84	613.06	0.78	2shbsubc	1.0	3	10	1200	9.2	8.0	12.7	21	87	4.6	121	0.65	203	4.3	31	1046	351
7BK0611694	613.06	612.43	0.63	2shbsubng	1.3	1	6	890	9.2	7.1	17.7	21	97	4.8	108	0.62	214	4.1	27	1313	428
7BK0611757	612.43	611.80	0.63	2shbsubngbc	0.9	6	7	1400	6.5	6.2	13.5	18	92	4.1	58	0.76	133	3.9	38	1022	336
7BK0611820	611.80	611.18	0.62	2shbsubn	1.0	5	1	1300	7.8	5.9	19.3	22	102	4.3	78	0.67	175	4.2	35	1163	422
7BK0611882	611.18	610.91	0.27	2shbsubng	1.0	6	8	910	6.0	5.8	11.0	20	72	4.3	76	0.72	148	4.3	25	808	301
7BK0611909	610.91	610.39	0.52	2shbbnlsu	1.2	9	4	1700	6.9	4.7	13.1	23	87	4.7	78	0.79	162	4.4	30	923	338
7BK0611961	610.39	610.34	0.05	2bngsh	0.8	4	5	390	2.4	2.2	5.7	9	37	2.9	40	0.87	60	3.0	7	1159	156
7BK0611966	610.34	609.65	0.69	2shbbnlsu	1.1	3	1	700	7.6	6.7	14.5	23	97	4.4	85	0.55	174	4.2	22	1047	366
7BK0612035	609.65	609.25	0.40	2shbbnlsu	1.6	4	8	890	6.9	2.6	17.1	19	105	4.3	51	0.68	112	3.8	16	968	360
7BK0612075	609.25	609.20	0.05	2bngsh	0.6	2	5	430	8.6	1.2	2.9	5	18	2.8	22	1.14	18	2.7	4	616	82
7BK0612080	609.20	608.55	0.65	2shbbnlsu	1.0	6	5	850	7.7	3.5	12.9	25	105	5.1	63	0.56	150	4.7	17	940	371
7BK0612145	608.55	607.90	0.65	2shbbnlsu	0.7	6	11	880	6.1	3.6	6.0	15	91	3.7	28	0.56	77	3.1	15	618	243
7BK0612210	607.90	607.17	0.73	2shgszsuglbn	0.4	3	7	930	3.1	1.0	1.7	13	58	3.1	12	0.56	54	2.1	9	457	154
7BK0612283	607.17	606.67	0.50	2shgszsugl	0.6	3	8	970	1.8	0.7	0.3	11	47	2.8	3	0.53	44	1.7	9	393	124
7BK0612333	606.67	606.55	0.12	2bnlsh	0.5	4	2	490	0.6	0.9	0.3	4	14	1.7	4	0.87	10	1.5	4	125	64
7BK0612345	606.55	605.89	0.66	2shgsz	0.2	1	1	940	2.6	0.8	0.3	13	49	3.1	5	0.52	49	1.9	10	398	132
7BK0612411	605.89	605.23	0.66	2shgsz	0.2	1	6	980	2.9	0.9	0.5	12	50	3.0	6	0.49	48	1.7	9	384	134
7BK0612477	605.23	604.58	0.65	2shgsz	0.2	2	1	1000	2.3	1.1	0.3	12	48	2.9	5	0.44	49	2.1	13	379	128
7BK0612542	604.58	604.19	0.39	2shgsu	0.2	4	1	870	2.7	1.1	0.3	19	73	8.6	3	0.41	43	11.8	19	299	172
7BK0612581	604.19	603.70	0.49	2shg	0.5	1	3	950	7.5	1.0	2.4	20	67	7.7	45	0.39	92	6.4	30	375	247
7BK0612630	603.70	603.52	0.18	2sh_fdgl	0.5	1	1	590	7.1	19.8	2.6	14	50	3.8	40	0.25	75	4.1	58	268	212
7BK0612648	603.52	602.98	0.54	2shgsu	0.9	6	1	660	11.6	0.8	3.6	22	78	5.1	63	0.45	121	5.6	19	484	269
7BK0612702	602.98	602.36	0.62	2shgogszsuglbn	0.8	4	6	630	11.0	6.9	3.5	25	69	5.7	58	0.43	100	5.2	26	369	254
7BK0612764	602.36	601.94	0.42	2ss_casu	0.5	1	4	210	6.8	37.4	0.7	7	19	1.9	14	0.11	19	1.8	8	79	63
7BK0612806	601.94	601.21	0.73	2sh_casu	1.3	2	6	630	11.0	5.6	3.0	25	69	5.7	63	0.38	100	5.4	28	331	269
7BK0612879	601.21	601.01	0.20	2ss_casu	0.2	1	1	230	5.5	44.9	0.3	4	13	1.9	12	0.08	17	2.1	5	59	42
7BK0612899	601.01	600.50	0.51	2shbcasu	1.1	2	7	800	9.2	6.4	2.7	23	61	5.8	58	0.37	111	5.1	35	359	258
7BK0612950	600.50	600.37	0.13	2bbgsuog	0.6	3	1	330	7.6	29.6	1.2	10	27	3.8	23	0.17	43	3.6	14	177	101
7BK0612963	600.37	600.10	0.27	2shgsu	0.9	4	1	650	7.4	5.0	2.8	21	66	6.5	33	0.45	82	5.8	15	283	239
7BK0612990	600.10	600.05	0.05	2bng	0.8	1	1	430	1.8	2.9	1.0	7	28	3.9	14	0.89	22	3.8	7	182	190
7BK0612995	600.05	599.80	0.25	2shgsuog	0.8	1	8	730	7.5	8.7	3.0	22	60	7.0	31	0.34	80	5.3	37	232	256

Table 10 (Continued): Select analytical data, Buckton and Asphalt Zones historic drilling. After Alberta Mineral Assessment Report MIN9802, Sabag 1998. (Continued next page). Comparative data from select other black shales also shown (at end of table). After Table 4, Sabag 2008.

Sample No.	From (m)	To (m)	Length (m)	Rock Type	Ag ICP ppm	Au FA ppb	Au INA ppb	Ba INA ppm	C-org Leco %	Ca ICP %	Cd ICP ppm	Co INA ppm	Cu ICP ppm	Fe INA %	Mo ICP ppm	Na INA %	Ni ICP ppm	S Leco %	U INA ppm	V ICP ppm	Zn ICP ppm
7AS0101127	663.73	663.23	0.50	2shbbnlsu	0.2	5	12	1000	13.3	8.8	10.2	23	89	3.8	157	0.28	196	4.1	45	807	319
7AS0101177	663.23	662.73	0.50	2shbbnlsu	0.2	2	11	470	7.5	7.6	7.2	14	63	3.4	114	0.22	122	3.7	24	673	225
7AS0101227	662.73	662.21	0.52	2shbbnlsu	0.2	1	10	710	9.9	10.0	9.8	20	80	4.1	131	0.26	184	4.2	35	846	280
7AS0101279	662.21	661.71	0.50	2shgbnlsu	0.2	6	10	930	4.9	6.2	13.1	20	86	4.0	79	0.43	170	4.2	57	752	375
7AS0101329	661.71	661.21	0.50	2shgbnlsu	0.2	5	9	660	6.4	6.9	7.8	20	74	4.1	73	0.32	151	4.1	21	745	266
7AS0101379	661.21	660.70	0.51	2shgbnlsu	0.2	4	5	1000	5.1	5.2	13.0	22	87	4.3	46	0.48	145	4.2	38	732	365
7AS0101430	660.70	660.50	0.20	2shgbnlsu	0.5	6	12	800	6.0	4.6	12.9	17	93	3.9	42	0.41	120	3.9	26	882	323
lc	660.50	659.81	0.69																		
7AS0101519	659.81	659.72	0.09	2sbbfdsucagl	0.2	4	1	1700	1.4	18.1	11.7	13	62	2.8	20	0.37	55	2.8	100	254	315
lc	659.72	659.39	0.33																		
7AS0101561	659.39	658.89	0.50	2shg	0.2	3	8	1200	4.6	7.2	14.3	16	96	3.9	36	0.43	117	3.8	40	741	361
7AS0101611	658.89	658.39	0.50	2shg	0.9	11	6	880	6.8	4.3	12.7	17	117	4.1	33	0.37	107	3.9	23	884	319
7AS0101661	658.39	658.08	0.31	2shg	0.7	6	6	1400	6.5	4.6	11.5	16	117	3.5	29	0.35	111	3.4	33	777	342
7AS0101692	658.08	657.71	0.37	2sbbfdsucagl	0.2	5	1	1500	2.4	15.4	19.4	29	94	5.2	32	0.54	183	4.0	100	439	612
lc	657.71	656.61	1.10																		
7AS0101839	656.61	656.52	0.09	2shgbnlsu	0.7	7	13	740	6.6	1.2	10.9	30	106	8.6	170	0.37	179	6.7	24	716	556
7AS0202161	668.39	668.27	0.12	2bng	0.2	9	9	850	4.4	1.0	5.2	12	61	3.3	31	0.78	66	2.6	17	496	206
7AS0202173	668.27	667.75	0.52	2shbbnsugl	0.4	12	10	3700	7.6	0.8	3.4	14	97	4.2	19	0.75	69	2.8	17	503	206
7AS0202225	667.75	667.01	0.74	2shbbnsugl	0.2	10	3	3300	6.9	0.7	6.1	16	111	4.2	21	0.75	83	2.6	15	636	251
7AS0202299	667.01	666.54	0.47	2shgszbn	0.2	7	10	5100	2.8	0.8	1.7	16	58	4.3	16	0.96	62	1.7	16	364	182
7AS0202346	666.54	666.21	0.33	2shgszbntt	0.2	8	10	6700	3.1	0.6	2.0	13	60	4.4	14	0.89	63	2.1	14	377	178
7AS0202379	666.21	665.79	0.42	2shbsuglbn	0.4	13	1	1400	9.2	0.9	14.3	24	99	5.0	80	0.64	150	4.2	24	930	371
7AS0202421	665.79	665.15	0.64	2shbsuglbn	0.2	12	14	3700	5.6	1.0	2.1	20	111	4.7	15	0.89	76	2.8	16	542	199
7AS0202485	665.15	664.51	0.64	2shbsuglbn	0.2	8	1	6200	6.5	1.4	3.9	18	115	4.8	33	0.87	87	3.6	25	618	227
7AS0202549	664.51	663.88	0.63	2shbsuglbn	0.2	5	10	6100	5.3	0.8	0.3	14	103	3.7	6	0.74	71	2.3	11	421	184
7AS0202612	663.88	663.62	0.26	2shbsuglbn	0.2	7	11	6500	5.8	0.9	1.4	16	116	4.1	11	0.76	74	2.6	14	473	198
7AS0202638	663.62	663.05	0.57	2shbbcbnsugl	0.5	4	8	2300	13.1	8.3	10.0	27	87	4.5	160	0.66	209	4.4	44	965	358
7AS0202695	663.05	662.35	0.70	2shbbcbnsugl	0.5	2	1	1100	11.7	9.1	8.6	20	78	3.5	147	0.56	169	3.8	41	827	298
7AS0202765	662.35	662.18	0.17	2shbbnsu	0.2	5	1	18000	5.3	1.6	5.5	21	55	5.4	112	1.06	169	5.4	49	394	274
7AS0202782	662.18	662.08	0.10	2bnlshsu	0.2	2	1	2900	3.5	1.1	3.2	14	57	7.5	86	1.01	80	6.9	22	547	212
7AS0202792	662.08	661.92	0.16	2bnlshsu	0.2	1	1	1600	1.4	1.2	1.8	6	16	2.2	36	1.08	40	1.9	18	296	129
7AS0202808	661.92	661.23	0.69	2shbbn	0.4	7	10	3600	11.9	5.7	10.7	28	95	4.8	167	0.76	226	4.6	62	840	385
7AS0202877	661.23	660.54	0.69	2shbbn	0.2	3	6	1000	10.2	10.9	9.3	21	77	4.1	133	0.51	173	3.7	34	774	293
7AS0202946	660.54	659.85	0.69	2shbbn	0.2	9	9	1100	6.5	7.2	9.1	25	79	5.2	81	0.68	169	4.4	45	789	326
7AS0203015	659.85	659.36	0.49	2shbbn	0.2	9	7	970	5.8	4.6	10.4	25	86	5.4	54	0.71	146	4.5	34	810	323
7AS0203064	659.36	659.28	0.08	2bnlshgsu	0.2	4	7	4200	2.1	4.8	4.3	21	90	6.2	92	0.95	96	5.5	29	854	244
7AS0203072	659.28	659.05	0.23	2shgsugl	0.6	6	8	910	6.6	2.7	11.9	22	88	4.8	50	0.73	122	4.3	26	777	357
7AS0203095	659.05	658.97	0.08	2bnlsu	0.2	2	7	630	4.4	1.6	6.3	7	46	3.3	17	0.92	33	3.0	5	460	191
7AS0203103	658.97	658.47	0.50	2shgsugl	0.2	10	11	1100	5.7	4.8	11.5	19	101	4.4	32	0.61	110	3.9	42	789	347
7AS0203153	658.47	657.96	0.51	2shgsugl	0.5	10	10	940	7.3	3.0	10.4	20	116	4.4	29	0.52	100	3.7	23	840	318
7AS0203204	657.96	657.72	0.24	2shgszcasu	0.2	8	10	1200	5.1	7.0	16.4	32	107	5.9	47	0.57	182	4.8	52	822	476
7AS0203228	657.72	657.58	0.14	2shgszcasu	0.2	8	2	1900	2.9	12.2	17.3	41	103	5.9	40	0.46	232	4.6	110	493	660
7AS0203242	657.58	657.42	0.16	2sbbszcasuog	0.2	6	10	2500	2.1	15.2	12.6	20	78	3.6	29	0.44	110	3.1	100	371	439
7AS0203258	657.42	657.08	0.34	2shbsu	0.2	1	3	1200	3.2	1.7	2.1	16	56	4.0	32	0.49	74	2.8	16	446	187
7AS0203292	657.08	656.98	0.10	2shbbnsu	0.2	5	7	980	1.8	0.7	0.7	11	33	3.2	9	0.61	39	2.0	5	347	123

Rocktype Legend

[Rock Type]	[color]	[descriptive]	[other]
[2 digits]	[1 digit]	[2 digits]	[2 digits]
sh - shale	b - black	sz - silty	su - >1% sulfides
bn - bentonite	r - brown	ca - calcareous	gl - glauconitic
bb - bone bed	g - grey	bc - bioclastic	og - high organic content
sbb - siliciclastic bone bed	w - white	bn - bentonitic	fd - shell fragments or fish debris
cc - concretion	l - steely blue	tt - tuffaceous	
sz - siltstone	y - yellow		
ss - sandstone			

Example: 2shgcabn = grey bentonitic calcareous shale of the Second White Specks Formation

Comparative Data From Other Black Shales Worldwide

Black Shale Location Name	Ag ppm	Au ppb	Au ppb	Ba ppm	C-org %	Ca %	Cd ppm	Co ppm	Cu ppm	Fe %	Mo ppm	Na %	Ni ppm	S %	U ppm	V ppm	Zn ppm
Chuniespoort Mean (1)	na	na	na	726	1.2	1.8	na	17	61	2.2	3	0.04	125	0.7	2	105	36
Dushantuo: V-rich, black Illite shale (2)	na	na	na	1548	4.2	0.2	na	20	236	2.1	na	5.28	99	na	na	4350	na
Dushantuo: Ag-V-rich, black Illite shale (2)	na	na	na	4014	3.3	0.4	na	24	406	2.4	na	4.72	90	na	na	6225	na
USGS Standard SDO-1 (3)	0.1	na	na	397	10.0	na	na	47	60	na	134	na	100	na	49	160	64
Nick Deposit: NICK-2 (4)	6.0	103	na	3800	2.2	na	na	350	390	na	2467	na	78000	na	61	590	8700
Bohemian Massif: Normal black shale (5)	na	4	na	na	0.7	na	na	12	93	4.2	33	na	88	na	na	570	383
Bohemian Massif: Metal-rich black shale (5)	na	62	na	na	3.5	na	na	21	590	8.3	153	na	600	na	na	1109	243
Talvivaara: Black Schist 1 (6)	na	na	na	na	7.5	na	na	na	600	8.8	na	na	500	7.4	na	600	2600
Talvivaara: Black Schist 2 (6)	na	na	na	na	7.7	na	na	na	1300	10.4	na	na	2600	8.2	na	600	5200
U-rich Black Shale Southern Storsjon Jamtland (7)	na	na	na	na	14.2	2.3	na	na	138	3.4	460	0.06	440	4.4	245	1600	270
U-rich Alum Shale, Ranstad, Vastergotland (8)	na	na	na	500	15.5	0.7	na	25	110	6.0	340	0.21	200	7.0	300	750	130
Av Alum Shale, Upper Mbr, Billingen (9)	1.4	na	na	500	13.7	0.7	na	50	190	7.1	270	0.17	160	6.7	206	680	150
Av Alum Shale, Middle and Lower Mbrs, Billingen (9)	na	na	na	500	6.1	0.5	na	na	180	6.8	70	0.12	90	4.5	10	450	na
Av Black shale (10)	<1	na	na	300	3.2	1.5	na	10	70	2.0	10	0.70	50	na	8	150	<30

(1) Meyer & Robb, 1996; (2) Delian & Tiebing, 1992; (3) Bloomstein & Clark, 1990; (4) Hulbert et al, 1992; (5) Pasava et al, 1996;
(6) Loukola-Ruskeeniemi & Heino, 1996; (7) Gee & Snall, 1981; (8) Andersson et al, 1983; (9) Armands, 1972; (10) Vine & Tourtelot, 1970

Table 10 (Continued): Select analytical data, Buckton and Asphalt Zones historic drilling. After Alberta Mineral Assessment Report MIN9802, Sabag 1998. Comparative data from select other black shales also shown. After Table 4, Sabag 2008.

	Detection	Buckton Zone Drill Holes																				Asphalt Zone Drill Holes						
		BK1	BK1	BK2	BK2	BK2	BK3	BK3	BK3	BK4	BK4	BK4	BK5	BK5	BK5	BK6	BK6	BK6	Avg	Avg	Avg	AS1	AS1	AS2	AS2	AS2	Avg	Avg
Unit		Lab	2WS	Lab	2WS	BF	Lab	2WS	BF	Lab	2WS	BF	Lab	2WS	BF	Lab	2WS	BF	Lab	2WS	BF	2WS	BF	Lab	2WS	BF	Lab	2WS
UnitThick		9.77	15.26	9.42	18.37	9.49	10.05	26.20	4.46	10.31	21.06	10.65	10.20	18.39	6.01	10.69	22.55	2.45	10.07	20.31	6.61	7.21	10.30	6.75	11.41	10.04	6.98	10.86
Ag -ICP	0.4 ppm	0.2	0.4	0.2	0.5	0.2	0.2	0.4	0.2	0.2	0.3	0.2	0.2	0.7	0.2	0.2	0.8	0.3	0.2	0.5	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.2
Ag-INA	5 ppm	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3
Al -ICP	0.01%	7.8	6.6	6.8	6.5	7.5	8.3	6.4	8.5	7.9	6.8	7.1	8.3	6.8	7.8	8.1	7.0	7.9	7.9	6.7	7.8	5.4	7.9	8.6	7.3	8.0	7.0	7.6
As-INA	0.5 ppm	19.6	57.2	13.8	56.4	15.2	22.9	58.8	15.2	24.1	62.6	18.4	20.7	65.4	16.7	19.5	54.9	28.2	20.1	59.2	18.7	76.6	21.9	20.3	51.4	30.0	48.4	36.6
Au-FA	1 ppb		6.30		4.33			4.36			3.48			3.44			4.20			4.35		4.95	1.00		7.28			4.14
Au-INA	2 ppb	2	5	2	6	6	6	6	3	2	6	2	2	5	3	2	5	1	2	6	3	8	3	1	7	5	4	5
Ba-INA	50 ppm	962	2194	1070	2322	1017	1324	2047	1025	1200	1580	938	1094	1440	845	1200	1965	940	1142	1924	953	1025	996	1961	3042	1364	1493	2019
Be -ICP	2 ppm	2	1	2	1	2	2	1	2	2	2	2	1	1	1	1	1	1	2	1	1	2	2	1	1	1	1	1
Bi -ICP	5 ppm	3	3	3	3	3	3	3	3	8	5	7	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Br-INA	0.5 ppm	2.3	12.3	2.0	12.8	4.1	2.4	12.4	3.8	2.1	14.0	3.0	2.7	14.7	4.1	3.6	13.2	4.4	2.5	13.2	3.9	9.7	6.6	7.9	17.7	8.0	8.8	12.1
C-org-Leco	0.003%	1.07	7.07	0.81	5.99	1.75	1.07	5.99	1.64	0.96	7.18	1.46	1.05	7.61	1.52	1.14	7.20	1.84	1.02	6.84	1.64	5.92	2.19	1.67	7.00	2.49	3.80	4.59
Ca -ICP	0.01%	0.71	5.21	1.24	5.56	0.90	0.60	5.15	0.37	0.54	4.64	0.72	0.46	5.40	0.38	0.67	5.86	0.39	0.70	5.31	0.55	8.22	0.67	0.65	4.04	1.03	4.43	2.36
Cd -ICP	0.5 ppm	0.3	10.9	0.3	8.2	0.3	0.3	7.6	0.4	0.3	8.1	0.3	0.3	8.9	0.3	0.3	7.8	0.3	0.3	8.6	0.3	12.4	0.3	0.3	7.1	0.9	6.3	3.7
Ce-INA	3 ppm	66	86	68	106	95	82	85	76	69	84	76	65	82	76	86	93	91	73	89	83	224	67	76	111	86	150	89
Co-INA	1 ppm	13	21	13	21	11	16	19	11	15	23	11	14	24	11	14	21	14	14	21	12	20	11	14	20	13	17	15
Cr-INA	5 ppm	104	82	102	95	147	132	86	134	104	95	110	97	91	122	120	98	143	110	91	131	80	104	129	110	116	104	107
Cs-INA	1 ppm	8	4	7	5	9	10	5	9	8	5	7	8	5	7	10	5	10	9	5	8	3	8	9	5	8	6	6
Cu -ICP	1 ppm	30	83	26	70	30	32	73	30	28	73	27	31	77	29	34	78	33	30	76	30	89	42	40	89	45	64	66
Eu-INA	0.2 ppm	1.3	2.3	1.4	2.7	1.8	1.5	2.4	1.5	1.5	2.3	1.8	1.4	2.3	1.7	1.7	2.2	1.6	1.5	2.4	1.7	8.8	1.3	1.6	3.4	1.8	5.2	2.3
Fe-INA	0.01%	6.42	4.00	3.72	4.53	3.74	4.42	4.12	3.24	4.18	4.70	3.52	3.43	4.96	3.55	3.81	4.58	4.31	4.33	4.48	3.67	4.39	2.94	3.92	4.46	3.77	4.15	3.70
Hf-INA	1 ppm	5	5	6	6	8	6	4	5	5	5	6	5	4	6	6	5	6	5	5	6	4	5	5	5	6	4	5
Hg-INA	1 ppm	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ir-INA	5 ppb	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3
K -ICP	0.01%	1.9	1.4	1.8	1.5	2.1	2.1	1.5	2.2	2.3	1.9	2.4	2.3	1.8	2.4	2.2	1.8	2.5	2.1	1.7	2.3	1.3	2.3	2.4	1.8	2.4	1.9	2.0
La-INA	0.5 ppm	37.2	58.3	37.4	64.4	49.1	46.5	64.5	48.5	40.5	53.8	43.8	36.9	54.1	44.0	45.3	54.1	45.2	40.6	58.2	46.1	189.2	44.9	48.9	82.5	56.5	119.0	63.7
Lu-INA	0.05 ppm	0.45	0.75	0.52	0.92	0.69	0.67	0.85	0.60	0.53	0.72	0.53	0.51	0.71	0.56	0.70	0.82	0.63	0.56	0.80	0.60	2.09	0.59	0.65	1.06	0.71	1.37	0.83
Mass	0 g	28.5	25.7	22.3	25.1	24.3	22.3	24.8	23.8	20.9	18.3	19.2	21.6	18.6	17.6	20.5	18.8	18.9	22.7	21.9	20.8	29.6	28.3	24.5	21.4	20.0	27.1	24.9
Mg -ICP	0.01%	1.1	0.9	1.0	0.9	0.8	1.0	0.9	0.9	0.9	0.9	0.8	0.9	0.8	0.8	1.0	0.9	0.9	1.0	0.9	0.8	0.8	1.0	1.1	1.0	1.0	1.0	1.0
Mn -ICP	1 ppm	1464	201	372	194	129	501	205	129	1173	196	135	570	216	113	421	201	155	750	202	132	317	139	196	211	155	256	175
Mo -ICP	2 ppm	1	86	1	66	2	1	62	2	2	67	3	2	77	2	2	72	4	2	72	3	73	3	3	63	7	38	33
Na-INA	0.01%	0.47	0.64	0.41	0.61	0.64	0.57	0.55	0.54	0.50	0.53	0.54	0.44	0.52	0.58	0.56	0.65	0.55	0.49	0.59	0.57	0.38	0.39	0.63	0.71	0.53	0.51	0.55
Nd-INA	5 ppm	28	42	27	57	38	35	39	32	31	43	35	28	46	33	39	49	37	32	46	35	155	25	27	59	35	91	42
Ni -ICP	1 ppm	43	160	40	126	39	45	121	42	40	129	38	44	152	41	43	133	48	42	137	42	144	46	48	122	50	96	84
P -ICP	0.001%	0.106	0.239	0.095	0.235	0.088	0.098	0.243	0.085	0.099	0.228	0.134	0.094	0.236	0.095	0.148	0.208	0.087	0.107	0.232	0.098	0.976	0.124	0.124	0.310	0.152	0.550	0.217
Pb -ICP	4 ppm	19	23	20	19	17	21	22	25	21	22	24	19	16	17	19	20	22	20	20	21	24	24	20	20	24	22	22
Pd-FA	3 ppb		2.61		2.23			2.61			2.38			2.06			2.20			2.35		2.88	2.00		2.51			2.26
Pt-FA	5 ppb		3.68		2.60			2.79			2.85			2.77			3.88			3.10		3.89	2.50		2.97			2.73
Rb-INA	15 ppm	115	61	114	85	148	148	82	149	134	94	115	128	88	130	143	85	132	130	83	135	62	120	148	91	130	105	105
S-Leco	0.003%	0.87	4.17	0.53	3.84	1.73	0.78	3.71	1.66	0.41	3.86	1.83	0.70	4.34	1.68	0.74	4.17	2.57	0.67	4.02	1.89	4.11	1.61	1.13	3.52	2.11	2.62	2.56
Sb-INA	0.1 ppm	1.4	14.9	1.1	13.6	2.5	1.8	11.1	4.4	1.5	11.5	1.1	1.3	11.4	1.1	1.7	11.8	1.5	1.5	12.4	2.1	11.7	2.0	2.3	11.8	2.7	7.0	6.9
Sc-INA	0.1 ppm	15.2	10.9	14.1	13.7	19.2	19.1	11.1	15.7	14.7	11.5	13.7	13.9	11.3	14.9	18.3	12.9	18.1	15.9	11.9	16.3	14.2	13.6	17.1	14.0	15.1	15.7	13.8
Se-INA	3 ppm	2	34	2	27	2	2	21	2	2	25	2	2	30	3	2	21	2	2	26	2	35	2	2	25	4	19	14
Sm-INA	0.1 ppm	5.0	8.2	5.4	10.8	7.3	6.9	8.6	6.0	5.6	8.5	6.3	5.1	8.1	5.8	7.0	9.1	6.8	5.8	8.9	6.4	34.4	5.4	6.3	13.0	7.5	20.3	9.2
Sn-INA	0.01%	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Sr -ICP	1 ppm	171	305	145	271	153	179	273	161	171	230	161	184	242	160	201	314	158	175	273	159	346	177	258	354	206	302	266
Sr-INA	0.05%	0.03	0.05	0.03	0.03	0.03	0.03	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.07	0.03	0.04	0.03	0.04	0.05	0.06	0.04	0.03	0.05	0.04
Ta-INA	0.5 ppm	0.7	0.4	0.5	0.9	1.0	1.2	0.6	0.9	0.6	0.5	0.7	1.1	0.8	1.4	0.4	0.6	0.7	0.8	0.6	0.9	0.8	0.9	1.3	0.8	1.0	1.1	0.8
Tb-INA	0.5 ppm	0.8	1.5	0.8	1.7	0.7	0.6	1.5	0.7	0.6	1.3	0.9	0.6	1.3	0.9	0.5	1.3	1.0	0.7	1.5	0.8	6.1	0.8	0.9	2.2	1.0	3.5	1.5
Th-INA	0.2 ppm	11.8	11.9	11.2	12.8	14.1	13.2	11.6	13.6	12.1	12.1	12.4	11.0	11.3	12.5	12.8	11.9	14.0	12.0	11.9	13.3	16.5	12.1	12.8	13.6	14.6	14.6	12.9
Ti -ICP	0.01%	0.3	0.2	0.3	0.2	0.4	0.4	0.2	0.4	0.4	0.3	0.4	0.4	0.2	0.4	0.4	0.3	0.4	0.4	0.2	0.4	0.2	0.4	0.4	0.3	0.4	0.3	0.3
U-INA	0.5 ppm	4.4	36.7	4.2	34.1	6.1	5.6	30.2	5.2	4.3	26.9	4.8	4.5	25.3	4.4	4.6	29.9	5.8	4.6	30.5	5.3	47.3	5.6	6.1	31.0	9.0	26.7	18.3
V -ICP	2 ppm	223	776	211	648	199	241	623	210	222	645	184	245	722	211	265	668	241	234	680	209	690	361	303	664	350	496	513
Y -ICP	2 ppm	21	60	23	58	24	22	55	24	25	52	30	25	58	27	31	53	25	25	56	26	238	27	30	84	40	134	55
Yb-INA	0.2 ppm	2.9	4.6	3.4	5.9	4.2	3.9	4.7	3.3	3.3	4.5	3.6	3.1	4.6	3.5	4.4	5.1	4.1	3.5	4.9	3.7	13.5	3.2	3.9	6.5	4.3	8.7	4.9
Zn -ICP	1 ppm	145	360	135	305	127	158	289	167	130	282	110	142	318	120	144	282	135	143	306	132	376	121	164	282	143	270	201
Zn-INA	50 ppm	149	360	158	377	192	226	304	173	189	321	146	150	336	157	200	320	186	179	336	171	406	141	210	341	171	308	241

Table 11: Summary of Average Formational lithogeochemistry for the LaBiche (Lab), Second White Speckled Shale (2ws) and Belle Fourche (BF, ie: Shaftesbury) Formations, historic drilling, Asphalt and Buckton Zones, Tintina drilling 1997, Alberta Mineral Assessment Report MIN9802, Sabag 1998. After Table 5, Sabag 2008.

Downhole Stratigraphy: Although the drill holes from the Asphalt and Buckton Zones exhibit many lithological, textural and geochemical contrasts, the holes intersected the same principal units and a collective discussion of same on a combined basis serves to characterize gross near-surface stratigraphy of the Second White Specks and enveloping Formations at the two Zones, and probably the Birch Mountains in general. Considering that only two short holes were drilled at the Asphalt Zone one of which collared partway into the Second White Specks Formation, the stratigraphic descriptions below necessarily rely in most part on observations made from the Buckton Zone drilling.

The Second White Specks Formation at the two Zones comprises a sequence of carbonaceous and bentonitic shales enveloped between the overlying LaBiche Formation shales and underlying Belle Fourche Formation (Shaftesbury). With the exception of drilling at the Asphalt Property, overburden was encountered in all of the holes, ranging 6m to 47m of intermixed till, clay and shale, and is most probably locally derived incorporating considerable material from the underlying LaBiche Formation. Downhole stratigraphy is summarized below.

Considerable footages of the upper portions of the drill holes cored shales of the **LaBiche Formation,** consisting predominantly of battleship gray muddy shale which, with the exception of the occasional isolated carbonate concretion or (rarer) bentonite seam, is a monotonous sequence devoid of lithological and geochemical variations.

Preliminary micropaleontological examination conducted by the GSC (Leckie 1997) on LaBiche Formation drill core samples taken by Mr.D.Leckie from the Buckton Property suggest an unexpected 4-6 million year gap between the top of the Second White Specks Formation and the base of LaBiche, indicating that shales logged/mapped at the Buckton Zone as LaBiche are likely part of the Upper Cretaceous Lea Park Formation.

The **Second White Specks Formation** was intersected in all of the holes and was cored in its entirety with the exception of holes AS01 and BK01. AS01 was collared partway into the Formation and cored only its lower parts, and BK01 was collared too high and did not reach the bottom contact. Stratigraphic and textural observations suggest that the Formation has been disturbed by faulting or a glacial thrust at the Asphalt Zone.

The Second White Specks Formation varies in thickness from 18m to 26m at the Buckton Property and is thinner at the Asphalt Property averaging approximately 11m. It is broadly characterized by three principal horizons: (i) silty shales nearer the lower sections, (ii) a bioclastic black shale midsection, and (iii) bentonitic gray shales nearer its top. The Formation's upper and lower contacts are well marked by the development of bentonites near its top and bone beds (often siliciclastic) defining its base.

The basal 3m-5m of the Formation is typically characterized by one or more pebbly lag deposits intercalated with lenses of calcareous (coccolithic) non-bioturbated organic rich shale with "poker chip" appearance. The lag deposits are generally carbonate cemented and contain abundant fish debris, quartz, clear-white and black chert, glauconite and sulfides (pyritic and marcassitic). The bone-bed horizons are often well lithified and contain some silica cement – hence are generally termed siliciclastic bone beds. In many instances, the bone beds contain angular shardy clear quartz which exhibits no evidence of transport and has been interpreted to be of likely volcanic provenance as it resembles similar quartz observed in bentonites, suggesting proximal availability of ash/pyroclastic material at the onset of Second White Specks deposition.

The bone-bed/poker-chip shale assemblage is overlain by 3m-5m of poorly calcareous to non-calcareous and non-bioturbated **silty shales** which contain minor amounts of clastic material (quartz, biotite) and a bentonite ranging in thickness upward from a few centimeters to 20cm. This bentonite (**Lower Bentonite Marker**) is a good marker unit noted in all of the drill holes and contains subangular to subrounded clasts of other bentonites and shale.

The silty shales are succeeded upward by a 4-6m thick calcareous non-bioturbated black shale which locally contains carbonate cemented silt lenses and a few bentonites with thicknesses ranging upward to

5cm. These shales are overlain by a 1m-3m thick very calcareous black shale characterized by the presence of horizons of shell material (particularly Inoceramus) and is devoid of bentonites. Due to its pitch-black colour and the presence of shells, this **bioclastic shale** presents a good correlative marker between holes.

The bioclastic shale is succeeded upward by 3-5m of calcareous black shale with varying amounts of bentonite which are most abundant in the lower 2m-3m of the sequence (upward to 14 separate thin beds) and throughout its top which is marked by the **Upper Bentonite Marker**. Midsection, these shales are only moderately calcareous and nearly devoid of bentonites.

The **Upper Bentonite Marker**, observed in all of the drill holes, is a 10-25cm thick steely gray to blue distinct marker which contains trace amounts of pyrite/marcassite and mica. It is succeeded upward by a 1m-3m thick poorly calcareous gray-brown **bentonitic shale** which contains upward to 20 separate thin bentonite seams (typically 2mm-1cm) at various angles to core. The unit typically contains abundant pyrite/marcassite (10-20% volume) as well as white powdery layers which are likely ash or sulfates, or an admixture thereof. The Marker is tightly folded in drill hole BK03 (Plate 5) at the Buckton Property and is accompanied by a thickening of the Second White Specks Formation in its uppermost 4m (the result likely massive slumping within the GOS Creek valley).

The bentonitic shale is capped by a 10cm-50cm thick sulfidic shale (10-30% sulfides volume) containing clasts of bentonite and other shale, as well as matrix quartz and chert similar to the basal lag deposits. The unit also occasionally contains a green clay-like material (altered ash, pyroclastic or galuconite?) as clasts and as matrix. Although this unit may be a basal lag deposit to the overlying LaBiche Formation, the shardy volcanic quartz and bentonite clasts suggest that it belongs to the Second White Speckled Shale and has significant pyroclastic affinity.

Plate 5: Tight fold in Upper Bentonite Marker, surrounded by thin bentonite seams, Drill hole BK03 Buckton Zone. Tintina Mines drilling 1997. Image from author's collection of lecture photographs, Sabag 1994-1999.

The **Belle Fourche Member** of the Upper Shaftesbury Formation was intersected in all of the holes which penetrated below the base of the Second White Specks Formation. Belle Fourche in the area is dominated by light gray bioturbated silty shales with occasional silty/sandy seams.

Salient observations and deductions from the drilling are as follows:

- The drilling confirmed that the surface composite anomalies A-South and B-Mid indeed reflect buried metal mineralization in shales beneath the surface, over a 8km cross-section across the Buckton Zone at B-Mid and over a 900m cross-section across the Asphalt Zone at A-South;

- The drilling confirmed the presence of metal enrichment in the Second White Speckled Shale, but indicated that sections beneath its bottom contact are relatively unmineralized, contrary to the proposal of the geological working model formulated for the area. The drilling, accordingly, disproved the model and demonstrated that the Second White Speckled Shale, and to a much lesser extent also the Shaftesbury Formation beneath it, is ***itself*** the primary host to the metals;

- All of the holes reported metal enrichment from the entire width (thickness) of the Second White Speckled Shale intersected which, over the Buckton Zone, is a 18.4m-26.2m thick flat-lying "blanket" of poorly consolidated black shale, gently block-faulted in several places. Over the Asphalt Zone the Shale is estimated to be 11.4m thick. The drilling confirmed enrichment of Mo, Ni, U, V, Zn, Cu, Cd, Co, Ag and Au in the Shale;

- The holes demonstrated good continuity of geology and grades between the widely spaced holes across the Buckton Zone, and the closer spaced holes similarly reported minimal variability well within limits documented from sampling of large outcrops in the area. Grade variations documented from the drilling are, overall, compatible with those documented from sampling of the larger valleys in the area, and from sampling of intermittent exposures of the mineralized Speckled Shale along the valley walls of GOS Creek valley which parallels the 8km long drilled section approximately 1km away to its southeast;

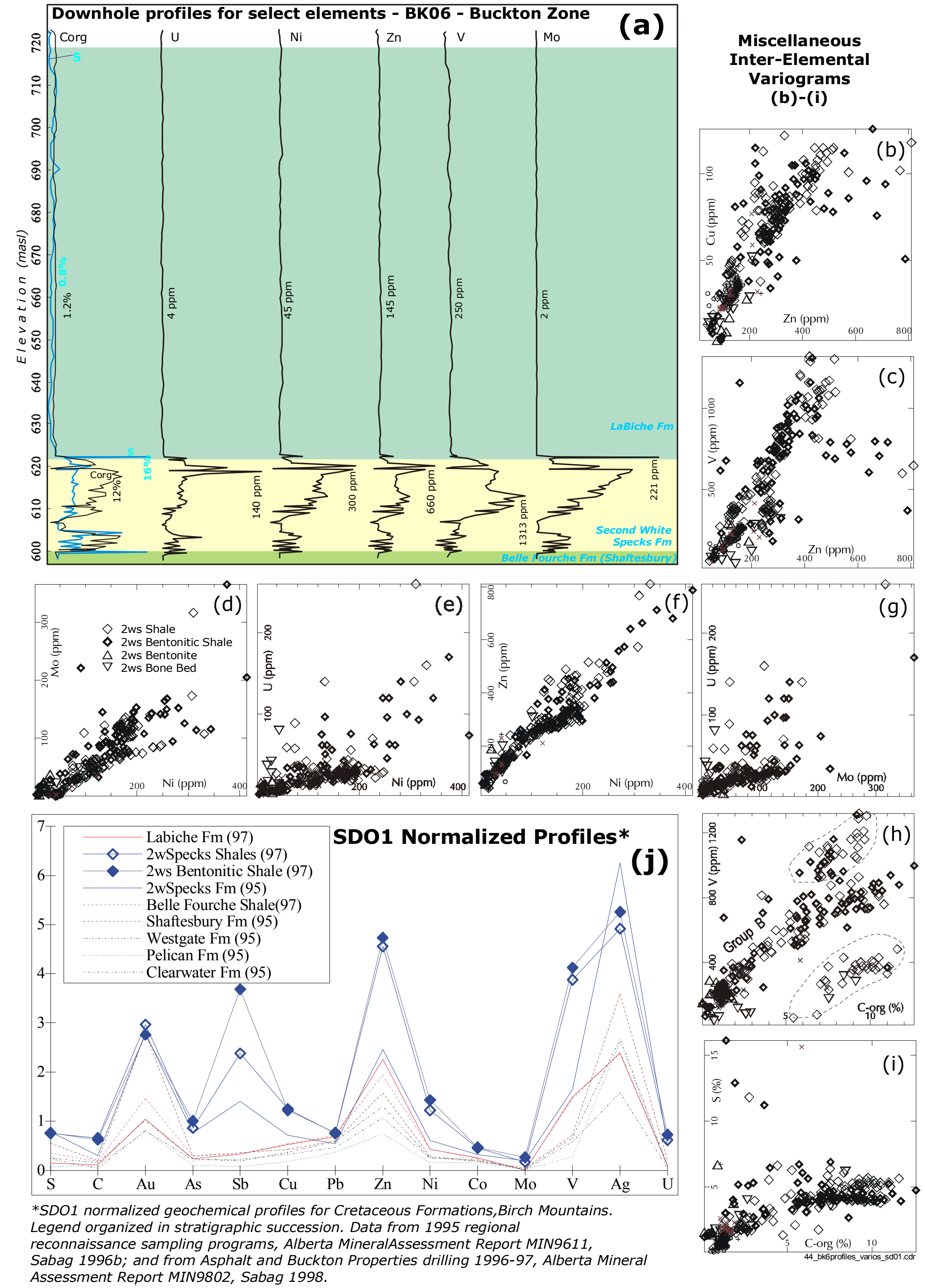
- Downhole lithogeochemistry demonstrated that the Second White Specks Formation is characterized by the most conspicuous geochemical relief in the area, providing the only geochemical variations within an otherwise featureless and monotonous stratigraphic package. Samples from the LaBiche Formation reported by far the most monotonous geochemistry, and geochemical similarities of overburden material to the underlying LaBiche shales indicated a predominance of locally derived overburden in the area;

- The drilling demonstrated that metals enrichment within the mid-Cretaceous stratigraphic package is conspicuously confined to the Second White Specks Formation, characterized by metal contents varying x2 to x10 of its enveloping Formations. While concentrations of many of the base metals (e.g. Ni, Mo, Zn) were noted to be better concentrated nearer the Formation's upper contact, dominated by intermixture of considerable bentonitic seams into the shale, other metals (e.g. V, Cu) are better concentrated throughout its midsection. Metals enrichment within the upper sections of the Formation is also accompanied by Ba, S, Na and Corg enrichment, and by higher pyritic sulfide contents ranging upward to 20% by volume;

- LaBiche, Belle Fourche and Second White Specks Formation shales meet the textural and compositional criteria to be classed as bona fide "black shales" in the strictest of sense, and the Second White Specks Formation shales are "metal enriched black shales" in respect of Au, Sb, Zn, V, Ag, Sr, Ba, Ca, P and Se;

- Despite good apparent relationship between metals enrichment and Corg, Tintina's interpretations of interelemental variations, and of metal-Corg and metal-S relationships, suggested that the metals are hosted in multiple carrier minerals some of which are sulfides and others are likely organic forms, with a suggested grouping of the various metals into one group (Ni, Zn, Mo) characterized by affinities for enrichment predominantly in, or as, inorganic minerals and another group (V, Cu) exhibiting affinities for enrichment in, or as, organic species, some subpopulation portioning, notwithstanding.

A detailed presentation of lithogeochemical trends and interelemental relationships documented by Tintina in its reports is well beyond the scope of this Report. The reader is referred to Alberta Mineral Assessment Report MIN9802 (Sabag 1998) and to AGS 2001 for an indepth review. Downhole elemental profiles for select metals from drill hole BK06 are presented in Figure 65 along with select variograms and SDO1 normalized profiles.



**SDO1 normalized geochemical profiles for Cretaceous Formations,Birch Mountains. Legend organized in stratigraphic succession. Data from 1995 regional reconnaissance sampling programs, Alberta MineralAssessment Report MIN9611, Sabag 1996b; and from Asphalt and Buckton Properties drilling 1996-97, Alberta Mineral Assessment Report MIN9802, Sabag 1998.*

Figure 65: After Figure 44, Sabag 2008. (a) Select downhole metals profiles hole BK06, Buckton Zone, historic drilling. After Alberta Mineral Assessment Report MIN9802, Sabag 1998; (b)-(i) Miscellaneous inter-elemental variograms, historic drilling, Asphalt and Buckton Zones. After figures from Alberta Mineral Assessment Report MIN9802, Sabag 1998; (j) SDO1 normalized geochemical profiles, Cretaceous Formations, historic surface sampling 1995-1997 and 1997 drilling, Birch Mountains. After Figure 36, Alberta Mineral Assessment Report MIN9802, Sabag 1998.

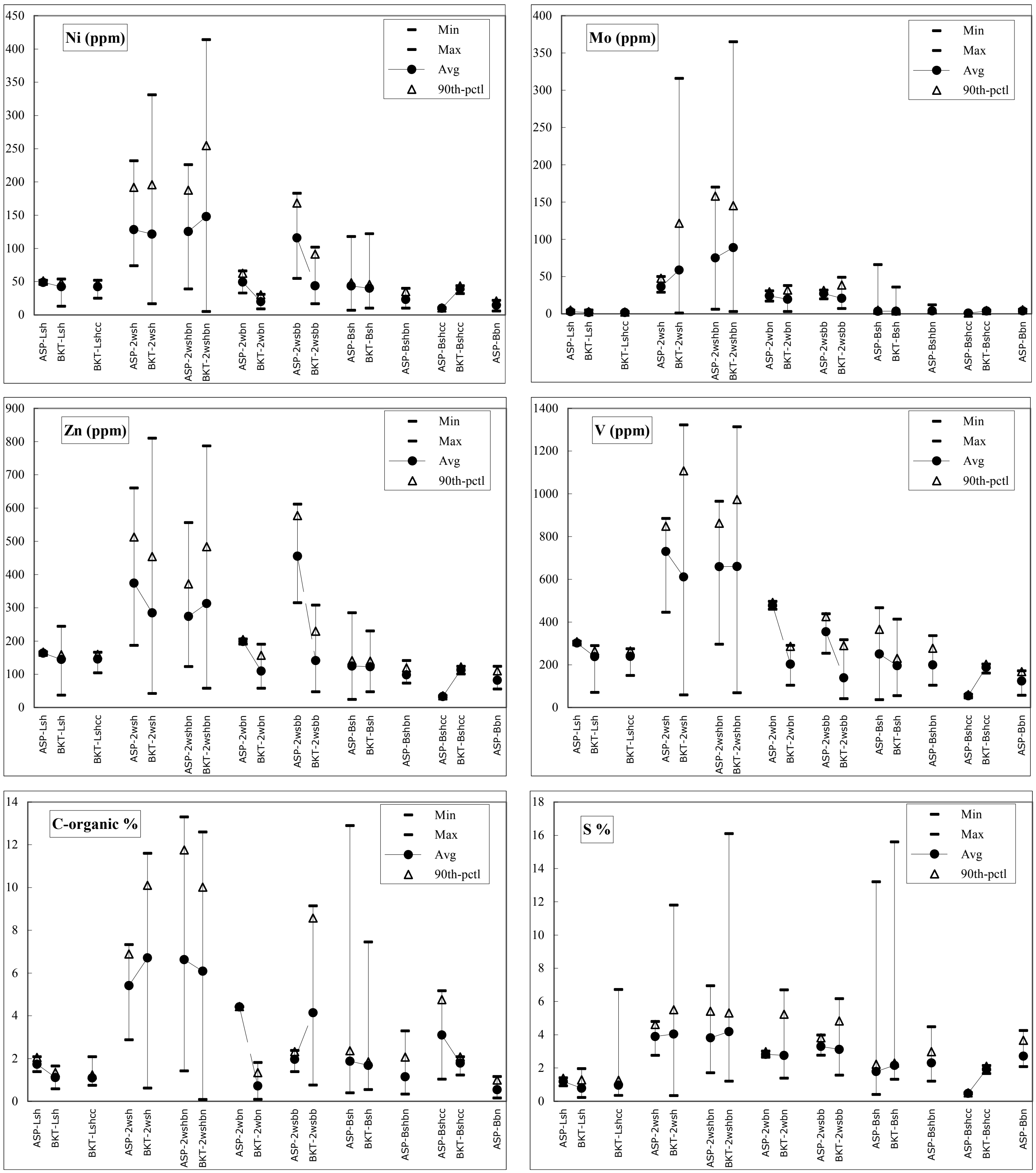


Figure 66: Summary of C-org, S, Ni, Mo, Zn and V variations for sub-formational units of LaBiche (L), Second White Specks (2w) and Belle Fourche (B) Shales, historic drilling Asphalt (ASP) and Buckton (BKT) Zones. (sh=unmixed shale; shbn=bentonitic shale; shcc=concretionary shale; bn=bentonite; sbb=siliciclastic bonebed). After Figure 45, Sabag 2008; and Figures 56 and 57, Alberta Mineral Assessment Report MIN9802, Sabag 1998.

Figure 65 is self explanatory, showing good correlation among metals (in 65b-65g), and equally good correspondence among them downhole (65a) with progressively better concentration of most of the metals over the upper sections of the Second White Speckled Shale Formation, but with a secondary subzone dominated by preferential concentration of V midsection in the hole accompanied by lesser similar enrichment in other metals. Figure 65 also shows likely multiple populations for V and to a lesser extent also for Cu and U (65h, 65b and 65c). Content of select metals as well as C-org and S for various sub-components of the Shale are shown in Figure 66, which is also self-explanatory.

The various shales were classified based on the black shale classification scheme of the general IGCP Project 254 guidelines, and Huyck, 1988, according to which:

- a "**black shale**" is a dark (gray or black), fine grained (silt or finer), laminated sedimentary rock that is generally argillaceous and contains appreciable organic carbon (>0.5 wt%); and
- a "**metalliferous black shale**" is a black shale which is enriched in any given metal by a factor of x2 (except Be, Co, Mo, U for which x1 is sufficient) relative to USGS standard SDO-1.

C-org, S, Ba, Na and Ca contents for the LaBiche, Second White Specks and the Belle Fourche (Shaftesbury) Formations are summarized in Table 12. Averages for organic Carbon (C-org) contents range 1.1% to 6.7% and shales from all three Formations meet the textural and compositional criteria to be classed as "black shales". Shales from the Second White Specks Formation report by far the highest C-org contents, are more calcic and are characterized by elevated Fe and S. In addition, bentonitic shales, being shales intermixed with many fine layers and seams of bentonitic material, reflect their composite nature reporting the higher average Na and Ba levels, especially for the Second White Specks Formation.

	Property	C-org %	S %	S/C	Ca %	Fe %	Ba ppm	Na %	Ni/Cu
Labiche Shale	Asphalt	1.7	1.2	0.7	0.6	3.9	2240	0.66	1.2
Labiche Shale	Buckton	1.1	0.8	0.7	0.8	3.9	1175	0.43	1.3
Second White Specks Shale	Asphalt	5.4	3.9	0.8	5.3	4.5	1192	0.50	1.3
Second White Specks Shale	Buckton	6.7	4.0	0.7	5.6	4.6	1484	0.51	1.6
Second White Specks Bentonitic Shale	Asphalt	6.6	3.8	0.7	4.1	4.5	3099	0.66	1.6
Second White Specks Bentonitic Shale	Buckton	6.1	4.2	1.4	4.5	4.5	4097	0.77	2.1
Bell Fourche Shale	Asphalt	1.9	1.8	1.0	1.2	3.4	953	0.49	1.3
Bell Fourche Shale	Buckton	1.7	2.2	1.3	1.4	3.9	944	0.58	1.4
Bell Fourche Bentonitic Shale	Asphalt	1.1	2.3	3.1	1.0	3.1	702	0.56	0.8

Table 12: Summary of C-org, S, S/C, Ca, Fe, Ba, Na, Ni/Cu averages for shales, Asphalt and Buckton Zones drilling, Alberta Mineral Assessment Report MIN9802, Sabag 1998. After Table 6, Sabag 2008.

SDO1 normalized geochemical profiles for the various Formations (Figure 65j) demonstrate that the Second White Specks Formation shales are "metalliferous" (metal enriched shales) in respect of most of the metals, as they are present in quantities greater than twice those of SDO1. Second White Specks shales in the Asphalt Zone drill holes are, overall, also enriched in REE compared to SDO1 even though the bentonitic component of the shales report REE contents equivalent to SDO1 as do shales from the LaBiche and Belle Fourche Formations. In marked contrast to the Asphalt Zone, none of the Formations sampled at the Buckton Property are REE enriched relative to SDO1.

Additional salient observations, and trends noted or inferred by Tintina from its drilling programs, as applicable also to exploration work elsewhere in the Birch Mountains, are summarized below, extracted from its reports. Majority of the conclusions reached are consistent with conclusions and proposals also offered by the AGS from its mapping and sampling (AGS 2001) of Cretaceous Formations across northeast Alberta and the Birch Mountains:

- Comparative geochemical profiles from the drilling (similarly from sampling of Cretaceous Formations in the Birch Mountains) exhibit an overall gross trend of progressively better metals enrichment upstratigraphy, peaking at the top of the Second White Specks Formation. The enrichment trend is reversed in the overlying LaBiche Formation, averages from which exhibit relative depletions. The trend is best seen in relative Au, Zn, Ni, V and Ag enrichment, and is accompanied by similar trends for Ba and REE;

- Culmination of the Second White Speckled Shale Formation depositional cycle likely coincided with a significant increase in volcanism as evidenced by the great volume and number of bentonites marking its upper contact and their general association with Ba enrichment. The suggested volcanism is supported by the presence of pyroclastic material in a lag deposit often capping the Formation, suggesting that at least some of the volcanism is localized in the Birch Mountains;
- A close link between metal enrichment in the Second White Specks Formation shale with volcanic processes is reinforced by the shale's overall elevated S/C ratio averaging 1-1.2, well above an overall ratio of 0.32 common to normal shales. Since elevated S/C ratios exceeding 0.32 are commonly regarded to be the result of input from volcanogenic-hydrothermal processes, a similar history can be proposed for the Second White Specks Formation shales and, to a lesser extent, also for the enveloping LaBiche and Bell Fourche Formations;
- A volcanogenic provenance for the Second White Specks Formation Shale is supported by its higher than typical contents of Corg ranging 5.8-7% and S 4-4.2%, both of which are well above published data from normal black shales (avg C-org 0.5-0.7%, avg S 1.5-2%), and are comparable with data from many other metal enriched black shales from elsewhere in the world which are believed to have formed via volcanogenic and hydrothermal input (e.g. metal enriched shales from Bohemian Massif, Czech Republic, Pasava et al 1996; the Talvivaara deposit, Loukola-Ruskeeniemi and Heino 1996; gold bearing Russian black shales, Buryak 1976);
- The 4-6 million year gap identified between the top of the Second White Specks Formation and the base of LaBiche Formation by preliminary micropaleontological examination points to a period of significant uplift and erosion, and is compatible with syn-sedimentary tectonic activity related to increase in volcanism toward the end of the Second White Specks depositional cycle;
- Bentonites exhibit by far the most conspicuous stratigraphic trends and contrasts between the drill holes from the Asphalt Zone compared to those from the Buckton Zone. Distribution, thickness and frequency of bentonites noted in the drill holes at the Asphalt Zone suggest a local proximal source for bentonites, whereas a nearby source to the northeast is suggested by bentonites noted in the Buckton Zone drill core;
- While bentonitic shales, or shale intercepts near bentonites, in the Second White Specks Formation generally report the higher metal and sulfide contents from both properties, a similar, though weaker, trend can also be discernible in shale intercepts near bentonites in the underlying Belle Fourche Formation (Shaftesbury Fm) in the Asphalt Zone drill holes, reiterating a more general association between bentonites (i.e. volcanism) and metal concentration in the area;
- The discovery of abundant garnets and possible eclogitic garnets in heavy mineral concentrates from drill core support speculations regarding the presence of kimberlitic material, or similar venting, in the area. This is also supported by the presence of diamond stability field mineralogy in stream sediment heavy mineral concentrates from the vicinity of the two Zones;
- Tintina noted that the proposed existence of previously unrecognized volcanogenic material (and activity) in northeast Alberta is novel and represents a departure from the general geoscientific dogma for the region which has traditionally invoked a singularly brinally controlled metallogenic setting to the exclusion of other processes (eg: Feng and Abercrombie 1994). Others have also recognized a similar non-brinal metallogenic potential (Olson 1994a and 1994b, AGS 2001);
- Tintina also noted that discoveries and conclusions from its exploration work in the Upper Cretaceous stratigraphic package overwhelmingly suggest a local source(s) to the metals discovered, with a strong volcanogenic association. Tintina also proposed that metallic mineralization documented in the Birch Mountains are congregated around distinct volcanic centers characterized by considerable exhalative activity as evidenced by the abundance of bentonites and ejecta material of probable localized provenance. Cryptovolcanic activity or venting via kimberlitic pipes were also considered to present equally likely sources to the abundant ejecta material incorporated into the Second White Specks Formation.

Tintina ultimately concluded that while none of the metals are present in the shales in sufficiently high concentrations to be of economic merit by itself, the “pay” metals Mo, Ni, V, Zn, and Cu (and to some extent also Ag and U) collectively represent sufficient gross in-situ value on a combined basis to place the Second White Specks Formation shales within reach of economic viability, provided the metals can be recovered on a combined basis, especially when reviewed in the context of the low operating costs afforded to bulk mining and treatment operations of similar unconsolidated material in the region and elsewhere in the world. Weighted averages of metal grades for intersections of the Second White Speckled Shale in the drill holes are summarized in Table 13, showing also grades as converted to, and restated as, equivalent metal pounds per short ton (Ag reported in g/t).

Hole No.	Interval Thickness (m)	Mo -ICP (ppm)	Ni -ICP (ppm)	U-INA (ppm)	V -ICP (ppm)	Zn -ICP (ppm)	Cu -ICP (ppm)	Co-INA (ppm)	Ag -ICP (ppm)
BK1	15.26*	86	160	37	776	360	83	21	0.4
BK2	18.4	66	126	34	648	305	70	21	0.5
BK3	26.2	62	121	30	623	289	73	19	0.4
BK4	21.1	67	129	27	645	282	73	23	0.3
BK5	18.4	77	152	25	722	318	77	24	0.7
BK6	22.6	72	133	30	668	282	78	21	0.8
AS1	7.21**	73	144	47	690	376	89	20	0.3
AS2	11.4	63	122	31	664	282	89	20	0.3
Metal Prices 1997	USD$	$4.4/lb	$3.1/lb	$9/lb	$4.1/lb	$0.78/lb	$0.9/lb	$24.3/lb	$5.2/oz

Metal Prices as at October 6, 1997; USD$ x 1.4 = CDN$

*Hole BK1 did not reach bottom contact of the Formation. Total thickness is estimated to be 21.3m per projections from adjacent holes

** Asphalt hole AS1 collared in Speckled Shale. Total thickness estimated to be 11.4 based on projections from adjacent hole

Hole No.	Interval Thickness (m)	Mo -ICP (lb/st)	Ni -ICP (lb/st)	U-INA (lb/st)	V -ICP (lb/st)	Zn -ICP (lb/st)	Cu -ICP (lb/st)	Co-INA (lb/st)	Ag -ICP (g/t)
BK1	15.3	0.17	0.32	0.07	1.55	0.72	0.17	0.04	0.01
BK2	18.4	0.13	0.25	0.07	1.30	0.61	0.14	0.04	0.02
BK3	26.2	0.12	0.24	0.06	1.25	0.58	0.15	0.04	0.01
BK4	21.1	0.13	0.26	0.05	1.29	0.56	0.15	0.05	0.01
BK5	18.4	0.15	0.30	0.05	1.44	0.64	0.15	0.05	0.02
BK6	22.6	0.14	0.27	0.06	1.34	0.56	0.16	0.04	0.03
AS1	7.2	0.15	0.29	0.09	1.38	0.75	0.18	0.04	0.01
AS2	11.4	0.13	0.24	0.06	1.33	0.56	0.18	0.04	0.01

Table 13: Summary of weighted average grades for select metals, Second White Speckled Shale intersections, Asphalt and Buckton Zones historic drilling. After Alberta Mineral Assessment Report MIN9802, Sabag 1998. After Table 7, Sabag 2008.

Tintina prepared estimates of grades of the various sub-formational components of the Shale and its enveloping shales (Table 14), and calculated their respective gross in-situ value to identify the better collective grading sections for additional future follow-up. The calculations were based on Oct/1997 metal prices, and reflected aggregate value of the contained Mo+Ni+U+V+Zn+Cu+Co+Ag, as analyzed, in-situ in the shale, assuming 100% recovery. Details of Tintina’s calculations are discussed in DNI’s NI-43-101 report (Sabag 2008). The reader is, however, cautioned that the foregoing figures are guidelines only which provide a relative yardstick to guide future exploration, as they are conceptual in nature, are based on broad assumptions and generalizations, and do not represent economic worth of the Shale, but rather reflect the aggregate gross value of metals contained in the shale based on exploration analyses, as at October 1997 metal prices, assuming 100% recovery, assuming also that the metals can or might be recoverable from the shale on a combined basis to extract the aggregate values estimated.

Summary of Grades (ppm)

PTY/Fm	Cu (ppm)			Mo (ppm)			Ni (ppm)			Co (ppm)			V (ppm)			Zn (ppm)			U (ppm)		
Rocktype	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
ASP-Lsh	35	47	40	1	5	3	46	52	49	13	16	14	297	310	302	160	168	164	4	8	7
BKT-Lsh	12	47	32	1	5	2	13	54	43	3	21	12	71	290	238	37	244	145	0	7	4
ASP-2wsh	56	117	100	29	50	36	74	232	128	16	41	22	446	884	730	187	660	374	16	110	41
BKT-2wsh	13	122	73	1	316	59	17	331	121	4	55	21	59	1322	611	42	810	285	5	260	30
ASP-2wshbn	16	116	82	6	170	75	39	226	126	6	30	19	296	965	659	123	556	274	5	62	29
BKT-2wshbn	4	126	71	3	365	89	5	414	148	1	180	23	69	1313	660	58	787	313	2	170	38
ASP-2wbn	46	61	54	17	31	24	33	66	50	7	12	10	460	496	478	191	206	199	5	17	11
BKT-2wbn	4	28	14	3	38	20	9	31	20	1	7	4	104	291	204	58	190	110	4	18	11
ASP-2wsbb	62	94	78	20	32	27	55	183	116	13	29	21	254	439	355	315	612	455	100	100	100
BKT-2wsbb	14	82	31	7	49	21	17	102	44	5	30	11	41	317	139	47	308	142	7	80	29
ASP-Bsh	7	75	34	1	66	3	7	118	44	2	26	11	37	467	251	24	285	125	1	36	6
BKT-Bsh	10	77	29	1	36	4	10	122	40	5	56	12	55	413	196	47	230	123	3	13	6
ASP-Bshbn	20	42	31	1	12	4	10	40	23	5	9	7	104	336	200	73	141	98	2	8	4
ASP-Bshcc	8	11	10	1	1	1	9	11	10	3	4	4	49	62	56	30	36	33	2	2	2
BKT-Bshcc	20	31	26	3	5	4	32	44	39	10	11	10	161	203	188	101	124	114	4	4	4
ASP-Bbn	13	27	21	3	6	4	6	22	15	5	8	6	57	172	125	56	124	82	2	7	5

Formation / Rocktype Legend

Lsh = Labiche Shale	2wsh = Second White Specks Shale	Bsh = Belle Fourche Shale
	2wsb = Second White Specks Bentonitic Shale	Bshbn = Belle Fourche Bentonitic Shale
	2wbn = Second White Specks Bentonite	Bshcc = Belle Fourche Concretionary Shale
	2wsb = Second White Specks Siliciclastic Bone Bed	Bbn = Belle Fourche Bentonite

Table 14: Summary of grades of select metals from the LaBiche, Second White Specks and Belle Fourche Formations, Asphalt (ASP) and Buckton (BKT) Zones drilling 1997. After Table 8, Sabag 2008; and from Table 15, Alberta Mineral Assessment Report MIN9802, Sabag 1998.

Detailed discussion of in-situ values and challenges of exploring polymetallic deposits are beyond the scope of yjis report. The reader is referred to Sabag 2010.

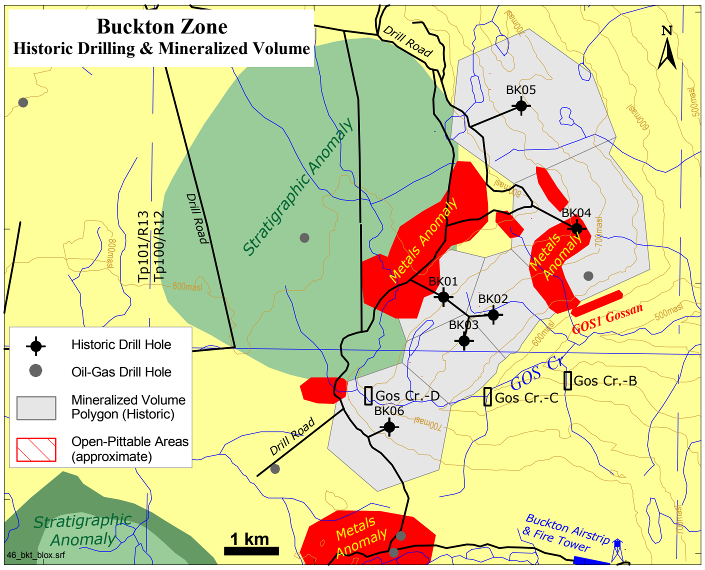


Figure 67: Buckton Zone mineralized volume, per Tintina drilling 1997. All features except polygons after Alberta Mineral Assessment Report MIN9802, Sabag 1998. Mineralized polygons from miscellaneous other Tintina communications documents. See also Figure 33.

As a guide to its future exploration work, based on very broad extrapolations reinforced by the drilling results, Tintina proposed that should surface and subsurface metallic anomalies identified at the Asphalt and Buckton Zones, and over the other composite target areas identified, indeed reflect the true size of underlying mineralization, metals concentration zones in the Speckled Shale Formation can be conjectured to extend over areas generally measuring upward to approximately 5km x 5km (reinforced by the approximate 8km long cross-section drilled across the Buckton Zone). In addition, based on an extrapolated average thickness of some 30m for the Formation, and an average specific gravity of 2.1[19], the shale can potentially host metal concentrations of approximately 60 million tonnes per 1km^2 of lateral extent, representing approximately 1,500 million tonnes per any deposit extending over a 5kmx5km area.

To support the above conjecture, and as a guide to its future in-fill grid drilling, Tintina prepared an estimate, in December 1998[20], of the volume of mineralized material implied by the drilling at the Buckton Zone, to be approximately 430 million cubic metres, representing the aggregate of all Second White Speckled Shale intercepts logged in the drilling, without grade nor thickness optimization. It also estimated that this volume extends over an approximate 2.5kmx8km area with a thickness ranging 18.4m to 26.2m, and represents approximately 904 million tonnes of mineralized material, averaging approximately 72ppm Mo, 137ppm Ni, 30ppm U, 680ppm V, 306ppm Zn, 76ppm Cu, 21ppm Co, 1ppm Ag and traces of gold. This mineralized volume is "open" in all directions, except to the east which marks the erosional edge of the Birch Mountains where the Shale Formation has been eroded away. The outline of the mineralized volume is shown in Figure 67.

For preparation of its estimate, Tintina relied on volumetric calculations relying on simple polygons centered on Speckled Shale drill intercepts extending outward from each drill hole midway to the next adjacent hole. Tonnages were calculated at a specific gravity of 2.1 as calculated from drill sample weight records. Some of the polygons are reinforced by similarly mineralized outcrops sampled along river valley walls in the area and, along the GOS Creek valley walls which parallel the 8km drilled section 1km to its southeast. The GOS Creek valley walls contain intermittent exposures of mineralized Second White Speckled Shale, including a 120m long mineralized exposure at the GOS1 Gossan which has been extensively sampled by Tintina as well as the AGS, and has occasionally also yielded free gold grains in heavy mineral concentrates.

[19] DNI's verification sampling reported measured SG values ranging 2.2-2.5
[20] Included in miscellaneous Tintina communication documents 1998-1999, and in regulatory discussions Feb/1999.

The reader is CAUTIONED that the above estimate is not a mineral resource, that it pre-dates NI-43-101 and does not conform to it, and that it should not be considered to be a definitive indication of mineralization which could, or might, exist at the Buckton Zone, but that it is a relevant and significant indication of the overall potential of the Zone, and of the magnitude of mineral aggregations which it might host subject to confirmation by future in-fill grid drilling.

The above mineralized volume is superceded by DNI's review of Tintina's work, and DNI's delineation of a Mineralized Zone proposed to exist at the Buckton Zone, as discussed in greater detail in Section 9.8.1 of this Report.

There are, to the author's knowledge, no additional positive or negative data or information, nor any subsequent exploration work, which would change or equivocate the historic figures. There has been no subsequent drilling on the Property in search for metals.

Tintina overall concluded that the most attractive features of the Second White Speckled Shale Formation shales from an economic perspective are (i) their proximity to surface and their unconsolidated nature hence amenability to extraction by low cost large scale bulk mining; and (ii) the potentially immense lateral extent of metal enriched portions therein estimated to occupy tens of square kilometers as extrapolated from surface and subsurface exploration results. Tintina subsequently focused its attentions on metallurgical testwork intended to determine recoverability of the metals from the shale and to establish economic parameters.

8.12 PRIOR METALS RECOVERY TESTWORK – ASPHALT AND BUCKTON ZONES

The earliest, and first ever, tests to attempt to recover metals from the Second White Speckled Shale were initial preliminary investigations conducted by Tintina Mines Limited during 1998-1999. Results of the foregoing work were encouraging and provided baseline guidelines to DNI's subsequent metals recovery testwork during 2009-2010 which also benefited from new metals extraction procedures via bioleaching which were not available in the late 1990's.

8.12.1 Historic Metals Recovery Tests 1998-1999 - Asphalt and Buckton Properties

Tintina undertook a series of studies and related testwork in 1998-1999 as an initial and preliminary assessment of the viability of recovering metals from the shale on a combined basis. Particulars of the tests are described in Alberta Mineral Assessment Report MIN20100017 and in DNI's NI-43-101 report for the Property. Tintina's work investigated the following:

Sequential Leaching Tests 1998: served to conclude that a that the metals enriched in the shale are in most part hosted in non-organic compounds and in recoverable forms (e.g. sulfides, native or oxides).

Ortech Flotation Tests 1998: concluded that the metals enriched in the shale cannot be concentrated by conventional flotation and tend to form slimes.

Ortech Sulfuric Acid Leaching Tests 1998: achieved extracted recoveries of 97.2% Nickel, 100% Zinc and 33.6% Vanadium by 6-hour long leaching in sulfuric acid at 75C and ambient pressure. The leaching tests did not record data for Molybdenum, Uranium and Copper, nor for any of the other metals known to be enriched in the shale sample tested.

Deflocculation Tests 1998: proved inconclusive as to concentration of metals, but succeeded in collecting particulate gold from some samples.

Cyanidation Tests 1999: confirmed preg-robbing gold losses from carbon-in-pulp bottle roll cyanidation tests, and overall reported higher grades from samples which had been de-slimed. The test results were, however, nuggetty.

Gold Check Assaying 1999: extensive check assaying reported very erratic results ultimately concluding that the standard 30gm sample size routinely used during fire assaying is non-representative for analysis of the shales for gold, and that historic gold grades relying entirely on assays from small samples may have been understated.

Heavy Mineral Concentration 1999: demonstrated that deflocculants are an effective pre-treatment for concentration of minerals and metals from the shale's otherwise muddy matrix, and that gold and base metals were successfully, though incidentally, concentrated in the heavy minerals, confirming the presence of native gold in the shale. The heavy oil concentrates achieved concentration ratios ranging x25-476 for Au, x6-15 for Zn, x2-20 for Co, x2-11 for Ni, and x1-2 for U.

Despite overall encouraging conclusions from the above work, Tintina's testwork failed to identify recovery methodology for the collective recovery of all of the metals of then interest by a single procedure.

8.12.2 DNI Metals Recovery Tests 2009-2010 - Asphalt and Buckton Properties

DNI's principal focus during 2009-2010 was on investigation of metals recoveries via a series of tests many of which were concurrently carried out at several different facilities. DNI, accordingly, completed considerable initial metals leaching and bioleaching testwork to evaluate recoverability of collective metals from the Second White Speckled Shale.

While some of the leaching testwork was carried out under DNI's direction at Actlabs, under the supervision of S.F.Sabag PGeo, DNI's QP for the projects and its President, the bioleaching testwork was carried out by Alberta Innovates Technology Futures (AITF - formerly the Alberta Research Council ARC) and the Bureau de Recherches Géologiques et Minières (BRGM), France's leading Earth Sciences public institution recognized worldwide for its expertise in biohydrometallurgy, with considerable direction and input from Dr.C.L.Brierley, a well recognized bioleaching expert, who was retained by DNI to oversee and direct its bioleaching R&D programs. The foregoing testwork programs are described in considerable detail in Alberta Mineral Assessment Report MIN20100017. Salient findings are summarized below:

DNI's leaching testwork programs represent initial work carried out under test conditions which have not yet been optimized for enhanced recoveries, although they were successful in demonstrating that metals can be collectively recovered from the Second White Speckled Shale by simple leaching in sulfuric acid and by bioleaching, and that excellent recoveries can be achieved for Ni-U-Zn-Cd-Co, middling recoveries for Cu-Li, and lower recoveries for Mo-V. The foregoing tests are the first ever leaching and bioleaching tests completed to evaluate recovery of metals from the Speckled Shale. Salient highlights from the tests and maximum metal recoveries achieved are as follows:

- **Sulfuric acid leaching tests conducted by DNI**, on Second White Speckled Shale samples from the Asphalt Zone, comprising Stage1 and Stage2 tests intended to generally simulate bioleaching, relying on 10gm and 5gm samples, respectively, reported recoveries ranging upward to Mo-51%; Ni-89%; U-84%; V-51%; Zn-88%; Cu-57%; Co-86%; Cd-93%; Li-58%. The tests noted that metals solubilized readily and rapidly within the initial 8-10 hours of the tests, and also reported some re-precipitation for some of the metals at the later stages of leaching in many of the tests, especially Stage2 tests which were conducted at higher temperatures. Although Stage2 tests were intended to experiment by trial-error with different temperatures, leach duration and pH, results were inconclusive and, other than providing some general guidelines for future work, do not allow conclusion of definitive trends or recoveries.
- **Bioleaching tests were conducted by the BRGM** on a fresh surface sample of the Second White Speckled Shale from the Asphalt Zone to determine amenability of the Second White Speckled Shale to bioleaching for the collective recovery of metals. The Alberta black shales' amenability to bioleaching has never previously been tested, and the BRGM testwork was intended as an initial step toward broader testwork to follow. BRGM conducted bioleaching as well as abiotic leaching tests using duplicate 200gm charges during approx 15 days of leaching at substantially constant pH of 1.8, at 40C and 3% solids. A bacterial consortium from BRGM's acidophilic culture bank was used during the tests. Considering that the culture had previously been adapted to grow on a copper concentrate, copper recovery could not be measured during the biotic leaching. Cd and Li were also not monitored.

  BRGM overall concluded that that the bacterial activity has only limited incremental positive influence on metals dissolution, since the metal solubilization under abiotic conditions were similar to those under biotic conditions, indicating that metals solubilize quickly under acid conditions. BRGM also concluded that the principal benefit of biotic intermediation is improvement in recovered metal yields over time. The tests recommended that complementary leaching tests be undertaken using conventional leaching agents to definitively determine any advantages which bioleaching might offer over chemical leaching. They further recommended that future tests include tests at higher solids content and tests with liquor recycling in order to increase collection of metals into the solvent.

BRGM tests noted that the Shale tested is quite reactive to bioleaching demonstrated by very short lag time before micro-organisms start to grow at its contact. They also noted that bacterial adaptation to the shale is immediate and that there is no "poisoning" by the shale's geochemistry nor does the shales chemistry inhibit start-up of bacterial growth.

BRGM noted that although the ore produces acidity quite soon, sulfur content of the sample tested is too low to produce the requisite sulphuric acid by bioleaching alone, and that the 3%-4% S content of the shale is at the lower limit for triggering and maintaining a bacterial growth based on sulphide oxidation.

BRGM noted that metal recoveries in biotic conditions were only slightly improved by the presence of bacteria compared to recoveries from the abiotic test, and reported the following calculated metals recoveries from bioleaching: Mo-15.6%; Ni-88.4%; U-88%; V-5.8%; Zn-82.8%; Co-88.1%. The BRGM reported the following calculated metals recoveries from abiotic leaching: Mo-2.5%; Ni-86.6%; U-81.9%; V-8.3%; Zn-83.7%; Co-83.2%; Cu-49.4%. BRGM test results are consistent with, and corroborate, results from sulfuric acid leaching tests conducted by DNI which similarly concluded that most of the metals quickly solubilize under acidic conditions and that excellent recoveries can be achieved for many of the metals.

- A set of tests were conducted by AITF (formerly the Alberta Research Council) on fresh surface samples of Second White Speckled Shale from the Property to determine whether microorganisms capable of growing under bioleaching conditions (i.e. extreme acidic conditions) could be detected in the Shale. The tests successfully demonstrated that enrichment cultures can be obtained from the fresh samples of the Second White Speckled shale, and extracted cultures for subsequent adaptation and bioleaching tests.
- A bioculture adaptation study was carried out by the AITF by conducting testwork to adapt two of the bioleaching enrichment cultures obtained above from the Second White Speckled Shale to increasing shale amounts (up to 20% solids density) and decreasing amounts of external ferrous sulphate. The study achieved its objective and demonstrated that the cultures could adapt well to the Second White Speckled shale. The study recommended that testwork advance to conducting batch amenability tests, using the cultures extracted from Shale and adapted to it as the bioleaching inoculum, to measure the types and amounts of metals that can be extracted from the Second White Speckled shale by bioleaching.
- Acid consumption testwork conducted by the ARC to measure sulfuric acid required to achieve a pH of 1.8 in samples of Second White Speckled Shale from the Property. The tests reported acid consumption ranging 7.4kg-102kg from two samples of the Second White Speckled Shale from the Property.
- Metal mobility testwork conducted by the ARC to determine which metals would solubilize sulphuric acid at pH range between 1.2-1.8 concluded that Ni-U-Zn-Co are readily soluble at pH of 1.8 over 48 hours, but that Mo-V-Cu demonstrated poor solubility.
- A series of batch amenability bioleaching tests were conducted by the ARC on fresh surface samples of the Second White Speckled Shale from the Asphalt Zone, relying on bacterial inoculum cultures extracted and adapted above, to determine the types and amounts of metals that can be. Duplicate tests, using 200gm charges from two separate samples, were conducted and final tails from one set of duplicates were washed in HCl to assess sulfate and Fe precipitation and what effect it might have on metals solubilization.

  The tests reiterated findings of DNI's sulfuric acid leaching tests and those reported by the BRGM from its bioleaching work, and demonstrated that collective group of metals can be extracted from the shale by bioleaching and that high recoveries typically ranging 80%-95% can be achieved under non-optimized conditions for Ni-U-Zn-Cd-Co, that middling recoveries typically ranging 40%-55% can be achieved under non-optimized conditions for Cu-Li; and that the poor recoveries documented for Mo-V, typically ranging 10%-30% for Mo and 2%-5% for V, might be partly due to re-precipitation of Mo and V from solution associated with re-precipitation of Fe. No attempt was to mitigate re-precipitation observed nor to optimize test conditions, and some results are pending which might enhance the foregoing extractions.

Test results provide and extensive leaching database which has not yet been fully reviewed or processed by DNI for analytes other than the principal metals of interest.

- DNI launched a series of CO_2 sparging tests, conducted by AITF, on samples from the Second White Speckled Shale from the Property to collect baseline laboratory information on the reactive properties of fresh Shale samples when injected with CO_2 under ambient pressure. The tests comprise the initial stage of work, to be repeated on Shale tailings after they have been leached or bioleached.

  Incidental solubilization of metals observed during the CO_2 sparging testwork demonstrated that metals can be liberated (extracted) from the shale under mildly acidic conditions[21] over a broad range of pH exceeding pH 2 (less acid than the pH 1.2-1.8 of prior sulfuric acid leaching and bioleaching tests), and that acidity may be the decisive factor to achieve metals extraction rather than the type of acid used in leaching (all prior leaching and bioleaching testwork had relied on sulfuric acid solutions whereas the CO_2 sparging tests did not). This discovery offers possibilities for use of CO_2 as a pretreatment to other more acidic leaching methods.

DNI's testwork has since expanded on these findings and continues to expand toward optimization of test parameters for enhanced recovery of the various metals of interests. DNI scope of metals which are recoverable from the Second White Speckled Shale by a single leaching method has also broadened since completion of the above work to include Rare Earth Elements and Specialty Metals (eg:Li,Sc,Th). The foregoing are discussed in a later Section of this report.

8.13 MISCELLANEOUS OTHER PRIOR WORK BY DNI

DNI conducted miscellaneous other work with the objective of characterizing mineralogy of the Second White Speckled Shale and its interaction with CO_2 as a possible CO_2 sequestering medium. These are described in detail in Alberta Mineral Assessment Report MIN20100017 and summarized below.

8.13.1 MLA Mineralogical Investigation Study

The mineralogy of a suite of fifteen samples from the Second White Speckled Shale from the Property was studied by Actlabs Geometallurgy Services during a mineralogical characterization study by MLA600F Scanning Electron Microscope. Due to the extremely fine grained nature of the samples, definitive mineralogical data could not be collected as hoped, although the study concluded that samples can be grouped into broad categories based on geochemical, XRD and MLA information. The study also noted that the organic phase in the shale can carry high and variable levels of Ca, Fe and S which precipitate or crystallize, depending on moisture and other conditions, as pyrite framboids or have been oxidized to sulphates (jarosite, Fe-sulphate and/or alunite), and that some Fe-oxides were found to host Cu and Mn. Mineralogical point-count modal data were gathered, and the samples generally characterized. The study noted that Zn in the samples is largely hosted by sphalerite (which accompanies pyrite framboids), and that Zn is also hosted in Mn-oxides/hydroxides. Detectable Ni, Cu and Co was identified in rare Fe- and Mn-oxyhydroxides.

The MLA work did not provide as much quantitative mineralogical information as hoped, although it reiterated that black shale hosted metallic mineralization is typically too fine to afford identification by optical or EDS methods and that the metal-bearing compounds are dispersed throughout the shale as extremely tiny particles (often submicron) trapped in organic matter or in slimes. The Study also suggested that many of the metals might occur in the Second White Speckled Shale samples tested as charged particles within oxides, hydroxides and clays, rather than as discrete mineral phases[22]. This,

[21] This observation is consistent with suggestions from the MLA mineralogical study that the metals might in most part occur in the Shale as charged particles which can be easily liberated, rather than as discrete minerals.
[22] A conclusion shared by the Supplemental Buckton resource study discussed Section 15.3 of this report

latter, suggestion is supported by the ease with which metals can be leached from the shale as observed during subsequent leaching and bioleaching testwork, and also by historic mineralogical work from the Property noting instability of at least some of the mineralogy in the shale and its susceptibility to decomposition.

8.13.2 CO_2 Sparging Testwork

Given that black shales are known to have capacity for sequestering CO2 under pressurized conditions, and given that certain "spent" black shales and similar material also have similar capacity, a series of CO2 sparging tests were carried out by the ARC on samples from the Second White Speckled Shale from the Property to collect baseline laboratory information on the reactive properties of fresh Shale samples when injected with CO2 under ambient pressure. The tests comprise the initial stage of work, to be continued and repeated on Shale tailings after they have been leached or bioleached.

The tests collected laboratory based information, and demonstrated that fresh samples of the Second White Speckled Shale are reactive to acidity as can be expected given its carbonate content. The testwork also reported solubilization of metals along with other analytes under moderate acidity conditions reiterating that metals are readily leached from the Shale even at the moderate acidities. The testwork recommended proceeding to the second planned stage of work to similarly test shale residues produced from leaching or bioleaching, to evaluate whether chemistry or mineralogy of such tailings might be mitigated to promote CO2 sequestration through ex-situ mineral carbonation under ambient conditions.

The collateral solubilization of metals observed during the above testwork is especially interesting, and demonstrates that the metals can be liberated (extracted) from the shale under acidic conditions over a broad range of pH exceeding pH 2 (less acid than the pH 1.2-1.8 of prior sulfuric acid leaching and bioleaching tests), and that acidity may be the decisive factor to achieve metals extraction rather than the type of acid used in leaching (all prior leaching and bioleaching testwork had relied on sulfuric acid solutions whereas the CO2 sparging tests did not). The foregoing is consistent with suggestions from the MLA mineralogical study that the metals might in most occur in the Shale as charged particles which can be easily liberated, rather than as discrete minerals such as sulfides.

The collateral solubilization of metals during the CO_2 sparging tests offers previously unrecognized possibilities currently under investigation by DNI for using CO_2 (ie: carbonic acid) as a leaching reagent to dissolve metals from the shale as a pretreatment to other more acidic leaching (eg:bioleaching) methods to reduce reagent consumption (further discussed in Section 14.4 of this report).

8.14 Concluding Remarks On Historic Work and Prior Work By DNI

To the extent that DNI's Property is large (2,720 sq km) and includes several large historic properties of differing vintages, the known prospective metallic targets on the Property span the full spectrum of exploration and development status, ranging from a early-stage targets, through drill ready targets, to two drill confirmed metallic Zones (Asphalt and Buckton Zones) which have advanced to the resources definition grid drilling stage to upgrade Mineralized Zones which exist therein, as proposed by DNI's 2008 NI-43-101 technical report for the Property (Sabag 2008), to classified resources[23]. Considerable information has, accordingly, been incorporated into this Report from all historic exploration work over the Property to capture all results which would be relevant to the exploration for polymetallic black shale hosted zones over various parts of the Property, and as such this Report includes extensive detailed reconnaissance exploration information in addition to results from advanced work in the metallurgical benchtesting stage. All of the foregoing information were initially consolidated in 2008 in DNI's technical report for the Property (Sabag 2008).

The Property's large size is appropriate to the type and size of metal targets being sought by DNI, comprising in most part laterally extensive tabular near-surface polymetallic zones (50-100 sq km each), occurring as near-surface open-pittable flat "blankets" hosted in the relatively flat stratigraphy. Six such target areas were identified by the historic work which were reinterpreted by DNI and consolidated into

[23] DNI has delineated an initial inferred resource on the Buckton Zone, as discussed in Section 15 of this report.

four target areas. Two additional, early stage, target areas were also recognized and proposed by the 2008 technical report after review of the historic work in the context of geoscientific developments from elsewhere related to black shale hosted metallic mineralization.

The only geological information available from the Birch Mountains, and from DNI's Property, toward the exploration for metals consist substantially of results from historic work conducted by Tintina Mines Limited together with work conducted by the Alberta Geological Survey and the Geological Survey of Canada. The combined historic work provides detailed data coverage over the eastern two-thirds of DNI's Property, whereas the western one third of the Property is unexplored.

The following salient conclusions can be made based on, and collated from, the collective information from all historic work:

- Metals enrichment on the Property is hosted in the Middle-Upper Cretaceous Second White Speckled Shale Formation, which is typically a 20m-40m thick flat-lying "blanket" of poorly consolidated black shale, gently block-faulted in several places. The Formation demonstrates the most conspicuous geochemical relief in the Birch Mountains, providing the only geochemical variations within an otherwise featureless and monotonous stratigraphic package. The Formation is 18.4m-26.2m thick at the Buckton Zone as demonstrated by historic drilling, and approximately 11m thick over the portion drilled at the Asphalt Zone;
- The Second White Speckled Shale, the overlying LaBiche and the underlying Belle Fourche (Shaftesbury) Shales, are bona fide "black shales". The Second White Speckled Shale, furthermore, meets textural and compositional criteria to be classed a "metal enriched black shale". Metal enrichment in the Second White Speckled Shale is characterized by enrichment of Mo, Ni, U, V, Zn, Cu, Co, Cd, Ag and Au, and its metal contents typically vary x2 to x10 of its enveloping Formations;
- Metal enrichment and lithological patterns in the Speckled Shale are compatible with the Rift-Volcanic Type of metal enrichment style recognized from black shales worldwide, characterized by metal accumulation believed to have been controlled by hydrothermal-volcanogenic events (submarine exhalations) in the presence of organic matter. The Rift-Volcanic Type of deposits typically have modest polymetallic grade, are immense (300MM-1,000MM+ tonne range), are 20m-100m thick tabular "blankets" which extend over tens of square kilometers;
- The Second White Speckled Formation Shale exhibits different geochemical patterns when compared with most other shales in northern Alberta, including the underlying Shaftesbury Formation shale, suggesting different controls for metal concentration in the Speckled shale, than for other northern Alberta shales, especially over the Birch Mountains and the Property. The Speckled Shale is also more enriched in metals over the Birch Mountains and the Property than elsewhere in northern Alberta;
- Samples of Cretaceous Formations from the Birch Mountains, independent of lithology, contain a significantly different shale-normalized REE profile when compared to samples elsewhere in northern Alberta. Most samples from the Birch Mountains, particularly those from the Second White Speckled Shale Formation, when reviewed in conjunction with their Ba enrichment, display trends suggesting influence of low temperature hydrothermal precipitates in the Birch Mountains;
- Overall conclusions from all historic work over the Birch Mountains Middle-Upper Cretaceous stratigraphic package, over DNI's Property, overwhelmingly propose a nearby volcanogenic local source(s) to the metals discovered. The work suggests that metallic mineralization in the Birch Mountains are congregated around volcanic centers characterized by considerable exhalative activity, and supports speculation of the existence in the area of yet undiscovered sedimentary exhalative - SEDEX style - sulfides. A localized heat "budget" over the Birch Mountains is consistent with the recognized presence of considerable heat generation at the surface of the precambrian beneath it;
- Culmination of the Second White Speckled Shale Formation depositional cycle likely coincided with a significant increase in volcanism as evidenced by (i) the great volume and number of bentonites marking its upper contact and their general association with Ba enrichment (10,000ppm-30,000ppm); (ii) the presence of pristine pyroclastic material in a lag deposit often capping the Formation,

suggesting also that at least some of the volcanism is localized in the Birch Mountains supported further by presence of thicker bentonite sections ranging 10cm-35cm near the top of the Formation, (iii) various lithogeochemical trends and the shale's trace elemental geochemistry. A close link between metal enrichment in the Shale with volcanic processes is also suggested by interelemental patterns;

- Bentonites within the Second White Speckled Shale exhibit conspicuous stratigraphic trends and may be diagnostic to identification of volcanic vents in the Birch Mountains. Contrasts between distribution, thickness and frequency of bentonites noted in historic drill holes from the Buckton and Asphalt Zones suggest a local proximal source for bentonites from the Asphalt Zone drilling, and a nearby northerly source for bentonites noted in the Buckton Zone drill core. The vicinities of the two Zones, accordingly, offer good candidate areas with demonstrable potential for hosting primary metal mineralization in vents or as SEDEX accumulations;
- The Second White Speckled Shale demonstrates good lateral geological and metal grade continuity between widely spaced historic holes drilled across an 8km cross-section of the Buckton Zone, with equally good lateral grade continuity compatible with variations documented from sampling of large outcrops in the area. In addition, remarkable grade similarity is demonstrated between drill results from the Buckton Zone and those from the Asphalt Zone located 30km away. Speculation that similarly good continuity can be expected from the Shale throughout the Birch Mountains would be reasonable and would be supported by the typically good lateral continuity demonstrated by historic mapping and sampling results across the Birch Mountains, and by comparable excellent lateral continuity typical of black shales worldwide;
- Vertical grade variations in the Second White Speckled Shale depict a well defined metal zonation for many of the base metals, with (overall) better concentration of Mo-Ni-U-(Zn) nearer the Formation's upper contact (dominated by intermixture of considerable bentonitic seams into the shale), and overall better concentration of V, Cu throughout its midsection. Metals enrichment within the upper sections of the Formation is also accompanied by Ba, S, Na and Corg enrichment, and by higher pyritic sulfide contents ranging upward to 20% by volume. Vertical grade zonation, or an ordered trend, is typical of back shales throughout the world. Metals accumulation in black shales is a virtually continuous process and is best regarded as a sedimentary record captured in vertical sedimentary section, extending from the onset of sedimentation through the entire history of any given deposit, to the end of sedimentation, reflecting changes in sedimentation processes, in weathering and hydrological history of the area and those of the sources to the shale. Whether the zonation patterns observed at the Buckton and Asphalt Zones are typical of what might be expected from other Zones which might be discovered on the Property is unknown, though is suspected;
- Based on the stratigraphic subsurface database for the Property, confirmed locally in outcrops and in the historic drilling at the Buckton and Asphalt Zones, the Second White Speckled Shale Formation is known to underlie all of DNI's Property. The Shale is exposed along the eastern and southern erosional edge of the Birch Mountains (e.g Buckton and Asphalt Zones) and is elsewhere under typically 100m-150m of sedimentary and overburden cover (max 200m).;
- Given proximity of the Speckled Shale Formation to the surface and its unconsolidated nature, it can be expected to be amenable to extraction by large scale bulk mining;
- The Second White Speckled Shale is poorly consolidated, its exposures, when wet, readily turn to fluid mudflows due to its high clay content. This physical characteristic suggests that the Shale might be amenable to slurrying and would certainly be amenable to mining by simple "ripping", much as oil sands or the Paracatu deposit are mined, hence requiring no drilling nor blasting during any contemplated open pit mining operation;
- Historic exploration work programs collectively demonstrate that stream geochemical and mineral sampling, and to a lesser extent lakes geochemical sampling surveys, are very effective exploration methods to identify general areas over or near metallic mineralization on the Property. The extensive databases from the work programs demonstrate that stream sediments directly reflect chemical and mineral composition of exposures immediately upslope from sample locations, lacking the broad

dispersion trends commonly associated with stream sediment sampling, and as such provide excellent prospecting methods for locating mineralized exposures;

- The historic work programs demonstrate that soil geochemical surveys utilizing enzyme leaching analytical methods are particularly effective exploration methods to localize buried mineralization on the Property, to identify drill targets and to localize drill holes.
- The Second White Speckled Shale contains fine and coarser sulfides which are dominated by many varieties of Fe-S species, and the higher metal grades therein are contained in its more bentonitic sections. Cu-sulfides, Ni-sulfides as well as native gold have been documented in mineral concentrates recovered from the Shale, though no systematic mineralogical work exists characterizing overall mineral make-up of the Shale.;
- Metals in the Second White Speckled Shale are likely hosted in multiple carrier minerals some of which are sulfides and others are likely organic (or clay) forms, with a suggested grouping of the various metals into one group (Mo, Ni, Zn, Mo, $\pm$U) characterized by affinities for enrichment predominantly in, or as, inorganic minerals and another group (V, Cu) exhibiting affinities for enrichment in organic (or clay) species, some subpopulation overlaps, notwithstanding. Recent mineral study by DNI by MLA suggests that at least some of the metals occur as charged ions adsorbed on clays rather than in discrete sulfides or other minerals;
- Preliminary historic bottle roll cyanidation tests demonstrate that gold can be leached from samples of Second White Speckled Shale by conventional carbon-in-leach cyanidation once the clay matrix is disaggregated by deflocculation, and that gold content of the Shale may be an order of magnitude higher than that documented from routine analysis of small, typically 30gm, samples by fire assay or INA. The discrepancy is attributed to nugget effect. Ultimate gold content of the Shale is, accordingly, currently unknown though expectations of subgram gold grades in the 0.1-0.4g/t range hosted in portions of the shale would not be unrealistic. The historic testwork provides a favourable basis on which to expand with broader and more rigorous future work. It is noteworthy that even modest grades of 0.1g/t gold can add considerable value to the Shale given the immense size of projected mineralized Zones, especially considering expectations that much of the gold occurs in particulate form rather than as dissolutions in other minerals (hence potentially amenable to gravity separation);
- Orientation heavy mineral concentration historic tests successfully collected native gold as well as sulfides by heavy liquids separation after disaggregating clay fraction of the Shale by deflocculation. The tests serve to demonstrate that metals can be concentrated from the Shale provided its clay content is disaggregated. This is consistent with considerable metal separation testwork conducted under the author’s direct supervision on muddy alluvial sediments and freshly slumped outcrop detritus samples from the McIvor River, relying on deflocculation as a clay disaggregation pre-treatment followed by gravity concentration by Falcon concentrator (Sabag 2002);
- Historic orientation simple flotation tests failed to concentrate any minerals from the Shale, and the testwork was challenged by production of considerable slimes. It is puzzling that the historic testwork did not pre-treat the Shale samples nor attempt to disaggregate their clay fraction, given that sliming is known to be one of the major metallurgical challenges to effective treatment of black shales worldwide (sliming has been successfully addressed by others in their treatment of black shales from elsewhere either by clay disaggregation pre-treatment or by bioleaching);
- Due to the extremely fine grained nature of the Second White Speckled Shale, a typical black shale, mineralogical study by MLA did not provide as much quantitative mineralogical information as hoped, but rather it reiterated that black shale hosted metallic mineralization is typically too fine to afford identification by optical or EDS methods and that the metal-bearing compounds are dispersed throughout the shale as extremely tiny particles (often submicron) trapped in organic matter or in slimes. This suggestion is supported by the ease with which metals can be leached from the shale as observed during subsequent leaching and bioleaching testwork.
- Orientation historic leaching testwork and DNI’s subsequent leaching and bioleaching testwork demonstrate that (i) metals can be collectively extracted/recovered from the Second White Speckled Shale on a combined basis by bioleaching; (ii) that high recoveries can be achieved for Ni-U-Zn-Co

often ranging 80%-98% ; (iii) that recoveries for Mo-V-Cu-Li are modest typically ranging upward to 30%-50% but might be enhanced by better management of metal re-precipitation;

- The collateral solubilization of metals observed during CO_2 sparging testwork demonstrates that the metals can be liberated (extracted) from the shale under mildly acidic conditions over a broad range of pH well exceeding pH 2 (less acid than the pH 1.2-1.8 of prior sulfuric acid leaching and bioleaching tests), and that acidity may be the decisive factor to achieve metals extraction rather than the type of acid used in leaching. The foregoing is consistent with suggestions from the MLA mineralogical study that the metals might in most part occur in the Shale as charged particles (eg: REE in China ionic adsorbed clays) which can be easily liberated, rather than as discrete minerals such as sulfides. The collateral solubilization of metals during the CO_2 sparging tests offers previously unrecognized possibilities for using CO_2 (ie: carbonic acid) as a leaching reagent to dissolve metals from the shale as a pretreatment to other more acidic leaching (eg:bioleaching) methods to reduce reagent consumption;

- Based on drilling results from the Buckton and Asphalt Zones, it can be concluded that while none of the metals is present in the Second White Speckled Shale at the two Zones in sufficiently high concentrations to be of economic merit by itself, the "pay" metals Mo, Ni, U, V, Zn, Cu, Co (and to some extent also Ag) collectively represent sufficient in-situ value on a combined basis to place the Second White Specks Formation shales within reach of economic viability provided the metals can be efficiently recovered on a combined basis. This is reinforced and supported by the low operating costs afforded to bulk mining and processing operations of similar unconsolidated material in the region surrounding the Property, and elsewhere in the world;

- As a guide to future work, based on broad extrapolations reinforced by its drilling results, Tintina proposed that should the surface and subsurface metallic anomalies identified at the Asphalt and Buckton Zones, and over the other large composite target areas identified, indeed reflect the true size of underlying mineralization, metals concentration zones in the Speckled Shale Formation can be projected to extend over areas measuring upward to approximately 5kmx5km each. In addition, based on an extrapolated average thickness of approximately 30m for the Formation, and an average specific gravity of 2.1, Tintina proposed that metal concentration zones can potentially represent approximately an estimated 60 million tonnes per $1km^2$ of lateral extent, representing approximately 1,500 million tonnes per zone. Tintina's proposal is supported, at least at the Buckton Zone, by the drilling of a 8km long cross-section across the Zone, albeit at relatively wide spacing. The author agrees with Tintina's proposal and regards it to be a useful conceptual model to guide future exploration work. The author also regards the drill spacing to be adequate and appropriate for an initial "blocking out" of an area of interest in black shale hosted mineralization for additional in-fill drilling;

Based on all of the above, Second White Speckled Shale hosted metal zones which have been identified (Buckton and Asphalt Zones), or known to exist elsewhere under the Property, are envisaged to be black shale hosted metal aggregations which can in general terms be expected to be large and laterally extensive, from which a metal concentrate can likely be prepared provided the Shale's clay content is disaggregated, from which metals can be collectively leached on a combined basis by bioleaching relying on bio-organisms harvested from the Second White Speckled Shale, which carry recoverable native gold, which might be amenable to slurry transport, portions of which would be accessible by open pit, and which would be amenable to extraction by bulk mining techniques by "ripping".

9. ECONOMIC GEOLOGY, DEPOSIT TYPE AND MINERALIZED ZONES

9.1 SHALE CLASSIFICATION

The metal enriched Second White Speckled Shale Formation and the Shaftesbury Shale Formation meet all textural and compositional criteria to be classed as bona fide "black shales" in the strictest of sense, and the Second White Speckled Shale Formation meets test criteria for classification as a "metal enriched black shale".

Metal enrichment in the Alberta metalliferous black shales is, furthermore, compatible with the Rift-Volcanic Type of metal enrichment style recognized from black shales worldwide and is, accordingly, so classed. The classification is supported by (i) relatively thick tabular geometry of the metalliferous black shale layers alternating with layers of ejecta material (bentonites and pyroclastic material); (ii) diagnostic characteristic Ni/Cu ratios; (iii) spatial association of metal enrichment zones with suspected venting (volcanic centers); (iv) predominance of V-Zn-Cu mineralization over Ni-Mo-PGE (based on relative grades). Black shale classification is discussed in detail in Section 9.3 of this Report.

9.2 MINERALIZATION TYPE

The principal known metallic mineralization on the Property is hosted in black shales, as polymetallic Zones bounded by stratigraphic contacts. The principal metals of interest in the Zones are Mo, Ni, U, V, Zn, Cu, Co, Ag, and Au, although DNI's recent leaching testwork also reported rare metals (including Li) as an incidental valuable co-product recoverable from the shale. Though none of the metals is present in sufficient quantity in the shales to be considered the "pay" metal leading the anticipated value of any deposit identified. Intrinsic economic value of the metal zones will, accordingly, be based on effective recovery of the metals from the host rock on a combined basis.

Most of the metals, are believed to occur principally in the fine and coarser sulfides distributed throughout the shale, which can constitute as much as 20% of the shale matrix by volume, but typically range 5%-20%. Some of the metals, notably V and Cu, are likely bi-popular and may be fractionated between clays, sulfides and organic components of the shale. Gold is believed to occur principally as high fineness gold in native form, which is possibly better concentrated in the upper and lower contacts of the shale, though its grade has not been definitively established due to nugget effect. DNI's recent detailed mineral (MLA) study suggested that at least a portion of the metals occur in readily soluble ionic form rather than as discrete minerals.

Only minimal orientation historic metallurgical and leaching testwork exist addressing metals recovery, though the available testwork indicates that at least Ni, Zn, and V can be collectively recovered by sulfuric acid leaching, that Au can be recovered by conventional carbon in leach cyanidation, and that heavy minerals and metals can be concentrated from the shale by gravity methods which also capture gold and some base metals. There is no information from the Property suggesting that the other metals of interest cannot also be similarly recovered. All prior work indicate that disaggregation of the shale's clay matrix will be crucial to enable recovery of metals from the shale. DNI's recent leaching and bioleaching testwork demonstrated that metals can collectively be recovered from the shale.

There is no prior mineral characterization work establishing mineral and metal make-up of the shale. Given its very fine grain size this work will necessarily rely on electron microscopy as did DNI's recent MLA mineral study (Section 11.7, Sabag 2010). Prior exploration, and inferences therefrom, are based entirely on geochemical data supported by heavy mineral concentration and related topical mineral studies.

The 20m-40m thick, flat-lying, Second White Speckled Shale Formation represents the primary polymetallic host targeted at the Property. It is the most metal enriched of the shales, is nearer the surface, and is locally exposed in valley walls throughout the eastern one third of the Property. The thicker Shaftesbury Shale Formation, beneath the Speckled Shale Formation, is less well mineralized and metals distribution within it is less well known due to a lack of exposures.

Several suspected large buried metal enrichment targets have been identified by the historic work and by DNI's more recent synthesis thereof, from extensive surface sampling, supported also by other coincident or associated stratigraphic and physical anomalies. Buried polymetallic enriched zones have been confirmed under two of the targets identified. The confirmed zones are open in three directions, and are envisaged to be tabular concentrations of metals hosted entirely in the flat-lying Second White Speckled Shale Formation constrained by the Shale's upper and lower contacts. The two Zones are extrapolated to extend over large areas measuring tens of square kilometers each based on historic drilling and on supporting information from adjacent surface and outcrops. DNI's detailed review of the historic data recognized and identified two large Mineralized Zones under the two targets drilled (discussed in Section 9 of this Report).

Other metal mineralization proposed to exist on the Property is sedimentary exhalative - SEDEX style - sulfide mineralization associated with suspected (yet undiscovered) exhalative venting centers, which are also proposed to be the source to the metal enriched sediments and volcanic debris captured in the black shales hosting the polymetallic Zones. Should the foregoing proposal be proven by future drilling, coalescence among some of the envisaged shale hosted polymetallic zones buried beneath the anomalous areas identified would be a realistic expectation, manifested as vertical zonation cycles.

Polymetallic anomalous areas, polymetallic Zones and the proposed Mineralized Zones contained in the Buckton and Asphalt Zones are discussed later Sections of this report; and the status of DNI's work programs thereupon is presented in Sections 10 and 11.

9.3 Black Shales, Mineralization Types and Alberta Analogues

Black shales series worldwide represent important hosts for the concentration of immense metallic mineral resources, especially for precious metals (Au, Ag, PGE), transitional metals (Mo, Cu, Ni, Cr, V and Zn) and Uranium. They also provide extensive sources of hydrocarbons and have attracted intermittent interest over the years, especially during the past two decades, as a long term source of metals.

Black shales are generally regarded to have been deposited within anoxic deep water depositional environments, although they can be formed in a broad variety of depositional environments ranging from fresh to estuarine to marine waters with conditions ranging from anoxic to oxic (Quinby-Hunt and Wilde, 1996). All black shales are not metal enriched, and metal enrichment in black shales throughout world has been demonstrably linked to nearby metal deposits (Coveney et al 1992b). Among these are black shales hosting major gold deposits of the Getchel Trend, Nevada; the Pilot shales hosting the Alligator Ridge deposits, Nevada; Bendigo, Australia, (Bloomstein and Clark, 1990); Sabie-Pilgrim's Rest goldfield, S.Africa, and numerous deposits in the former USSR (Buryak, various publications). Other notable black shale hosted metal deposits include, a number of Ni-Mo and Mo deposits, south China (Coveney and Chen, 1991); high Ni-Zn-PGE accumulations at the Nick deposit, Yukon, Canada (Hulbert et al 1992); Ag-V deposits in Upper Sinian Doushantuo Formation, Western Hubei, China (Delian et al, 1992), and the Zechstein district in the Polish Kupferschiefer (Kucha 1982, 1983).

Mineralogy of any given black shale Formation and metals contained therein reflect their source, and hence the shale's provenance. Metals accumulation in black shales must, accordingly, be viewed as a dynamic and virtually continuous process extending from the onset of sedimentation throughout diagenesis, and over the entire history of any given deposit as suggested by Vine and Tourtelot (1970). Black shales typically exhibit relatively uniform mineralogy and chemistry over large lateral distances, though they can vary considerably in vertical section reflecting changes in sedimentation processes, in weathering and hydrological history of the depositional basin area and those of the sources to the shale.

Black shales are not all necessarily metalliferous, nor do all metal bearing black shales contain the same suite of metals or kerogens. The role of organics notwithstanding, as metal scavengers often cited for black shale enrichment, processes commonly cited (for example Goodfellow 1990, Krauskopf 1955 & 1956) as being responsible for metal enrichment in black shales include: (i) preservation of metalliferous ejecta from meteoritic impact; (ii) episodic venting of metalliferous hydrothermal fluids; (iii) organically scavenged metal concentration during rapid sedimentation; (iv) redox fronts within the water column; (v) metal trapping by diagenetic H_2S generated in organic rich units.

Given a suitable source of metals, black shale depositional settings are capable of aggregating and hosting immense metalliferous deposits whose concentration is nearly always bacterially mitigated, although source of the metals and their carrier mineralogy straddle organic and inorganic geochemical processes.

Black shale ores are typically polymetallic with a variable proportion of sulfidic component. Their exploitation on large scale has principally been hampered by: (i) the inefficiency of conventional metallurgical processing (smelting) for recovery of valuable contained metals, (ii) the environmental impact and energy costs of the application of the conventional techniques, and (iii) practical constraints of assembly of vast land positions given the large aerial extent of the metal deposits which often extend over hundreds of square kilometers (e.g. the Kupferschiefer is a lithological formation that extends over 600,000 sq km from England to Poland, but exploitable Cu reserves therein are mostly concentrated at the southern edge of the Zechstein Basin and represent only 0.2% of the total area).

From a mineral processing perspective, by far the biggest challenge to extraction of metals from black shales has been morphology of the metal-bearing compounds which are typically dispersed throughout the shale as very fine particles, and are often trapped in the organic and fine clay fractions or in slimes. Traditional black shale mining operations have been topical and notoriously inefficient, producing also considerable fine grained, often slimy, metal bearing waste material (e.g more than two million tons of copper have been produced from the Kupferschiefer formation to date, along with noble and rare metals, all of which from mining operations wherein they were being extracted as by-products with a poor recovery). Recent break-through advances of applied bioleaching are, however, mitigating many of the foregoing challenges, enabling the exploitation of one of the world biggest deposit types of metals.

From the explorationist's perspective, black shale metal deposits are best discovered in areas wherein (i) large land positions ranging in 100's sq km can be assembled quickly and inexpensively, (ii) adequate access and infrastructure exists to enable efficient exploration of the land position, (iii) exploration, development and mining activities can take place without the complications of competing land use, (iv) open pitting of large areas is accommodated by the local industrial, logistical and regulatory fabric, and (v) the metal enriched zones are near enough to the surface to be available to bulk mining methods. Black shale deposits discovered in areas other than the foregoing cannot realistically be expected to hold promise for development and are, as such, only of academic interest.

Few black shale ores have been commercially exploited on a large scale, though many have been sporadically mined on a local scale and are associated with other deposits or mining camps often with an affinity to large metal-bearing geological systems. Analogues from elsewhere in the world which have similar geological setting to northeast Alberta, namely the juxtaposition of carbonaceous environments in brinally active domains include: the Zechstein district in the Polish Kupferscheifer, evaporites of southwest Shaba, Zaire, black shales of south China, the Nick deposit, Yukon. The Uraniferous Alum Shales, Sweden, and the polymetallic Talvivaara black shale hosted deposit, Finland, provide examples of currently active black shale exploration and development operations, the latter of which commenced production in October 2008 (both are discussed in Section 9.4.3 and 9.4.1 of this Report, respectively).

Two types of metal enrichment styles have been recognized from black shales, contrasted by their mineral assemblage, trace element geochemistry, geometry and extent of mineralized horizons, and the geochemistry and temperature of ore-bearing fluids (Pasava 1993). The two distinct types also correspond to two different geotectonic settings, and are as follows:

Rift Type: documented from black shales in association with intracontinental rifting without any intrusive rocks. Metal accumulations of the Rift Type typically represent very high grade but thin (varying millimeters to several tens of centimeters) and often laterally extensive (to 100's of km2) metal concentration zones associated with phosphatic layers, carbonate, REE-phosphates and U. Metal grades documented from this Type often range 10's to 100's ppm precious metals (Au or PGE), and 5% to 25% in base metals. Examples of this Type include Ni-Zn-PGE at the Nick Deposit, Selwyn Basin, Canada (Hulbert et al 1992); Mo concentrations at several deposits in the Guizhou Province, China (Coveney et al 1992a).

Rift-Volcanic Type: documented from black shales associated with intracontinental rifting and basic volcanism in the oceanic crust. Metal accumulations documented from this group of black shales are known to occur only around basic volcanic centers and typically comprise alternating layers of metalliferous black shale and tuffaceous material. The metal accumulations are characterized by (i) ore layers ranging in thickness from a few meters to several tens of meters (considerably thicker than those of the Rift Type), (ii) by metal grades lower than those typifying the Rift Type, (ii) by generally low minor element contents (except Cu, Cr), and (iii) by Ni/Cu ratios and other elemental patterns similar to conventional mafic-ultramfic deposits of PGE (e.g. Ni/Cu Sudbury-1.18; Platreef-1.5; Merensky Reef-1.6. Compared to Ni/Cu ratios for typical Rift Type deposits such as the Nick Ni/PGE deposit-173.6; Chinese Mo deposits-34.4; Pasava, 1993).

Metal accumulation within Rift-Volcanic Type of black shales is believed to have been controlled by hydrothermal-volcanogenic events (submarine exhalations) in the presence of organic matter. Examples of this Type include PGE deposits in the Barrandian of the Czech Republic, and the Talvivaara Nickel (Ni-Cu-Zn) deposit, Finland, among others.

While there are many overall similarities between mineral assemblages of ore horizons from the two Types of environments, there is a predominance of Ni-Mo-PGE as the principal metals of interest associated with the Rift Type, in contrast to Fe-Zn-Cu-V for those of the Rift-Volcanic Type. The Rift-Volcanic Type are further characterized by modest-low grading tabular deposits of immense size (300-1,000+ million tonne range) extending over tens of square kilometers, with thicknesses ranging 20m-100m.

The Alberta metalliferous black shales documented from the Birch Mountains, and from DNI's Property, are compatible with the Rift-Volcanic Type and have, accordingly, been so classed. The classification is supported by (i) relatively thick tabular geometry of the metalliferous black shale layers alternating with layers of ejecta material (bentonites and pyroclastic material); (ii) Ni/Cu ratios ranging 0.8 to 2.1 (typically 1.3-1.6); (iii) spatial association of metal enrichment zones with suspected venting (volcanic centers); and (iv) predominance of V-Zn-Cu mineralization over Ni-Mo-PGE.

Discussions of episodic venting scenarios for the Albertan black shales can benefit from an overview of the spatial and temporal constraints presented by volcanic arcs. The Skellefte Mining District, Sweden, provides guidelines for the facies architecture and events characterizing the development of a 1.9 Ga submarine volcanic arc (Allen et al 1997). The volacanotectonic cycle is believed to have occurred within a 10-15 million year period characterized by episodic and localized intense marine volcanism accompanied by periods of localized differential uplift and subsidence creating horst and graben paleogeography.

The Skellefte District represents an area of 120kmx30 km containing over eighty-five pyritic Zn-Cu-Au-Ag massive sulfide deposits (and a few vein Au deposits) majority of which are associated with a felsic-dominant volcanic unit. Massive sulfide deposits in the district are associated with subaqueous rhyolite cryptodome-tuff volcanoes which are relatively small features measuring 2km-10km in diameter with thicknesses ranging 250m-1200m at the center. The cryptodome-tuff volcanoes represent only one of the seven main volcano types identified, and the ores occur in near-vent and volcaniclastic facies. All indications from the district are that spatial proximity to vents is more critical to the formation of deposits than their stratigraphic position. These associations are reminiscent of interpretations from the Alberta middle Cretaceous shales (see AGS 2001, Sabag 1998, Ballantyne 1994, among others). The confinement of metal enrichment in the Albertan black shales to localities over, and flanking, the Peace River Arch (eg: the Birch Mountains) lends further support to suggestions of volcanogenic affinity, especially considering discoveries of considerable venting in the form of kimberlitic material and associated ejecta aprons from areas overlying the Arch in central Alberta.

9.4 Other Current Polymetallic Black Shale Projects

Black shale polymetallic deposits have attracted special recent attention due mainly to break-through advances in the industrial application of bioleaching technology processes on a large scale (eg: bulk heap leaching) to extraction of metals with considerably enhanced economics when compared to traditional methods, and with lesser energy dependence and lesser environmental footprint. The foregoing milestone advances have transformed polymetallic black shales from geological curiosities to a potential prospective long term source to countless metals.

Despite scientific breakthroughs, contemplation of metal production from the Alberta polymetallic black shales, or black shales in general for that matter, is a novel proposal and is, as such, challenged more by perceptual barriers than by technological hurdles. The challenges are in the form of considerable entrenched skepticism as to: (i) whether metals can indeed be produced from black shales in general, (ii) whether collective metals can be produced on a combined basis, and (iii) whether the overall low grades presented by the Alberta shales can be economically exploited. The dogmatic skepticism would benefit from a review of the Alberta shales in the context of a fast growing handful of other black shale exploration and development projects worldwide, of which the Talvivaara polymetallic black shale mine has been the first to quickly advance to production. The handful of projects elsewhere in the world currently investigating the viability of developing polymetallic black shale deposits are presented below.

9.4.1 Talvivaara Polymetallic Black Shale Deposit and Mine - Finland

The Talvivaara Ni-Co-Zn-Cu-Mn deposit, located in eastern Finland, is one of the largest known nickel sulfide deposits in Europe. It provides a good analogue as an open pit mining and heap leach operation recovering combined metals from a large black shale (schist) hosted sulfide deposit by bioheapleaching in subarctic conditions. The Talvivaara mine represents a significant milestone and a breakthrough in the mining of polymetallic black shales and has had full support of European financial markets. The mine commenced production in October 2008 and has since been gradually scaling up to full production.

The deposit was originally held by Outokumpu, which carried out considerable exploration in the late 1980's and early 1990's. The resource was found to be large but of too low grade to be economically viable using traditional metal extraction techniques, and it was accordingly “shelved”. Outokumpu sold exploration rights to the nickel deposits to Talvivaara Mining Company in 2004. The deposit quickly advanced during the four years 2004-2008 from the exploration stage to production.

Talvivaara Mining Company (LSE:Talvivaara) is currently producing Ni-Co-Zn-Cu from its Talvivaara Mine, hosted in carbonaceous schists (black schists). The Talvivaara open pit mine commenced production in October 2008, to produce Ni-Zn-Cu-Co on a combined basis from a 336 million tonne resource hosted in black schists, relying on bio-heapleaching for recovery of the metals on a combined basis.

Combined JORC Code classified mineral resources for the deposit as at 2006 Feasibility Study stood at 337 million tonnes at 0.26% Ni, 0.14% Cu, 0.02% Co and 0.55% Zn (in measured, indicated and inferred resource category, quoted at a 0% Ni cut off within a 0.15% Ni wire-frame model)[24]. Resources have since quickly expanded to nearly 1.2 billion tonnes at lower grades. On average, bioleaching recoveries are projected to be as follows: Ni-85%, Zn-80%, Cu-50%, Co-50%. Talvivaara estimates that its metal recovery plant will recover approximately 98% of the metal contained in the pregnant leach solution.

Talvivaara demonstrated the viability of using bioheapleaching technology for the extraction of metals in pilot trials in 2005-2006 as part of the EU-sponsored Bioshale project, launched in 2004 to study processing and metals recovery from black schist ores. This trial run was started in subzero conditions at -20°C and successfully demonstrated the applicability of bioleaching under sub-arctic conditions (Plate 6).

The Talvivaara Nickel deposit is located in the Kainuu black schist zone in the southern part of the Kainuu belt. The deposit consists of two different polymetallic ore bodies; the Kuusilampi and the Kolmisoppi, which are polymetallic sulfide orebodies, dominated by low grade nickel, hosted in variably recrystallized carbon and sulfide rich “black” metasediments - black schists – which range in thickness from tens of metres to 100m. The Formation has been tectonically thickened in the Talvivaara area.

[24] Bankable Feasibility Report, Mineral Experts Report On The Talvivaara Nickel Project In Finland: Report Compiled by: Dr.D.Pattinson, Reviewed by: Dr.M.Armitage, SRK Consulting, Cardiff, UK; 2006. SRK Project Number U2993. Included in IPO June, 2007, London Stock Exchange listing.

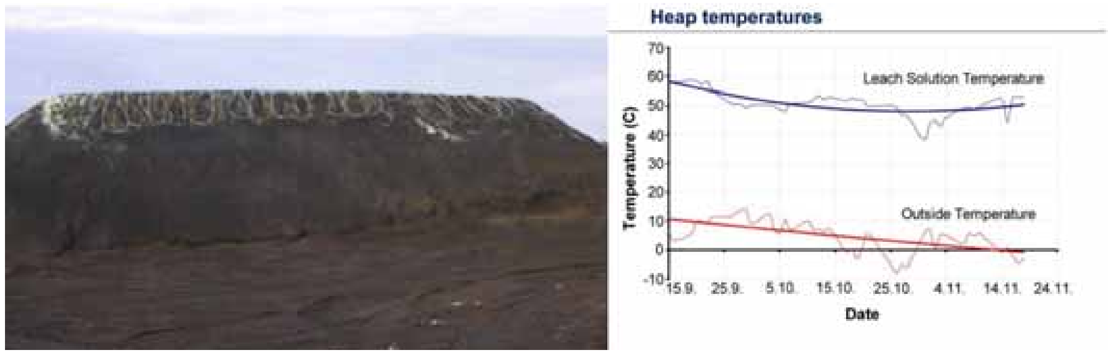


Plate 6: Talvivaara bioheapleach and heap temperatures profile. From Talvivaara 2005.

Soon after commencing production, Talvivaara announced plans to also recover Mn via electrowinning[25] from the collective of metals leached during its heap leaching process, and in early 2010 it announced plans to add a solvent extraction based circuit to recover approximately 350 tonnes of Uranium annually from its ore which contains an average of 15ppm U[26]. The advantages of polymetallic collective bulk leaching extraction are self-evident, and it would be realistic to expect that, as its production ramps up beyond the start-up stage, the mine will add additional metals to its list of metal products. The Talvivaara deposit and mining operation are discussed in greater detail in Section 18.4 of DNI's NI-43-101 report for the Property (Sabag 2008).

The deposits have a thin overburden, and are planned to be mined at a 1.5:1 strip ratio by open pit. Annual nickel output is estimated to be approximately 33,000 tonnes, in addition to zinc 60,000tpa, copper 10,000tpa and cobalt 1,200tpa as co-products. At peak production (late 2010) Talvivaara has the potential to provide 2.3% of the world's current annual production of primary nickel. The mine is anticipated to produce metals for a minimum of 24 years (based on 336 million tonnes of resources) at an approximate mining rate of 15 million tonnes per annum. Projected mine life extrapolated over its current resources of approximately 1.2 billion tonnes, however, would be 100 years at current production rate.

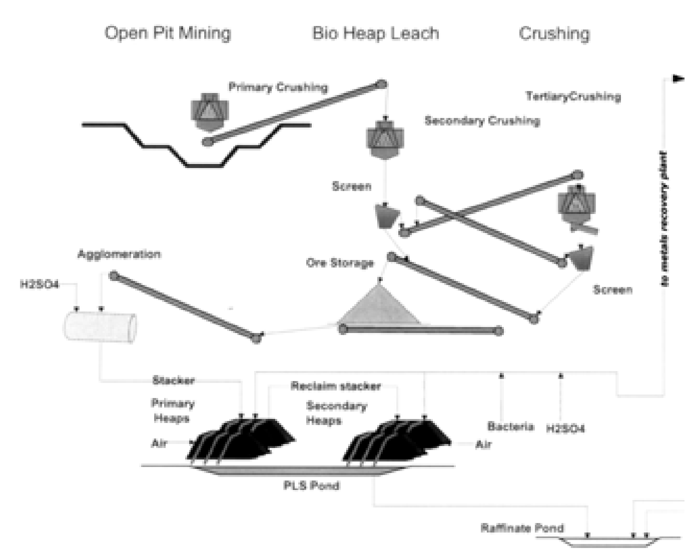


Figure 68: Talvivaara mine, mining flowsheet. From Talvivaara 2010.

Talvivaara ore is crushed in three stages, followed by agglomeration with sulfuric acid to consolidate fines with coarser ore particles. Sulfuric acid consumption is estimated to be 269,582 tonnes annually, and 5,798,374 tonnes over life of the mine (16 kg/t - primary heap; 2 kg/t - secondary heap). The material is heap leached per conventional heap leaching procedures over 12-18 months and 24-48 months in the primary and secondary heaps, respectively. Mining flow sheet is shown in Figure 68, and metals recovery plant flowsheet is shown in Figure 69.

[25] Press Release – June 23, 2008, Talvivaara Mining Company.

[26] Talvivaara entered into a 15 year offtake agreement with Cameco Corp. in February 2011 under which Cameco will purchase all co-product Uranium produced from the mine at a price pegged to market, provided it also funds adition of a US$60 million Uranium precipitation circuit to Talvivaara's metals recovery plant.

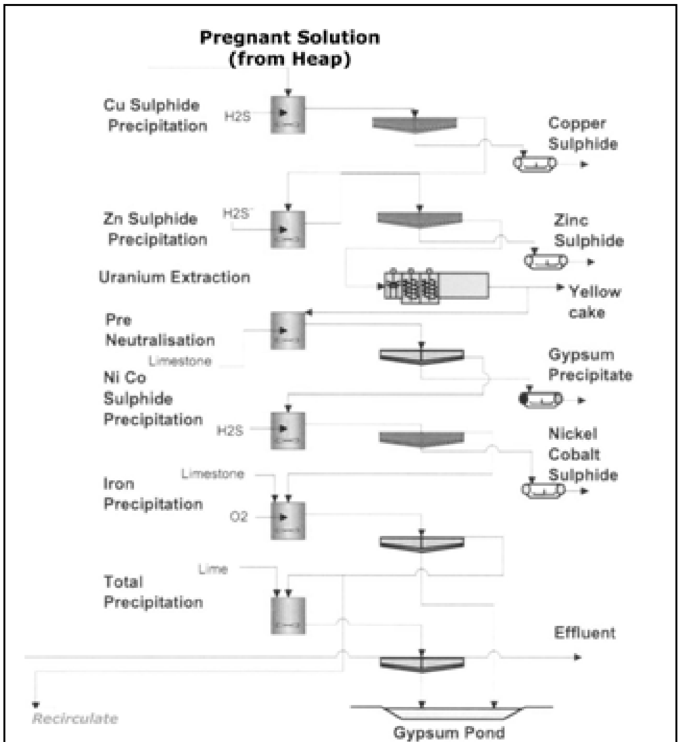


Figure 69: Talvivaara mine, summary metals recoveries flowsheet. From Talvivaara 2010.

Talvivaara expects to have lower relative capital and operational cost than many other nickel mines. Costs are also expected to be considerably lower than traditional mines given reliance on bioheapleaching to extract the metals, since bioheapleaching has considerably more favourable capital and operational cost profiles, and cleaner favourable environmental profile compared to smelting. Operating cut-off cost is estimated to be approximately EUR7.1/t, three-quarters of which represents cost of ore processing.

In early 2010, Western Areas NL (WSA:TSX-ASX) and joint venture partner Magnus Minerals Ltd. assembled a series of properties in the Kainuu Schist Belt which hosts the Talvivaara deposit. The joint venture is commencing its exploration for polymetallic black schist hosted deposits similar to Talvivaara.

9.4.2 Bioshale and Biomine Initiatives - EU

The EU's Bioshale initiative is a well organized and focused recent initiative to advance processing of polymetallic black shale ores is the EU Bioshale Project which was launched in 2004 as a three year initiative by a multidisciplinary partnership among eight countries and seven universities[27]. Funded by the European Commission 6th Framework Program With an initial budget of EUR3.4MM, the Project has successfully deployed considerable combined geoscientific and mining expertise from the fields of Geology, Biotechnology and Mineral processing, toward its principal goal of evaluating biotechnologies for the safe, clean and viable beneficiation of black shale ores and at identifying and designing innovative mining and processing methodology for the industrial exploitation of black shale ores. The Bioshale Project was succeeded by the EUR17MM budget EU Biomine Project representing a consortium of 37 partners including 13 industry partners consisting of some of the largest international mining companies.

The Bioshale Project was organized in recognition that European deposits of black shale ores contain immense quantities of base as well as valuable rare and precious metals (Cu, Ni, Zn, Pb, Ag, Zn, Co, Mo, Re, V, Se, Sn, Bi, Au, Pt, Pd, etc.) the long term supply of which is of strategic importance to the EU. The practical socio-economic benefits of the Project to Europe are considered to be (i) to extend mine life of many European mining sites, like the Lubin mine, Poland, and others in eastern European countries, (ii) to enable exploitation of vast new resources, such as the Talvivaara Ni deposit, Finland, and (iii) to formulate methodology for the treatment and remediation of vast volumes of black shale mine waste from prior mining operations across eastern Europe.

Three European black shale deposits were chosen by the Bioshale Project for study and research, including pilot demonstration activities as follows: (i) a deposit which has been discovered but whose development

[27] BRGM-Project Leader (France), KGHM Cuprum Ltd. CBR (Poland), Wroclaw University of Technology (Poland), University of Opole (Poland), University of Warsaw (Poland), Faculty of Biology (Poland), Geological Survey of Finland (Finland), Helsinki University of Technology (Finland), Tecnicas Reunidas (Spain), University of Wales, Bangor (UK), Warwick University, Biological Science (UK), G.E.O.S. Freiberg, Ingenieurgesellschaft (Germany), University of Mining and Geology Saint Ivan, Riski (Bulgaria), Czech Geological Survey (Czech Republic), with collaboration from KGHM Polska Mied Ÿ S.A. (Poland) and Talvivaara Company (Finland).

has previously met processing or economic challenges (Talvivaara Ni deposit, Finland), (ii) an existing mining operation which can benefit from recovery enhancements and eco-efficiency (Lubin Mine deposit, Poland), and (iii) an area with large amounts of black shale ore residues and mine waste from past production activities requiring remediation (Mansfeld, Germany).

R&D from the Bioshale Project achieved significant milestone technological breakthroughs, and has been instrumental in supporting fast-tracked advancement of the Talvivaara nickel deposit, Finland, from the advanced exploration stages to production within four years. For additional information from the Bioshale Project, the reader is referred to DNI's NI-43-101 report appended herein as Appendix B1.

9.4.3 Alum Shale - Sweden

Continental Precious Minerals Inc. (TSX:V-CZQ) has been actively exploring its MyrViken Project, Sweden, since 2006. The Project is currently in metallurgical testing stages advancing toward development. The Property contains immense Uranium resources hosted in the well known carbonaceous Alum shale which extends across much of Fennoscandia, considered a strategic resource of fossil fuel and Uranium by Sweden. Exploitation of the shales dates back to the 17th century, but has been sporadic, focusing initially on alum, then on oil and, since the 1960's, on Uranium. The shales also contain vanadium, molybdenum and nickel. There are no known commercial large scale operations recovering co-metals from the shale. Continental's efforts represent the first ever efforts to recover uranium and metals, on a combined basis, from the Alum shale.

The MyrViken property is underlain by Middle and Upper Cambrian age black shales of the Alum Shale Formation which occur as in-situ, and as fault detached, blocks. The Formation is typically a 20m-30m thick unit, whose uppermost 8m-10m sections carry the highest Uranium grades. On the MyrViken property the shale section is thickened up to 200m due to multiple tectonic over-thrusting. The Shale is metamorphosed and partly converted into anthracitic "coal".

The MyrViken property mineralized zone is 1,000m wide, nearly 200m deep, and has been recognized over 3.2km, with the better grades aggregated within a 200m wide corridor in the zone. The property is reported to contain immense resources of U, Mo, V and Ni, hosted in an approximate 1.3 billion tonne zone[28] (resource modeling relied on a drill hole spacing ranging 30m-380m, averaging 300m, and concluded that a 100mx100m grid drilling would be required to upgrade the resources). Reported Indicated Resource are 13,708,000 tonnes, grading 0.019% U3O8 (0.38 lbs/st), 0.305% V2O5 (6.10 lbs/st), 0.040% MoO3 (0.80 lbs/st) 0.030% Ni (0.59 lbs/st). Inferred Resource 1,166,135,000 tonnes grade 0.017% U_3O_8 (0.33 lbs/st), 0.278% V_2O_5 (5.57 lbs/st), 0.035% MoO_3 (0.71 lbs/st), and 0.031% Ni (0.62 lbs/st). The foregoing figures represent an aggregate of 442,788,000 lbs U_3O_8, 7,239,167,000 lbs V_2O_5, 911,889,000 lbs MoO_3, 806,033,000 lbs Ni as gross in-situ metals contained in the zone (Harron 2008). Continental's plans are to consider mining by conventional open pit.

In September 2010, Continental announced[29] results from its scoping study (Puritch 2010) relating to a 223 million tonne portion of its 2.8 billion tonnes Inferred resource delineated at its Viken Property. Average grades reported are 155ppm U_3O_8, 2,003ppm V_2O_5 and 270ppm MoO_3. The study contemplated a conventional open pit operation at 40,000 tonnes per day over a 16-year mine-life, which represents a pre-tax net present value of US$1.039 billion (at a 6.5 percent discount rate) at a net smelter return cut-off grade of US$60 per tonne as its base case (inferred resource based on an NSR cut off grade of $7.50 per tonne). The study contemplates that operations would produce three product streams: a U_3O_8, a V_2O_5 and a molybdenum product at standard industry grades. The study estimated pre-production capital expenditures of $3.8 billion and an operating cost of approximately $59/tonne for a conventional open pit relaying on a pre-roasted and in-grind leaching process. Continental has since been successfully optimizing procedures to significantly lower estimated operating costs.

[28] Press Release - April 11, 2008, Continental Precious Minerals Inc.
[29] Press Release - September 13, 2010, Continental Precious Minerals Inc.

Continental has reported results from initial leaching tests, reporting 95% Uranium extraction from simple 12 hour leaching in moderately acidic sulfuric acid solution at ambient temperature[30]. Sulfuric acid consumption was 40kg/t with addition of 2kg/t $NaClO_3$ as an oxidant. It also reported a recovery of 60% Uranium after 20 days from initial simulated heap leach tests which it believes can be improved. Continental launched bioleaching R&D testwork in early 2010 but has not yet reported any results.

Aura Energy Ltd. (ASX:AEE) holds a number of licenses (the Haagan Property)in the MyrViken area, Sweden, underlain by Alum Shale Formation, adjacent to, and near, Continental Precious Metals's MyrViken Property. Aura is targeting U-Mo-V in alum shale in similar geology to its neighbour. Aura announced[31] an AUS$460 million funding and sale option agreement with Sino King Enterprise Investment Limited in Oct/2008 to advance its Storsjon project forward toward resource definition, subject to Aura blocking out a minimum inferred resource of a 1 billion tonne averaging 135ppm U. The option dissolved in early 2009 amidst the 2008-2009 financial crisis.

In February 2012, Aura announced[32] results from its scoping study for the Haagan deposit focusing on Uranium. The study, prepared by Exoro Mine Planning Services, relates to Aura's 1.79 billion tonne inferred resource at Haagan grading 160ppm U_3O_8, and concluded that an approximate 741 million tonnes of material would be mineable at a strip ratio of 0.75:1 as a large scale, as a bioheap-leaching low cost open pit mining operation at a nominal rate of 30 Mtpa with a 25 year initial mine life. Relying on the Talvivaara mine as a guideline, the Study estimated an operating cost of approximately US$8.1/t and capital costs of US$769 million (including sustaining capital), and placed a Net Present Value (NPV) of US$1,090M (pre-tax, 10% discount rate) on the existing resource. The study concluded an operating cost of US$36/lb uranium net of by-products to produce 631 million pounds U3O8 (plus Ni, Zn, Mo) from the near-flat-lying sheet of mineralization varying 20m to 230m in thickness. The study estimated that Haagan could annually ultimately produce 6.6 Mlbs uranium, 14.8 Mlbs nickel and 3.6 Mlbs molybdenum; which would rank it in the top 10 uranium mining operation worldwide. Aura is actively advancing the Haagan project toward pre-feasibility.

9.5 Sedimentary Exhalative Sulfides and Black Shale Basins

Suggested volcanogenic processes associated with the Albertan black shales the Birch Mountains and the Property are presented in previous (and later) Sections of this report. There exists overwhelming evidence from all historic work over the Birch Mountains and the Property suggesting the local presence of exhalative venting as a likely source to the volcanogenic debris and bentonites in the Second White Speckled Shale. The foregoing also suggest that the exhalative venting to also be the source to the metals enriched in the Second White Speckled Shale, and that the Birch Mountains and the Property hold potential for hosting sedimentary exhalative - SEDEX style - sulfide mineralization.

In general terms, sedimentary exhalative - SEDEX style - sulfide deposits are known to accumulate in restricted basins or half grabens bounded by synsedimentary growth faults, with exhalative centers located along the faults or their junctions. The deposits are stratabound, tabular or lens shaped accumulations consisting of beds of sulfides and often barite, ranging from centimeters to tens of meters thick, which are stacked and have considerably greater lateral extent than vertical, often extending over tens of kilometers. Depositional environments vary from deep "starved" marine to shallow water restricted shelf settings, although the more common host rocks are those found in euxinic environments, namely black (carbonaceous) shales. (Briskey 1986, Large 1981)

SEDEX deposits are typically dominated by Zn-Pb-Ag-(Cu) and range in size worldwide from 15-150 million tonnes, typically grading 5-6% Zn, 2-3% Pb, 5-30g/t Ag, with subordinate Cu. By virtue of large size and extensive lateral dimensions, deposits near the surface are amenable to open pitting. The deposits have electromagnetic and magnetic signatures and might be so detectable when steeply dipping, though they are difficult to detect if flat-lying, or if the sulfide layers are fine and distributed over a thick stratigraphic column.

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[30] Press Release - October, 30, 2007, Metallurgical Report, Continental Precious Minerals Inc.
[31] Press Release - October 17, 2008, Aura Energy. All figures in Australian dollars.

Geological, stratigraphic, lithogeochemical and metal distribution trends documented from the Property are characteristic of settings which would be conducive to hosting sedimentary exhalative - SEDEX style - sulfide mineralization within the black shales, providing a collateral deposit type as a secondary target for future exploration of the Property.

9.6 OTHER RELEVANT INFORMATION

9.6.1 Overview of Other Relevant Informtaion

Based on all of the geological information presented in the preceding Sections of this Report, it is clear that the Property has considerable exploration and development potential for hosting metals, and that in addition to polymetallic Mineralized Zones proposed to exist over two of the target areas, it contains a number of targets which have excellent potential for hosting additional quantities of metals in immense near-surface black shale hosted zones. The Property also contains areas with potential for hosting metals in yet undiscovered, though suspected, sediment hosted exhalative - SEDEX style - sulfides.

Discussion of geological merits of the Property, or those of any other property for that matter, in isolation from related logistical criteria would, however, materially detract from a meaningful evaluation of the Property's merits, since logistical criteria play as significant a role in enabling the development of mineral deposits as do those geological, and that many formidable mineral deposits exist worldwide which cannot be commercially exploited due to impediments such poor location, inaccessibility, remoteness, or other similar circumstances which are often difficult to quantify but are all too often underrated. This holds especially true for low grading deposits whose economics require large tonnages which are accessible and are available to bulk mining, and holds particularly true for deposits with long term mine life which require higher than conventional level of political stability, environmental sustainability, and better overall synergy with their surrounding areas.

The Second White Speckled Shale hosted polymetallic zones at the Property are ideally located and can benefit from many intangibles which are not available to other similarly mineralized shales in Alberta, or elsewhere, which are either too deeply buried, or are inaccessible, or lack access to reagents or water, or face competition from other anthropogenic surface land use (eg: agriculture).

Other information is presented below which are materially relevant to any discussion of the merits of the polymetallic shales on the Property. The information, gathered from other projects elsewhere, offer some operational and cost benchmarks, and serve also to highlight advantages which the Property's location offers to any contemplated future development.

9.6.2 Recent Bioleaching Developments

Biohydrometallurgy has quickly progressed during the past decade from laboratory investigations of applying biotechnology to metal recovery or pilot scale demonstrations to an industrial reality which is being applied on a large scale for the recovery of a variety of metals from sulfidic deposits (copper, gold, cobalt, nickel, zinc, manganese). This includes also recovery of metals from refractory ores (e.g Nevada) which were previously unrecoverable and lost to tailings.

In simple terms, metals are dissolved from the ore by iron/sulfur consuming bacteria (e.g. thiobascilli), effluents are subsequently treated with a variety of conventional chemical and electrochemical methods for sequential selective recovery (re-precipitation) of each of the metals. Tailings material is transformed into a substantially inert waste during the process and leaching fluids are circulated or reused once they are stripped of their metal content. The reader is referred to Brierly (2008) or other publicly available literature for a detailed discussion of bioleaching[33].

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[32] Press Release - February 7, 2012, Aura Energy.
[33] Additional information can be obtained from Japan Oil Gas & Mining Company, Mintek Laboratories, Ouototec, Newmont Mining, among others.

Whereas traditional processing of many ores relies on smelting of concentrated material to recover the metals, many operations have opted for bioleaching as an alternative. The success of bioleaching lies in the efficiency of the process, its ability to extract much lower grades than otherwise extractable by traditional smelting, its low reagent consumption, its (considerably) lower energy and water requirements, and reduced environmental impact when compared to traditional methods.

Adapted to be applied in a bulk heap leaching configuration, bioleaching has paved the way to exploitation of large low grade metal deposits worldwide, including those hosted in black shales, transforming them from geological curiosities to realistically prospective targets for exploration and development.

The majority of current bioleaching operations comprise vat leaching of concentrates in stirred tanks (bioreactors). The Talvivaara mine, which commenced production in October 2008, is the first large scale commercial bio-heapleaching operation designed to recover a suite metals on a combined basis. The Talvivaara mine is applying bioleaching in conventional heap leach methods similar to cyanidation of heaps normally associated with some large gold mines (e.g Nevada). The Quebrada Blanca copper mine operated by Teck-Cominco, Chile, completed its pilot bio-heap-leaching tests in 2009[34] with a view to converting the operations to enhance recovery of low grade copper from its ore. Aura Energy announced its scoping study in 2012 noting it intends to rely on bio-heap-leaching to produce Alum Shale hosted Uranium from its Haagan Property, Sweden.

Advances over the past decade in bioleaching applications provide renewed interest in metalliferous black shales as a long term source to metals.

9.6.3 Select Relevant Bulk Mining Examples as Operational Benchmarks

Polymetallic black shale deposits of the rift-volcanic class are typically immense low grade base metal (polymetallic) deposits which hold realistic promise of advancing toward production if, and only if, they can be bulk mined at high rates, can be beneficiated inexpensively in bulk, can take advantage of economies of scale, have access to nearby infrastructure and local supply of reagents, and are located in a stable regulatory and political fabric conducive to very long term planning over a typical mine life spanning many decades. In the foregoing regard, the deposits are base metal operational equivalents of sub-gram bulk mineable heap leach gold deposits or oil sand deposits.

A discussion of the merits of the Alberta polymetallic black shales would benefit from a review of bulk mining operations worldwide as context, but would benefit more specifically from a review of select deposits or operations whose metrics share similarities with mining operations for the Alberta shales. Three examples are summarized below which have relevance to various aspects of the Alberta shales.

The discussions below are not presented as an economic, nor a scoping, analysis for the Alberta shales, but are rather intended solely as a conceptual framework and context to enable their discussion. The three examples share the commonality of representing deposits, and related mining operations, whose merits are rooted as much in their large size as their grade, or rooted in uniformity of their grade and their amenability to low cost bulk mining:

- The Talvivaara Ni-Co-Zn-Cu-(Mn) deposit, Finland, which commenced production in October 2008, provides a good analogue as a black shale multi-metal extraction operation, with the added benefit of providing an analogue of a heap bioleaching (bioheapleaching) operation in a sub-arctic environment.
- Alberta Oil Sands mining operations adjacent to DNI's Property provide by far the best analogue for bulk mining - bulk earth moving - operations from the area. Though processing methods from these operations are different than those which would realistically be expected to be relevant to extraction of metals from black shales, mining methods by "ripping" of flat thin blanket of mineralized material are directly relevant to any future contemplated open pitting of the Alberta shales.

[34] Kelly et al 2010, Hydroporcess Symposium 2010.

- The Paracatu Gold deposit, Brazil, provides a good analogue for bulk mining by "ripping" of poorly consolidated low grade ore, from a deposit characterized by remarkable continuity in grade and geology.

Talvivaara Black Shale Polymetallic Deposit, Finland

The Talvivaara Ni-Co-Zn-Cu-Mn deposit, Finland, provides by far the best analogue as an open pit mining operation recovering combined metals from a large black shale hosted deposit by bioheapleaching in subarctic conditions. The Talvivaara mine is the first mine to exploit polymetallic black shales in bulk and represents a significant milestone and a breakthrough in the mining of polymetallic black shales. Metrics related to this deposit were presented in an earlier Section of this Report (Section 9.4.1).

Alberta Oil Sands Deposits, Alberta

Alberta Oil Sands Mining operations provide by far the best analogue for bulk mining operations in areas adjacent to DNI's Property. There are currently five oil sands mines in various planning or construction stages adjacent to, or near, the Property, and many others within the immediate region (see also Section 3.6). These mines provide good examples of operations which reflect local logistical criteria, and infrastructure required for the successful implementation in the region of large earth-moving operations to mine thin extensive flat-lying ore zones, combined with some form of ore beneficiation, extraction and ultimate land reclamation.

Oil Sands mining has been active in Alberta since the 1970's. There were two mines in operation in the mid 1990's, over forty (mining and in-situ) operations are in planning or construction stages, and over 80 operations are anticipated within a few years. Many of these will be traditional open pit mining operations.

Oil Sands deposits are hosted in the Lower Cretaceous McMurray Formation which is locally exposed throughout the Athabasca region as a typically 40m-60m thick substantially flat blankets. Individual deposits extend over areas upward to 100 sq km or more. This geometry reflects the flat-lying layer-cake arrangement of Alberta sedimentary formations. The deposits can be mined by "ripping" at high throughput as they are poorly consolidated or relatively soft.

As a general guideline in the region, where buried under less than 75m of overburden cover, oil sand deposits are mined by traditional open pit by "ripping" with very large equipment. Mining strip ratios typically range 1.6:1 to 1.8:1, and two tonnes of ore are mined to produce one barrel of synthetic crude oil. Oil sands buried deeper than 75m are extracted by a variety of in-situ processes.

Oil is first mined from the oil sands ore zones in the form of bitumen, which contains sand, other minerals and water, and is upgraded to synthetic crude oil by heating to 500C and washing in upgarder plants. Upgrading is very energy intensive. Mining recoveries range 90%-95% for bitumen recovered, and approximately 0.8 bbl synthetic crude oil is recovered from each barrel of bitumen mined. These recoveries collectively translate into an overall recovery of 70%-75% for recovered crude oil from mining operations.

Total supply cost per barrel of synthetic crude oil produced in the region ranges $22-$28 per barrel[35], representing the aggregate production cost, capital costs and a nominal rate of return for investors. Costs (excluding capital costs) range $12-$18 per barrel of synthetic crude for a typical integrated mining and upgrading operation, the difference reflecting the high capital costs associated with oil sands mining projects typically ranging $4-$8 billion ($15 billion for Fort Hills) substantive portion of which is attributed to upgarder construction costs. Total foregoing supply cost represents an operating cost ranging $11-$14 per tonne of ore mined and beneficiated ($6-$9 per tonne excluding capital costs).

Though there is variability in operational capacities from one mine to the next (range 50,000 bbl/day to 300,000 bbl/day), a 100,000-150,000 bbl/day operation can be regarded as a realistic representative average for a midrange operation, exploiting a typically 0.5-1 billion barrel resource (equivalent to 1-2

[35] An Introduction to Development in Alberta's Oil Sands: by R.Engelhardt and M.Todirescu, University of Alberta School of Business; February 2005. Canadian Oil Sands Trust estimated $26/bbl for its 2008 budget.

billion tonnes). At an average grade of 1bbl per 2 tonnes this is the equivalent of a 70-100 million tonne per year mining operation.

Based on the above figures, in the simplest of terms, an average Alberta oil sands mining operation located in the Athabasca region can, on average, be envisaged as a 70-100 million tonne per year open pit mining operation with a 14-30 year mine life, focusing on the exploitation of a mineral resource grading ½ barrel synthetic crude oil per tonne, at a nominal 1.6-1.8 strip ratio.

Paracatu Gold Deposit, Brazil

The Paracatu gold deposit, in production since 1988, is likely the world's lowest grade gold deposit with a historic grade ranging 0.4-0.5g/t gold. The deposit provides a good analogue as a bulk mineable operation which is afforded considerable economic latitude due to its enormity, the uniformity of its grade and the relative "softness" of the mineralized host rocks requiring no drilling nor blasting during open pitting.

Mining operations at Paracatu have successfully weathered several commodity cycles during the past twenty years. The deposit is currently owned by Kinross Gold Corporation[36]. The Paracatu deposit has in the past also been referred to as the Brasilia deposit or the Morro do Ouro mine. The deposit is being operated by Kinross, which recently upgraded and expanded production from 18 million tpa to 60 million tpa.

Paracatu is a large and consistent orebody with a projected mine life to 2040. This represents an approximate mine life of 60 years retroactive to its beginnings in 1988. Proven & Probable reserves are estimated to be approximately 1.42 billion tonnes grading 0.39g/t gold, representing approximately 18 million ounces of gold; in addition to 267 million tonnes of measured and indicated resources averaging 0.32g/t representing 2.8 million ounces of gold[37]. Overall, the deposit represents nearly 21 million ounces of gold hosted in 1.7 billion tonnes of mineralized material representing an average grade of 0.38g/t.

At its expanded capacity the mine is expected to produce at an average cost of approximately $390-$400 per ounce (equivalent to approximately $4.8 per tonne) and at a cash cost ranging $163-$175/oz (equivalent to approximately $2 per tonne: at average $169/oz cash cost). Recovery is approximately 76% by a combination of flotation and gravity methods.

The Paracatu deposit is a metamorphic gold system with finely disseminated gold mineralization hosted in the Morro do Ouro sequence, a series of phyllites that have been thrust and deformed. Anomalous gold and sulfides are hosted in a 120-140m thick zone which dips gently (20 degrees), is over 3km wide, and is traceable for over 6km.

Paracatu is a unique deposit with extraordinary lateral continuity, predictable grade distribution and recovery characteristics. Minimum drill hole spacing necessary to support a Measured and Indicated Resource classification at Paracatu has been established at a 200mx200m "five spot" pattern, resulting in an average nominal drill hole spacing of 140m. Grade variations within the deposit can be visually identified based on readily observable geologic features. Gold is closely associated with arsenopyrite and pyrite, predominantly as fine-grained free gold. Thin-section studies indicate 92% of the gold is free and grains typically range 50-150 microns in size.

Ore hardness - or rather its softness - has historically been recognized as key to the favourable economics of the Paracatu deposit. Though the deposit is mined by open pit, mining has not required drilling or blasting prior to excavation. Ore is ripped using by bulldozers, pushed to front-end loaders and loaded to a fleet of haul trucks for transport to the crusher (blasting harder portions of the deposit exposed in certain areas of the mine started in 2004). It is noteworthy that during the mid-late 1990's TVX Gold (then

[36] Previously a TVX Gold - RTZ joint venture. Kinross purchased the remaining 51% interest in the deposit from Rio Tinto for $261 million in 2004. TVX merged with Kinross in 2003.
[37] Kinross corporate documents. Also see: Paracatu Mine Technical Report, Paracatu, Minas Gerais State, Brazil: by R.D.Henderson, PEng, Acting Vice President, Technical Services, Kinross Gold Corporation; July 31, 2006.

Operator of the mine) adopted Alberta oil sands mining and haulage methods from Suncor to expand output and enhance operating efficiencies at the deposit.

9.6.4 Intangibles

Significant intangibles which are difficult to quantify but are, nonetheless, material advantages which can only be expected to enhance the timely development of any deposit which might be discovered at the Property are as follows:

Location in Mining District

The Property's location in a mature mining district, in a stable political environment, within a well organized regulatory, jurisdictional and land use permitting framework tailored to the development of laterally extensive deposits, provides considerable logistical and infrastructural advantages rarely available to mining operations. These are significant intangibles which are difficult to quantify but are, nonetheless, material advantages which can only be expected to enhance the timely development of any deposit which might be discovered at the Property and its subsequent operation over a long mine-life.

Local Sulfur and Other Reagent Supplies - Athabasca Region

Leaching processes which can be realistically expected to be applicable to recovery of metals from black shales will consume sulfur and, given the immense projected size of the metal zones, would do so over a long mine life.

For example, reagent consumption for the Talvivaara bioheapleaching operations includes consumption of an estimated 18kg sulfuric acid[38] per tonne of ore processed, representing an estimated 270,000 tonnes consumed annually (See Section 9.4.1). Sulfuric acid consumption of 40kg per tonne of material treated is reported by Continental Precious Minerals (See Section 9.4.3) from leaching and extraction testwork to leach Uranium from samples of uraniferous black shale from its Viken Property in Sweden[39]. Other bioleaching operations consume upward to 100kg of acid per tonne of ore processed, and more traditional inorganic leaching processes might be expected to consume more. (DNI's recent bioleaching testwork reported sulfuric acid consumption ranging 7.4kg-102kg from leaching of the Second White Speckled Shale - Sabag 2010. See also Section).

The local availability of sulfur as a waste product of surrounding oil sands operations, is a benefit to any leaching methods which might ultimately be identified for the recovery of metals from the Second White Speckled Shale, and any such recovery operation should be regarded as a welcome sulfur waste mitigation activity in the region. The foregoing represent significant synergies within the region by offering opportunities which have not previously been explored, to achieve steady-state balance between sulfur waste production and its consumption in the normal course of an industrial activity.

Considerable tonnages of sulfur are produced annually within the region surrounding the Property from oil sands operations, mainly from the upgrading of bitumen. Oil is extracted from oil sands in the form of bitumen which contains up to 20% sand, clay, water and other minerals. The bitumen is upgraded by heating to 500 degrees C to recover synthetic crude oil which typically makes up approximately 80% of the bitumen. Upgraders remove most of the sulfur from bitumen by converting it to elemental sulfur, and since sulfur may represent more than five percent of the bitumen, large volumes of by-product sulfur are produced from upgrading operations. Bitumen from oil sands operations in the region is either upgraded on site at an upgarder plant, or shipped by pipeline to upgraders located to the north of Edmonton.

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[38] Sulfuric acid can be produced from sulfur by bioleaching. Various species of thiobacilli metabolize sulfur to produce Sulphur dioxide and hydrogen sulfide, both of which react with water to form sulfuric acid.
[39] Press Release - October 30, 2007, Metallurgical Report, Continental Precious Minerals Inc.

Although sulfur can be used in the manufacture of fertilizers, pharmaceuticals, and other products, much of the sulfur produced from oil sands operations is unsold and sulfur produced from many local upgraders is stockpiled at the upgarder at mine site in blocks which are stacked on surface as pyramids (Plate 7). Despite recent surges in price of sulfur, its export to sulfur markets is problematic since Fort McMurray is substantially landlocked and shipping logistics to ultimate sulfur markets are difficult and costly as they entail transport first by truck from Fort McMurray to Lynton (Edmonton, 550km away) and then by rail to port.

Plate 7: Typical sulfur stockpiles and blocks from oil sands mining operations, Athabasca Region.

Sulfur blocks stored on surface are a serious and fast growing environmental concern within the region as the sulfur crumbling from the blocks due to the severe local climatic conditions produces considerable acid-drainage due to melt-water and rain seepage through cracks.

There are currently an estimated 10-15 million tonnes of sulfur stockpiled in the region (Syncrude held 5.2 million tonnes of this as at 2005). Based on an estimated 1 tonne sulfur produced per 100 bbl of oil[40], an estimated 2 million tonnes of additional sulfur are projected to be produced annually from the oil sands operations. There is no sulfur mitigation plan for the region despite concerted efforts by some oil sands producers to explore novel and creative solutions to either store, bury or consume their waste sulfur. As it stands, waste sulfur burial seems to command consensus despite the many risks of its leakage into local and regional groundwater aquifers.

Other reagents which can be expected to be consumed during any enviseaged metal leaching operation are lime, calcite and hydrogen sulfide[41]. For example, reagent consumption for the Talvivaara bioheapleaching operations includes annual consumption of an estimated 1 million tonnes of calcite, 100,000 tonnes of lime, and 72,000 tonnes H_2S, all of which are reagents which are locally available within the Athabasca region surrounding the Property.

Run-Of-River Hydro Power Generation Opportunities

The Property's east boundary, atop the erosional edge of the Birch Mountains, provides a nearly 500m substantially vertical relief with potential to be harnessed for generating local run-of-river hydro from nearly a dozen small streams flowing outward from the Mountains all of which are devoid of fish. The foregoing offer collateral benefits which might be monetized, in connection with additionally minimizing carbon footprint of any future operations.

[40] "Upgrader Alley, Oil Sands Fever Strikes Edmonton": by M.Griffiths and S.Dyer, The Pembina Institute; June 2008.

[41] Recent DNI leaching testwork suggests that CO_2 may be used as a leaching reagent as a pre=treatment to bioleaching. See Section 14.4 of this report, and Brydie 2012.

10. DNI EXPLORATION PROGRAMS - DESCRIPTION & OBJECTIVES

10.1 DNI EXPLORATION PROGRAMS DESCRIPTION

DNI's exploration programs are predicated on its re-interpretation of historic data from the Property and its recognition of six mineralized systems thereupon defining six sub-properties. The foregoing were described previously in this Report as consolidated from its NI-43-101 technical report prepared in 2008 for the Property (appended in Alberta Mineral Assessment Report MIN20100017). As such, conclusions and interpretations of the technical report form the basis of DNI's current and future exploration work on the Property, and the report's recommendations define the critical path to advance and develop the six sub-properties over a four-five year period via series of multi-phased integrated programs, with an aggregate $5.3 million budget, addressing the different requisites of each sub-property. Although some of the recommendations of the foregoing report are based on information that may have since been superceded by results from work since completed by DNI, the recommendations nonetheless, overall, stand as outlined in the report.

The exploration programs recommended by the technical report address the two prospective opportunities and target types presented by the Property, namely; (i) exploration and development of known and suspected Shale hosted polymetallic deposits; and (ii) reconnaissance level exploration for SEDEX type sulfide mineralization as the suspected source to the metals and exhalative debris hosted in the shales. To the extent that the potential of any polymetallic shale hosted deposits which might exist on the Property is ultimately dependant on whether metals can be effectively and collectively recovered from the shales, DNI held all work intended to identify additional volumes of shale hosted polymetallic mineralization over the Property, or intended to expand the two proposed Mineralized Zones identified thereupon, in abeyance until it confirmed collective metal recoveries on a combined basis through a series of leaching and bioleaching testwork in 2009-2010 (see Sabag 2010, Alberta Mineral Assessment Report MIN20100017). DNI's 2020-2011 winter drilling program reported herein (Section 13) represents the first drilling conducted by DNI to delineate initial resources from the Buckton Zone.

DNI is currently partway through a two phased program intended to evaluate the polymetallic potential of the Second White Speckled Shale as follows: **Phase-1**: comprised substantially only metallurgical testwork (2008-2010) to determine recovery of the metals from the shale relying on surface samples from the Asphalt and Buckton Zones; and **Phase-2**: encouraged by favourable results from Phase-1, DNI completed additional drilling and related work over the Asphalt and Buckton Mineralized Zones to classify portions thereof to an initial resource (Buckton Maiden Resource - see Section 15.2) and to subsequently expand the two Mineralized Zones by testing their projected extensions. DNI has substantially successfully completed Phase-1 of the work during 2008-2010, and Phase-2 during 2010-2012 results from which are the subject of this report. DNI continues to make systematic progress and is currently advancing the Buckton initial resource toward a preliminary economic assessment (scoping study) scheduled to start later this year.

The six sub-properties identified by DNI are the following:

- Two of the sub-properties, designated herein as the **McIvor West** and **North Lily Anomalies**, comprise large 50-100 sq km anomalies selected based on interpretations of general information, and have not been investigated in the field in any measure of detail to determine if they host mineralization. They are in the reconnaissance stages.
- Two of the sub-properties, designated herein as the **Buckton South** and the **Eaglenest Target** Areas, comprise large areas which have undergone considerable prior historic surface work which has identified prospective targets to be tested by future drilling to probe for suspected buried polymetallic mineralized shale beneath the surface of each Target Area. Portions of both Target Areas also present reconnaissance level potential to prospect for the presence of exhalative vents. The Buckton South Target Area presents the additional potential of hosting southerly extension of the Buckton polymetallic Mineralized Zone over a 6km distance, or an altogether separate polymetallic mineralized Zone.

- Two of the sub-properties, designated herein as the **Asphalt** and **Buckton Zones**, and respective **Asphalt and Buckton Mineralized Zones**, represent near-surface (partly exposed) polymetallic zones which have been confirmed by widely spaced historic drilling and which are proposed herein to contain significant Mineralized Zones to be upgraded to classified resources by in-fill drilling. Both Zones present additional targets with potential for locating suspected sources to their respective metallic mineralization, believed to be nearby exhalative venting, and historic work results from the Buckton Zone further provide metal enrichment vectors directing the search for exhalative venting to its north.

The six sub-properties are at different stages of development, ranging from two reconnaissance level anomalies (McIvor West Property and North Lily Property), through two drill-ready target areas with considerable historic work (Eaglenest Property and Buckton South Property), to two proposed Mineralized Zones which are partly drill tested, are open and ready to advance through in-fill drilling to classified resources and, ultimately, a preliminary economic assessment (Buckton Property and Asphalt Properties). DNI regards the six sub-properties as distinct properties in their own right, requiring different exploration and development programs to advance their development.

An outline of DNI's work programs over the six sub-properties is presented in Section 10.3, with reference to Figure 46, outlining short and long term planned work programs to advance the six sub-properties. Target prioritization criteria are presented in Section 10.2 below.

10.2 TARGET PRIORITIZATION CRITERIA

Considering the large size of the six sub-properties comprising the Property (Figure 58), and the laterally extensive flat-lying metal enriched targets being sought by DNI, some guidelines are needed, in conjunction with those geological, to prioritize targets, or portions thereof, for efficient and focused future follow-up exploration and drilling. While logistical criteria provide natural constraining guidelines, equally natural guidelines are presented by limitations imposed by overburden cover over the targets which are being sought by DNI for their envisaged exploitation by open pit.

Depth of overburden cover above the base of the Second White Speckled Shale Formation, per historic subsurface stratigraphic databases as collected and expanded by DNI, is presented in Figure 72(a), showing the depth of material above the base of the Formation. The erosional edge of the Second White Speckled Shale Formation marking the trace of its exposed portions is also shown. Relying on the accepted 75m average depth limiting open pitting in the adjacent region as a general guide, DNI has prioritized areas bounded by the erosional edge of the Formation and the 125m depth contour for identification of additional mineralized volumes, or for expansion of zones which are partly exposed. Assuming an overall average nominal thickness of 25m for the Formation, the 125m depth contour represents, on average, an approximate 50m nominal thickness of cover which would be the average of a thickness of cover varying 0m to 100m. The foregoing is intended as a general guideline to direct future drilling away from areas with deeper cover which cannot realistically be expected to be open-pittable. The reader is cautioned that the foregoing proposal is conceptual since the exact limiting depth of overburden viable for mining of the shales is presently unknown in the absence of an economic or feasibility study for the two Mineralized Zones proposed herein. In addition, the depth contours per the subsurface stratigraphic database are based on relatively widely spaced oil-gas wells which are locally up to 10km apart and collectively provide only a generalized insight into the subsurface.

Based on the above general scheme, considerable areas to the north and south of the Asphalt and Buckton Mineralized Zones, and the Buckton South Target Area, offer prospective areas under lesser overburden cover worthy of attention, especially nearer the Formation's erosional edge. By contrast, the western parts of the Buckton South Target Area, and many parts of the Eaglenest Target Area can be classed as lower priority suggesting deferral of additional work thereupon until suitability of an in-situ mining method is tested[42] to exploit material which might be discovered under excessive cover.

[42] For example, borehole in-situ slurry mining, OGS 1983; Knoke et al 1980, 1982.

Over areas away from the erosional edge of the Second White Speckled Shale Formation, in the interior of the Property, the 75m depth contour, to the base of the Formation, is proposed as a limiting guideline, representing on average a 50m thickness of cover above an assumed 25m nominal Formational thickness.

Based on logistical criteria, the east half of the Buckton South Target Area, the Buckton and the Asphalt Zones, all of which are located over the east part of the Property, present high priority locations which can be relatively easily explored given good access to the area, and equally good access throughout them via a series of old seismic lines and trails, especially in winter months. The foregoing include accessways previously identified, or utilized, during historic work over the area, including a network of winter roads built during 1997 historic drilling at the Buckton and Asphalt Zones in addition to considerable other accessways constructed by more recent drilling related to exploration for gas and oil sands deep beneath the Birch Mountains. The Birch Mountain airstrip provides additional logistical enhancements, as do nearby sources of water which have been previously identified and documented in historic records to support any future drilling at the Asphalt and Buckton Zones.

10.3 DNI Planned Work Programs For Its Six Sub-properties

An outline of DNI's work programs over the six sub-properties is presented below with reference to Figure 46, outlining short and long term planned work programs to advance the six sub-properties. The summary is organized by sub-property and is ordered from the least explored to the most.

10.3.1 McIvor West and North Lily Anomalies

Both of these Anomalies are early stage anomalies requiring reconnaissance investigation and can be effectively evaluated by surface (soil) geochemical sampling intended to determine the presence or the absence of diffusion anomalies over them, or on their flanks, which might suggest buried mineralized shales beneath their surface.

Both Anomalies are relatively remote and work thereupon will necessarily be helicopter supported. Work over the North Lily Anomaly will be subject to seasonal surface use restrictions during Caribou calving season.

Though both targets hold realistic potential for hosting buried polymetallic shale, other than review and consolidation of historic work therefrom and vicinity, and efforts to better resolve subsurface stratigraphy relying on oil/gas well drilling in the area, DNI has no short term plans for active field work and has deferred further work until such time as metal recovery parameters from the polymetallic shale are better established based on results from R&D testwork in progress on samples of metalliferous shales from the Asphalt and Buckton Zones.

10.3.2 Eaglenest Target Area

The Eaglenest Target Area represents a prospective target with coincident composite surface geochemical, stratigraphic, and other interpreted anomalies which collectively are similar to surface anomalies over the Buckton and Asphalt Zones, and likely represent similar shale hosted metal zones buried beneath the surface. The Target Area is in the interior of the Birch Mountains, at the centre of the Property, and lacks any outcrop exposures, although the Second White Speckled Shale is known to exist under all of its surface and is projected to be under 75m-100m cover per the subsurface stratigraphic database. The Area's demonstrable exploration potential lies in its potential to contain suspected polymetallic black shale hosted mineralization similar to that discovered at the Buckton and Asphalt Zones, although the significance of such mineralization under 75m-100m of cover is presently unknown given the absence of any economic guidelines from similar mineralization at the Buckton and Asphalt Zones which are also partly exposed.

There is no information from prior work to guide speculations of whether grades which might be encountered in any buried polymetallic mineralized system beneath the Area will be higher or lower than those from the Buckton and the Asphalt Zones, although the available database from the Birch Mountains supports anticipations that grades will, on balance, likely be similar to those from the Asphalt and Buckton Zones, given the remarkable consistency of grade documented across the Birch Mountains and the

Property from surface exposures of the Second White Speckled Shale over distances of up to at least 60km, and the consistency of grades between the Asphalt and Buckton Zones historic drill holes which present data from two Zones located some 30km apart.

Though the Eaglenest Target Area holds geological promise of hosting polymetallic black shales beneath its surface, other than review and consolidation of historic work therefrom and vicinity, and efforts to better resolve subsurface stratigraphy relying on oil/gas well drilling in the area, DNI has no short term plans for active field work thereupon and has deferred further work until such time as metal recovery parameters from the polymetallic shale are better established based on results from R&D testwork in progress on samples of metalliferous shales from the Asphalt and Buckton Zones.

The Target Area does, however, offer several well defined metal diffusion anomalies in soils which provide realistic targets which can be tested by drilling intended to solely to determine the presence or absence of the suspected buried metal mineralized system of appropriate dimensions (50-100 sq km). Drilling of a handful of holes located on anomalies across the Area's western flank, subject to encouraging metal recovery R&D testwork results from Asphalt and Buckton, is under consideration by DNI to confirm or refute presence of a buried mineralized system of the dimensions being sought on the Property.

Of collateral interest in the Eaglenest Target Area is the incidental discovery of relatively "fresh" dacite float during historic reconnaissance field work (1994-1995) in the vicinity of Clear Lake, located to the south of Eaglenest Lake, in the eastern extremity of the Target Area where it overlaps the western extremity of the Buckton South Target Area. DNI plans to re-visit this locality and its vicinity during the 2010-2011 field programs by way of reconnaissance with a view to launching subsequent exploration work intended to search for possible exhalative venting and SEDEX style mineralization, with the benefit of results and conclusions from considerable work post-dating discovery of dacitic material in the area.

10.3.3 Buckton South Target Area

The Buckton South Target Area represents a prospective target with many well defined coincident composite geochemical, stratigraphic, and other interpreted anomalies which collectively are similar to surface anomalies over the Buckton and Asphalt Zones, and likely represent buried metal zones beneath their surface, as has been demonstrated under similar anomalies over the Buckton and Asphalt Zones. The eastern parts of the Buckton South Target Area are accessible by a variety of winter roads, by seismic lines via ATV and also by air utilizing the Birch Mountain Airstrip.

The east half of the Target Area hosts a series of soil and other surface anomalies on trend from the Buckton Mineralized Zone located immediately to its north. These anomalies, lying on the east flank of the isopach stratigraphic anomaly, are reinforced by exposures of mineralized shale along the Asphalt Creek valley to the east, and most likely represent buried mineralized shale either as the southerly extension of the Buckton Mineralized Zone for an additional distance of 6km, or as an altogether separate mineralized system.

A portion of the east half of the Buckton South Target Area, equivalent to nearly double the surface area of the Buckton Mineralized Zone, is within an acceptable thickness of overburden cover based on the subsurface stratigraphic database. This portion is bounded by the erosional edge of the Second White Speckled Shale Formation to its east and the 125m depth contour to the base of the Formation to its west. The anomalies over the east half of the Buckton South Target Area, accordingly, represent high priority targets for the delineation of a shale hosted polymetallic Zone under the area of similar size as the Buckton Mineralized Zone, or an extension to the Buckton Mineralized Zone.

The western half of the Buckton South Target Area presents prospective metal diffusion anomalies in soil which support speculation of presence of buried mineralization beneath the surface. The Second White Speckled Shale in the area is, however, under cover exceeding 125m thickness and any mineralized volumes which might be discovered therein cannot realistically be considered prospective for bulk exploitation by open pit. DNI plans to hold all work over the western half of the Buckton South Target Area in abeyance until an in-situ mining method has been identified.

DNI is currently giving consideration to test the east half of the Buckton South Target Area with initial drilling with a view to delineating a Mineralized Zone over portions of the area with thin overburden cover.

10.3.4 Buckton Zone and The Buckton Mineralized Zone

The Buckton polymetallic Zone hosts the Buckton Mineralized Zone which extends over an approximate 3km x 8km area comprising approximately 26 square kilometers. The Mineralized Zone has an estimated thickness varying, on average, 20.5m to 21.9m, and represents an aggregate of approximately 1.2-1.3 billion short tons of mineralized material (1.1 to 1.2 billion tonnes) hosted in the Second White Speckled Shale Formation. The polymetallic mineralization consists of Mo-Ni-U-V-Zn-Cu-Co-Ag in addition to gold whose average grade has not yet been definitively established over the Zone and is treated as nil in this Report. DNI's verification sampling of the historic drill core reported measured values for Specific Gravity ranging 2.22-2.49 for the Second White Speckled Shale suggesting that estimated tonnages reported in Sabag 2008 might in fact be larger than those estimated.

DNI's recent focus (work in progress and discussed in Sections 13, 14 and 15) has shfted to Mo-Ni-U-V-Zn-Cu-Co-Li (Ag omitted) contained in the Zone, in addition to Specialty Metals (Sc-Th) and REE. In addition, DNI's resource studies for a portion of the Buckton Mineralized Zone (in Section 15 of this report) supercede tonnage estimates reported in Sabag 2008, and serve to partly "sterilize" portions of the Zone which are under excessive overburden cover until such time as status of the overburden material (whether "waste" or mineralization) is clarified by a resource study which is in progress relating to material overlying the Second White Speckled Shale (Section 15.4 of this report).

The Buckton Mineralized Zone has good lateral continuity and is vertically zoned, containing generally better grading material within its uppermost 10m, and progressively better grades northward in the upper parts of the drill holes, accompanied also by progressive thickening of the better grading sections. Subzones can be blocked within the Mineralized Zone which are either of better grade than the entire volume (e.g 15%-30% better grades over upper half of the volume being the uppermost 10m), or which are dominated by different groupings of metals, especially over its northern portion where its uppermost sections are progressively better mineralized with Mo-Ni-U-Zn-Co. This upper subsidiary northern subzone, occupying the northern half of the uppermost 10m of the Mineralized Zone and representing approximately 20%-30% of the Buckton Mineralized Zone, is better enriched in Mo-Ni-U-Zn-Co which collectively represent sufficient combined value to be of interest as a metal group. The foregoing northerly enrichment trend serves to prioritize exploration of the subsidiary northern subzone as a stand-alone mineralized volume.

The Buckton Mineralized Zone is open in three directions: to the south, the west and to the north. To the west it is open across the isopach anomaly, though any westward extensions it might have would be under overburden cover exceeding the suggested 125m depth limiting parameter. The Zone's southern tip is under an estimated 150m-175m of cover per the subsurface stratigraphic model, although drill holes over that part indicate depths to the base of the Second White Speckled Shale Formation ranging 130m-150m (ie:110m-130m to the top of the Formation). Potential extensions of the Zone eastward and to the southeast are projected to be under lesser overburden nearer its erosional edge where the shale is also exposed at surface and in valley walls.

Unlike its southern and western projected extensions, the Buckton Mineralized Zone is open to the north over large areas generally characterized by lesser overburden cover. Combined with a trend of better grades northward in the upper parts of the Mineralized Zone, accompanied also by progressive thickening of the better grading sections, expansion of the Zone northward by future drilling is a clear priority, as opposed to expanding it to the south or the west.

Considerable information is available from the historic work supporting anticipations that the Buckton Mineralized Zone can be expanded by additional drilling[43]. In addition, DNI's subsequent verification

[43] Supported also by conclusions from DNI's 2010-2011 winter drilling program. See Section 13 of this report.

sampling of the historic drill core reported measured values for Specific Gravity ranging 2.22 to 2.49 for the Second White Speckled Shale suggesting that tonnages might in fact be larger than those estimated.

DNI's work programs over the Buckton Zone have included considerable detailed review and consolidation of historic work therefrom and vicinity, in addition to verification sampling of historic drill core from the Zone, and collateral efforts to better resolve subsurface stratigraphy relying on oil/gas well drilling in the area.

DNI's more recent work programs consist entirely of R&D testwork to evaluate recoverability of the metals on a combined basis via conventional leaching as well as bioleaching, relying on surface material collected from the Zone in 2009 and on drill core samples from DNI's 2010-2011 winter drilling (Sections 13 and 14 this report). Overall plans are to scale up of leaching bench scale tests completed thus far through column tests by late 2012. DNI's work which has been completed to date is incorporated into Section 6 of this Report (see also Sabag 2010).

Encouraged by initial metals leaching testwork results from work completed in 2009-2010, DNI completed an initial drilling program over the northern part of the Buckton Mineralized Zone (Section 13) and delineated an initial inferred resource over a small portion of it (Section 15). DNI's overall plans are to continue toward completion of a 4,500m diamond drilling program over the central and northern portions of the Buckton to upgrade and classify as much of it as possible to a NI-43-101 compliant resource, and to collect additional material for expanded leaching testwork. The aggregate program entails drilling of approximately 30 vertical holes averaging 100m deep, spaced approximately 400m apart, with local tests at 200m spacing. Completion of an additional 15 similar, though wider spaced holes (800m-1000m), are also under consideration, to test the northern projected extension of the Buckton Mineralized Zone, and over select portions to its south and east. The foregoing work is intended to enable initiating a preliminary economic analysis in 2012 to establish general guideline criteria which might also be applicable to other potential shale hosted polymetallic mineralization elsewhere on the Property.

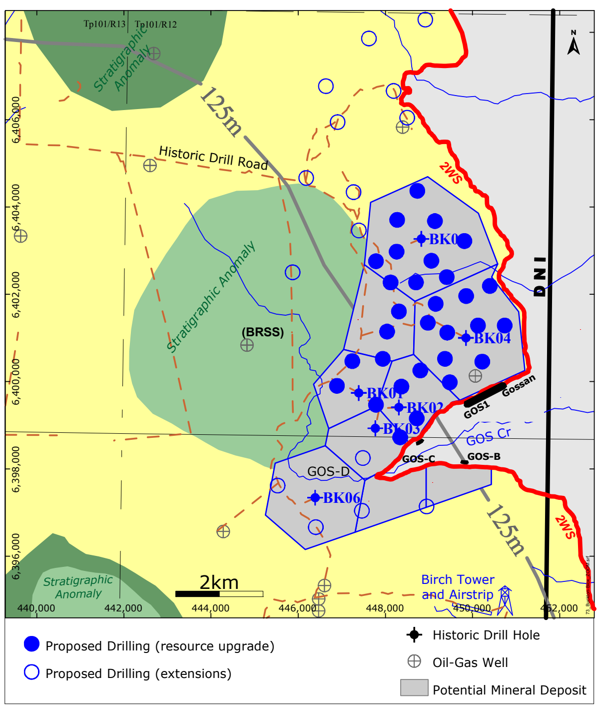

Figure 70: Recommended drilling, Buckton Mineralized Zone. Trace of the 125m depth contour to the base of the Second White Speckled Shale and its erosional edge (2WS) also shown. See Figure 47 for legend. After Figure 85, Sabag 2008.

A preliminary schematic drill pattern is shown in Figure 70 which will undoubtedly be modified based on logistical criteria. The Figure also shows the erosional edge of the Second White Speckled Shale Formation, and the approximate trace of the 125m depth contour to its base.

Of collateral interest in the vicinity of the Buckton Zone is the potential for discovery of SEDEX style sulfides, given the discovery of considerable bentonitic material and volcanic debris in the Second White Speckled Shale Formation intercepts in historic drill core from the Buckton Zone. A local provenance for the bentonites and debris are suggested by the northwardly better metals grades and progressive thickening of the better grading sections noted in the historic drilling, combined with observations of northerly increasing thickness, frequency and distribution of bentonites in the drill core, collectively suggesting the presence of as yet undiscovered nearby source to the debris and bentonites which are incorporated into the Buckton Zone Second White Speckled Shale. Prior work also suggests that locating such a source within approximately 2km-5km of the northernmost Buckton drill holes would be realistic.

10.3.5 Asphalt Zone and The Asphalt Mineralized Zone

The Asphalt polymetallic Zone hosts the Asphalt Mineralized Zone which extends over an approximate 1km x 4.5km area comprising approximately 4.5 square kilometers, with an estimated thickness ranging 7.2m to 11.6m, and represents an aggregate of approximately 109-132 million short tons of mineralized material (99-120 million tonnes). DNI's verification sampling of the historic drill core reported measured values for Specific Gravity ranging 2.22-2.49 for the Second White Speckled Shale suggesting that tonnages might in fact be larger than those estimated. DNI's recent focus (work in progress and discussed in Sections 13, 14 and 15) has shfted to Mo-Ni-U-V-Zn-Cu-Co-Li (Ag omitted) contained in the Zone, in addition to Specialty Metals (Sc-Th) and REE.

Prior drilling over the Asphalt Zone consists of only two holes, 900m apart, which exhibit good consistency of grade and geology between them. Of special note is the consistency of grade between the average metal grades of the Asphalt holes with the average grades of the all historic drilling completed over the Buckton Zone located approximately 30km to the north of the Asphalt Zone. The foregoing mineralization is confirmed by DNI's 2010-2011 drilling over the Zone (Section 13)

The Asphalt Mineralized Zone is open to the northwest over an additional distance of 5km-6km as reflected by soil geochemical diffusion anomalies identified by the historic work, and to the northeast for a distance of an additional 6km toward Mid Creek and closure of its valley. Whereas projected northwesterly extension of the Mineralized Zone would be partly under overburden cover exceeding 125m based on the subsurface stratigraphic database, its northeasterly projected extension is under thinner cover and is, accordingly, prioritized. The potential of a projected extension southward over the stratigraphic isopach anomaly immediately to the south of the Mineralized Zone is unknown. There is no information to guide speculation of what the ultimate thickness of the Second White Speckled Shale Formation might be over the areas proposed as extensions to the Asphalt Mineralized Zone. It would be reasonable to propose that thickness of the Formation might be at least the same or thicker than that seen in the drilling at a distance away from the erosional edges of the Birch Mountains and away from active slump zones. The historic work results support anticipations that the Asphalt Mineralized Zone can be expanded by additional drilling.

DNI's work programs over the Asphalt Zone have included considerable detailed review and consolidation of historic work therefrom and vicinity, in addition to verification sampling of historic drill core from the Zone, and collateral efforts to better resolve subsurface stratigraphy relying on oil/gas well drilling in the area.

DNI's more recent work programs consist entirely of extensive R&D testwork to evaluate recoverability of the metals and their recovery on a combined basis via conventional leaching as well as bioleaching, relying on surface material recently collected from the Zone.

Specialty Metals, including Li, incidentally recovered during recent leaching tests completed by DNI represent additional value in the Shale which has not previously been recognized and will receive closer attention.

Encouraged by initial metals leaching testwork results from work completed in 2009-2010, DNI commenced DNI commenced drilling over the Zone to classify a portion of it into a NI-43-101 compliant resource although insufficient number of holes were completed to support a resource study (see Section 13 of this report). Overall plans are to resume drilling to complete approximately 2600m over the Asphalt Mineralized Zone, and over its projected northeastern and western extension, partly as a first step toward classifying a resource therein, but also to probe for extensions of the Zone away from its erosional edge.

The drilling planned program entails drilling of 26 vertical holes averaging 100m deep, spaced approximately 400m apart, with local tests at 200m spacing, to upgrade a portion of the Mineralized Zone to a classified resource. The drilling is intended to enable initiating a preliminary economic analysis by 2012 to establish general guideline criteria which might also be applicable to other potential shale hosted polymetallic mineralization elsewhere on the Property.

A preliminary schematic drill pattern is shown in Figure 71 which will undoubtedly be modified based on logistical criteria. The Figure also shows the erosional edge of the Second White Speckled Shale Formation and the approximate trace of the 125m depth contour to its base.

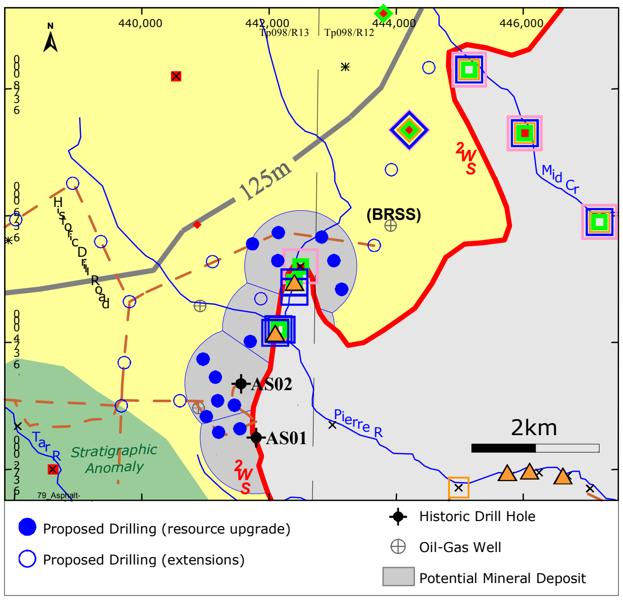

Figure 71: Recommended drilling, Asphalt Mineralized Zone, Trace of the 125m depth contour to the base of the Second White Speckled Shale and its erosional edge(2WS) also shown. See Figure 56 for legend, and also Figure 72. After Figure 78, Sabag 2008.

Of collateral interest in the vicinity of the Buckton Zone is the potential for discovery of SEDEX style sulfides, given the discovery of considerable bentonitic material and volcanic debris in the Second White Speckled Shale Formation intercepts in historic drill core from the Zone.

Historic work has suggested a nearby source to bentonites and volcanogenic debris noted in the Asphalt drill core, although unlike the Buckton drill holes, no directional vectors can be concluded from the limited Asphalt drilling to guide future work in the search for suggested potential sources.

The historic work suggests that anticipation of locating such sources within 2km-5km of the Asphalt drill holes would be realistic, and proposed a number of locations with potential for hosting venting were also identified by historic work in the course of exploring for potential kimberlites in the vicinity of the Asphalt Zone all of which summarized in Figure 72(c), juxtaposed on magnetic anomalies some of which are too conspicuous to ignore (e.g. Pierre River, downslope from the Asphalt Mineralized Zone). Bedded sulfides (FeS±Ni), interlayered with Fe-phosphate, discovered in shales in the Asphalt Creek valley walls and as float therefrom in the Creek, offer additional targets worthy of more detailed examination. DNI's work programs include field efforts directed at re-examining the foregoing localities and broader efforts toward evaluating the potential of this area for hosting SEDEX style sulfides, although this work has to date been held in abeyance to focus available resources on assessing the potential of polymetallic mineralization zones hosted in the Second White Speckled Shale Formation.

10.4 SEDEX STYLE SULFIDE TARGETS

In general terms, sedimentary exhalative sulfide deposits are known to accumulate in restricted basins or half grabens bounded by synsedimentary growth faults, with exhalative centers located along the faults or their junctions. Depositional environments vary from deep "starved" marine to shallow water restricted shelf settings, although the more common host rocks are those found in euxinic environments, namely black (carbonaceous) shales. The deposits have electromagnetic and magnetic signatures and might be detected when steeply dipping though are difficult to detect if flat-lying, or if the sulfide layers are fine and distributed over a thick stratigraphic column.

Geological, stratigraphic, lithogeochemical and metal distribution trends documented from the Property are characteristic of settings which would be highly conducive to hosting sedimentary exhalative - SEDEX style - sulfide mineralization within the black shales, providing a collateral deposit type with potential to exist on the Property. It is recommended that a consolidated effort be made to explore for sedimentary exhalative sulfides on the Property.

Several localities have been identified on four of the six sub-properties, as areas which have potential for hosting exhalative venting with potential also for related sedimentary exhalative sulfides. The foregoing areas present natural targets for additional investigation in the field, as part of a broader evaluation of the Property for hosting sedimentary exhalative - SEDEX style - sulfides. The targets were selected based on:

(i) their location on conspicuous large faults across the Property, or on their junctions;

(ii) their spatial association with conspicuous "closed" magnetic anomalies associated also with nearby kimberlite indicator minerals;

(iii) bentonite development and metal enrichment vectors interpreted from drill core and surface exposures, and

(iv) bedded sulfides documented from lithosections. The targets are:

- Buckton north - selected based on bentonite development and metal enrichment vectors interpreted from the Buckton drill holes;
- the westernmost parts of the Buckton South Target Area and the overlapping the easternmost parts of the Eaglenest Anomaly, in the vicinity of Clear Lake - selected based on discovery of dacite float in the area within the Asphalt-Eaglenest Fault Corridor, and the many surface geochemical anomalies nearby;
- the immediate area surrounding the Asphalt Mineralized Zone, over conspicuous circular magnetic features, as well as over several locations identified in the course of exploration for kimberlitic venting on the Property;
- bedded sulfides (FeS) and Fe-phosphates documented from historic prospecting along the Asphalt Creek, and possibly also elsewhere whose significance was not recognized at the time.

DNI's work programs have to date included minimal field efforts directed at re-examining the foregoing localities and broader efforts toward evaluating the potential of this area for hosting SEDEX style sulfides. Intentions are to conduct exploration for sedimentary exhalative sulfides on the Property on a consolidated basis over the entire Property as a single exploration campaign rather than on an area-by-area basis, since the endeavor will in most part initially be at a reconnaissance level and findings from one area will likely be applicable and useful to exploration of another. The foregoing work will include field examination of the target areas and detailed re-examination of historic heavy mineral and geophysical databases from the Property Several initial possible targets are also suggested in Figure 72.

Incremental progress made to date includes expansions of the subsurface stratigraphic database and its detailed synthesis and modeling with the objective of identifying synsedimentary structures across the Property. Other planned work, including geophysical surveying, are in the planning stages, but have been deferred to focus available resources on advancing the polymetallic Asphalt and Buckton Mineralized Zones toward a preliminary economic assessment as quickly as possible.

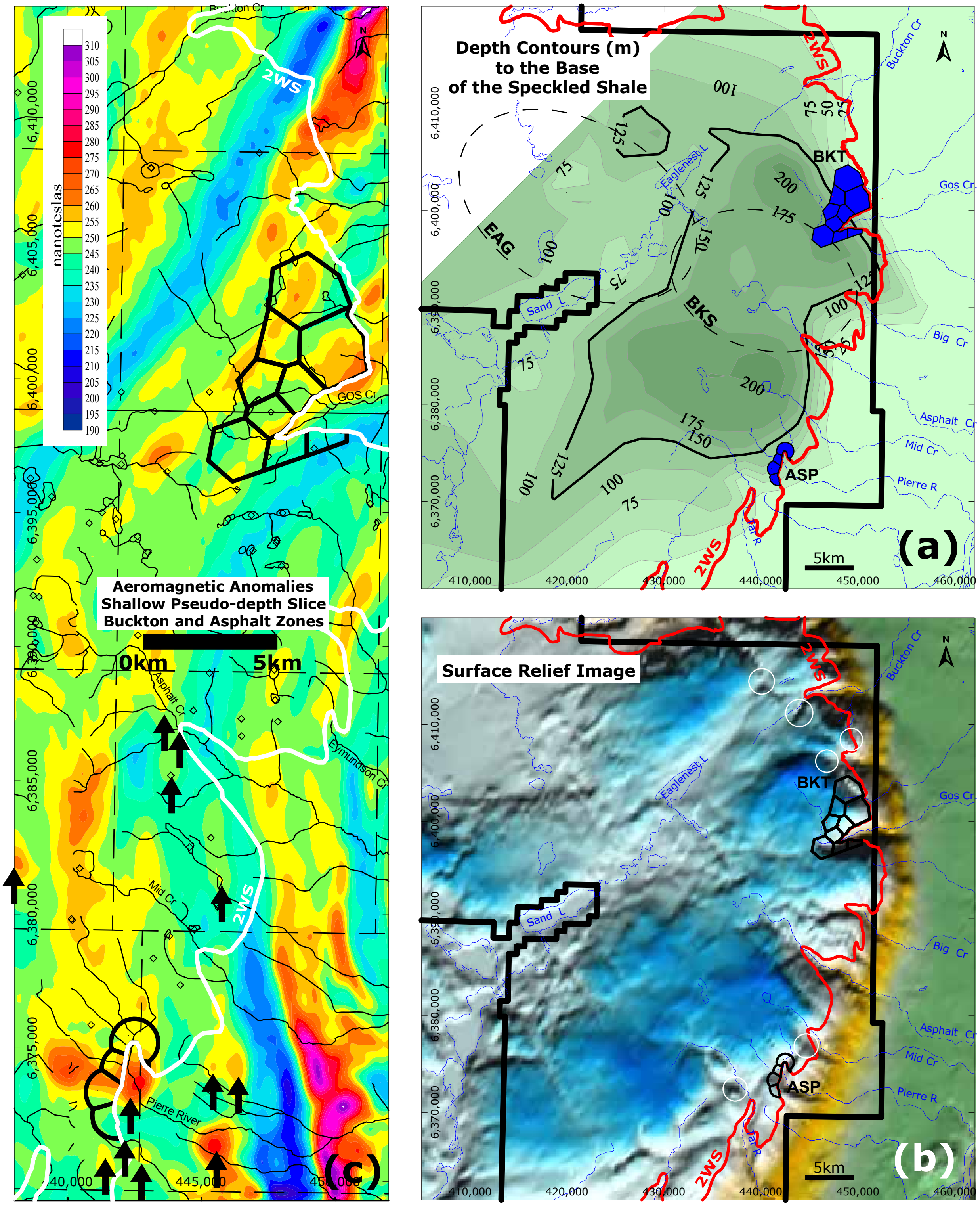

Figure 72: Summary of suggested prioritization criteria for future work. After Figure 84, Sabag 2008. Figure 72(a): Depth to the base of the Second White Speckled Shale Formation across the east half of the Property, showing the Buckton (BKT) and Asphalt (ASP) Mineralized Zones. The Buckton South (BKS) and Eaglenest (EAG) Target Areas, and the erosional edge of the Second White Speckled Shale Formation (2WS) also shown (after previous Figure 25). Figure 72(b): Topographic relief over the eastern part of the Property showing the Buckton (BKT) and Asphalt (ASP) Mineralized Zones, in relation to adjacent circular topographic features, lineaments and possible exhalative vent targets (circles). Figure 72(c): Aeromagnetic pseudo-depth slice anomalies over the Asphalt and Buckton Mineralized Zones, and the Buckton South Target Area (after previous Figure 37), showing additional possible exhalative vent targets (arrows).

11. DNI WORK PROGRAMS 2010-2012 - OVERVIEW

DNI commenced its exploration work on the Property prior to commencing its land assembly in September 2007, and has since actively continued its work to advance development of the Property. DNI reported its work programs completed during 2007-2010 in Alberta Mineral Assessment Report MIN20100017 (Sabag 2010). This report relates to work completed during the period 20100-2012.

Exploration work completed during the period 2010-2012 consisted of a variety of efforts culminating in preparation of two mineral resource studies, concluded in 2012, reporting an initial resource from the Buckton Zone. Other activities leading up to preparation of the resource studies consisted of a winter 2010-2011 drilling program (related permitting and community consultation), and continuing leaching testwork to establish metals recoveries from the Second White Speckled Shale and the overlying overburden material. The exploration work completed by DNI follows recommendations of its NI-43-101 Technical Report for the Property (Sabag 2008), and the said work is ongoing.

DNI's exploration work which was completed during the period 2010-2012 included the following:

(i) Conclusion of analytical work on samples collected in 2010 (field sampling previously reported in Alberta Mineral Assessment Report MIN20100017);

(ii) Conclusion of bioleaching and analytical work related to sample fractions previously omitted from testing during 2009-2010 testwork completed at the AITF (previously reported in Alberta Mineral Assessment Report MIN20100017);

(iii) Permitting and Community consultation related to the 2010-2011 winter drilling program;

(iv) Winter 2010-2011 drilling program completed during Dec/2011-Feb/2012, in addition to subsequent core logging, sampling and analytical work;

(v) Follow-Up bioleaching testwork completed by the AITF in 2011-2012 on composite drill core samples from the Second White Speckled Shale and overlying overburden;

(vi) A Resource Study, completed Oct/2011, for a portion of the Buckton Zone relating to Mo-Ni-U-V-Zn-Co-Li, representing the maiden resource from the Buckton Zone and the first to ever be delineated on the Property;

(vii) A supplemental resource study, completed Jan/2012, relating to REE-Y-Sc-Th contained in the Buckton maiden resource;

(viii) Leaching testwork completed by the AITF in 2011-2012 to evaluate using CO_2 as a leaching solvent;

Work which is in progress or in planning stages to commence shortly consist of a variety of programs or testwork all of which are presented in Section 16 of this report. Expenditures incurred toward planning and pre-engineering work related to the foregoing are included into expenditures outlined in this report all of which are being filed toward assessment work requirements.

12. General Analytical Work Related To Prior Sampling 2010-2011

12.1 Analytical Work Related To The 2010 Field Sampling Program

A field sampling program was completed during June 2010, to collect material for expanded metal leaching testwork. Samples were also collected during the program as "feed" material to sustain the bio-organic culture which had previously been extracted from Second White Speckled Shale samples from the Property by the AITF during Stage-1 and Stage-2 of its bioleaching testwork. The foregoing culture had been adapted to the shale and would be used in future testwork. The sampling program details and AITF's bioleaching work are outlined in Alberta Mineral Assessment Report MIN20100017 (Sabag 2010). A a summary of the sampling program is reiterated herein by way of context to analytical results.

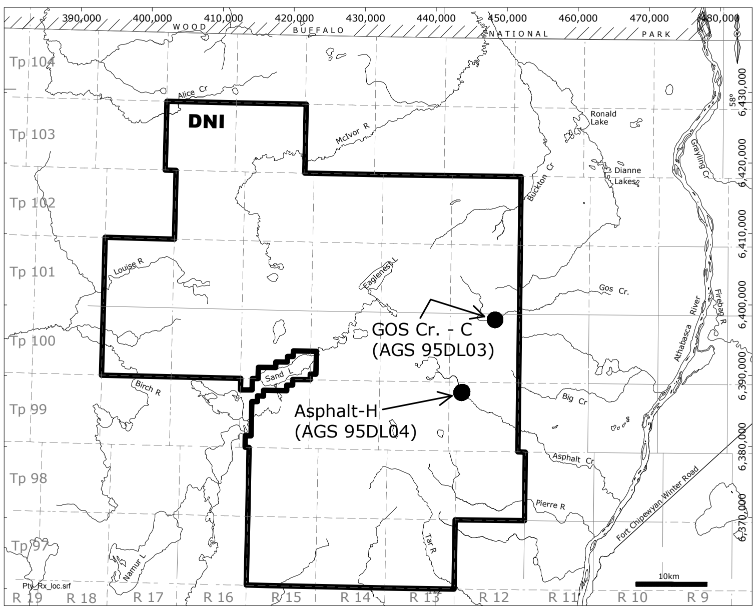

Figure 73: Property sketch showing location of Asphalt-H and Gos-Cr.-C lithosections, 2010 Field Sampling Program.

The 2010 field work was conducted by a geological crew of two from APEX Geoscience Ltd. under the direction of M.Dufresne.

After considering several candidate sampling sites, a decision was made to re-sample two of the sites previously sampled during the 2009 field sampling program given availability of good access and thorough geological knowledge therefrom (see MIN20100017). The two sites are lithosections Asphalt-H and Gos-Cr.-C.

Samples collected during the 2010 field sampling program were submitted to Actlabs for analysis. Results were received after preparation and submission of Alberta Mineral Assessment Report MIN20100017 and are, accordingly, included herein.

The 2010 field sampling consisted of collection of large samples weighing on average 10kg each. Both sites were found to be in good condition and free of incremental slump material since 2009 (see Plates 8 and 9, for Asphalt-H and GOS-Cr.-C sites, respectively).

The Asphalt-H lithosection occupies a wedge of high ground between Asphalt Creek and a tributary. Given availability of time and equipment, additional samples were taken from site Asphalt-H from the base of the stratigraphic section by sampling the opposite (southwest face) face of the slope, although suspected exposures of the siliciclastic bone bed marking the base of the Formation, exposed at te waterline in the tributary, were not sampled due to poor access.

Locations of the two lithosection are shown in Figure 73. Details of the samples and analytical results are presented below.

12.1.1 Analytical Results - 2010 Sampling, Lithosection Asphalt-H

The Asphalt-H lithosection exposure comprises a set of steep scarps along the shores of Asphalt Creek at a junction with one its tributaries. Lithologies can, accordingly, be traced from one side of the hillside to its other side along the shore of the tributary. The Asphalt-H lithosection exposure is shown in Plate 8.

Sample locations for lithosection Asphalt-H are shown in Figure 74.

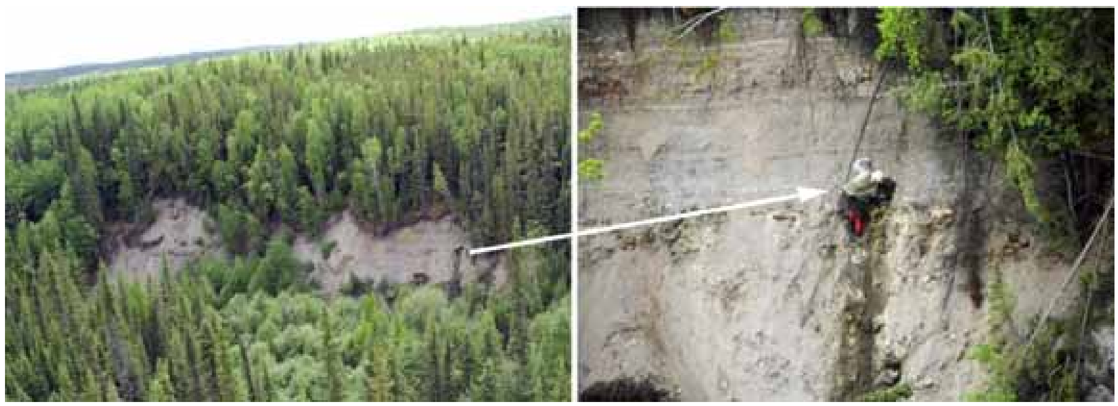

Plate 8: Asphalt-H lithosection (looking westerly), Field Sampling Program 2010. From Plate 9, Alberta Mineral Assessment Report MIN20100017, Sabag 2010.

Detailed site location Down-section sample locations and a lithological profile for Asphalt-are shown in Figure 75. Sample descriptions are summarized in Table 15.

Samples were split into eight fractions and the sample numbers were appended with suffixes aa, bb, cc, dd, ee, ff, gg, and hh. The “hh” split was analyzed. The “gg” split was delivered to CANMET in April 2012 to be used during expanded tests to follow.

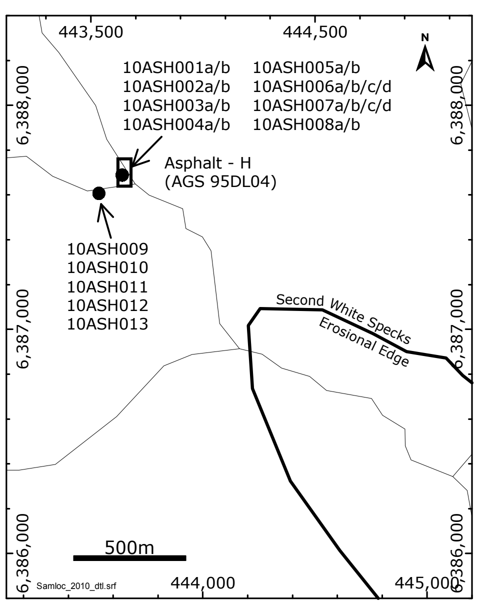

Figure 74: Sampling Locations, Lithosection Asphalt-H, Field Sampling Program 2010. From Figure 116, Alberta Mineral Assessment Report MIN20100017, Sabag 2010.

Samples were submitted to Actlabs in October 2010, and analyzed by ICP-INA for multielement geochemical profile, in addition to C and S. (Actlabs 1H2, 5G, 1E2). Analytical certificates[44] are appended in Appendix B1.2, and the results are summarized in Table 16.

The analytical results from lithosection Asphalt-H are consistent with results previously obtained from the 2009 field sampling over the same lithosection (see Alberta Mineral Assessment Report MIN20100017, Sabag 2010).

The analytical results from lithosection Asphalt-H are presented herein as a matter of record only for future reference.

No further work has since been conducted on the samples, all of which remain in storage at DNI’s Toronto warehouse facilities.

[44] Actlabs Rpt#A10-6750.

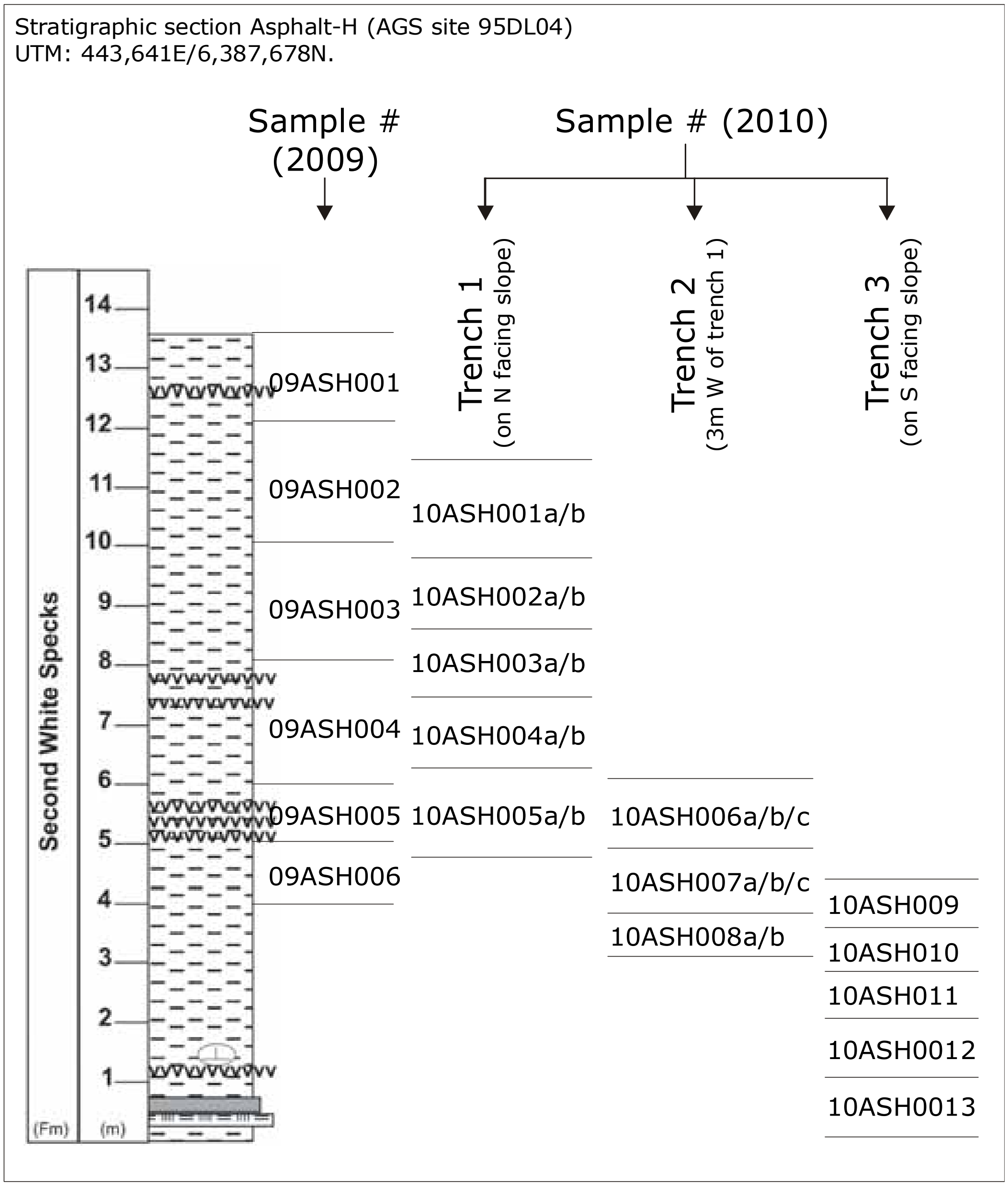

Figure 75: Lithosection Asphalt-H, showing intervals sampled, Field Sampling Program 2010 . After Figure 117, Alberta Mineral Assessment Report MIN20100017, Sabag 2010. AGS site# per AGS 2001.

Sample#	UTM-E (NAD27)	UTM-N (NAD27)	From elev asl (m)	To elev asl (m)	Description	Mass sample "a" (kg)	Mass sample "b" (kg)	Mass ARC sample "c" (kg)
10-ASH-001a/b	443,640	6,387,689	648	649.5	Top grades into overburden, 2 thin bentonite units (1 cm) at 20 cm, 25 cm down, both are Fe stained. S horizons at 20cm, 80 cm.	10.89	9.98	
10-ASH-002a/b	443,640	6,387,689	647	648	Highly Fe stained, joints are visible. S horizon at 80 cm, black shale	8.16	10.89	
10-ASH-003a/b	443,640	6,387,689	646	647	Shale, Top has S layer (1cm width) at 5cm, 25, 70 cm down, more Fe staining. More blocky black shale	7.71	11.34	
10-ASH-004a/b	443,640	6,387,689	645	646	Shale, Mostly black shale, one S/Fe horizon, friable	6.80	10.89	
*10-ASH-005a/b	443,640	6,387,689	644 (±4m)	645	Shale/Bentonite, Top is Fe stained, friable. 20 cm Bentonite/Sulfur layer at 50cm above is mixing zone, below is sharp with black shale, section below Sulfur more cohesive, predominantly black shale. Used as BASELINE on other trench	7.26		7.00
*10-ASH-006a/b/c	443,640	6,387,689	643.5	644.5	Shale, Lateral move 3m left, used S horizon of 10-ASH-001. Bentonite layer 65cm down, bottom is very Fe rich, black shale throughout	6.80	9.07	16.00
*10-ASH-007a/b/c	443,640	6,387,689	642.5	643.5	Shale, Black shale, Fe staining, friable	8.16	9.98	16.00
*10-ASH-008a/b	443,640	6,387,689	641.8	642.5	Shale, Bottom is in talus. Shale unit, some Fe stain horizons	11.79		9.00
10-ASH-009	443,536	6,387,607	641.5	642.5	Shale/Bentonite, Taken on North Face, 2 m below S/Bentonite horizon (10-ASH-001/002). Black shale, 1 cm bentonite layer 30 cm down. Fe staining more prevalent towards bottom	7.71		
10-ASH-010	443,536	6,387,607	640.5	641.5	Shale, Black Shale, small S x-cuttting layers(vein fill), lots of small crystals	8.62		
10-ASH-011	443,536	6,387,607	639.5	640.5	Shale, Black shale, small lenses of coarser, brown material	7.26		
10-ASH-012	443,536	6,387,607	638.5	639.5	Shale/Bentonite/Concretions, Lateral move 4m left. Concretions @10 cm down, 20 cm thick. Black shale around, Fe/ bentonite horizon at 40 cm	13.61		
10-ASH-013	443,536	6,387,607	637.3	638.5	Shale, Lateral move 3m left. Black shale, Fe staining more prevalent at top, small bentonite lenses. Bottom is stream level. Visible in stream is rusty layers.	11.34		

Table 15: List of samples, lithosection Asphalt-H, Field Sampling Program 2010, showing also sample weights and samples forwarded to the ARC. After Table 48, Alberta Mineral Assessment Report MIN20100017, Sabag 2010.

Analyte (unit)	Detection	Method	10ASH001 hh2	10ASH002 hh2	10ASH003 hh2	10ASH004 hh2	10ASH005 hh2	10ASH006 hh2	10ASH007 hh2	10ASH008 hh2	10ASH009 hh2	10ASH010 hh2	10ASH011 hh2	10ASH012 hh2	10ASH013 hh2
Spec Grav (SG)	0.01	GRAV	2.52	2.60	2.57	2.50	2.30	2.20	2.30	2.33	2.32	2.38	2.46	2.44	2.43
C-Total (%)	0.01	IR	2.37	1.57	2.64	3.37	8.55	12.50	8.97	9.61	10.60	5.65	4.71	5.74	6.20
C-Graph (%)	0.05	IR	0.11	0.10	0.11	0.12	0.22	0.18	0.09	0.14	0.15	0.11	0.09	1.23	0.17
C-Organ (%)	0.05	IR	2.03	1.29	2.35	2.92	6.99	11.10	7.36	8.17	8.14	3.58	2.97	1.54	5.50
CO2 (%)	0.01	COUL	0.84	0.63	0.66	1.21	4.89	4.39	5.57	4.77	8.30	7.17	6.04	10.90	1.92
SO4 (%)	0.3	IR	1.1	0.9	1.3	2.7	5.6	3.4	6.8	4.0	8.0	10.0	8.9	10.7	2.9
S Total (%)	0.01	IR	0.56	0.43	0.82	1.68	4.43	4.67	4.33	2.91	3.92	4.18	4.23	4.12	2.59
S (%)	0.01	ICPtd	0.39	0.34	0.84	1.68	4.39	4.76	4.52	2.82	3.88	4.25	4.28	4.18	2.52
Ag (ppm)	0.3	INA / ICPtd	0.9	0.5	0.6	0.8	1.1	1.1	0.6	0.7	0.7	1.1	0.8	0.9	0.9
Al (%)	0.01	ICPtd	7.94	7.91	7.81	7.52	5.71	5.45	5.89	5.99	5.09	5.48	5.76	4.95	6.33
As (ppm)	0.5	INA	29.2	18.9	20.4	28.1	80.3	83.7	56.5	46.2	48.4	80.3	68.0	76.3	60.0
Au (ppb)	2	INA	1	5	1	1	5	5	1	1	4	1	3	1	10
B (ppm)	5	ICPar	40	40	39	50	39	43	38	39	44	39	55	49	37
Ba (ppm)	50	INA	3,810	3,230	1,730	2,890	5,540	1,850	1,730	1,870	780	880	720	630	830
Be (ppm)	1	ICPtd	2	2	3	2	2	2	4	2	2	1	2	1	2
Bi (ppm)	0.1	TD-MS	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.4
Br (ppm)	0.5	INA	9.8	8.1	10.9	12.0	12.8	19.8	13.9	15.3	15.8	8.5	7.6	7.4	13.5
Ca (%)	0.01	ICPtd	0.87	0.57	0.46	1.08	2.65	2.96	4.45	5.88	8.80	5.51	5.85	9.17	1.43
Cd (ppm)	0.3	ICPtd	0.4	1.1	1.3	1.0	4.6	5.7	17.9	10.5	14.5	1.8	25.7	8.4	5.5
Ce (ppm)	3	INA	58	74	80	72	116	98	157	80	69	61	155	83	77
Co (ppm)	1	INA	7	8	11	10	13	24	39	27	28	8	35	20	13
Cr (ppm)	2	INA	135	134	139	134	67	92	76	98	82	100	79	74	121
Cs (ppm)	1	INA	8	9	9	8	3	6	5	7	6	4	6	3	7
Cu (ppm)	1	ICPtd	49	65	61	59	78	108	106	76	76	68	91	55	88
Eu (ppm)	0.2	INA	0.9	1.7	1.4	1.3	1.8	2.4	5.1	1.9	1.9	1.2	4.9	2.2	1.9
Fe (%)	0.01	INA	3.57	3.34	3.46	3.42	4.97	5.24	4.15	3.64	3.56	4.54	3.90	4.08	4.13
Ga (ppm)	1	ICPar	8	9	10	9	9	9	9	9	8	8	10	8	8
Ge (ppm)	0.1	TD-MS	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.5	0.6	0.5	0.4
Hf (ppm)	1	INA	5	5	5	5	5	3	2	3	2	3	3	3	3
Hg (ppm)	1	INA	1	1	1	1	1	1	1	1	1	1	1	1	1
In (ppm)	0.2	TD-MS	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ir (ppb)	5	INA	3	3	3	3	3	3	3	3	3	3	3	3	3
K (%)	0.01	ICPtd	3.06	3.34	3.28	3.21	1.69	1.87	1.63	2.09	1.66	1.93	1.79	1.49	2.56
La (ppm)	0.5	INA	34.3	38.0	45.7	39.2	67.0	44.4	73.8	38.9	32.6	33.8	95.7	46.7	42.8
Li (ppm)	0.5	TD-MS	55.5	73.5	84.5	80.6	51.8	61.3	64.4	59.4	69.6	42.6	61.2	54.9	63.0
Lu (ppm)	0.05	INA	0.24	0.47	0.53	0.39	0.38	0.70	1.49	0.54	0.41	0.20	1.20	0.41	0.46
Mg (%)	0.01	ICPtd	0.89	0.84	0.89	0.84	0.63	0.62	0.74	0.73	0.84	0.63	0.90	0.92	0.75
Mn (ppm)	1	ICPtd	124	117	148	170	140	225	389	253	263	86	275	613	119
Mo (ppm)	1	ICPtd	10	8	7	22	145	166	112	104	122	77	45	55	34
Na (%)	0.01	INA	0.53	0.49	0.40	0.51	0.47	0.32	0.24	0.28	0.24	0.44	0.40	0.31	0.28
Nd (ppm)	5	INA	17	37	24	18	45	55	89	34	33	21	100	44	36
Ni (ppm)	1	INA / ICPtd	27	32	42	45	103	139	289	199	244	87	237	135	79
P (%)	0.001	ICPtd	0.182	0.196	0.119	0.171	0.206	0.270	0.225	0.138	0.086	0.441	0.390	0.263	0.225
Pb (ppm)	3	ICPtd	16	18	16	17	13	14	13	12	10	15	15	13	17
Rb (ppm)	15	INA	94	117	113	116	68	67	61	71	66	78	52	46	92
Re (ppm)	0.001	TD-MS	0.100	0.100	0.080	0.180	0.600	0.610	0.400	0.340	0.360	0.760	0.520	0.730	0.470
Sb (ppm)	0.1	INA	3.6	2.9	4.0	8.0	17.9	19.9	12.7	11.7	12.7	18.0	15.3	17.8	9.9
Sc (ppm)	0.1	INA	13.6	18.5	16.2	13.4	8.7	11.8	12.2	11.0	9.6	9.6	10.1	9.0	10.9
Se (ppm)	3	INA / ICPtd-MS	13	8	14	18	38	44	30	25	28	53	45	47	34
Sm (ppm)	0.1	INA	3.0	6.7	5.5	4.4	6.1	8.7	16.7	6.3	5.8	3.7	16.8	7.4	6.1
Sn (ppm)	1	TD-MS	2	1	2	2	2	2	2	2	1	2	1	1	2
Sr (ppm)	1	ICPtd	562	340	230	251	137	207	195	187	170	265	264	244	131
Ta (ppm)	0.5	INA	2.0	1.8	0.3	1.3	0.3	1.7	0.3	0.3	1.1	0.3	1.1	0.3	1.3
Tb (ppm)	0.5	INA	0.3	0.3	0.3	0.6	0.9	1.5	3.2	1.3	1.1	0.3	3.0	1.4	1.1
Te (ppm)	0.1	TD-MS	0.1	0.1	0.1	0.2	0.4	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2
Th (ppm)	0.2	INA	11.2	13.5	11.0	10.6	11.1	12.0	11.4	8.9	8.3	12.2	14.3	10.1	9.8
Ti (%)	0.01	ICPtd	0.38	0.30	0.47	0.45	0.23	0.24	0.26	0.29	0.24	0.25	0.26	0.22	0.35
Tl (ppm)	0.05	TD-MS	1.40	1.30	1.20	2.30	8.20	9.90	6.50	6.00	6.40	11.30	11.10	11.10	6.30
U (ppm)	0.5	INA	4.9	15.5	10.2	8.4	36.8	78.8	78.7	33.2	40.6	20.4	52.5	27.9	23.3
V (ppm)	2	ICPtd	410	409	425	521	840	958	718	744	794	920	915	702	824
W (ppm)	1	INA	5	1	1	1	1	1	1	3	1	1	1	1	1
Y (ppm)	1	ICPtd	13	28	30	25	31	54	148	46	42	19	130	44	41
Yb (ppm)	0.2	INA	2.2	3.7	3.8	2.9	3.0	5.5	10.9	4.3	4.3	2.4	9.3	4.2	3.6
Zn (ppm)	1	INA / ICPtd	87	111	158	117	160	216	497	294	342	152	474	224	174
Zr (ppm)	1	ICPar	4	3	6	6	14	26	18	20	42	7	6	6	8

Data from Actlabs Rpt#A10-6750

Table 16: Lithogeochemical results from sampling of lithosection Asphalt-H, 2010 Field Sampling Program.

12.1.2 Analytical Results - 2010 Sampling, Lithosection Gos-Cr.-C

The GOS-Cr.-C lithosection comprises a steep scarp immediately the shore of GOS Creek, nestled in a thick cluster of growth. The lithosection can be accessed by foot from the east shore of the Creek following careful negotiation of burn and deadwood across the Creek.

Plate 9: GOS-Cr-C Litho-Section (looking northwesterly), Field Sampling Program 2010. From Plate 10, Alberta Mineral Assessment Report MIN20100017.

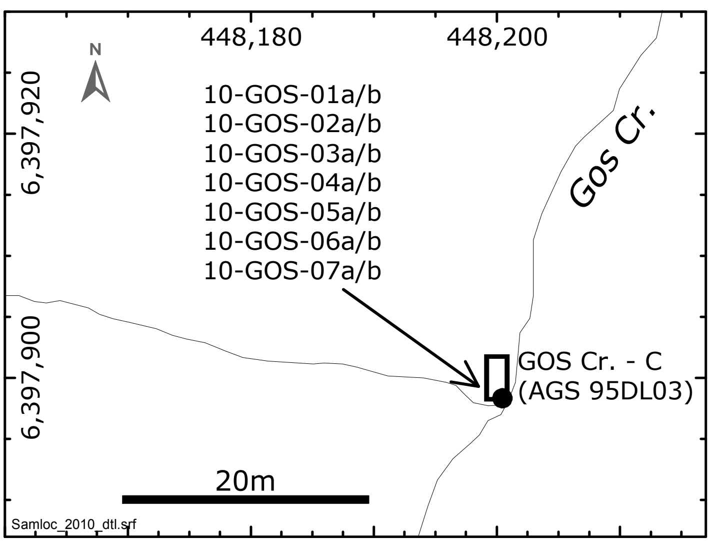

Figure 76: Sampling Locations, Lithosection GOS Creek C, Field Sampling Program 2010. From Figure 115, Alberta Mineral Assessment Report MIN20100017, Sabag 2010.

The GOS-Cr.-C lithosection exposure is shown in Plate 9. Sample locations for Lithosection GOS-Cr.-C are shown in Figure 76.

Downsection sample locations and a lithological profile for GOS-Cr.-C are shown in Figure 77. Sample descriptions are shown in Table 17.

Samples were split into eight fractions and the sample numbers were appended with suffixes aa, bb, cc, dd, ee, ff, gg, and hh. The "hh" split was analyzed. The "gg" split was delivered to CANMET in April 2012 to be used during expanded tests to follow.

Samples were submitted to Actlabs in October 2010, and analyzed by ICP-MS and INA, by Actlabs analytical package code 1H2 (also by 1E2 for comparison of differing acid dissolutions). C and S speciation was analyzed by Actlabs package code 5G.. Analytical certificates[45] are appended in Appendix B1.2, and the results are summarized in Table 18.

The analytical results from lithosection GOS-Cr.-C are consistent with results previously obtained from the 2009 field sampling over the same lithosection.

The analytical results from lithosection GOS-Cr.-C are presented herein as a matter of record only for future reference.

No further work has since been conducted on the samples, all of which remain in storage at DNI's Toronto warehouse facilities.

[45] Actlabs Rpt#A10-6750; DNI#SB101001

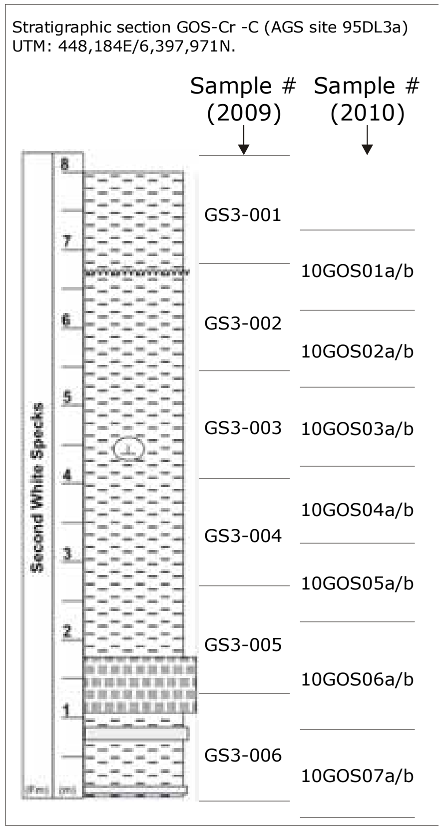

Figure 77: Lithosection GOS-Cr.-C, showing intervals sampled. Field Sampling Program 2010. After Figure 117, Alberta Mineral Assessment Report MIN20100017. Sabag 2010. AGS site# per AGS 2001.

Sample#	UTM-E (NAD27)	UTM-N (NAD27)	From elev asl (m)	To elev asl (m)	Description	Mass sample "a" (kg)	Mass sample "b" (kg)
10-GOS-01a/b	448,201	6,397,896	607	608	Shale/Bentonite, Top S° rich, mixed with white/grey bentonite. Mostly friable black shale, some bentonite layers mixed in	5.44	5.44
10-GOS-02a/b	448,201	6,397,896	606	607	Shale, Black shale, some discreet (<0.5cm) brown coarse sand? Lens around 0.5 m	6.35	5.44
10-GOS-03a/b	448,201	6,397,896	605	606	Shale/Concretions, Friable black shale down 20 cm, becomes more cohesive with Fe/S stains. @40 cm fg concretion (20 cm width), shows hummocky x-strat, bottom/top contacts sharp with shale, jointing visible (most likely to depressurizing)	5.90	6.35
10-GOS-04a/b	448,201	6,397,896	604	605	Shale, Lateral move 3m to right (used concretion bed as horizon). More Black Shale. S layers with sand? fish? Fe staining more prevalent below 50 cm, lowest 20 cm vivid blue highlights on shale faces	8.62	4.99
10-GOS-05a/b	448,201	6,397,896	603	604	Shale, Black shale, some S at top. Fe stained layers through coarser sediments (sediments are crystalline, cleavage). This unit is more cohesive.	6.80	4.99
10-GOS-06a/b	448,201	6,397,896	601.8	603	Shale, Black Shale, some trace S, Fe staining. Bottom contact with concretion zone	5.44	6.80
10-GOS-07a/b	448,201	6,397,896	600.8	601.8	Shale/Concretions, Top concretion is bone layer (bone layer pic), 30 cm width. Highly consolidated. Layer of coarser material (15 cm), then shale (10 cm width). Below is 20 cm layer of rusted, cohesive material, followed by shale into talus.	5.90	5.90

Table 17: List of samples, lithosection GOS-Cr.-C, Field Sampling Program 2010, showing also sample weights and samples forwarded to the AITF. After Table 48, Alberta Mineral Assessment Report MIN20100017, Sabag 2010.

Analyte (unit)	Detection	Method	10GOS01 hh2	10GOS02 hh2	10GOS03 hh2	10GOS04 hh2	10GOS05 hh2	10GOS06 hh2	10GOS07 hh2
Spec Grav (SG)	0.01	GRAV	2.58	2.55	2.36	2.34	2.33	2.34	2.62
C-Total (%)	0.01	IR	2.49	2.61	6.92	8.67	8.51	7.61	3.81
C-Graph (%)	0.05	IR	0.11	0.13	0.14	0.11	0.39	0.41	0.16
C-Organ (%)	0.05	IR	2.09	2.24	5.82	6.57	5.89	5.34	0.55
CO2 (%)	0.01	COUL	1.07	0.91	3.49	7.32	8.20	6.80	11.40
SO4 (%)	0.3	IR	1.9	1.7	5.3	9.0	10.0	9.3	6.2
S Total (%)	0.01	IR	1.00	1.00	3.55	5.68	5.51	5.03	3.11
S (%)	0.01	ICPtd	0.98	0.95	3.68	5.90	5.55	5.04	3.11
Ag (ppm)	0.3	INA / ICPtd	0.4	1.2	0.7	0.5	1.1	0.7	0.6
Al (%)	0.01	ICPtd	7.48	7.32	6.27	5.57	5.50	5.83	1.80
As (ppm)	0.5	INA	18.7	20.4	53.0	53.8	57.4	58.4	57.8
Au (ppb)	2	INA	1	1	1	1	1	1	1
B (ppm)	5	ICPar	35	34	38	38	30	28	19
Ba (ppm)	50	INA	840	870	700	770	670	730	820
Be (ppm)	1	ICPtd	2	2	2	3	2	2	1
Bi (ppm)	0.1	TD-MS	0.4	0.4	0.4	0.3	0.3	0.3	0.1
Br (ppm)	0.5	INA	6.8	7.2	13.3	12.6	13.6	11.5	3.1
Ca (%)	0.01	ICPtd	0.79	0.80	2.72	4.87	5.21	4.60	10.20
Cd (ppm)	0.3	ICPtd	0.2	0.2	0.2	4.5	4.5	2.0	2.2
Ce (ppm)	3	INA	72	69	75	114	72	64	74
Co (ppm)	1	INA	6	6	7	37	34	20	9
Cr (ppm)	2	INA	117	116	104	84	87	95	34
Cs (ppm)	1	INA	9	10	7	7	8	9	2
Cu (ppm)	1	ICPtd	35	37	51	69	63	54	23
Eu (ppm)	0.2	INA	0.8	0.8	1.2	3.5	1.8	1.2	2.3
Fe (%)	0.01	INA	2.34	2.38	4.25	4.91	4.80	4.71	3.16
Ga (ppm)	1	ICPar	8	7	5	7	6	6	4
Ge (ppm)	0.1	TD-MS	0.2	0.2	0.2	0.3	0.3	0.2	0.2
Hf (ppm)	1	INA	5	5	3	2	2	2	1
Hg (ppm)	1	INA	1	1	1	1	1	1	1
In (ppm)	0.2	TD-MS	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Ir (ppb)	5	INA	3	3	3	3	3	3	3
K (%)	0.01	ICPtd	3.03	3.01	2.47	2.11	2.22	2.38	0.94
La (ppm)	0.5	INA	40.7	37.4	47.7	63.3	35.7	33.7	44.1
Li (ppm)	0.5	TD-MS	69.2	79.2	59.6	58.3	51.4	49.0	17.0
Lu (ppm)	0.05	INA	0.29	0.32	0.25	0.81	0.42	0.28	0.24
Mg (%)	0.01	ICPtd	0.78	0.74	0.69	0.73	0.83	0.71	0.21
Mn (ppm)	1	ICPtd	80	85	93	333	276	183	203
Mo (ppm)	1	ICPtd	6	5	41	48	48	53	16
Na (%)	0.01	INA	0.28	0.25	0.31	0.23	0.19	0.23	0.14
Nd (ppm)	5	INA	24	22	28	57	33	33	35
Ni (ppm)	1	INA / ICPtd	26	28	34	158	138	87	37
P (%)	0.001	ICPtd	0.091	0.109	0.279	0.165	0.093	0.077	0.399
Pb (ppm)	3	ICPtd	16	16	19	10	9	10	12
Rb (ppm)	15	INA	114	125	106	102	101	130	24
Re (ppm)	0.001	TD-MS	0.030	0.030	0.130	0.120	0.120	0.120	0.050
Sb (ppm)	0.1	INA	1.8	1.6	4.9	4.9	5.3	5.3	3.6
Sc (ppm)	0.1	INA	11.4	11.8	11.7	11.7	10.6	10.5	4.7
Se (ppm)	3	INA / ICPtd-MS	0	0	0	5	0	11	0
Sm (ppm)	0.1	INA	3.5	3.7	4.6	11.3	5.6	4.3	6.8
Sn (ppm)	1	TD-MS	3	2	2	2	2	2	1
Sr (ppm)	1	ICPtd	161	156	221	143	162	164	169
Ta (ppm)	0.5	INA	1.7	0.9	1.5	1.3	0.3	1.4	0.3
Tb (ppm)	0.5	INA	0.7	0.3	0.3	2.2	1.0	0.8	1.3
Te (ppm)	0.1	TD-MS	0.1	0.1	0.2	0.2	0.1	0.1	0.2
Th (ppm)	0.2	INA	11.3	10.9	13.9	9.9	8.5	7.9	4.1
Ti (%)	0.01	ICPtd	0.47	0.46	0.33	0.27	0.27	0.30	0.08
Tl (ppm)	0.05	TD-MS	1.20	1.10	3.60	3.10	3.40	3.40	2.50
U (ppm)	0.5	INA	5.2	5.4	10.0	33.8	25.6	17.2	34.7
V (ppm)	2	ICPtd	388	381	426	339	333	338	89
W (ppm)	1	INA	2	1	1	1	1	1	1
Y (ppm)	1	ICPtd	16	18	17	89	37	25	52
Yb (ppm)	0.2	INA	2.5	2.8	2.2	6.4	3.3	2.8	3.0
Zn (ppm)	1	INA / ICPtd	60	72	96	323	268	193	96
Zr (ppm)	1	ICPar	13	10	19	19	16	15	9

Data from Actlabs Rpt#A10-6750

Table 18: Lithogeochemical results from sampling of lithosection GOS-Cr.-C, Field Sampling Program 2010

13. WINTER DRILLING PROGRAM 2010-2011

13.1 OVERVIEW SUMMARY

A diamond drilling program was completed by DNI during the 2010-2011 winter over the Buckton and Asphalt Mineralized Zones (Figure 78) with the objective of completing sufficient number of holes to enable delineation of initial mineral resources over the two Zones. Due to permitting delays and a late mobilization, however, further compounded by difficult field weather conditions, a large portion of the program could not be completed and was deferred after completing sufficient holes over only the Buckton Mineralized Zone to delineate an initial inferred resource over a portion of it. The program is the first drilling completed by DNI at the Property.

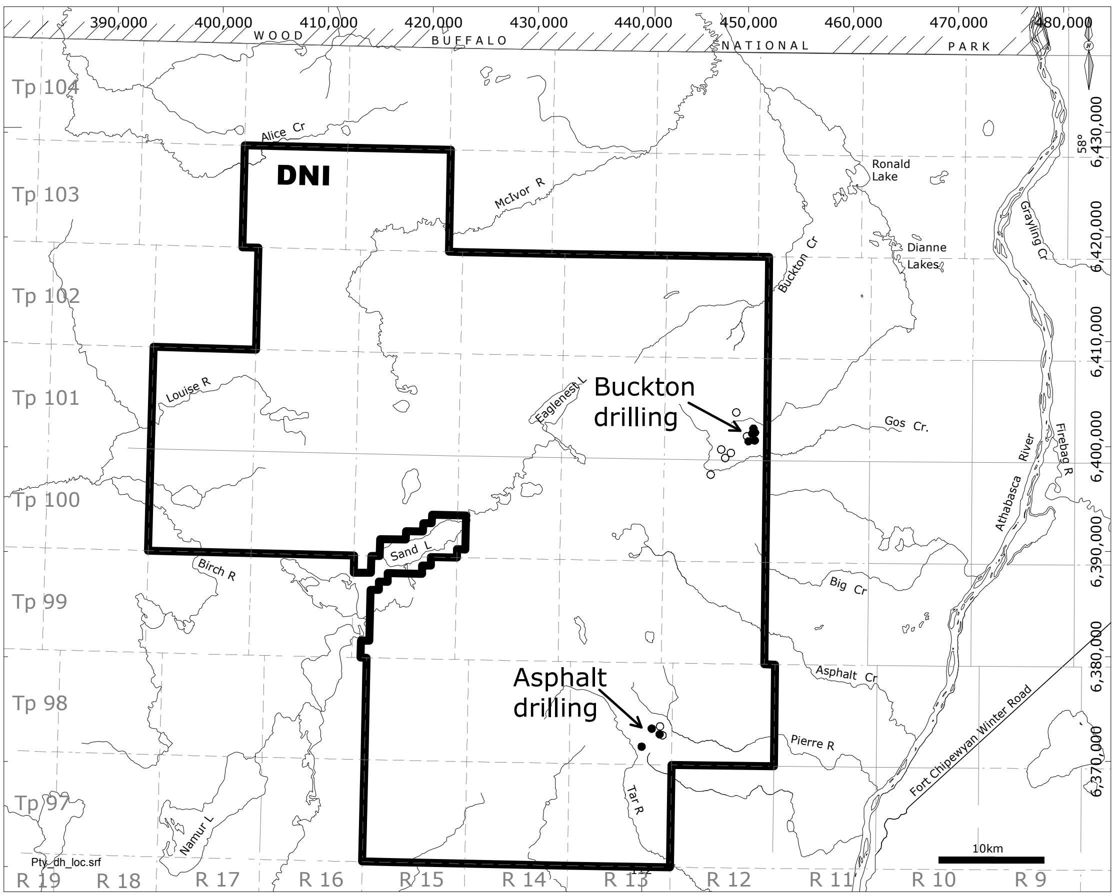

Figure 78: Sketch of the SBH Property showing location of DNI 2010-2011 winter drilling program, Asphalt and Buckton Zones. Historic drill holes (o) also shown.

Permitting for the drilling program, including related community consultation, was organized during the period Jun-Dec/2010, the final permits being in hand by late December 2010. The program was implemented under metallic mineral exploration permit MME00007 and related water use permits #0028574 and #0028579. The drilling was conducted over Permits #930806412 and #9308060407 (subsequent related resource studies discussed in Section 15 of this report extend over Permits #9308060412 and #9308060410).

Mobilization of drill equipment and road building commenced in late December 2010. Demobilization was completed in February 2011 after completion of some site reclamation (to be completed in 2012).

A total of eight HQ diameter vertical holes were cored during the period Jan19-Feb14, 2011, (aggregate of approximately 648m) to test portions of the Asphalt and Buckton polymetallic Mineralized Zones which are exposed or are near surface under thin cover. The drilling was carried out by Lone Peak Drilling of

Kimberley, British Columbia, and implemented on behalf of DNI by Apex Geoscience Ltd of Edmonton, Alberta, under the overall direction of Mr.M.Dufresne PGeol who had also previously directed all historic drilling over the two Zones in 1997.

The principal objectives of the winter drilling program were to: (a) collect the necessary information to delineate a NI-43-101 compliant classified mineral resource over either of the Asphalt or Buckton Mineralized Zones to advance them toward a preliminary economic assessment and scoping study in 2012; and (b) obtain drill core samples to enable preparation and testing of a representative composite sample from at least one of the two Mineralized Zones.

All, except one, of the eight holes completed successfully cored across the Second White Speckled Shale Formation and reported intercepts ranging 11.1m to 22m. One of the holes was lost in bad ground. Five of the eight holes drilled were localized over approximately 3 square kilometres of the Buckton Mineralized Zone to enable completion of a resource study to upgrade a portion of this Mineralized Zone into a NI-43-101 compliant classified resource. A number of additional drill holes planned for the Buckton Zone were necessarily deferred, including holes intended to verify projected extensions thereof.

Three holes were drilled over the Asphalt Mineralized Zone, located approximately 30 kilometres to the south of the Buckton Zone. Two of the holes confirmed the Formation beneath the surface, and one hole was lost in overburden. A number of additional drill holes planned for the Asphalt Zone were necessarily deferred, including holes intended to upgrade a portion of the Asphalt Mineralized Zone into a NI-43-101 compliant classified resource and holes intended to verify projected extensions thereof.

The drilling program achieved its principal objectives. Sufficient holes were completed over the Buckton Mineralized Zone to commence an initial resource study which was completed in October 2011 (presented in Section 15 of this report). Drilling over the Asphalt Mineralized Zone served to confirm presence of metallic mineralization within the shales, although the drilling completed is too sparse to support estimation of resources, and the planned resource study for the Asphalt Mineralized Zone was deferred until additional holes are completed.

DNI considered completing the deferred drilling for the Asphalt and Buckton Zones by a helicopter supported drill program during the summer and fall 2011, extreme forest fire conditions prohibited implementation of the program. Consideration for a winter 2011-2012 drill program were also cancelled to focus available resources on clarifying Specialty Metals and REE content of the initial maiden resource delineated over a portion of the Buckton Mineralized Zone and overlying overburden cover rocks.

The drilling program, related core logging and sampling are described in considerable detail in reports from APEX appended herein as Appendix C1 and C2. Salient summaries of findings and conclusions, extracted from the foregoing reports, are presented below along with analytical results compiled by DNI.

13.2 DRILL HOLE TARGETING

Drill holes were localized to focus on probing select localities of shallow cover wherein the Second White Speckled Shale Formation is beneath less than 100m of cover rocks. These areas, shown in Figure 79, were identified based on a synthesis of the expanded subsurface stratigraphic database and model compiled from all oil/gas drilling over the area (presented in Section 8.3.2 of this report. See also Appendix C6). Drill collars were localized to prioritize probing of locations within and around the Asphalt and Buckton Mineralized Zones to classify initial portions thereof as resources compliant with NI-43-101.

A total of 41 drill collar locations were initially selected for testing. After "culling" certain of the foregoing locations, a total of 20 locations were prioritized of which only 8 were ultimately drilled given considerable logistical and scheduling constraints. Drill collar locations selected are shown in Figure 80 along with those completed. Drill holes as completed are shown in Figure 81 along with hole ID# (see also detailed compilation Drawing A3, Appendix A3). Summary of drill hole locations and intercepts are shown in Table 19. Drilling of locations which were prioritized but not drilled during the 2010-2011 winter drilling program is pending and DNI's intentions are to complete these during its next drilling program.

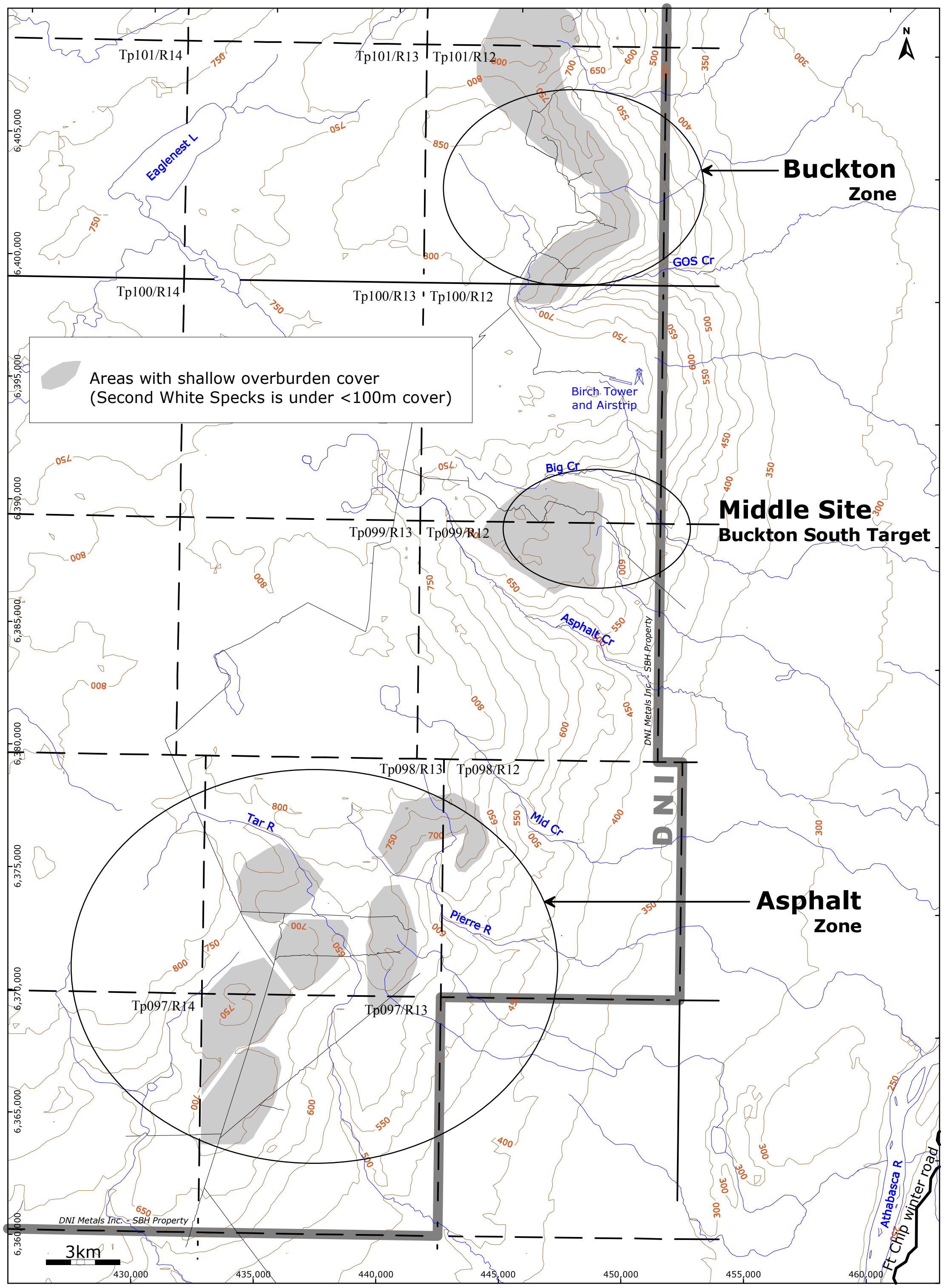

Figure 79: Sketch of the eastern portion of the SBH Property showing the Asphalt and Buckton Zones, and areas of shallow cover wherein the Second White Speckled Shale Formation is at a depth of less than 100m below surface. DNI 2010-2011 winter drill program. Areas of shallow overburden cover are after summary sketches in Appendix C6 per the expanded subsurface stratigraphic database, Section 8.3.2.

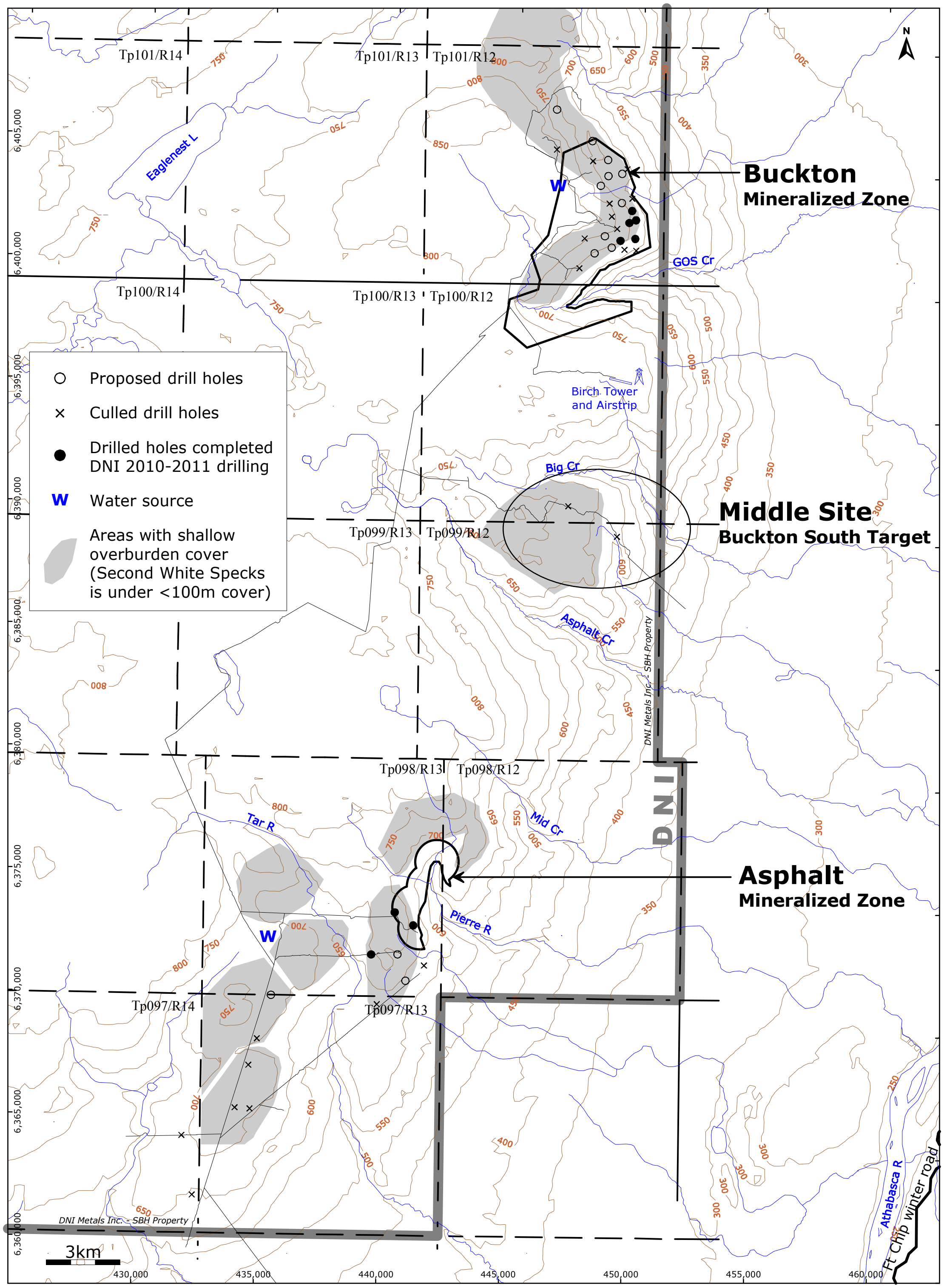

Figure 80: Sketch of the eastern portion of the SBH Property over the Asphalt and Buckton Zones, and vicinity, showing location of planned and ultimate drilling over areas of shallow cover wherein the Second White Speckled Shale Formation is at a depth of less than 100m below surface. DNI 2010-2011 winter drill program. Asphalt and Buckton Mineralized Zone polygons also shown after Sabag 2010. Areas of shallow overburden cover are after summary sketches in Appendix C6 per the expanded subsurface

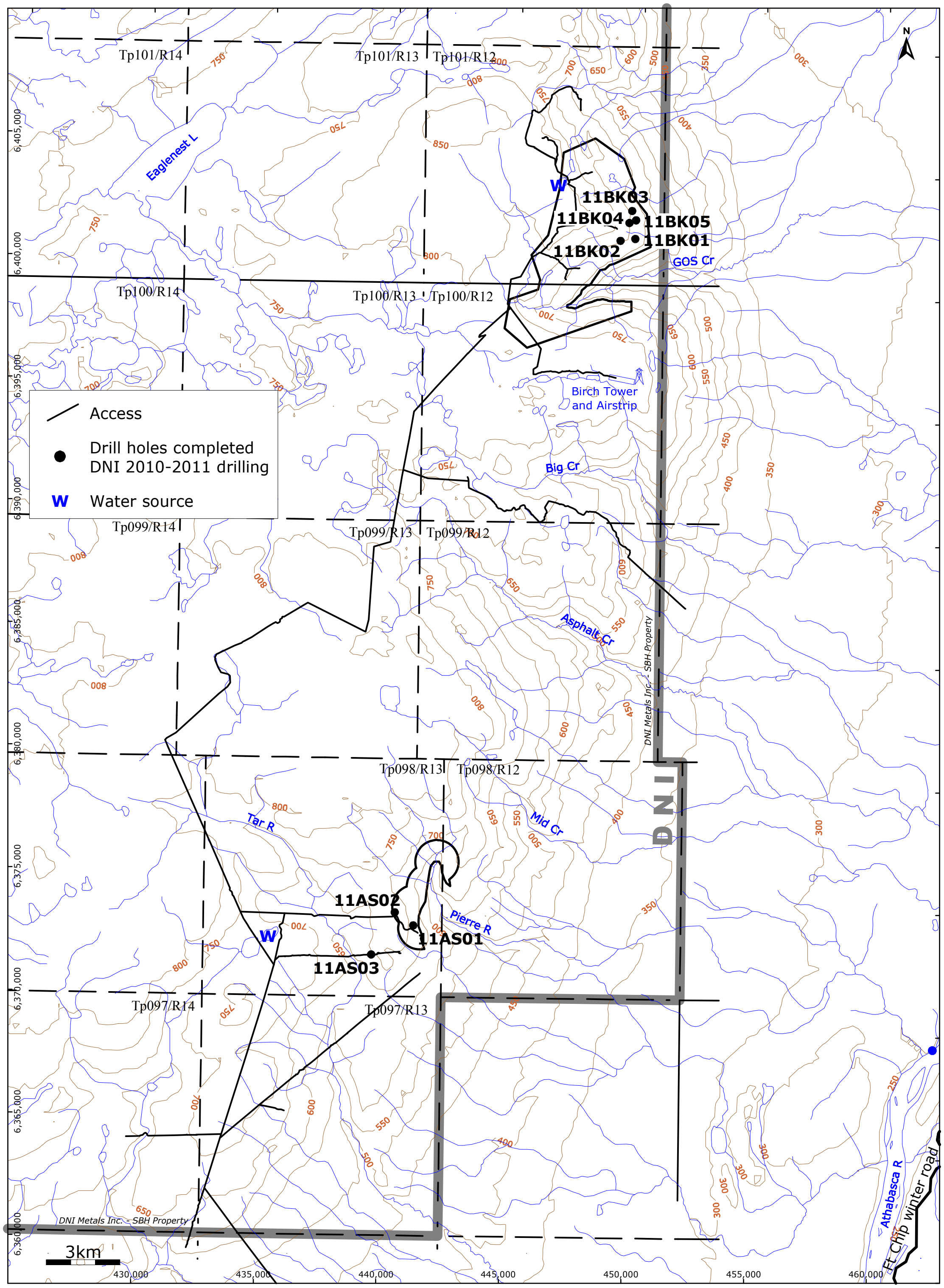

Figure 81: Sketch of the eastern portion of the SBH Property over the Asphalt and Buckton Zones, and vicinity, showing location of drill holes, access and water holes. DNI 2010-2011 winter drill program. Asphalt and Buckton Mineralized Zone polygons also shown after Sabag 2010.

Drill hole	UTM E NAD27 Zone12	UTM N NAD27 Zone12	Elevation (masl)	Top 2WS (masl)	Base 2WS (masl)	Depth to Top 2WS (m)	Depth to Base 2WS (m)	Depth EOH (m)	2WS thickness (m)
11AS01	441,520	6,372,596	688	661.15	650.06	26.85	37.94	51.00	11.09
11AS02	440,913	6,373,053	747	653.00	640.48	94.00	106.52	106.52	12.52
11AS03	439,610	6,371,890	699	n/a	n/a	n/a	n/a	32.50	n/a
11BK01	450,549	6,400,602	682	634.96	614.62	46.57	66.91	80.50	20.34
11BK02	449,894	6,400,482	711	644.14	621.38	67.00	89.76	101.50	22.76
11BK03	450,628	6,401,655	680	639.09	619.24	41.15	61.00	86.00	19.85
11BK04	450,513	6,401,136	685	630.61	617.10	54.47	67.98	91.00	13.51
11BK05	450,620	6,401,350	691	628.58	616.02	61.94	74.50	98.50	12.56

Table 19: Summary of drill hole specifications, DNI 2010-2011 winter drilling program, Asphalt and Buckton Zones.

13.3 Logistics, Permitting and Community Consultation

Drill program planning commenced in May 2010 to prepare the necessary materials for permitting and related community consultation which commenced in June 2010 with the submission of a preliminary program outline (dated June 3, 2010) circulated to three first nations communities. The project outline was revised on several occasions during the summer and fall of 2010 to refine access and crew accommodations, during which period meetings were held with the various groups to discuss the project and to canvass input from the communities. The project outline was finalized in November, and drill program permit (and related water permits) were finally secured in late December.

Of several configurations, a decision was made (Option-1) to access the Asphalt and Buckton Zones drill targets by the main road (Horizon Road) leading west-northwest from Highway 63, through Fort McKay, northward. Road Crossing agreements were formalized with several groups which hold rights over various segments of the 110km long winter access crossing the Property from its southernmost boundary to the Buckton Zone drilling targets located near its northern boundary. Details of access, drill target areas, water sources and crew accommodation sites are shown in Figure 82 (see also Drawing A3, Appendix A3).

Access clearing, comprising mostly clearing of snow, commenced in late December. Given the high level of oil/gas drilling activity over the Birch Mountains, much of the principal access had already been cleared of snow facilitating access to the Asphalt drill targets, although the northernmost 20km of access had to be painstakingly snowplowed during most of January 2011 to gain access to the Buckton drill targets. As a result, an inordinate proportion of expenditures were allocated to preparation of access.

Drill and geological crews utilized the Joslyn Creek Lodging Service during the earlier part of the program, but subsequently moved to short term facilities at Cenovus Energy Inc camp which had to be vacated by mid-February. The planned drilling was, accordingly, necessarily curtailed due to logistical constraints.

13.4 Coring, Logging and Sampling Specifications

The reader is referred to a drill program report by Apex Geoscience[46] (Dufresne et al 2011a, Eccles et al 2011) appended herein as Appendix C1 and C2, respectively, for details of the drilling program, salient portions from which are summarized or extracted below.

An aggregate of approximately 648m were cored in a total of eight HQ diameter vertical holes during the period Jan19-Feb14, 2011. Hole numbers were assigned sequentially in the order drilled identified also with a prefix "11BK-" or "11AS-" indicating Buckton (BK) or Asphalt (AS) Zone, respectively ("11" noting 2011). Historic holes by contrast, drilled in 1997, are prefixed "7BK-" or "7AS-"). All holes were cored from casing to completion depth. Collars were positioned by GPS (NAD27Z12).

The drilling was carried out by Lone Peak Drilling of Kimberley, British Columbia, and implemented on behalf of DNI by Apex Geoscience Ltd of Edmonton, Alberta, under the overall direction of Mr.M.Dufresne PGeol who had also previously directed all historic drilling over the two Zones in 1997.

[46] Report: Drilling Report for DNI Metals Polymetallic Black Shale Property, Birch Mountains, Northeastern Alberta, APEX Geoscience Ltd., Dufresne M., Milliken S., McMillan K., Lunn C. and Eccles D.R., July 7, 2011.

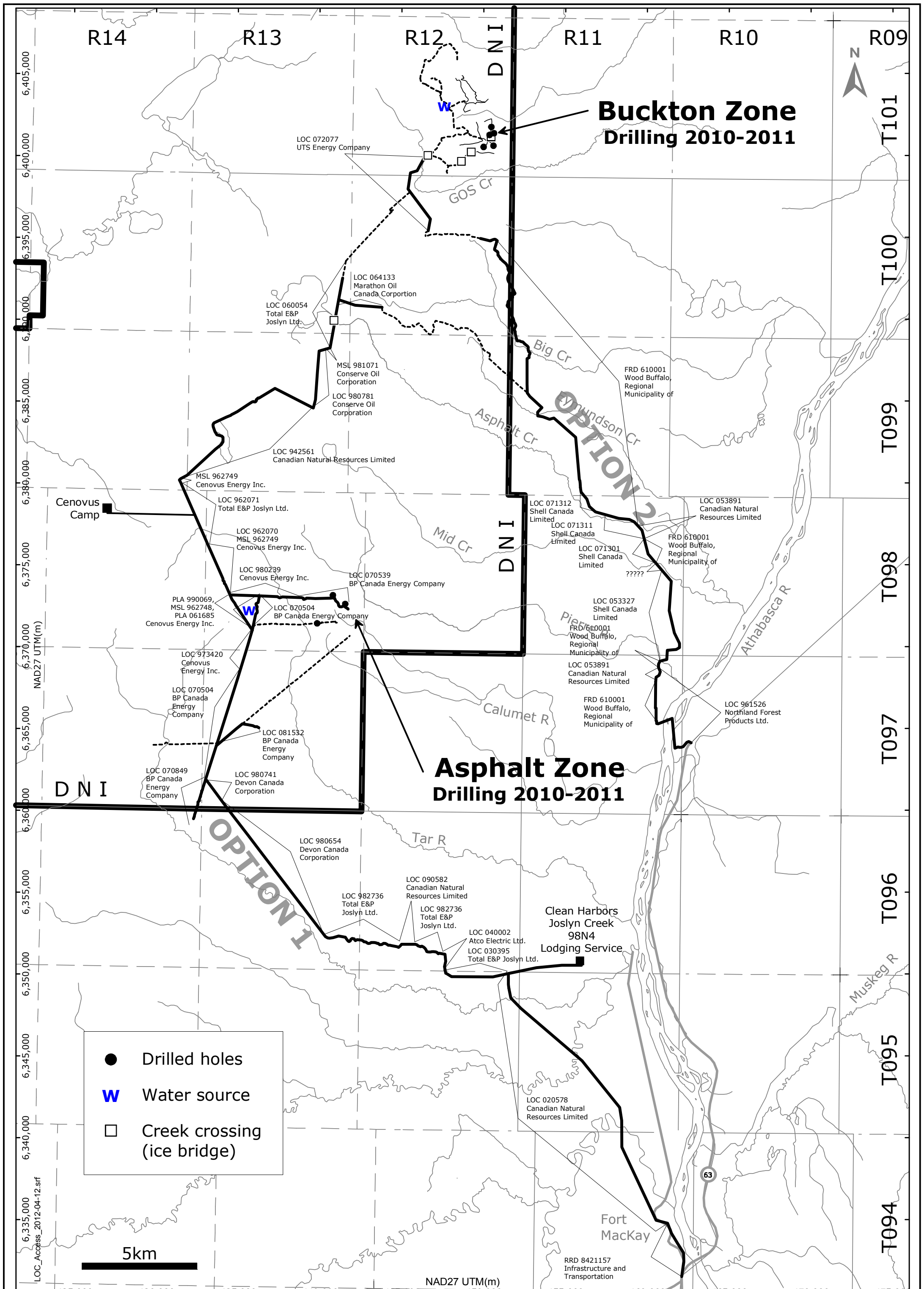

Figure 82: Summary location sketch of Asphalt and Buckton drill areas showing principal drill access (Option1), alternate drill access (Option2), water sources (W), Creek Crossings iced and crew accommodation camps (Joslyn and Cenovus). 2010-2011 Winter Drilling Program. See also Property general compilation Drawing A3, Appendix A3, for details.

Particulars of drill holes are summarized in Table 20.

Hole	UTME NAD27Z12	UTMN NAD27Z12	Collar Elevation (masl)	LSD Location	Casing depth (m)	Final depth (m)	Recovery (%)	Base of overburden (m, from surface)
11AS-01	441520	6372596	688	14-12-098-13W4	12.0	51.0	85.6	(o/b not cored)
11AS-02	440913	6373053	747	01-14-098-13W4	15.0	106.5	73.3	72.15
11AS-03	439610	6371890	699	05-11-098-13W4	15.0	32.5	4.0	(at least 32.5 m)
11BK-01	450549	6400602	682	03-12-101-12W4	7.0	80.5	93.7	(o/b not cored)
11BK-02	449894	6400482	711	01-11-101-12W4	9.0	101.5	96.3	10.00
11BK-03	450628	6401655	680	14-12-101-12W4	16.0	86.0	83.3	20.70
11BK-04	450513	6401136	685	12-12-101-12W4	15.0	91.0	92.8	(o/b not cored)
11BK-05	450620	6401350	691	11-12-101-12W4	16.5	98.5	94.4	17.50

Table 20: Drill hole specifications. 2010-2011 Winter Drilling Program. After Table 1, Dufresne et al 2011a.

All boxes of drill core were moved from the field by Lone Peak and stored frozen (to facilitate splitting) in at an unheated storage facility in Edmonton. Drill cores were processed and logged during Mar21-Apr21/2011 in Edmonton by Mr.Kyle McMillan PGeol of Apex Geoscience under the direction of Mr.M.Dufresne PGeol and Mr.Roy Eccles PGeol, both of Apex.

The cores were washed of muds with water prior to logging. Basic geotechnical information (core recovery and RQD-value, recorded between each run) was recorded, sample and lithologies intervals were marked on boxes and detailed lithology logged. The entire footage drilled was photographed dry as well as wetted (2 core boxes per frame) to archive a photolog. The drill cores were also photographed after splitting. Select interesting geologic features were also documented in close-ups. Drill logs are within reports appended herein in Appendix C1 and 2. Downhole photologs are appended herein as Appendix C5.

Drill logs, initially based on lithological observations of often similar non-descript dark shales near the contacts of the Second White Speckled Shale Formation (especially its bottom), were subsequently revised in June/2011 once analyses were on hand to better define Formational contacts with the benefit of, and based on, geochemical definitions to exclude intervals of mixed shales near the contacts of the Second White Speckled Shale Formation (discussed further in Section 13.5 below). The reader is referred to a memo report by Apex Geoscience[47] (Eccles 2011) appended herein as Appendix C2, for details of the revisions to the logging.

As with historic drilling, the drill core was split with hand tools (putty knife, paint scraper, or a chisel and hammer for harder intervals) as soon as it thawed and while it was moist. Half-split core over sampling intervals were bagged and tagged, and core box marked with sample boundaries in red. Any voids left in the core box by sampling were marked and packed with crumpled kraft paper. Core boxes were labeled with hole number, box number, and metrage (using embossed metal tape), then stored. Split core are currently retained in secured Edmonton warehouse facilities under Apex's custody.

A total of 675 individual samples were collected. A decision was made prior to sampling to maintain a constant sample interval length of 0.5m across the Second White Speckled Shale Formation and 1m over all other Formations above and beneath it. Typically, the 0.5m sample length was maintained over the "shoulders" of the Second White Speckled Shale Formation by sampling five or six samples immediately above and below the upper and bottom contacts of the Second White Specks Formation also at 0.5m sample interval. Notwithstanding the foregoing, and as an exception thereto, a decision was taken not to split up individual bentonite beds and bone beds between samples, and as a result a few sample intervals are slightly longer or shorter than the standard interval to capture these individual beds on a single sample. Care was taken that samples never straddled formational boundaries. Generally, samples smaller than 25 cm or larger than 25 cm over the normal length (0.5 m or 1.0 m) were avoided.

13.5 ANALYTICAL SPECIFICATIONS

Samples were segregated into three thematic analytical suites (sample lots) as follows:

[47] Report: Memo Report, Summary of Re-Investigation of Buckton 2011 Drill Cores, Apex Geoscience Ltd., Eccles R., July 21, 2011

1. Analytical Lot SB110427[48] (n=143 samples) consists of all samples from the Asphalt sub-property drilling regardless of formation or lithology;
2. Analytical Lot SB110429[49] (n=258 samples) comprises all Second White Speckled Shale Formation intercepts from the Buckton sub-property drilling. This suite also contains three samples of the overlying and underlying Formations adjacent to the upper and lower contacts of the Speckled Shale Formation, respectively, representing three consecutive intervals each from the LaBiche and Belle Fourche formations, respectively. These "shoulder" samples were included in the event Formational boundaries were mis-identified during visual logging, or to evaluate any anomalous geochemistry which might persist beyond the contacts of the Second White Speckled Shale Formation; and
3. Analytical Lot SB110426[50] (n=274 samples) consisting of all intercepts of non-Second White Speckled Shale Formation (such as the LaBiche and Belle Fourche Formations) from the Buckton sub-property drilling.

All samples (n=675) were submitted to Activation Laboratories in Ancaster, Ontario, on April 21, 2011, for multielement geochemical analysis by Actlabs package 1H2 (TD-ICP and INA). Samples were weighed by Actlabs upon arrival "as received", weighed also after drying and weights reported to enable estimation of moisture content. Samples were dried slowly at moderate temperatures per standard Actlabs protocols. Specific Gravity determination (on core rather than pulps) were also made and reported. In addition, Samples were also analyzed for C and S speciation by Code 5G, and for whole rock geochemistry by Code 4B (see Appendix A4 for details of Actlabs analytical codes).

Typically, a 500g analytical fraction was pulverized from each sample. Two 50gm subsamples (denoted with "A" and "B" suffixes to the sample number) were shipped to DNI from this pulp to be archived as "witness" samples.

A total of 35 analytical matrix matched "blanks" were inserted into the three analytical suites at a sample sequence interval of approximately one blank per 10th sample for the suite of Second White Speckled Shale Formation samples, and one blank every 50th sample for the remaining analytical suites. The blank samples are numbered as LBSTD-1-series and include LBSTD-1-133 to LBSTD-1-139, and LBSTD-1-148 to LBSTD-1-175. The blanks consist of pre-split subsamples from a large homogenized sample of LaBiche Shale which overlies the Speckled Shale Formation, and which had previously been prepared by DNI/Actlabs during 2009 (see Alberta Mineral Assessment Report MIN20100017, Sabag 2010).

While, as part of its standard QA/QC protocols, Actlabs typically analyzed some samples in duplicate, two additional duplicate splits were created and also analyzed: (i) a duplicate subsample from the pulp of samples identified with an asterix in the original sample list submitted to Actlabs, identified by the suffix "dup" in analytical reports; and (ii) a second subsample from the coarse rejects for the samples identified with an asterix in the original sample list submitted to Actlabs identified by the suffix "Rdup" in analytical reports.

All rejects and pulps are currently in storage at Actlabs.

Analytical certificates from the above work and related summaries are appended herein as Appendix C3. The results are discussed in a later section of this report (Section 13.7).

All intercepts of Second White Speckled Shale Formation from DNI's drilling program, and from historic holes which had been resampled by DNI in 2009 during its verification sampling work, were submitted for analyses to Actlabs in 2011 to be re-analyzed in detail for the full suite of rare earth elements by FUS-MS and FUS-ICP technique (Actlabs code 8), in preparation for the supplemental REE-Y-Sc-Th resource study

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[48] Actlabs Rpt#A11-3450; DNI#SB110427
[49] Actlabs Rpt#A11-3454; DNI#SB110429
[50] Actlabs Rpt#A11-3449; DNI#SB110426

discussed in a later Section of this report (Section 15.3). Analytical certificates[51] from this work and related summaries are appended herein as Appendix C3.7 and C3.8. Results are discussed in a later section of this report (Sections 13.7 and 15.3 of this report).

13.6 Downhole Geology

Downhole stratigraphy documented from logging of drill cores from the 2010-2011 drilling program is consistent with that previously documented from historic drilling completed by Tintina ines in 1997, all of which holes were drilled under the supervision of, and logged by, Mr.M.Dufresne PGeol of Apex Geoscience. To that end, the idealized stratigraphic section formulated in 1997 by Mr.Dufresne to typify the Second White Speckled Shale Formation and shales adjacent to its upper and lower contacts, was used as a guideline. This type lithosection is discussed in Section 13.6 of this report and is summarized in previous Figure 41.

For a detailed discussion of downhole geology, the reader is referred to a July 2011 drill program report (Dufresne et al 2011a) by Apex Geoscience appended herein as Appendix C2, and the related July 21, 2011, addendum memo report thereto (Eccles 2011) which serves to revise certain Formational contacts based on geochemical criteria. Salient portions from the foregoing are summarized or extracted below. The drill program details and related geology are also included in the first resource study completed in Oct/2011 for the Buckton Zone (Dufresne et al 2011b) which is presented in a later Section of this report (Section 15.2).

Drill logs for all holes drilled are included in reports which are Appendix C1 and C2 (Dufresne et al 2011a and Eccles 2011), which also includes thumbnails of all downhole photologs. Detailed, larger scale, set of downhole drill core photologs[52] are appended herein (Appendix C5).

A drill hole location sketch for drilling completed at the Asphalt Zone is presented in Figure 83, including also location of surrounding historic drill holes.

A summary of drilling and drill intercepts over the Asphalt Zone are as follows:

> **11AS-01 (441520E/6372596N, 688 m elevation):** The first hole of the program was drilled between Jan 19 and Jan 20 to a total depth of 51 m. The Second White Speckled Shale Formation was intersected at 26.85 m, but the exact morphology of upper contact between the LaBiche and Second White Speckled Shale formations is uncertain because core is disturbed, possibly a result of glacial perturbations.
>
> **11AS-02 (440913E/6373053N, 747 m elevation):** This hole was drilled between Jan 21 and Jan 25 approximately 750m north west of 11AS-01 to a total depth of 106.52 m. There was a thick cover of glacial till encountered with the Second White specs being intersected at 94m to the end of the hole at 106.52m. The hole was ended in a flowing carbonate rich sand layer that couldn't be penetrated by the drill due to sanding in of the rods. This flowing sand likely marks the bottom of the Second White Speckled Shale Formation. The Second White Speckled Shale was drilled with an open hole (i.e., the casing had to be pulled as it dropped to 72 m during drilling problems early in the hole).
>
> **11AS-03 (439610E/6371890N, 699 m elevation):** Bedrock was never encountered in this drillhole because the hole was abandoned in overburden due to flowing loose sand problems, time and budget constraints. A flowing sand layer from 16.0-29.5m caused sanding in of the rods, and a gravel layer below this collapsed and stuck the rods and casing in the hole.

[51] Actlabs Rpt#A11-10712; DNI#SB110920

[52] Three sets of downhole photologs appended, one set each for dry whole core, wetted whole core and split core.

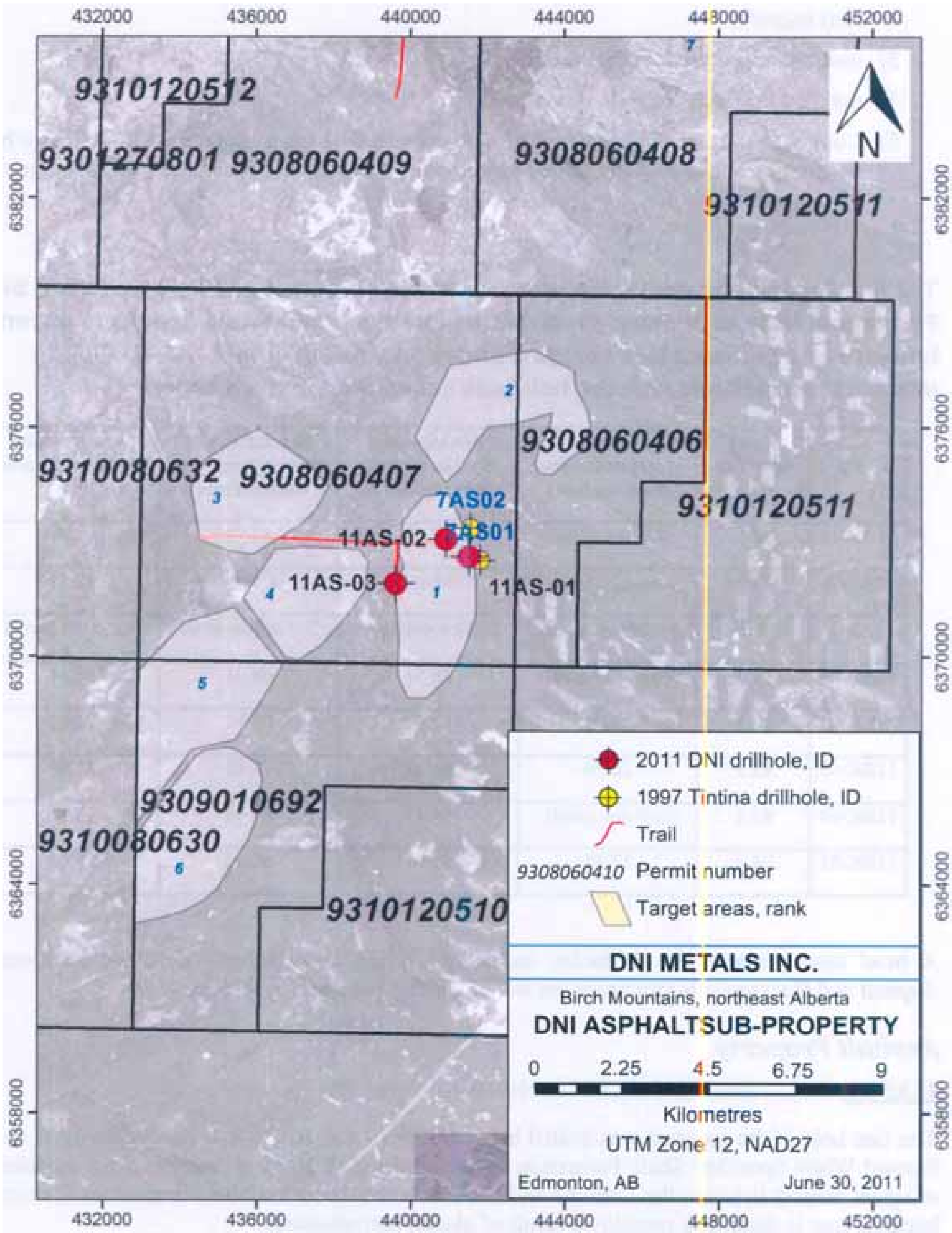

Figure 83: Detailed location sketch, Asphalt drill holes, 2010-2011 Winter Drilling Program. From Figure 2, Dufresne et al 2011a.

A summary of drilling and drill intercepts over the Buckton Zone are summarized below, excerpted from Dufresne et al 2011a and Eccles 2011. It is of note that The Buckton drill cores were re-evaluated in June 2011 with the benefit of geochemical analyses to clarify discrepancies in certain holes for the top and bottom of the Second White Speckled Shale Formation previously determined per visual logging of lithological characteristics when compared to contacts based on downhole profiles depicted by geochemical analyses. Reviisons were recommended for three of the five Buckton drill logs (11BK-03, 11BK-04 and 11BK-05) as follows: (i) recognition of a zone of co-mingling of Labiche and Speckled Shale directly overlying the Speckled Shale Formation in drill holes 11BK-04 and 11BK-05; and (ii) the bottom contact between the Speckled Shale and its underlying Belle Fourche Formation was revised for drill holes 11BK-03 and 11BK-05.

A drill hole location sketch for drilling completed at the Buckton Zone is shown in Figure 84, including also location of surrounding historic drill holes. A cross section fence diagram across all of the holes is presented in Figure 85.

A summary of drilling and drill intercepts over the Buckton Zone are as follows:

11BK-01 (450549E/6400602N, 681.53 m elevation): This was the first hole drilled at the more northern Buckton prospect. It was drilled to a total depth of 80.50m between Jan 31 and Feb 6th. Mechanical issues with the drill (the seals on the head and the head itself went) were responsible for the delay in completing this hole. The Second White Speckled Shale was cored from 46.57-66.91 m. There was abundant bentonite in the upper 7 m of this unit.

11BK-02 (449894E/6400482N, 711.14 m elevation): Drilled from Feb 06th to 09th to a total depth of 100.00m. The hole intersected nearly 23m of Second White Speckled Shale Formation at 67.34-90.16 m. The Second White Speckled shale core intersection has high organic content and whitish calcareous-rich layers at 50-90o to core axis.

11BK-03 (450628E/6401655N, 680.24 m elevation): 11BK-03 was drilled to a total depth of 86.00m from Feb 10 to the 11th. Based on visual logging of drill core, Second White Specs was intersected at 41.15-73.03m, although inspection of the drill core with the benefit of downhole geochemical results reinterpreted the lower contact of the Formation, in contact with and Belle Fourche Formation, to be at 61.00m.

The bottom contact for the Second White Speckled Shale Formation was initially picked during logging of the core on the basis of a lowermost pebbly sandstone/bedbone unit. However, with geochemical results in hand and with dry core, a clear differentiation in lithology can be noted from Second White Speckled Shale Formation black shale to silty mudstone of the Belle Fourche Formation. The 'extended' portion of Belle Fourche unit is non-metal bearing as expected and the revision corresponds with the geochemical metal enrichment signature of the Speckled Shale. The lower contact revision changes the total thickness of the 2WS in 11BK-03 from 31.88m to 19.85m, which is more representative of a typical 2WS thickness in this area.

Several lithified white calcareous sand layers (up to 30cm thick) are seen within the Second White Speckled Shale.

11BK-04 (450513E/6401136N, 685.08 m elevation): 11BK-04 was drilled approximately 533m south-southwest of 11BK-03. It intersected the Second White Specs somewhat deeper than expected (54.47 m) and the thickness of this unit, based on logging of the drill core, is thinner than seen in 11BK-03 at only 13.51m (to a depth of 67.98m). Re-inspection of the drill core with the benefit of its downhole geochemical profile recommended that an additional unit be added directly above the LaBiche-2WS contact where a narrow (2.77m) zone of co-mingled LaBiche and 2WS occurs between 51.70m and 54.47m. It is possible that the co-mingling zone is representative of slump-type features.

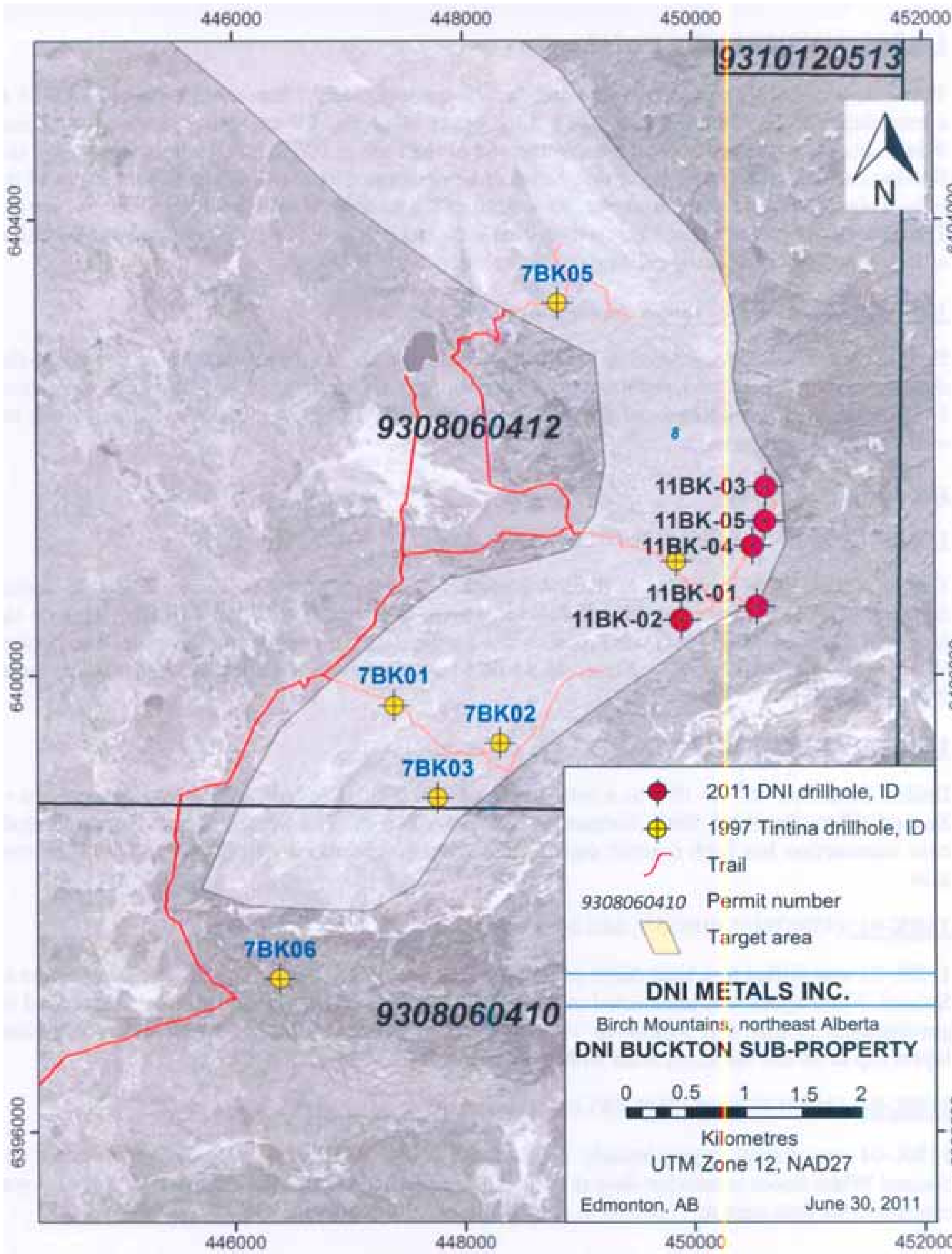

Figure 84: Detailed location sketch, Buckton drill holes, 2010-2011 Winter Drilling Program. From Figure 3 Dufresne et al 2011a.

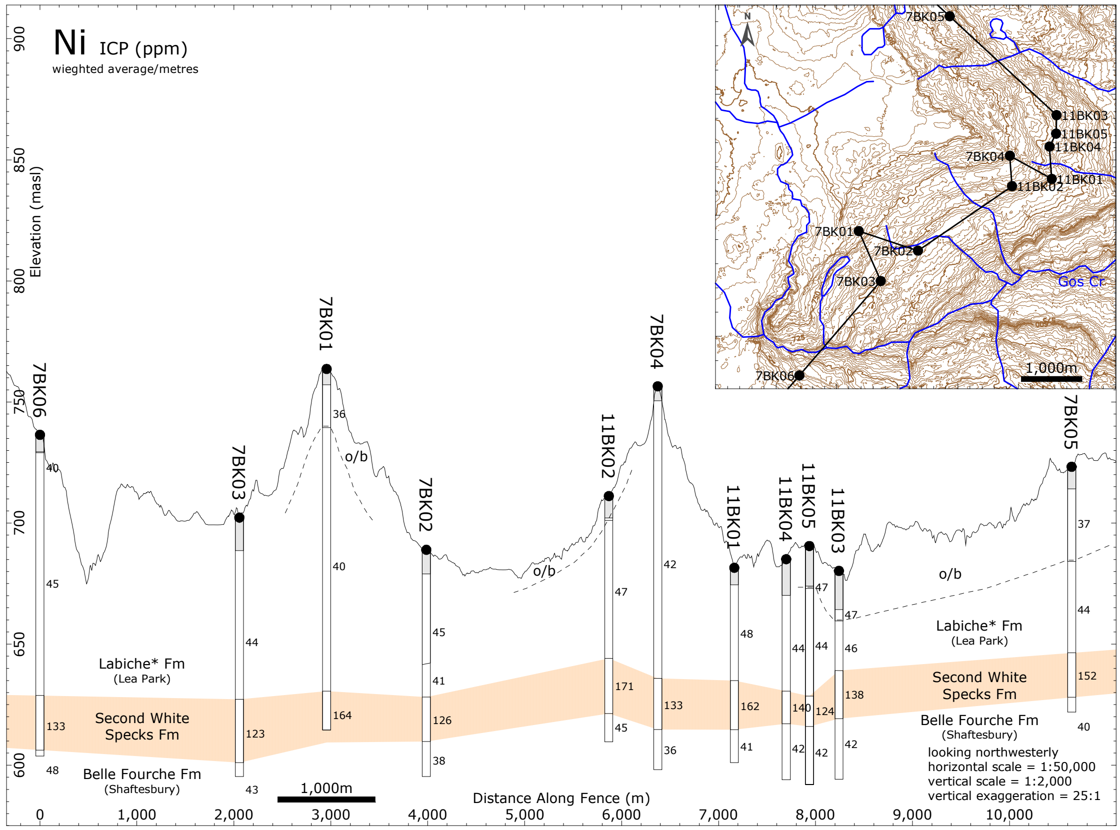

Figure 85: Fence diagram cross-section showing Buckton drilling, 2010-2011 Winter Drilling Program. Showing also historic 7BK-series holes, and weighted average Ni grade for the major drill holes intervals.

11BK-05 (450620E/6401350N, 690.52 m elevation): This was the last hole of the 2011 winter program. It was located approximately halfway between the previous two holes, 11BK-03 and 11BK-04, to test the continuity and thickness of the Second White Speckled Shale Formation due to the large difference seen between 11BK-03 and 11BK-04. Based on logging of drill core, the Second White Speckled Shale Formation intercept extends from 61.94 to 90.32m. Re-inspection of the drill core with the benefit of its downhole geochemical profile, however, recommended that an additional unit be added directly above the LaBiche-2WS contact where a narrow (0.94 m) zone of co-mingled LaBiche and 2WS occurs between 61.00 m and 61.94 m. Re-inspection of the bottom of the Second White Speckled Shale Formation, previously picked to be at 90.32m, recommended that the lower contact between the 2WS Formation and Belle Fourche contact is actually at 74.90 m. The revision changes the total thickness of the 2WS in 11BK-05 from 28.38 m to 12.96 m, which is similar to the thickness of the 2WS in the neighboring 11BK-04 drillhole (13.51 m) and compatible with the geochemical metal enrichment signature.

Re-evaluation of the Buckton drill cores provided insights into very localized variations in the thickness of the Second White Speckled Shale Formation noted at the Buckton Zone. Textural and lithological evidence confirmed that the uppermost portion of the Second White Speckled Shale Formation in drillholes 11BK-04 and 11BK-05 is missing, and has been removed either by paleo-slumpage or synsedimentary thrusting. Given that the thickness of a typical "complete" intersection of Second White Speckled Shale Formation at the Buckton Zone varies 20m-23 m (based on drillholes 11BK-01, 11BK-02 and 11BK-03) and that this Formation in 11BK-04 and 11BK-05 is 13m-14m thick, then it stands to reason that the uppermost 7m-10m has been removed in this particular portion of the Buckton Zone (i.e., a very localized event).

Other observations and conclusions relating to picking of the top and bottom contacts of the Second White Speckled Shale Formation (excerpted from Dufresne et al 2011a and Eccles 2011) are as follows:

- The uppermost portion of the Second White Speckled Shale Formation at the Buckton Zone varies from drill hole to drill hole. In "complete" intersections of the Speckled Shale (holes 11BK-01, 11BK-02 and 11BK-03) the contact between light to medium grey, bioturbated LaBiche Formation and the black, metalliferous (i.e., whitish weathering with a pungent smell) Speckled Shale is abrupt and easily picked in drill core. In contrast, in drill holes where the upper portion of the Speckled Shale is missing (11BK-04 and 11BK-5), the exact contact between the LaBiche and 2WS formations is more difficult to discern because localized slumping has resulted in a co-mingled zone of LaBiche and Second White Speckled Shales directly above the Second White Speckled Shale Formation. It is of note that where possible slumping is suspected, the uppermost portion of the 2WS proper comprises bentonitic mudstone

- The lowermost portion of the Second White Speckled Shale Formation appears to be characterized by: (i) a distinct change from blocky Second White Speckled Shale Formation mudstone to poker-chip shale in the basal 5-7 m; (ii) the poker chip shale zone seems to grade from medium-dark grey to dark-grey to black poker chip shale at the 2WS-Belle Fourche contact; (iii) the contact between the Second White Speckled Shale Formation and the underlying Belle Fourche Formation is often carbonate-enriched as observed by calcite stringers and veins and the presence of carbonate enrichment to the point of creating a hard and competent mudstone layer; (iv) the black poker chip shale of the Second White Speckled Shale Formation typically provides a distinct colour and textural difference from the underlying grey, often interbedded mudstone and silty mudstone of the Belle Fourche Formation.

13.7 DOWNHOLE GEOCHEMISTRY

A detailed discussion of vertical zonation and trends characterizing the Second White Speckled Shale Formation was presented in a previous Section of this report (Section 8.11) relating to historic drilling and the trends identified characterize current drilling results. The reader is also referred to AGS 2001 for a detailed discussion of geochemical characteristics of subformational components of the Second White Speckled Shale Formation and its enveloping rocks across the Birch Mountains and elsewhere in Alberta.

To the extent that the drilling program was conducted for the purposes of collecting systematic data to support a resource study, there is little that can be said about the drill core analytical results other than that they are consistent with analytical results from all prior drilling and sampling in the area as documented from historic drilling and sampling work. The results are self explanatory and serve to reiterate that the Second White Speckled Shale Formation is metal enriched, that while there is remarkable lateral grade continuity among drill holes, there is conspicuous vertical zonation of increasing metals grade upstratigraphy all of which hiatus at the Formation's upper contact with the LaBiche Shale which is substantially devoid of base metals mineralization but contains equivalent levels of rare earth elements, and Specialty metals (eg: Li, Sc,Th).

Analytical specifications and analytical suites related to DNI's drilling program were presented in a previous Section of this report (Section 13.5). Analytical certificates are appended herein in Appendix C3.

Weighted lithogeochemical averages characterizing drill hole intersection across the LaBiche, Second White Speckled Shale Formation and Bell Fourche Formations are tabulated in Table 21. Of the three Formations, only the Second White Speckled Shale Formation was intersected over its entire thickness, whereas the averages tabulated for the LaBiche and Belle Fourche only document the average of the partial stratigraphic section intersected by the drilling (ie: only bottommost portions of LaBiche and topmost portions of Belle Fourche).

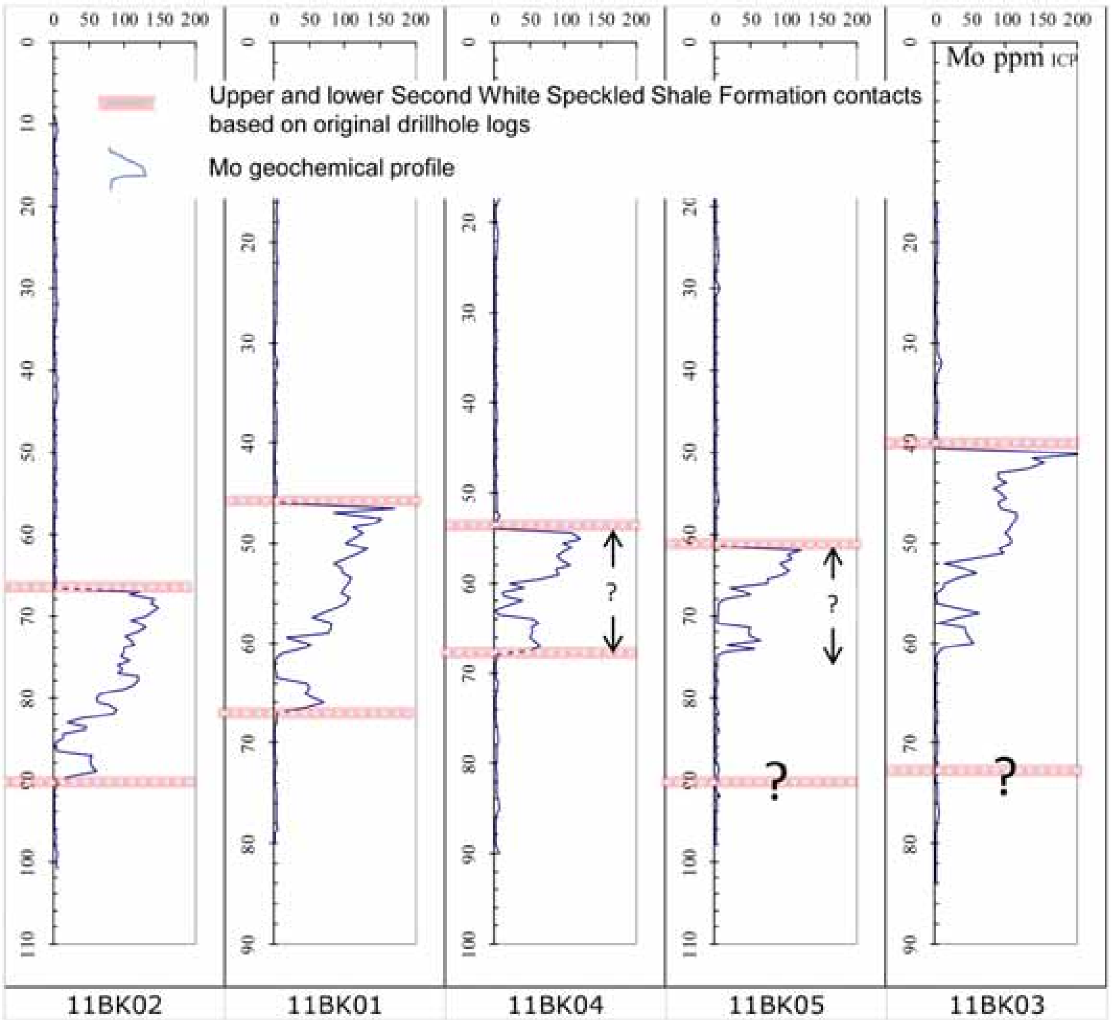

Figure 86: Downhole lithogeochemical profiles for Mo showing Second White Speckled Shale Formational contacts as visually logged (dashed lines) compared to contacts per lithogeochemical downhole cut-off. DNI 2010-2011 Winter Drilling Program,, Buckton Zone. From Figure 1, Eccles 2011.

Downhole geochemical profiles for all of the drill holes are appended herein as Appendix C4, and they clearly depict vertical metals concentration trends. Lateral homogeneity among drill holes is best shown in a longitudinal fence in Figure 87 which depicts lateral comparison of downhole geochemical profiles for 11 drill holes collectively representing a 11km distance across the Buckton Zone. While the Figure is for Mo, it proxies well for all base metals and Uranium in the Second White Speckled Shale Formation. Figure 88 depicts similar lateral variations in La and shows its equivalent concentration in the LaBiche Formation shales (also a black shale) overlying the Second White Speckled Shale Formation, and the Belle Fourche Formation shales (also a black shale) underlying it. The remarkable lateral uniformity of grade in the Second White Speckled Shale Formation is corroborated by variography and statistical review of lateral grade completed during the Buckton resource studies discussed in later Sections of this report (Sections 15.2, 15.3 and 15.5).

Results from the 2010-2011 drilling program, together with results of historic drilling from the area which were re-sampled by DNI, provide the basis for the Buckton resource studies presented in later Sections of this report (Sections 15.2, 15.3).

		Location	ASP	BKT	ASP	BKT	ASP	BKT	ASP	BKT
		Length (m)	61.2	5.0	33.7	202.6	23.6	89.0	13.1	96.4
		Formation	ob	ob	L	L	2WS	2WS	BF	BF
Analyte Symbol	Detection	Method								
Mo (ppm)	1	ICP	4	3	7	3	85	72	2	3
Ni (ppm)	1	ICP	23	47	59	46	163	150	49	42
U (ppm)	0.5	INA	3.2	4.0	7.0	4.3	36.5	28.0	7.0	4.9
V (ppm)	2	ICP	82	247	358	248	709	742	343	200
Zn (ppm)	1	ICP	50	136	174	141	308	281	135	114
Cu (ppm)	1	ICP	21	29	52	30	86	74	38	26
Co (ppm)	1	INA	8	12	16	15	25	24	13	12
Li (ppm)	0.5	MS	25.8	65.1	77.4	74.4	81.0	56.6	114.8	67.0
La (ppm)	0.1	FUS-MS	22.1	42.7	40.2	39.8	65.2	50.0	50.7	41.8
Ce (ppm)	0.1	FUS-MS	43.4	77.3	70.5	71.9	102.1	80.6	89.9	76.9
Pr (ppm)	0.05	FUS-MS	4.97	8.79	8.57	8.39	15.13	10.71	11.98	9.11
Nd (ppm)	0.1	FUS-MS	18.9	32.0	32.8	32.0	62.5	41.6	47.1	35.0
Sm (ppm)	0.1	FUS-MS	3.7	5.7	6.5	6.1	13.6	8.5	9.8	7.0
Eu (ppm)	0.05	FUS-MS	0.77	1.28	1.37	1.29	2.88	1.83	2.02	1.54
Gd (ppm)	0.1	FUS-MS	3.1	4.5	5.6	5.0	12.8	8.2	8.8	6.2
Tb (ppm)	0.1	FUS-MS	0.5	0.7	0.9	0.8	2.0	1.2	1.4	0.9
Dy (ppm)	0.1	FUS-MS	2.8	3.8	5.2	4.6	11.2	7.2	8.2	5.4
Ho (ppm)	0.1	FUS-MS	0.6	0.8	1.1	1.0	2.2	1.5	1.6	1.1
Er (ppm)	0.1	FUS-MS	1.6	2.3	3.1	2.8	6.0	4.0	4.4	3.0
Tm (ppm)	0.05	FUS-MS	0.25	0.35	0.49	0.44	0.86	0.59	0.66	0.45
Yb (ppm)	0.1	FUS-MS	1.7	2.3	3.2	2.9	5.4	3.7	4.4	2.9
Lu (ppm)	0.04	FUS-MS	0.28	0.39	0.51	0.47	0.87	0.58	0.69	0.47
Y (ppm)	2	FUS-ICP	15	25	30	26	70	43	48	30
Sc (ppm)	1	FUS-ICP	6	14	15	15	12	11	15	14
Th (ppm)	0.1	FUS-MS	6.5	10.2	10.4	10.8	10.9	10.2	13.1	10.6
C-Total (%)	0.01	IR	0.75	1.25	2.48	1.42	8.40	8.07	1.76	1.65
C-Graph (%)	0.05	IR	0.06	0.18	0.16	0.13	0.23	0.12	0.10	0.11
C-Organ (%)	0.05	IR	0.57	0.82	2.06	0.84	7.16	6.62	1.51	1.21
CO2 (%)	0.01	COU	0.46	0.85	0.91	1.64	3.67	4.99	0.53	1.21
S (%)	0.01	ICP	0.42	1.00	1.20	0.64	4.08	4.39	1.75	1.78
S Total (%)	0.01	IR	0.50	0.98	1.17	0.65	4.16	4.28	1.75	1.68
SO4 (%)	0.3	IR	0.7	1.1	0.9	1.0	2.0	2.6	1.4	1.3
Paste pH	0.01	Met	7.12	6.92	6.78	7.21	6.62	6.93	6.57	6.19
Spec Grav	0.01	GRV	2.63	2.67	2.63	2.71	2.44	2.45	2.64	2.68
Al (%)	0.01	ICP	2.55	5.46	5.68	5.99	4.71	4.56	6.43	5.21
Na (%)	0.01	INA	0.53	0.41	0.60	0.48	0.72	0.54	0.54	0.57
K (%)	0.01	ICP	1.32	2.08	2.66	2.24	1.98	2.11	2.59	2.37
Ca (%)	0.01	ICP	0.53	0.64	0.77	0.72	4.36	5.36	1.00	1.43
Mg (%)	0.01	ICP	0.35	0.86	0.99	0.95	0.92	0.93	0.96	0.77
Fe (%)	0.01	INA	2.42	3.71	3.93	4.33	4.37	4.47	3.26	3.34
SiO2 (%)	0.01	FUS	81.70	64.72	61.27	62.81	45.93	46.44	62.53	65.21

Table 21: Summary of formational weighted averages for the LaBiche (L), Second White Speckled Shale (2ws) and Belle Fourche (BF) Formations, for select metals and elements of interest, DNI 2010-2011 winter drilling program, Asphalt (ASP) and Buckton (BKT) Zones. Note that averages for LaBiche and Belle Fourche are only for partial intercepts across the two Formations since drill holes did not intersect across the entire thickness of the two Formations.

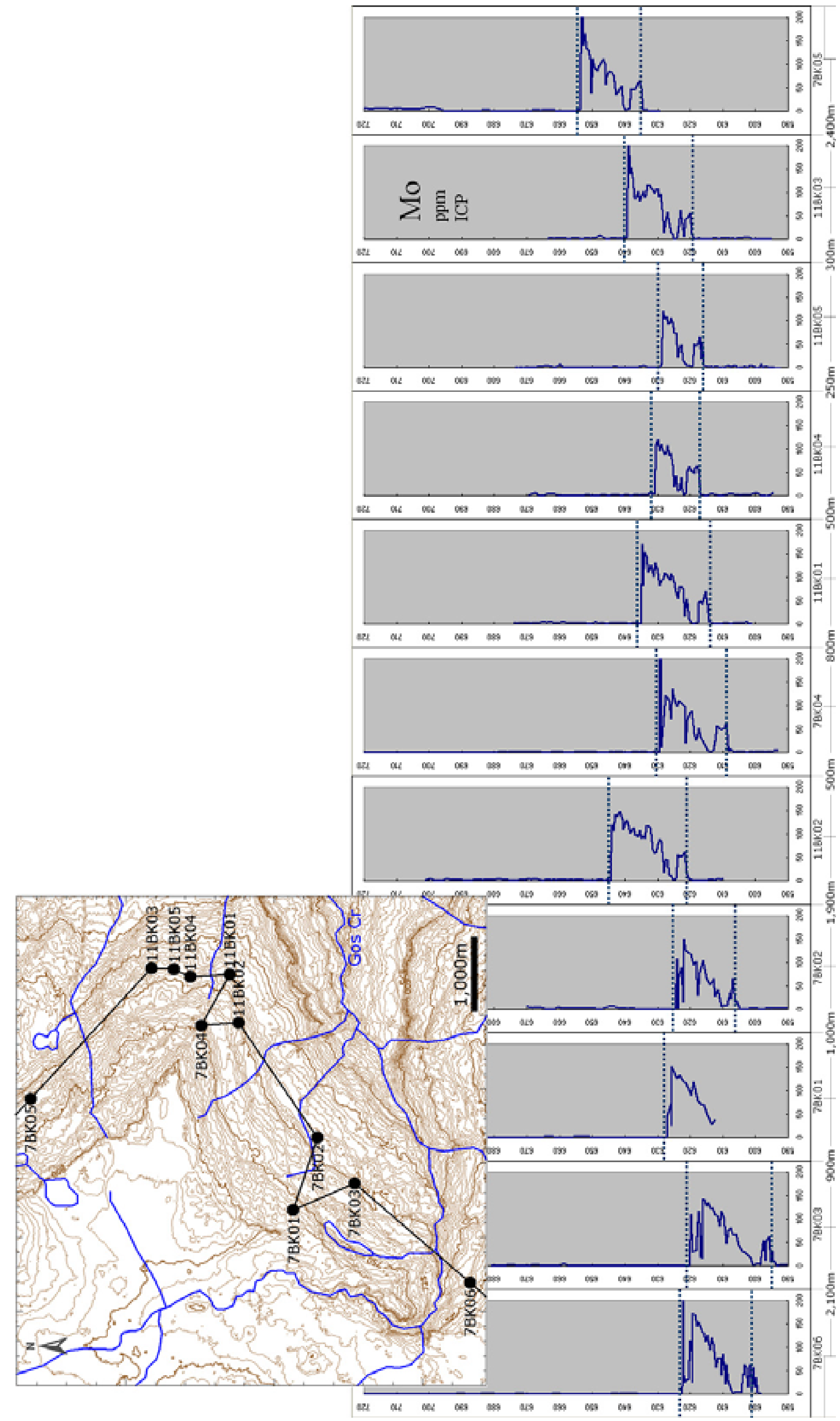

Figure 87: Longitudinal fence diagram showing downhole lithogeochemical profiles for Mo across the Buckton Zone. DNI 2010-2011 Winter Drilling Program (11BK- series holes). Showing also historic drill holes (7BK- series).

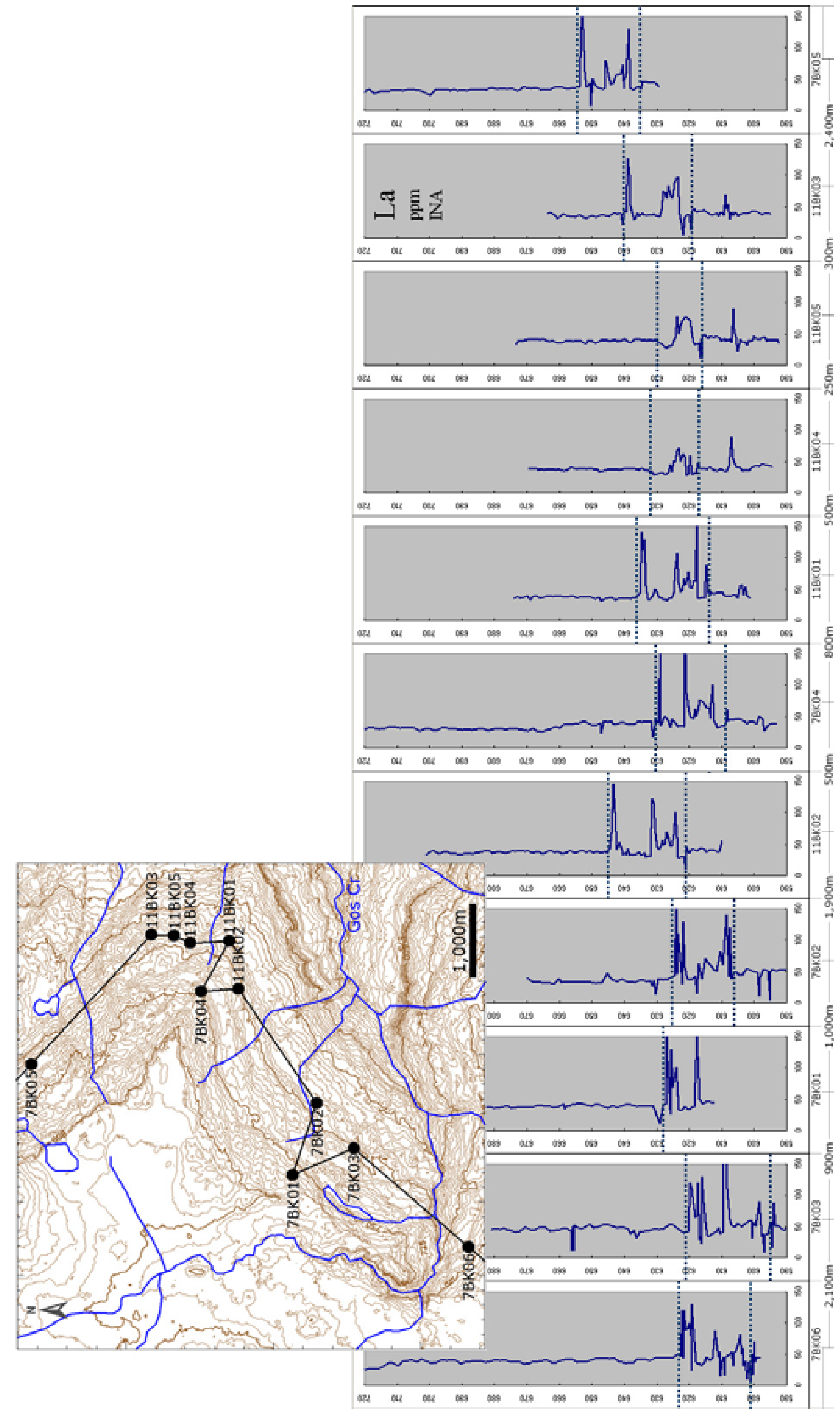

Figure 88: Longitudinal fence diagram showing downhole lithogeochemical profiles for La across the Buckton Zone. DNI 2010-2011 Winter Drilling Program (11BK- series holes). Showing also historic drill holes (7BK- series).

13.8 Drill Program Conclusions

The drill program reached the following conclusions:

- the Second White Speckled Shale Formation was penetrated at anticipated depths based on the historical results of a 1997 drill program.
- The Second White Speckled Shale Formation observed in the drill holes exhibits remarkable lithological consistency.
- The Second White Speckled Shale Formation in the drill holes varies in thickness 11m-26m, but is generally 20m-24m thick, variations in thickness at the Buckton property notwithstanding. Considering that there is little or no evidence of present-day slumping in the exposed outcrops of Second White Speckled Shale Formation in the Buckton area, the variations in thickness can be attributed to synsedimentary faulting and/or thrusting, a proposal supported by breccia-textured zones in some drill core from the Buckton Zone.
- The results of the 2010-2011 winter drill program, together with historical 1997 drill results, illustrate that the Second White Speckled Shale Formation in the eastern portion of the Birch Mountains maintains a generally consistent thickness and physical lithological characteristics.
- Drill core from one hole, 11AS-01, contained some disturbed bedding features which can be attributed to glaciation and/or recent slumping.
- The 2010-2011 drill program confirmed previous proposal that locating drill collars further east along the eastern slopes of the Birch Mountains might decrease the amount of waste material directly overlying the Second White Speckled Shale Formation (i.e., Labiche Formation and overburden units with little polymetallic potential). Depths from drill collar to the top of the Second White Speckled Shale Formation vary from 27m to 94m. Four of the seven drill holes, however, penetrated the top of the Second White Speckled Shale Formation between depths of 41m and 61m confirming that waste material overlying the Second White Speckled Shale Formation is thinner near the eastern edge of the Birch Mountains. Accessing the Second White Speckled Shale Formation while limiting the amount of overlying waste material is essential to improve the waste-to-ore ratio and the overall economics of a polymetallic black shale mine operation.

13.9 Drill Site Reclamation

Following completion of drilling, all drill pads were rolled back and bucked flat. Roll back was performed with a hoe, dozer and a slasher, where: (a) material is pulled out of the bush and onto the road with a hoe in advance of a bulldozer which subsequently spreads the material over the road. Brush and cut trees are subsequently bucked by a slasher to lie them.

In addition to the above, creek crossings iced during drill access preparation (summarized in Table 22) were removed or, in the case of built up snow bridges, broken to allow normal spring run-off. Sites were inspected and it was noted that reseeding – may be required[53] at 448914E, 6401260N and 447861E, 6402851N and 448871E, 6403452N.

Location (m)	Material	Status
450444E, 6401129N	Constructed with logs and snow	Removed
449230E, 6400206N	Constructed with logs and snow	Removed
448629E, 6399636N	Constructed with logs and snow	Removed
446579E, 6400001N	Constructed with snow	Broken
440843E, 6389918N	Constructed with snow	Broken

Table 22: Creek crossing locations, construction materials used and status. From Table 4, Dufresne et al 2011a.

[53] DNI plans to complete additional reclamation work and seeding during the balance of 2012.

14. LEACHING TESTWORK 2010-2012

14.1 TRAILING LEACHING ANALYTICAL WORK 2010

A series of bioleaching batch amenability tests were conducted by AITF in 2009-2010 on surface samples from the Property, in addition to related acid consumption and acid mobility tests. The tests and results therefrom are outlined in Alberta Mineral Assessment Report MIN20100017 (Sabag 2010). A handful of sub-sample fractions from the tests were inadvertently omitted from the tests and were subsequently leached separately by AITF during late 2010 under similar test conditions. These fractions, and related outstanding work, are discussed in detail in Sabag 2010, and consist of: (i) pooled residues removed during the batch amenability tests conducted on mineral feed BAT456, which residues were set aside and not leached; (ii) the 48-hour liquid fraction of the metals mobility test for mineral feed BAT003 was omitted from analyses; and (iii) clarification of the weight for BAT003 mineral feed solids.

AITF reported its findings in its Nov30/2010 addendum report[54] (Budwill 2010c). Considering that most of the work conducted was remedial and will not materially revise metals recoveries reported by AITF, the reader is referred to the foregoing report appended herein as Appendix D1 for details. Results from leaching of the pooled residues from BAT456, however, serve to revise metals extractions (recoveries) previously reported by AITF and are, accordingly, summarized below as a matter of record, especially since the 2009-2010 bioleaching testwork is superceded by a repeat of the testwork on composite drill core samples from the Buckton Zone discussed in a later section of this report (Section 14.2).

The pooled residues represent solids accumulated during the batch amenability bioleaching tests of BAT456 by centrifuging the eight liquid sub-samples taken during the 38 day long bioleaching tests to monitor evolution of the leach solution chemistry. The two pooled residues represent an aggregate of 43.2gm and 44.5gm of material removed from Flask1 and Flask2, respectively, during the BAT456 tests, and hence represent 22% and 23%, respectively, of the initial 194.7gm of feed material for each Flask which effectively did not receive the benefit of leaching.

AITF bioleached the pooled residues during late 2010 in duplicate per procedures used during its prior testwork (see Budwill 2010a and 2010b). The final residue from Flask2 was further washed in HCl, as had been done previously for BAT456 leaching, to test for metals re-precipitation after they had been solubilized from the shale. AITF consolidated the leaching results from the pooled residues with those previously reported for BAT456 and revised/restated metals extractions/recoveries as summarized in Table 23.

	Metals Extraction Efficiencies (Recoveries) - Flask1		Metals Extraction Efficiencies (Recoveries) - Flask2	
Analyte	Based on Original Head	Based on Calculated Head	Based on Original Head	Based on Calculated Head
Mo	11%	9%	21%	20%
Ni	77%	76%	82%	85%
U	90%	85%	100%	93%
V	2%	2%	4%	4%
Zn	83%	71%	93%	83%
Cu	43%	39%	55%	56%
Co	89%	85%	89%	89%
Cd	97%	96%	100%	98%
Li	24%	20%	24%	24%

Table 23: Summary of comparative metals revised extraction efficiencies for BAT456, as calculated based on the Original Head grade, and those calculated based on the Calculated Head grade. After Tables 6 and 8, Budwill 2010c.

Table 23 shows metals extractions/recoveries which are consistent with those previously reported, namely; excellent recoveries for Ni-U-Zn-Co-Cd typically ranging 80%-95%, and lesser recoveries for Mo-V-Cu-Li. As noted in previous bioleaching tests at AITF, residues washed with HCl (Flask2) reported the higher metals extractions, reiterating that certain of the metals (notably Mo,Cu,V) are susceptible to re-precipitation from the leach solution after they have been solubilized from the shale.

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[54] Report: Addendum to Report, Enrichment Culturing of Alberta Polymetallic Black Shale For Bioleaching Bacteria Batch Amenability Testing. Prepared for Dumont Nickel Inc. Alberta Innovates Technology Futures (AITF), Budwill K., November 30, 2010.

AITF also reported metals extractions based on the Original Head grade (ie: feed material as analyzed) compared to extractions as calculated relying on a grade for the head sample derived from mass balance of solid and liquid fractions from the leaching testwork (ie: the Calculated Head grade). While there is a general trend of lower recoveries which are calculated relying on a calculated head grade, the trend is not definitive even though the larger differences are for metals which seem prone to re-precipitation (notably for Mo and Cu).

	BAT456 - Flask1			BAT456 - Flask2		
Analyte	Calculated Head (μg)	Original Head (μg)	% Difference between Original Head and Calculated Head	Calculated Head (μg)	Original Head (μg)	% Difference between Original Head and Calculated Head
Mo	20,465	16,939	-21%	18,260	16,939	-8%
Ni	50,977	50,233	-1%	48,331	50,233	4%
U	14,053	13,240	-6%	14,219	13,240	-7%
V	178,896	151,282	-18%	174,197	151,282	-15%
Zn	83,682	71,455	-17%	80,209	71,455	-12%
Cu	18,596	16,939	-10%	16,561	16,939	2%
Co	5,497	5,257	-5%	5,251	5,257	0.1%
Cd	2,562	2,551	-0.4%	2,595	2,551	-2%
Li	12,496	10,319	-21%	10,478	10,319	-2%

Table 24: Comparison of Calculated Head grade and Original Head grade for bioleaching of pooled residues from BAT456 batch amenability testwork. After Tables 5 and 7, Budwill 2010c.

AITF also revised/restated its previously reported mass balances for the BAT456 tests for the two Flasks as summarized in Table 24 which notes that the larger discrepancies are related to metals which are prone to re-precipitation (eg: Mo, V, Cu), although a discrepancy of -17% is reported for Zn. Although the discrepancies summarized in Table 24 between Original Head and Calculated Head range upward into the unacceptable (as they range into the 20%'s), they are in most part acceptable within the context of initial preliminary laboratory testwork intended mostly to assess amenability to bioleaching and to establish guidelines for broader work. DNI's subsequent testwork concerns itself mostly with optimization of test parameters and their stricter control (eg: continuous, vs periodic, pH monitoring and control).

14.2 BIOLEACHING BATCH AMENABILITY TESTS - AITF - 2011-2012

14.2.1 Overview

A series of bioleaching tests were initiated in mid 2011 at Alberta Innovates Technology Futures (AITF - formerly the Alberta Research Council), as an extension of previous testwork completed by AITF in 2009-2010 on surface trenching samples from the Property. The bioleaching tests were completed in January 2012, and their objective was to test amenability of composite fresh drill core samples collected from DNI's winter drilling program in the same manner as prior tests which were conducted on surface trenching samples only.

The work was carried out by Dr.K.Budwill (AITF) with input from Dr.C.L.Brierley and S.Sabag (DNI). Bioleaching procedures were as previously formulated by Dr.Brierley during previous testwork completed by AITF in 2009-2010 (see Alberta Mineral Assessment Report MIN20100017, Sabag 2010). Analytical work was completed by Actlabs, Ancaster, Ontario.

Three composite weighted samples of drill core were bioleached, each representing a complete intercept across the entire thickness of the Second White Speckled Shale Formation at the Buckton Zone from drill holes 11BK01, 11BK02 and 11BK04. A sample of the overlying LaBiche Shale overburden material, overlying the mineralized zone, was also tested as a "blank" given that it is substantially barren of base metals. The LaBiche sample was collected by DNI in 2009 from historic archived drill core during its verification sampling program (See Alberta Mineral Assessment Report MIN20100017, Sabag 2010, Section 11.4) and consisted of a 3m intercept of LaBiche shale in historic hole#7BK04 (from 79.6m to 82.6m) which was premixed and pre-homogenized for use as an analytical blank. All samples tested were bioleached in duplicate, and final residues (leaching tails) form one of the duplicates was further washed in HCl to assess metal losses through re-precipitation after they had been leached from the shale.

The 2011-2012 bioleaching tests focused on reporting only Mo-Ni-U-V-Zn-Cu-Co-Li and, as such, AITF's final report[55] outlines results only for the foregoing metals, even though the underlying multielement analytical results from the various fractions of the leaching also provide results for a range of other metals of interest to DNI including Specialty Metals Sc-Th as well as Rare Earth Elements (REE). Results reported herein for REE and Specialty Metals have, accordingly, been calculated by DNI and the author of this report relying on analytical data from AITF's bioleaching tests.

Samples were leached using bio-organism cultures previously harvested by AITF from Second White Speckled Shale surface samples during its 2009-2010 testwork, all of which had been maintained in storage at AITF facilities, Edmonton (See Alberta Mineral Assessment Report MIN20100017, Sabag 2010).

Prior to commencing the batch leaching tests, acid consumption and metals mobility tests were completed to determine acid consumption and solubility of metals at a pH of 1.8.

Details of samples leached, the bioleaching testwork and results therefrom are outlined below. AITF's final report is appended herein as Appendix D2, which also includes Actlabs analytical certificates[56] related to the testwork.

14.2.2 Sample Preparation

Three composite samples were tested, representing three continuous drill core intercepts across the entire formational width (thickness) of the Second White Speckled Shale Formation from the Buckton Zone from drill holes 11BK01, 11BK02 and 11BK04. Samples had previously been submitted for analysis to Actlabs, which supplied pre-crushed material to the AITF for the tests. Individual samples were combined into three weighted composite samples by AITF, further crushed/pulverized and homogenized. Drill hole intervals comprising the samples, sample weights, and their compositions are summarized in Tables 26, 27 and 28, showing also a weighted average grade for each composite per DNI's analytical data for the related respective sample intervals. The grade of the head sample collected from the composite prepared by AITF is also included in the tables for comparison.

Sample #	Number of Intervals (subsamples)	Total Weight (g)
BK1	39	2,023
BK2	45	2,307
BK4	27	1,328
BK5	55	3,331
BKL	16	800

Table 25: List of samples tested showing total weights and number of subsamples, AITF bioleaching testwork 2011-2012. From Table 1. Budwill 2012. BKL=LaBiche Shale analytical blank.

A fourth sample had also been submitted to AITF for testwork, being all samples from the continuous drill core intercept across the entire formational width (thickness) of the Second White Speckled Shale Formation from the Buckton Zone from drill 11BK05. The interval had, however, been picked based on visual core logging prior to receiving geochemical analyses for the samples, and was subsequently significantly revised (foreshortened from 28.38m to 12.56m) with the benefit of analytical results (discussed in Section 13 of this report, see also Figure 86 and Eccles 2011). The foregoing sample was, accordingly, omitted from the testwork.

A previously homogenized sample of LaBiche Shale (which overlies the Second White Speckled Shale Formation) was used as an analytical blank (coded "Blank" or "BKL") since it is substantially devoid of base metals. This blank had previously been prepared by Actlabs by homogenizing a drill interval of LaBiche Shale collected from historic drilling (Hole 7BK04 from 79.6m to 82.6m), and prepackaged in packets for use during DNI's various analytical programs. Packets# LBSTD-1-117 through LBSTD-1-132 were (16 packets, total weight 800g) were delivered to AITF for use in the above testwork.

[55] Report: Assessing The Bioleaching Capacity of Alberta Polymetallic Black Shale. Prepared by Alberta Innovates Technology Futures (AITF) for DNI Metals Inc., Budwill K., February 7, 2012.
[56] Actlabs Rpt# A11-11374, A11-11382 and A11-14634.

				Analyte	Mo	Ni	U	V	Zn	Cu	Co	Li
				Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
				Limit	1	1	0.5	2	1	1	1	0.5
				Method	ICP	ICP	INA	ICP	ICP	ICP	INA	MS
Sample No.	Depth		Length	Pulp Wt								
	From (m)	To (m)	(m)	(g)								
11BK0104657	46.57	47.00	0.43	55	170	214	129.0	425	506	70	43	36.9
11BK0104700	47.00	47.50	0.50	50	84	149	93.2	405	302	46	22	87.0
11BK0104750	47.50	48.00	0.50	62	153	289	106.0	936	468	92	37	55.7
11BK0104800	48.00	48.45	0.45	48	144	222	46.0	887	327	87	29	54.7
11BK0104845	48.45	49.00	0.55	39	112	166	26.6	789	255	67	20	75.3
11BK0104900	49.00	50.00	1.00	45	126	195	34.5	831	278	80	24	51.7
11BK0105000	50.00	50.50	0.50	60	102	165	27.3	749	280	66	22	84.2
11BK0105050	50.50	51.00	0.50	37	131	244	37.9	941	377	98	30	51.4
11BK0105100	51.00	52.00	1.00	47	119	193	35.3	803	322	79	23	65.7
11BK0105200	52.00	52.50	0.50	50	84	168	23.9	783	279	71	22	60.2
11BK0105250	52.50	53.00	0.50	55	95	197	27.9	950	320	78	23	46.4
11BK0105300	53.00	53.50	0.50	60	97	184	27.9	920	303	83	22	45.2
11BK0105350	53.50	54.00	0.50	50	109	207	28.0	1040	339	90	25	47.1
11BK0105400	54.00	54.50	0.50	50	105	205	24.4	1220	375	94	23	50.6
11BK0105450	54.50	55.00	0.50	55	100	200	21.9	1250	375	92	23	52.3
11BK0105500	55.00	55.50	0.50	48	95	211	22.3	1410	420	99	24	52.2
11BK0105550	55.50	56.00	0.50	49	107	206	23.5	1220	374	93	23	51.5
11BK0105600	56.00	56.50	0.50	51	102	200	24.0	1250	391	94	24	48.4
11BK0105650	56.50	57.00	0.50	50	88	177	23.4	1280	365	91	24	52.3
11BK0105700	57.00	57.50	0.50	51	68	188	39.5	1020	420	108	32	42.1
11BK0105750	57.50	58.00	0.50	50	55	174	48.0	973	402	103	32	41.5
11BK0105800	58.00	58.50	0.50	60	81	259	31.7	1170	453	113	38	45.5
11BK0105850	58.50	59.00	0.50	45	81	247	27.0	1290	475	116	39	46.6
11BK0105900	59.00	59.54	0.54	50	76	227	26.5	1140	446	108	38	51.9
11BK0105954	59.54	60.12	0.58	58	17	76	17.9	468	182	78	18	51.0
11BK0106012	60.12	60.50	0.38	45	53	162	19.2	617	280	91	32	52.2
11BK0106050	60.50	61.00	0.50	62	44	151	25.2	598	293	89	31	50.2
11BK0106100	61.00	61.50	0.50	48	12	71	15.4	517	180	72	16	71.8
11BK0106150	61.50	62.00	0.50	65	3	50	7.1	386	129	42	14	76.2
11BK0106200	62.00	62.50	0.50	60	2	48	7.7	369	121	40	11	83.0
11BK0106250	62.50	63.03	0.53	55	1	43	9.4	352	109	38	13	81.7
11BK0106303	63.03	63.50	0.47	50	3	42	9.6	316	109	36	13	88.5
11BK0106350	63.50	64.05	0.55	60	4	39	22.6	292	89	34	14	58.3
11BK0106405	64.05	64.50	0.45	50	46	114	20.3	359	239	62	24	43.3
11BK0106450	64.50	65.00	0.50	58	50	122	28.1	381	246	66	27	38.8
11BK0106500	65.00	65.50	0.50	45	43	111	30.3	356	231	59	25	41.9
11BK0106550	65.50	66.00	0.50	45	56	134	26.4	451	266	67	27	48.9
11BK0106600	66.00	66.50	0.50	65	70	137	29.4	449	266	64	27	51.9
11BK0106650	66.50	66.91	0.41	40	42	90	95.4	254	235	54	24	36.1
11BK01 Weighted Avg	**46.57**	**66.91**	**20.34**	**2,023**	**74**	**159**	**33.6**	**757**	**301**	**77**	**25**	**55.9**
AITF Head Sample	**46.57**	**66.91**	**20.34**	**2,023**	**75**	**162**	**27.2**	**754**	**302**	**84**	**24**	**64.2**

Note: For AITF Head Sample, U by MS, Co by ICP, Na by ICP, Fe by ICP.

Table 26: List of drill core intervals comprising composite sample 11BK01, showing subsample compositions, pulp weights as delivered to AITF and a calculated composite average grade (data per DNI's 2010-2011 drill program). Comparative head grade of composite sample as reported by AITF also shown (data from Budwill 2012).

				Analyte	Mo	Ni	U	V	Zn	Cu	Co	Li
				Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
				Limit	1	1	0.5	2	1	1	1	0.5
				Method	ICP	ICP	INA	ICP	ICP	ICP	INA	MS
Sample No.	Depth		Length	Pulp								
	From (m)	To (m)	(m)	(g)								
11BK0206700	67.00	67.50	0.50	50	121	207	51.5	448	352	64	56	70.9
11BK0206750	67.50	68.00	0.50	48	107	224	127.0	474	455	61	28	57.0
11BK0206800	68.00	68.50	0.50	51	141	254	79.5	818	420	80	30	73.4
11BK0206850	68.50	69.00	0.50	48	137	226	32.6	959	324	86	27	66.8
11BK0206900	69.00	70.00	1.00	49	148	254	48.1	879	355	94	29	45.6
11BK0207000	70.00	70.50	0.50	40	131	207	33.8	859	296	81	27	55.4
11BK0207050	70.50	71.00	0.50	50	110	163	21.6	749	237	68	22	60.3
11BK0207100	71.00	71.50	0.50	50	122	187	28.1	847	259	73	21	48.7
11BK0207150	71.50	72.00	0.50	49	130	218	32.8	918	312	84	23	44.7
11BK0207200	72.00	72.50	0.50	50	119	210	38.5	838	302	83	26	45.8
11BK0207250	72.50	73.00	0.50	45	102	166	28.2	745	261	67	21	62.4
11BK0207300	73.00	73.50	0.50	50	109	190	28.6	790	301	76	21	68.6
11BK0207350	73.50	74.00	0.50	48	113	193	27.4	771	314	76	20	60.6
11BK0207400	74.00	74.50	0.50	50	98	157	29.3	686	238	61	20	62.1
11BK0207450	74.50	75.00	0.50	52	99	155	30.8	627	257	66	22	61.8
11BK0207500	75.00	75.50	0.50	41	94	159	30.0	662	261	64	20	69.2
11BK0207550	75.50	76.00	0.50	50	108	191	29.5	760	295	76	23	67.1
11BK0207600	76.00	76.50	0.50	59	91	172	25.8	782	273	71	21	73.6
11BK0207650	76.50	77.00	0.50	55	97	199	29.2	892	316	75	24	54.6
11BK0207700	77.00	77.50	0.50	48	91	175	28.9	899	287	72	20	59.9
11BK0207750	77.50	78.00	0.50	50	119	215	28.6	1030	317	88	23	45.4
11BK0207800	78.00	78.50	0.50	49	119	211	26.7	1050	338	89	24	47.9
11BK0207850	78.50	79.00	0.50	55	113	218	26.2	1230	376	95	26	52.2
11BK0207900	79.00	79.50	0.50	46	100	211	24.6	1350	392	95	23	50.2
11BK0207950	79.50	80.00	0.50	49	67	164	68.0	1100	385	98	24	50.7
11BK0208000	80.00	80.50	0.50	50	60	184	66.9	1120	445	113	32	48.8
11BK0208050	80.50	81.00	0.50	50	62	188	41.3	985	401	106	36	53.3
11BK0208100	81.00	81.50	0.50	78	78	249	33.9	1220	497	119	34	50.3
11BK0208150	81.50	82.00	0.50	50	88	268	32.7	1220	443	113	36	54.5
11BK0208200	82.00	82.50	0.50	50	84	260	31.8	1380	504	119	41	56.1
11BK0208250	82.50	83.00	0.50	60	40	119	23.8	706	280	88	22	52.7
11BK0208300	83.00	83.50	0.50	52	19	82	16.7	549	207	84	16	70.4
11BK0208350	83.50	84.00	0.50	60	46	134	20.6	566	244	86	29	57.0
11BK0208400	84.00	84.50	0.50	50	44	133	26.1	574	275	82	29	69.0
11BK0208450	84.50	85.00	0.50	60	13	64	13.0	483	157	64	16	86.3
11BK0208500	85.00	85.50	0.50	65	13	64	11.9	486	159	61	14	67.9
11BK0208550	85.50	86.00	0.50	45	3	48	7.5	378	119	41	12	80.4
11BK0208600	86.00	86.50	0.50	50	2	47	8.9	371	115	40	16	83.1
11BK0208650	86.50	87.00	0.50	45	6	51	18.7	380	121	41	16	78.4
11BK0208700	87.00	87.50	0.50	52	55	135	25.7	498	270	69	30	56.6
11BK0208750	87.50	88.00	0.50	50	52	112	21.8	372	233	63	26	46.8
11BK0208800	88.00	88.50	0.50	49	53	123	22.3	389	246	65	29	48.3
11BK0208850	88.50	89.00	0.50	50	54	129	22.1	416	255	66	26	50.7
11BK0208900	89.00	89.76	0.76	49	61	129	24.0	417	252	61	26	55.2
11BK0208976	89.76	90.16	0.40	60	19	31	10.8	113	56	17	7	12.7
11BK02 Weighted Avg	**67.00**	**90.16**	**23.16**	**2,307**	**79**	**165**	**31.5**	**751**	**294**	**77**	**25**	**58.3**
AITF Head Sample	**67.00**	**90.16**	**23.16**	**2,307**	**82**	**163**	**26.6**	**707**	**289**	**77**	**25**	**60.1**

Note: For AITF Head Sample, U by MS, Co by ICP, Na by ICP, Fe by ICP.

Table 27: List of drill core intervals comprising composite sample 11BK02, showing subsample compositions, pulp weights as delivered to AITF and a calculated composite average grade (data per DNI's 2010-2011 drill program). Comparative head grade of composite sample as reported by AITF also shown (data from Budwill 2012).

				Analyte	Mo	Ni	U	V	Zn	Cu	Co	Li
				Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
				Limit	1	1	0.5	2	1	1	1	0.5
				Method	ICP	ICP	INA	ICP	ICP	ICP	INA	MS
Sample No.	Depth		Length	Pulp Wt								
	From (m)	To (m)	(m)	(g)								
11BK0405447	54.47	55.00	0.53	50	110	199	31.8	962	310	78	23	42.3
11BK0405500	55.00	55.50	0.50	52	121	194	33.7	927	288	82	21	38.7
11BK0405550	55.50	56.00	0.50	51	96	188	27.4	1170	358	89	24	42.4
11BK0405600	56.00	56.50	0.50	42	110	198	23.9	1230	356	87	23	45.6
11BK0405650	56.50	57.00	0.50	48	97	197	26.5	1290	398	91	26	44.5
11BK0405700	57.00	57.50	0.50	50	88	180	27.0	1250	366	84	26	46.4
11BK0405750	57.50	58.00	0.50	48	95	177	25.0	1330	365	85	22	50.6
11BK0405800	58.00	58.50	0.50	59	108	193	27.7	1260	370	87	22	50.4
11BK0405850	58.50	59.00	0.50	50	87	181	26.1	1240	377	90	22	43.1
11BK0405900	59.00	59.50	0.50	48	91	264	35.7	1280	485	112	39	37.4
11BK0405950	59.50	60.00	0.50	50	67	171	21.6	1250	351	89	28	65.0
11BK0406000	60.00	60.50	0.50	50	21	77	18.6	572	203	120	14	55.6
11BK0406050	60.50	61.00	0.50	50	42	124	24.3	607	248	83	24	53.2
11BK0406100	61.00	61.50	0.50	51	12	66	12.6	508	172	69	17	85.1
11BK0406150	61.50	62.00	0.50	50	13	65	20.6	530	159	68	18	79.4
11BK0406200	62.00	62.50	0.50	60	39	144	23.5	562	274	78	33	67.1
11BK0406250	62.50	63.00	0.50	50	15	71	13.9	467	154	47	16	71.5
11BK0406300	63.00	63.50	0.50	49	2	45	11.1	358	110	36	15	77.1
11BK0406350	63.50	64.00	0.50	50	5	42	11.1	320	111	34	14	90.3
11BK0406400	64.00	64.50	0.50	47	54	121	24.5	395	255	69	27	40.5
11BK0406450	64.50	65.00	0.50	50	63	137	28.1	474	270	70	26	44.4
11BK0406500	65.00	65.50	0.50	45	53	125	32.0	435	253	64	31	43.8
11BK0406550	65.50	66.00	0.50	48	54	125	23.0	412	252	65	28	43.8
11BK0406600	66.00	66.50	0.50	40	49	119	26.9	389	240	64	27	42.2
11BK0406650	66.50	67.00	0.50	40	59	133	28.0	440	254	65	26	47.8
11BK0406700	67.00	67.50	0.50	50	64	123	33.9	383	237	60	25	47.0
11BK0406750	67.50	67.98	0.48	50	50	105	52.9	319	250	64	25	42.4
11BK04 Weighted Avg	**54.47**	**67.98**	**13.51**	**1328**	**53**	**124**	**23.1**	**687**	**254**	**69**	**22**	**50.5**
AITF Head Sample	**54.47**	**67.98**	**13.51**	**1328**	**58**	**150**	**17.9**	**739**	**258**	**71**	**25**	**61.3**

Note: For AITF Head Sample, U by MS, Co by ICP, Na by ICP, Fe by ICP.

Table 28: List of drill core intervals comprising composite sample 11BK04, showing subsample compositions, pulp weights as delivered to AITF and a calculated composite average grade (data per DNI's 2010-2011 drill program). Comparative head grade of composite sample as reported by AITF also shown (data from Budwill 2012).

14.2.3 Acid Consumption and Metals Mobility Tests

Acid consumption and metals mobility tests were completed to determine acid consumption and relative partial solubility of metals at a pH of 1.8. The test entailed gradual acidification of 100gm aliquots from each sample, over a 48 hour period, with sulphuric acid to achieve and maintain a pH of 1.8. Acid consumption was monitored during the tests, and aggregate acid consumption measured is summarized in Table 29, showing consumptions ranging 114.7-147.5 kg 10N H_2SO_4 per tonne of shale sample feed. The foregoing figures are considerably higher than acid consumption previously reported by AITF from its 2009-2010 tests on surface samples (7.4-89.7 kg 10N H_2SO_4 per tonne of shale sample feed; see Table 33, Alberta Mineral Assessment Report MIN20100017, Sabag 2010).

Sample	Volume of 10N H_2SO_4 added over 48 hour period (mL)	Kg H_2SO_4/tonne shale
BK1-1	24	117.6
BK1-2	23.7	116.3
BK2-1	30.1	147.5
BK2-2	30.1	147.5
BK4-1	23.7	116.3
BK4-2	23.4	114.7

Table 29: Acid consumption of duplicate samples of BK1, BK2 and BK4. Bioleaching testwork 2011-2012, AITF. From Table 3, Budwill 2012.

The AITF reported calculated metals “extractions” (recoveries) from the mobility tests based on the total metals content of the final solution as a percentage of the head grade of the feed material. The extraction figures should not, however, be regarded as recoveries, but rather a measure of the amount of metal solubilized during the 48 hours of leaching and serve to only reflect relative mobility of the respective metals during that short interval of leaching. The reader is referred to AITF’s report for these figures (Budwill 2012, Appendix D2).

14.2.4 Batch Amenability Tests

Batch amenability tests (BATs) were carried out in duplicate on 200gm aliquots from the three composite drill core samples from the Second White Speckled Shale Formation and the single sample of LaBiche Shale. The sample of LaBiche had previously been used throughout DNI’s analytical work as an analytical blank considering that it is substantially devoid of base metals.

Two duplicate tests were carried out for each sample in separate flasks (Flask1 and Flask2). Final residues (Tails) from Flask2 were washed in HCl at the end of the tests to evaluate Fe or sulfate precipitation (and commensurate metal re-precipitation from solution).

The samples were bioleached during approximately a sixty-five day period during which efforts were made to maintain pH 1.8, although pH varied 1.4-1.8, occasionally drifting to as low as 1.2. Evolution of pH and redox potential for the tests on the samples are shown in Figures 89, 90, 91 and 92.

Unlike prior test during which liquid subsamples were take at 3-6 day intervals to monitor evolution of metals solubilization, only a single midpoint liquid sub-sample was taken from the solutions throughout the tests. The midpoint solution sample, the final solution and final tails (residues) were submitted to Actlabs, Ancaster, for analysis. Analytical certificates from the foregoing are appended in AITF’s final report from the testwork (Budwill 2012), which is appended herein as Appendix D2.

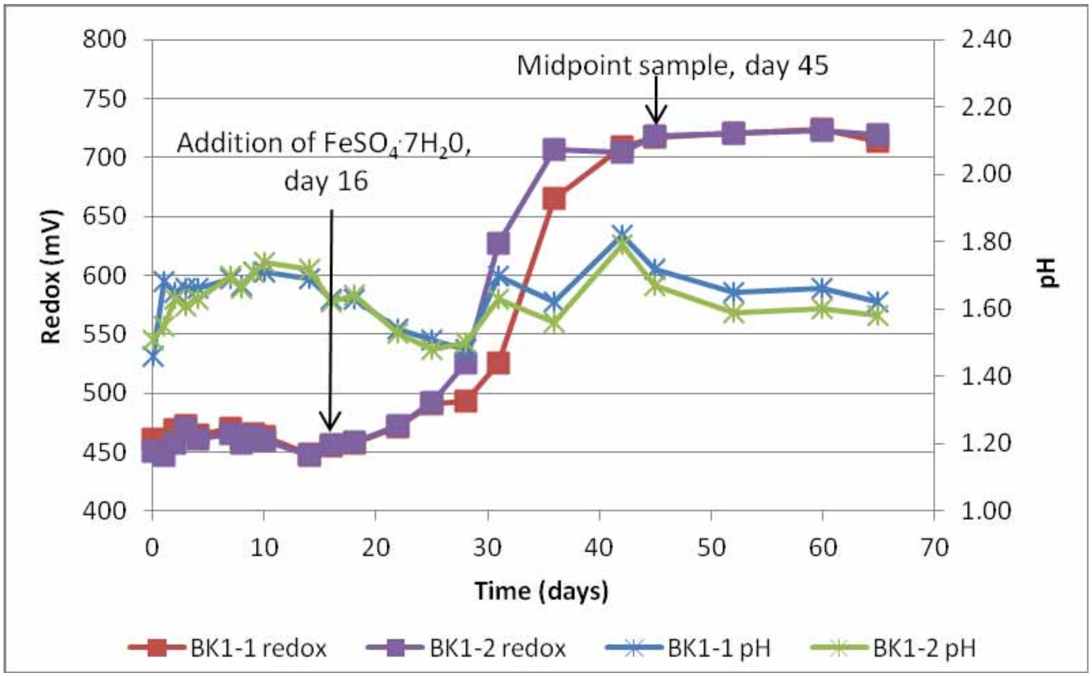

Figure 89: Changes in pH and redox values over time in batch amenability test flasks, BK1-1 and BK1-2 From Figure 1, Budwill 2012.

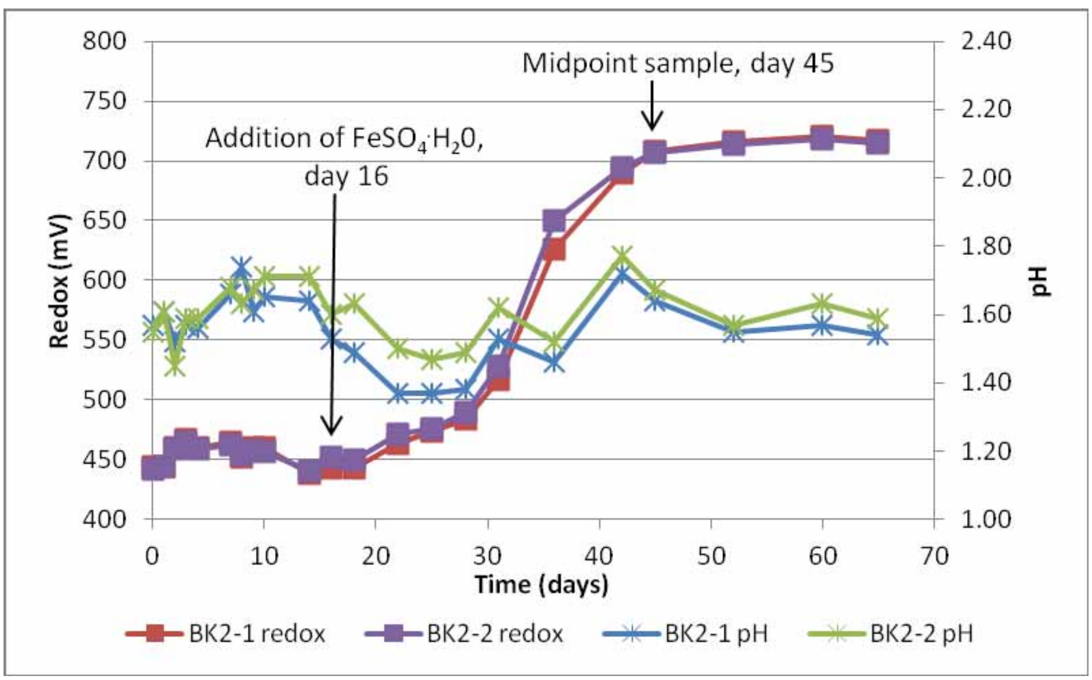

Figure 90: Changes in pH and redox values over time in batch amenability test flasks, BK2-1 and BK2-2. From Figure 2, Budwill 2012.

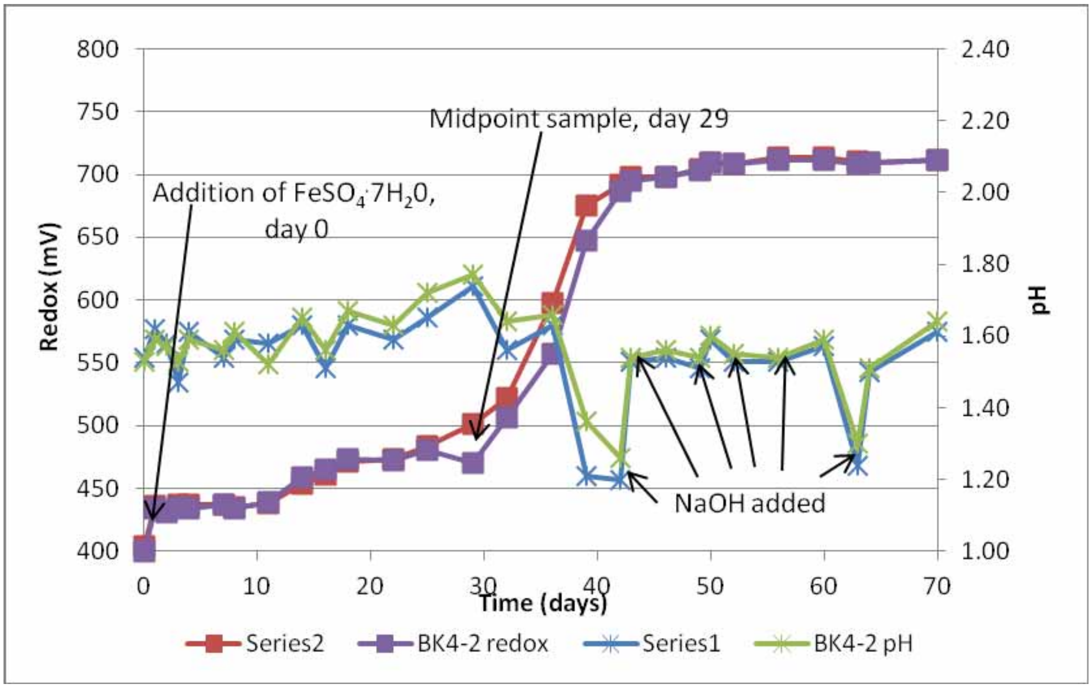

Figure 91: Changes in pH and redox values over time in batch amenability test flasks, BK4-1 and BK4-2 From Figure 3, Budwill 2012.

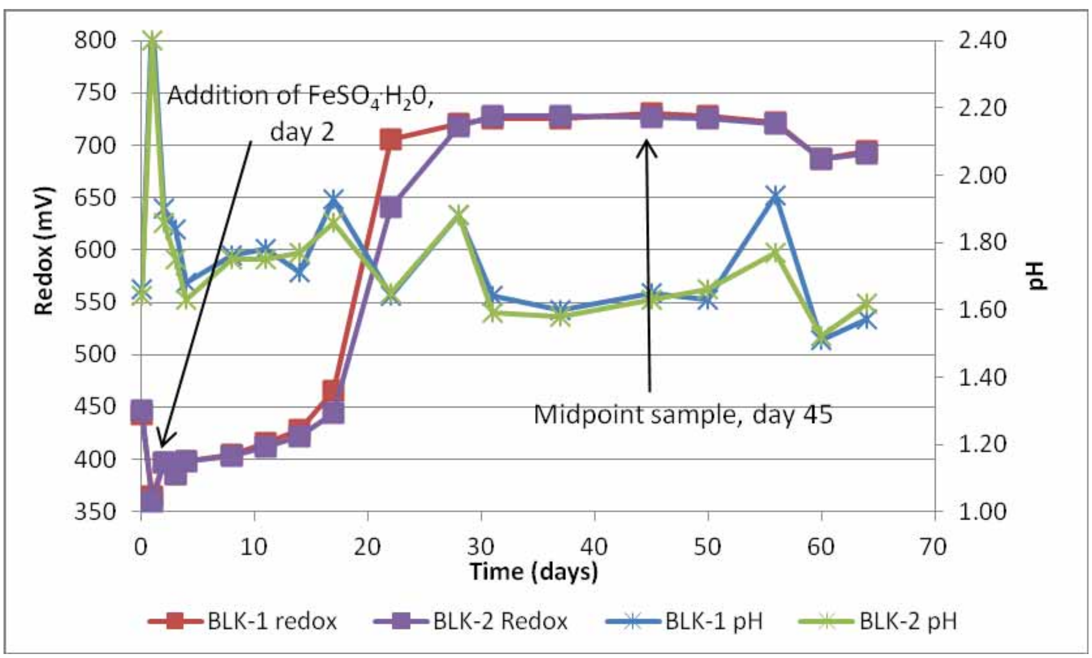

Figure 92: Changes in pH and redox values over time in batch amenability test flasks, Blank-1 (BLK-1) and Blank-2 (BLK-2) From Figure 4, Budwill 2012.

Sample weights and volumes of various fractions are summarized in Table 30.

Sample	BK1-1	BK1-2	BK2-1	BK2-2	BK4-1	BK4-2	BLANK-1	BLANK-2
Initial volume of MKM (mL)	700	700	700	700	700	700	700	700
Volume of 10 N H_2SO_4 added (mL)	102	1027	115	107	85	80	68	64
Volume of NaOH added (mL)	0	0	0	0	18	18	0	0
Volume of $FeSO_4$ added (mL)	100	100	100	100	100	100	100	100
Total volume of pH probe rinse water (mL)	320	335	345	340	306	306	200	195
Total Volume (mL)	1222	1237	1260	1247	1209	1204	1068	1059
Volume of midpoint sample (mL)	25	25	25	25	25	25	25	25
Initial weight (g)	200.03	200.12	200.18	200.15	200.35	200.14	200.55	200.52
Solids introduced via Inoculum (g)	17.73	17.73	17.73	17.73	18.02	18.02	18.02	18.02
Total initial solids weight (g)	217.76	217.85	217.91	217.88	218.37	218.16	218.57	218.54
Final solids dry weight (g)	191.51	177.67	196.14	176.61	189.58	177.32	196.12	189.28
Loss in solids (g)	26.25	40.18	21.77	41.27	28.79	40.79	22.45	29.26
% Loss	12.10%	18.40%	10.00%	18.90%	13.20%	18.70%	10.30%	13.40%

Table 30: Volumes and dry weights of duplicate samples of BK1, BK2, BK4 and blank generated during the batch amenability tests of duplicate samples of BK1, BK2, BK4 and the Blank. Bioleaching testwork 2011-2012, AITF. From Table 6, Budwill 2012.

Metal extractions (recoveries) reported by AITF are summarized in Table 31, reporting percents of metals solubilized from the shale based on metals contained in the liquid fractions as a percentage of the head grade, and also as based on the difference between metals content of the head sample compared to metals remaining in the tails. Calculations are shown based on the head grade as analyzed, compared to calculations based on a calculated head grade per mass balancing all liquid and solid fractions. Mass balance calculations for the testwork estimated that differences between the head grade as analyzed and the calculated head grade based on liquid and solid fractions range $\pm$1% to $\pm$26%, but are in most part within $\pm$10%.

As with prior testwork, the above work also reported that recovery of certain metals (eg:Mo,V,Cu) is significantly higher after the HCl wash suggesting that these metals re-precipitate from the leach solution after they have been extracted from the shale. While the exact cause of this is not yet clarified, it is provisionally attributed to abrupt drifts in test conditions (most likely abrupt changes in pH). DNI plans to address this in its future work, and hence regards the final recoveries reported after the HCl wash to be best achievable recoveries. The best metal recoveries achieved during the above bioleaching tests, accordingly, as reported by AITF, are as follows: Mo-41%, Ni-89%, U-92%, V-24%, Zn-93%, Cu-78%, Co-94%, Li-29%. The results are consistent with results previously reported by AITF whose work focused on Mo-Ni-U-V-Zn-Cu-Co-Li only.

Recoveries for Specialty Metals and REE incidentally leached as co-products during the testwork, as calculated by DNI based on the difference of metals contents between head sample feed material and final tail residues after the HCl wash per analytical results from AITF's testwork, are as follows: La-39%, Ce-47%, Pr-61%, Nd-66%, Sm-76%, Eu-79%, Gd-83%, Tb-88%, Dy-84%, Ho-86%, Er-82%, Tm-73%, Yb-75%, Lu-73%, Y-85%, Th-60%, Sc-31%.

All of the above results were achieved under test conditions which are yet to be optimized and, as such, are regarded by DNI as initial results which future work will endeavor to improve by further optimizing and refining test parameters.

Metal	Extraction Efficiencies							
	Based on Head Values				Based on Calculated Head Values			
	BK1-1		BK1-2		BK1-1		BK1-2	
	per liquids	per solids	per liquids	per solids	per liquids	per solids	per liquids	per solids
Mo	31%	25%	41%	33%	29%	29%	38%	38%
Ni	63%	89%	77%	89%	85%	85%	87%	87%
U	73%	89%	89%	92%	87%	87%	92%	92%
V	14%	15%	16%	17%	14%	14%	16%	16%
Zn	81%	90%	90%	92%	89%	89%	92%	92%
Cu	47%	66%	58%	77%	58%	58%	71%	71%
Co	72%	93%	88%	93%	91%	91%	93%	93%
Li	19%	29%	23%	29%	21%	21%	24%	24%

Metal	Based on Head Values				Based on Calculated Head Values			
	BK2-1		BK2-2		BK2-1		BK2-2	
	per liquids	per solids	per liquids	per solids	per liquids	per solids	per liquids	per solids
Mo	34%	23%	33%	31%	30%	30%	32%	32%
Ni	67%	88%	66%	89%	85%	85%	86%	86%
U	76%	90%	78%	92%	88%	88%	91%	91%
V	15%	14%	14%	9%	15%	15%	13%	13%
Zn	79%	90%	79%	93%	89%	89%	92%	92%
Cu	55%	66%	55%	76%	62%	62%	69%	69%
Co	74%	93%	73%	94%	91%	91%	92%	92%
Li	25%	22%	24%	23%	24%	24%	24%	24%

Metal	Based on Head Values				Based on Calculated Head Values			
	BK4-1		BK4-2		BK4-1		BK4-2	
	per liquids	per solids	per liquids	per solids	per liquids	per solids	per liquids	per solids
Mo	34%	25%	34%	31%	31%	31%	33%	33%
Ni	67%	87%	65%	88%	84%	84%	85%	85%
U	84%	87%	86%	88%	87%	87%	88%	88%
V	18%	24%	17%	24%	20%	20%	18%	18%
Zn	91%	90%	90%	93%	90%	90%	93%	93%
Cu	64%	67%	65%	78%	66%	66%	75%	75%
Co	75%	90%	74%	90%	88%	88%	88%	88%
Li	28%	28%	27%	29%	28%	28%	27%	27%

Metal	Based on Head Values				Based on Calculated Head Values			
	BLANK-1		BLANK-2		BLANK-1		BLANK-2	
	per liquids	per solids	per liquids	per solids	per liquids	per solids	per liquids	per solids
Mo	12%	-40%	17%	57%	8%	8%	29%	29%
Ni	38%	63%	38%	82%	50%	50%	67%	67%
U	78%	33%	78%	41%	54%	54%	57%	57%
V	5%	-12%	5%	10%	4%	4%	5%	5%
Zn	60%	59%	63%	76%	59%	59%	73%	73%
Cu	31%	36%	34%	65%	33%	33%	50%	50%
Co	59%	68%	60%	80%	65%	65%	75%	75%
Li	33%	35%	33%	41%	33%	33%	36%	36%

Table 31: Extraction efficiencies of metals based on the head and calculated head values after the completion of batch amenability tests of duplicate samples of BK1, BK2, BK4 and Blank, calculated using the liquids and solids fractions. Suffix "-2" denotes tails which were washed with HCl before being sent for analysis. Bioleaching testwork 2011-2012, AITF. After Table 9, Budwill 2012.

14.2.5 Batch Amenability Tests - LaBiche Shale Overburden Material

As previously noted, a sample of LaBiche Shale which overlies the Second White Speckled Shale was used during all of DNI testwork programs as a matrix matched analytical blank since it is also a black shale but is substantially devoid of base metals. A summary of the best metal recoveries achieved during the above bioleaching tests from the sample of LaBiche Shale tested as a blank (coded "Blank" in AITF testwork), as reported by AITF, are as follows: Mo-57%, Ni-82%, U-78%, V-10%, Zn-76%, Cu-65%, Co-80%, Li-41%.

Recoveries for Specialty Metals and REE, as calculated by DNI, based on the difference of metal content between head sample feed material and final tail residues per analytical results from AITF's testwork, range as follows: La-13%-20%, Ce-21%-28%, Pr-28%-34%, Nd-35%-41%, Sm-49%-53%, Eu-55%-59%, Gd-61%-64%, Tb-60%-63%, Dy-61%-65%, Ho-58%-62%, Er-51%-55%, Tm-53%-57%, Yb-42%-47%, Lu-53%-57%, Y-56%-59%, Sc-28%-37%, Th-32%-34%.

The above results are from bioleaching of a homogenized composite drill core sample of the LaBiche Shale overlying the Buckton resource, representing a 3m long intercept in an archived historic drill hole which was collected by DNI during its 2009 verification sampling program (Hole 7BK04 from 79.6m to 82.6m). The interval is geochemically representative of the LaBiche Shale which comprises the overburden cover above the Buckton resource.

Recovery of metals from the overburden cover rocks above the Buckton Zone represents a significant new development from the Property as follows:

- The Buckton inferred resource is a near-horizontal tabular zone hosted entirely within the Second White Speckled (black) Shale Formation, bounded within its upper and lower contacts. This Formation is exposed throughout the erosional edge of the Birch Mountains (eg:Buckton Zone) but is overlain westward by progressively thicker sequences of other shales and till. As discussed in Section 15 of this report, given the uniformity of metals grades within the Speckled Shale, the Buckton resource has been laterally delimited based on depth criteria (ie: volume of "waste" material to be excavated to access the mineralized zone by open pit) rather than based on continuity of metallic mineralization which extends well beyond the limits of the current resource.
- Overburden cover rocks overlying the Buckton inferred resource have to date been considered to be "waste" material for the purposes of estimating the Buckton resource. The results being announced suggest that the overburden material may represent potential value given that contained metals, albeit in low concentrations, and REE are recoverable.
- The Buckton maiden resource study for Mo-Ni-U-V-Zn-Cu-Co-Li and the Buckton supplemental resource study for REE-Y-Sc-Th (discussed in a later Sections 15.2 and 15.3 of this report, respectively) estimated that the Buckton inferred resource is overlain by 762,678,000 short tons of overburden cover material consisting of LaBiche Formation shales with a thin veneer of overlying till glacially scoured therefrom. In addition, the two studies also concluded that mineralized tonnages ranging 400-679 million short tons with similar grades as the Buckton inferred resource can be blocked at a US$7.5 per tonne cut-off, representing extensions of the Buckton resource which are beneath less than 100m-150m of the surface and which are overlain by 1.4-3.0 billion short tons of overburden material.
- Recoverability of Metals and REEs from the overburden cover above the Buckton resource might serve to: (i) enable expansion of the Buckton inferred resource beyond its current limits to surrounding areas under thicker overburden cover, and (ii) provide an additional mineralized zone within the overburden cover rocks which were previously considered to be "waste" material.

14.3 Planned Bioleaching Testwork to follow - AITF - 2012-2013

The above bioleaching tests conclude DNI's Stage-1 leaching testwork program for samples from the Second White Speckled Shale polymetallic zone material. Work to follow will endeavor to expand on prior results to optimize test parameters to: (i) enhance recovery of certain metals (notably Mo,V,Li), (ii) mitigate re-precipitation of metals hence their loss after they have been solubilized, and (iii) conduct additional bioleaching tests at a continuous constant pH, whereas the tests thus far have been conducted under conditions wherein pH was occasionally monitored and adjusted. Work to follow will also commence to scale up sample size to test progressively larger samples ranging 1kg to 5kg in preparation of collecting the necessary information for formulation of column tests. The foregoing work is planed to commence in May 2012, in collaboration with CANMET.

Plans are underway to conduct a series of bioleaching tests at AITF similar to those above on composite drill core samples from the overburden cover rocks overlying the mineralized Second White Speckled Shale at the Buckton Zone. The rocks to be tested are from drill intercepts across the LaBiche Shale Formation, and plans are to commence work on four such composite samples in May 2012.

Aside from the above initiatives, plans are also underway by DNI to commence a series of tests in collaboration with CANMET in May 2012 to evaluate amenability of the Second White Speckled Shale to column testing (and ultimately heap leaching). The foregoing work will include agglomeration testwork as well as R&D to determine process methodology for separation of the various metals of interest, including REE and specialty metals, from the pregnant leach solution once they have been extracted from the shale.

14.4 CO_2 SPARGING LEACHING TESTWORK - AITF - 2011-2012

DNI commenced a series of batch reaction experiments in 2010 to assess the CO_2 uptake potential of its Alberta polymetallic black shales. The tests were conducted by Alberta Innovates Technology Futures (AITF - formerly the Alberta Research Council) whose first report was included in Alberta Mineral Assessment Report MIN20100017 (Sabag 2010).

The experiments were intended to collect baseline data relating to CO_2-shale chemical interaction from a series of tests which essentially entailed sparging (percolating) of CO_2 through samples of DNI's polymetallic black shale in a dilute electrolyte. An incidental discovery of this work was that metals contained in the black shale are partly solubilized (extracted from the shale) by the mild acidic conditions created by addition of CO_2 to the shale.

Further tests conducted in 2011-2012 focused on assessing the potential of using CO_2 as a leaching agent to extract (leach) metals from the Second White Speckled Shale, as a pretreatment to bioleaching which has to date been the principal process being assessed by DNI for bulk extraction of metals from its Alberta polymetallic black shales.

The 2011-2012 testwork was conducted by AITF under supervision of Dr.J.Brydie, during late 2011. AITF's final report[57] from this work is appended as Appendix D3.1, salient information from which has been extracted or summarized below. Analytical results[58] related to the testwork as reported by Actlabs, Ancaster, Ontario, are appended as Appendix D3.2 and D3.3.

A subsample from sample BK1-S1 was tested, representing a composite of the Second White Speckled Shale intercept in DNI drill hole 11BK01 which had been previously submitted to the AITF for bioleaching work. Details of the sample were previously described in Section 14.2 of this report. The sample had previously been ground/pulverized and homogenized and was used after thorough mixing with no additional preparation. Weighted average geochemical profile per DNI's drill core analytical records is shown in Table 26 along with comparative analysis of a "head" sample collected by the AITF prior to the CO_2 testwork.

The test sample was divided into several subsamples as follows:

- One ~50 g archive sample set aside; (BK-SK1).
- One ~50 g "head sample" submitted for acid digestion and metal analysis to Actlabs;
- Two ~50 g duplicates used for CO_2 leaching tests;
- One ~50 g sample used as a control sample tested without CO_2.

[57] Report: Extraction of Trace Metals from a DNI Metals Shale Sample Using CO2 as a Leaching Agent. Prepared for DNI Metals Inc., Alberta Innovates Technology Futures (AITF), Brydie J., March 13, 2012.
[58] Actlabs Rpt#A11-13974

The two CO_2-leached samples and control sample were submitted to Actlabs for acid digestion and metal analysis as "tail samples". Analytical certificates and results are appended herein as Appendix D3.2 and D3.3.

The leaching tests entailed suspending the shale sample material in an inert electrolyte (0.01 M $NaNO_3$), and CO_2 gas passed through the system to determine the efficiency of CO_2 gas and protonated CO_2 (ie:carbonic acid) as a leaching agent. Experiments included: (i) duplicate samples of shale, $NaNO_3$ solution and CO_2; (ii) one sample of shale and $NaNO_3$ solution, with no CO_2 added; and (iii) an experimental control sample with $NaNO_3$ solution only within a reaction vessel.

Samples were tested over a 192 hour period during which pH and EC were monitored, the initial 96 hours being the period of equilibration of test samples with 0.01 m $NaNO_3$ and the remaining 96 hours being the period during which CO_2 was sparged. Previous experiments conducted at AITF (Brydie and Perkins, 2010) had noted that changes in pH and EC were most active during the initial 24 hours of shale-CO_2 interaction. Sampling frequency was, accordingly, tailored to capture as much data as possible during this period and the solution was sampled at hours 0, 3, 6, 9, 12, 15, 24, 30 and 96. pH and electrical conductivity measured at the time of sample collection, and samples were processed and submitted for chemical analysis to Actlabs, Ancaster, Ontario. Of 54 elements monitored metal recovery was assessed for 11 elements (As, Co, Cd, Li, Mo, Ni, Sb, Se, U, V and Zn).

Evolution of pH and EC over the 192 hours is shown in Figure 93.

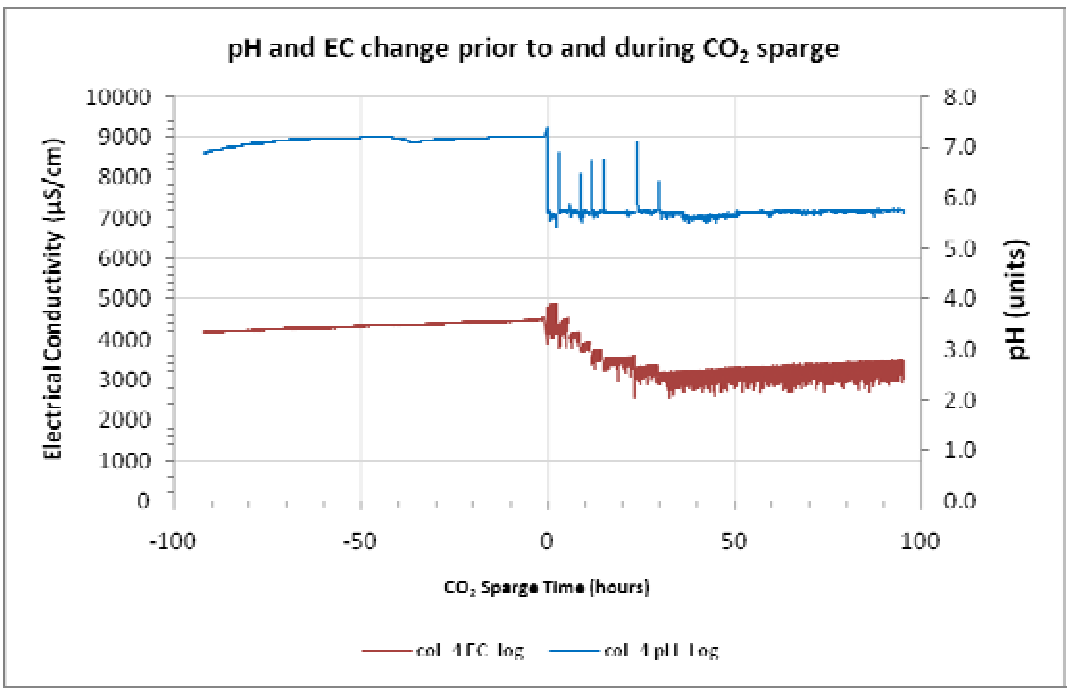

Figure 93: Evolution of pH and EC during CO2 sparging tests, showing initial 96hrs of $NaNO_3$ equilibration, and subsequent 96hrs of CO_2 reaction. Time "0" represents start of CO_2 sparging. After Figure 1, Brydie 2012.

The initial equilibration of shale samples with 0.01 M $NaNO_3$ resulted in partial dissolution and recovery of all metal species within the subset of interest; except for Cd, V and Zn. Metal recovery from this dissolution range from 0.04% to 2.6% of the head value. Subsequent leaching with CO_2 resulted in further metal recovery with calculated metal recoveries ranging 0.08% to 7.2%. Overall metals recoveries reported by the CO_2 sparging tests are lower than those reported from DNI's bioleaching testwork (Table 32), suggested by AITF to be likely due to the mild acidic pH conditions generated by the CO_2 (pH 5.6) compared to higher acidities (pH 1.6-2) typifying bioleaching testwork.

While, as expected, overall metals recoveries reported by the CO_2 sparging tests are lower than those reported from DNI's bioleaching testwork, the current experiments demonstrate that CO_2 can be used to leach metals from the black shales, supporting a proposal that leaching with CO_2 offers previously unrecognized possibilities as a pretreatment during bioleaching to reduce reagent consumption. Metal recoveries reported by the sparging tests ranged 0.1% to 10.5%, and are as follows: Mo-9.8%, Ni-3.3%, U-10.5%, V-0.1%, Zn-0.3%, Co-2.3%, Cd-0.8%, Li-5.7%.

Element	**$NaNO_3$ and CO_2 Leaching** (**current study**)	Best recovery (Acid or Bioleaching) (DNI, 2011)
Mo	9.8%	51 %
Ni	3.3%	89%
U	10.5%	100%
V	0.1%	51%
Zn	0.3%	100%
Co	2.3%	91%
Cd	0.8%	100%
Li	5.7%	58%

Table 32: Summary of calculated recoveries for select metals from CO_2 sparging tests, showing comparative results from bioleaching and acid leaching tests documented by DNI from other work. After Table 3 Brydie 2012.

The possibility of relying on CO_2 as a partial leaching agent is a new development from the Property and an exciting CO_2 consumption opportunity which might ultimately benefit adjacent oil sands operations by providing a practical use for carbon emissions captured therefrom". DNI's intentions are to broaden and scale-up the above testwork per recommendations of the above study.

Leaching of metals and REEs from the Second White Speckled Shale under moderately acidic conditions is consistent with other prior observations that the metals and REEs likely occur in the Shale in ionic forms adsorbed on clays rather than trapped within other minerals (eg:sulfides).

15. RESOURCE STUDIES 2011-2012

15.1 OVERVIEW

Apex Geoscience Ltd. of Edmonton ("APEX") was commissioned in mid 2011 to prepare a resource estimate for a portion of the Buckton Zone over which sufficient drilling had been completed to support estimation of an initial "maiden" resource from the Zone. The resource study, completed in October 2011, was prepared under the supervision of Mr.Michael Dufresne PGeol. The Study relied on drilling completed during the 2010-2011 winter by DNI over the Zone (Section 13), together with historic drilling from the area, all of which drilling campaigns had been implemented by APEX under the supervision of Mr.Dufresne. Reliance on historic drill holes was made possible by DNI's verification sampling and analysis of archived core therefrom in 2008 and 2009. The historic drilling had previously also been implemented by APEX under the supervision of Mr.Dufresne. The resource study delineated an initial "maiden" resource over a portion of the Buckton Zone focusing on Mo-Ni-U-V-Zn-Cu-Co-Li, which complies with National Instrument 43-101 and CIM resource estimation guidelines. The study report[59] (Dufresne et al 2011b) is appended herein as Appendix E1.

Subsequent to completion of the above maiden resource study, APEX was commissioned in late 2011 to prepare an additional, supplemental, resource study to prepare an estimate of Rare Earth Elements and Specialty Metals Sc-Th contained within the Buckton maiden resource. The supplemental resource study was commissioned given that DNI's bioleaching testwork also reported incidental recovery of these metals as co-products during leaching of base metals from the Buckton Zone samples. The supplemental resource study focused on REE-Y-Sc-Th, and also complied with National Instrument 43-101 and CIM resource estimation guidelines. The study report[60] (Eccles et al 2012) is appended herein as Appendix E2.

Salient findings and conclusions extracted from the studies are outlined below. The reader is referred to the respective resource study reports for details.

15.2 INITIAL MAIDEN RESOURCE STUDY - MO-NI-U-V-ZN-CU-CO-LI - BUCKTON ZONE

The Buckton maiden resource study was prepared by APEX under the supervision of Mr.Michael Dufresne PGeol, and it was completed in October 2011. The Study relied on drilling completed during the 2010-2011 winter by DNI over the Zone, together with historic drilling from the area. The study (appended herein as Appendix E1) focused only on delineating a resource for Mo-Ni-U-V-Zn-Cu-Co-Li.

The Buckton maiden resource study relied on an aggregate of eleven vertical core holes distributed over an area of approximately 5.7 square kilometres, and spaced approximately 240m-2400m apart, averaging 1000m as shown in Figures 94 and 95. Figure 95 also shows depths to the Second White Speckled Shale Formation and its thickness per nearby oil/gas wells picks. Notwithstanding systematic vertical grade variations or zonation within the Second White Speckled Shale Formation, bulk averaged grades across the Formation show good uniformity over large distances across the Property. Considering this uniformity, the spacing and number of holes are considered sufficient for the determination of inferred resources, and extrapolation of grades between the drill holes is supported by statistical variography examined during the resource study.

The maiden resource study entailed modeling and tonnage estimation using a 3-dimensional block model based on geostatistical applications using commercial mine planning software MICROMINE. The sample file comprised 872 samples of variable length for all lithologies but, when composited in MICROMINE, yielded

[59] Report: Technical Report, Maiden Resource Estimate, Buckton Mineralized Zone, SBH Property, Northeast Alberta. Prepared for DNI Metals Inc., Prepared by APEX Geoscience Ltd., September 30, 2011. Dufresne M., Eccles R. and Nicholls S.

[60] Report: Technical Report, Supplementary REE-Y-Sc-Th Inferred Resource Estimate o Accompany The Maiden Resource Mo-Ni-U-V-Zn-Cu-Co-Li Estimate, Buckton Mineralized Zone, SBH Property, Northeast Alberta, Prepared for DNI Metals Inc., Prepared by APEX Geoscience Ltd., January 29, 2012. Effective Date January 13, 2012. Eccles R., Dufresne M. and Nicholls S.

a database of 197 sample composites for the Second White Speckled Shale which were used for the mineral resource study. All holes are short vertical holes and, as such, there are no down-hole surveys.

Variography was conducted on the composited drill hole data within the Second White Specks shale domain to produce spherical semi variograms. Each metal was modeled individually to determine the continuity and orientation of mineralization. As a result of the wide drill hole spacing a parent model block size of 200mx200mx2m was chosen for the resource estimate, with sub-blocking down to 20mx20mx1m. The block model was extended far enough past the mineralized wireframe to encompass the entire mineralized shale domain. The recoverable grades for the metals were translated into a US$ value for each block and sub-block relying on the five year average metal/oxide price to Aug/2006, and the collective values aggregated to enable testing against a block value base case cut-off of US$7.5 per tonne. According to the foregoing method, the Study concluded that the reported resource represents an average value of US$21.5 per short ton (US$23.7 per tonne) representing the aggregate value of recoverable grades for the eight metals reported in the resource. This cut-off is considered to be a reasonable benchmark which has been utilized by recent mineral resource estimates for open pit mineable poly-metallic black shales in Sweden as the break-even point and lower cut-off.

Testing and iteration of the Buckton resource model at a higher cut-off of US$10 per tonne reported a similar tonnage as the US$7.5 per tonne cut-off base case scenario save for approximately 100,000 tonnes which did not meet threshold criteria. The US$10 per tonne cut-off is considered to be a reasonable benchmark which has been utilized by recent mineral resource estimates as the break-even point and lower cut-off for open pit mining of a poly-metallic black shale and its processing by bioheapleaching in Finland. Considering a scenario of possible open pit mining in northeast Alberta along the eastern edge of the Birch Mountains, with potential for a low strip ratio at startup, the likely free-dig nature of the poorly consolidated Speckled Shale, the potential for easy access to multiple working faces, the location of the project with respect to access, power and other important infrastructure, a lower cut-off value for the mineral resource estimate of US$S7.5 per tonne is considered reasonable by the Study as a base case cut-off threshold which also captures a relatively continuous mineralized zone with favourable bulk mining configuration.

The Buckton inferred mineral resource reported is classified as an inferred resource consisting of 250,092,000 short tons (226,880,000 metric tonnes) of mineralized Second White Speckled black Shale, beneath less than 75m of overburden cover, which is mineralized with recoverable Molybdenum (Mo), Nickel (Ni), Uranium (U), Vanadium (V), Zinc (Zn), Copper (Cu), Cobalt (Co) And Lithium (Li). The inferred resource includes 124,031,000 short tons which are under less than 50m of overburden cover and 19,847,000 short tons which are under less than 25m of overburden cover. Silver and gold were assessed but omitted, as were also rare earth elements and specialty metals except Li. The Buckton maiden inferred resource is summarized in Table 33 and its geographic extent is shown in Figure 94.

Buckton Inferred Resource Mineralized Shale (tons)	250,092,000							
	MoO3	Ni	U3O8	V2O5	Zn	Cu	Co	Li2CO3
Raw Grade (ppm)	115	148	37	1288	302	76	23	302
Recovery %	50%	90%	90%	40%	90%	60%	90%	50%
Recoverable Grade (ppm)	57	133	33	515	272	46	21	151
Recoverable Grade (lbs/ton)	0.115	0.266	0.066	1.030	0.544	0.091	0.042	0.302
Metal/Oxide Price* (US$/lb)	21.6	11.1	73	8.1	1.1	3.2	25.3	3
Recoverable metal/oxide (lbs)	28,656,000	66,454,000	16,513,000	257,604,000	136,065,000	22,832,000	10,412,000	75,507,000

**Metal/Oxide commodity prices are the five year average to Aug/2006 used to establish bulk recoverable values for cut-off grade thresholding tests. ton(s)=short ton(s); lb(s)=pound(s); The 2011 drilling included an appropriate number of analytical standards, blanks and duplicates, and no analytical issues were identified. Numbers may not add due to rounding.*

Table 33: Summary of the Buckton Maiden Inferred Resource. After Dufresne et al 2011b.

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource reported herein will be converted into a mineral reserve. An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

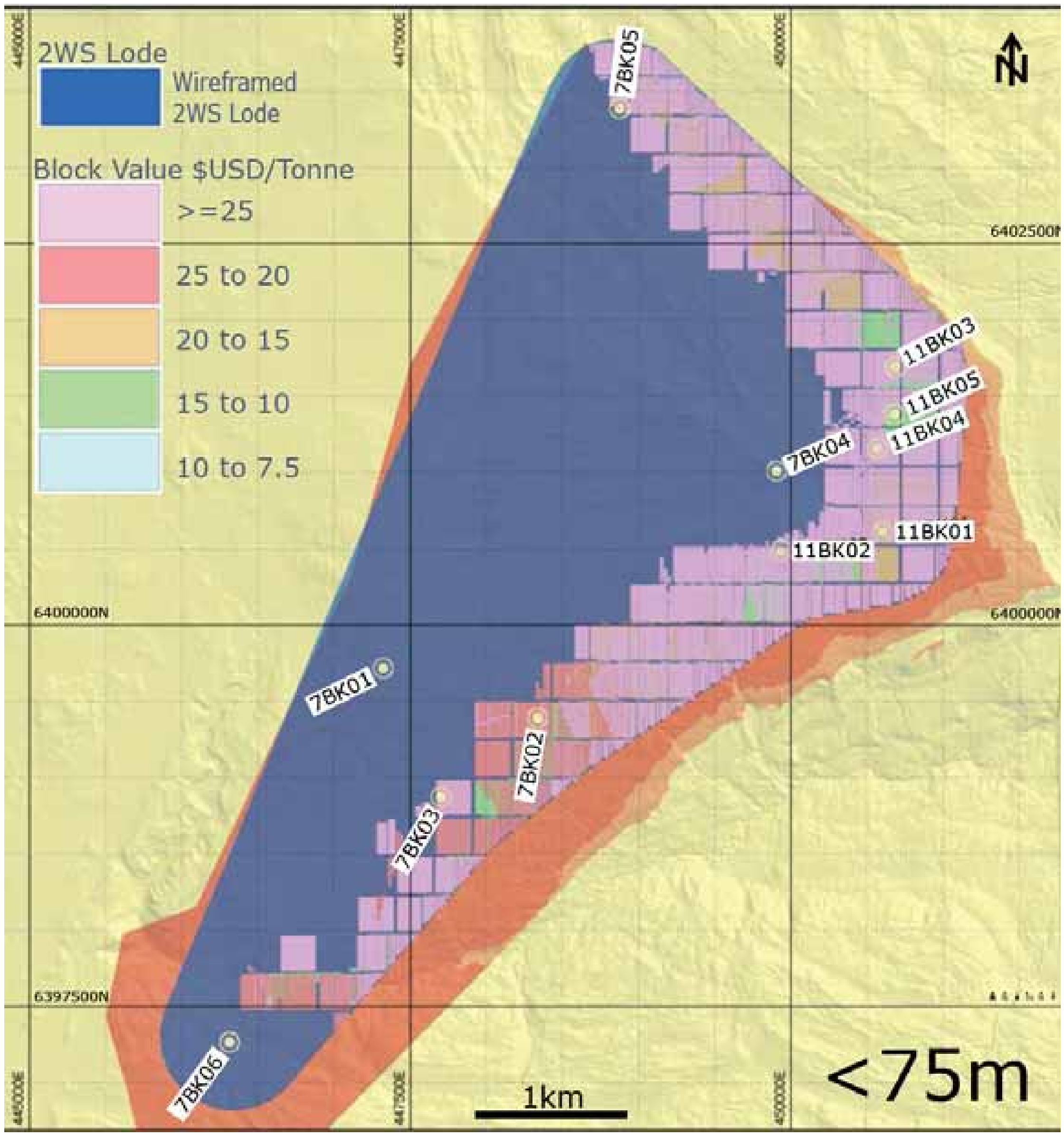

Figure 94: Geographic distribution of the Buckton Maiden Inferred Resource (under <75m cover). Buckton Maiden Resource Study 2011, Dufresne et al 2011b.

The Buckton resource study concluded that the Buckton inferred mineral resource is mineralization that is believed to have a reasonable prospect for extraction in the future. It represents material which is at a depth of less than 75m from surface, at a US$7.5 per tonne lower cut-off, whose value is represented by the collective value of contained recoverable Mo-Ni-U-V-Zn-Co-Cu-Li, relying on the average 5 year metal prices to Aug/2006 and relying on the best achieved metals recoveries as reported from the collective of DNI's leaching testwork.

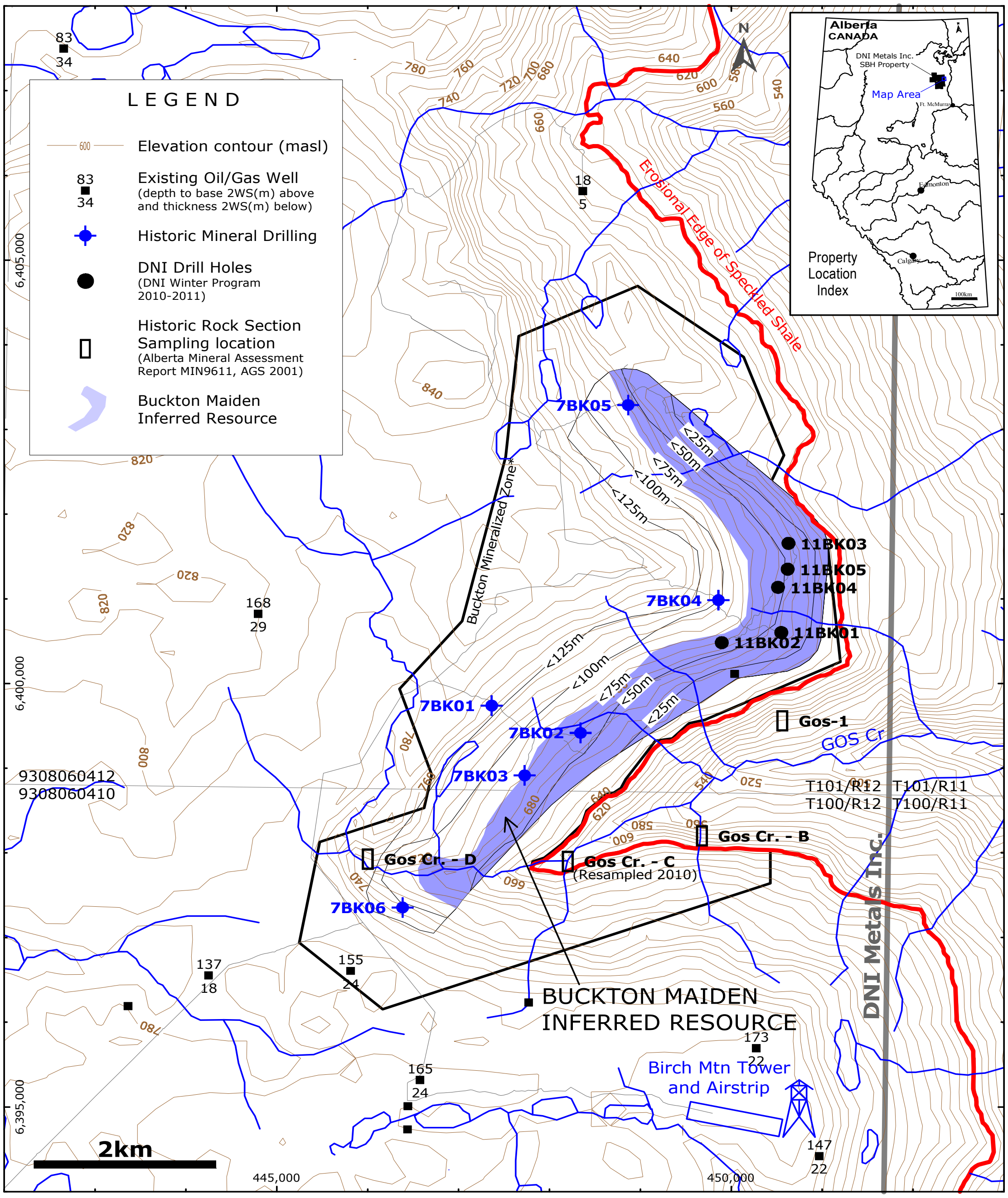

Figure 95: Summary of geographic distribution of the Buckton Maiden Inferred Resource (under <75m cover), showing also geographic distribution of additional mineralized material which are under <25m, <50m,<100m and <125m of cover. Buckton Maiden Resource Study 2011. Dufresne et al 2011b.

The Buckton inferred resource comprises an approximately 5.7 square kilometer, 13m to 23m thick, near-horizontal tabular zone hosted entirely within the Second White Speckled Shale Formation, bounded by its upper and lower contacts. This Formation is exposed throughout the erosional edge of the Birch Mountains but is overlain westward by progressively thicker sequences of other shales and till. Given the uniformity of metals grades within the Shale, the resource is laterally delimited based on depth criteria rather than continuity of metallic mineralization which extends well beyond its limits. Presence of the Speckled Shale for at least 6km to its north and south, and beyond, has been confirmed by oil/gas downhole well logs in the area which report sections of this Shale over a large area extending well beyond the current boundaries of the resources. The Buckton maiden resource is, accordingly, open to the north and northeast, and for approximately 300m eastward to the erosional edge of the Birch Mountains over a large area with thin overburden cover where mineralization intermittently outcrops at surface or is intermittently exposed throughout several kilometres of valley walls.

Considering that the Buckton maiden resource is laterally delimited based on depth criteria rather than continuity of metallic mineralization which extends well beyond its limits, in addition to testing the Buckton resource model at different value based cut-offs, the resource model also iterated various scenarios to estimate tonnages constrained by different overburden thicknesses at a US$7.5 per tonne cut-off, including tonnages which are beneath less than 100m-125m of cover rocks. The Study concluded that mineralized tonnages ranging 401,703,000-551,130,000 short tons can be blocked, with similar grades as the Buckton inferred resource being reported, which are under less than 100m-125m of the surface, which are overlain by 1,410,086,000-2,299,891,000 short tons of overburden. Mineralized material which can be blocked beneath less than 100m and 125m of overburden cover are summarized in Table 34, and their geographic distribution over the Buckton Zone is shown in Figure 95, 96 and 97.

The above tonnages are not resources and cannot currently be classified as resources since it is unclear, in the absence of a rigorous economic assessment, whether they have a reasonable prospect for extraction in the future given the large tonnages of overburden cover rocks overlying them, and must until such time be considered to be mineralized material which is a target for further work whose ultimate quantity and grade are conceptual in nature as there has been insufficient exploration to define a mineral resource and it is uncertain whether further exploration will result in discovery of a mineral resource.

The Buckton resource study estimates that the resources reported are overlain by 762,678,000 short tons (691,890,000 metric tonnes) of overburden cover material consisting of LaBiche Formation shales and overlying till which is in most part material glacially scoured from the LaBiche Formation. The foregoing overburden material is substantially barren of base metals and uranium, and was, accordingly, considered to be "waste" by the resource study for the purposes of estimating the base metals and uranium resources being reported. The overburden material does, however, contain Li and rare earth elements which have not yet been fully evaluated even though, based on partial analytical data, their grades are comparable to grades from the Buckton Mineralized Zone (discussed in greater detail in Section 15.4 of this report. The geographic distribution of the foregoing volumes is shown in Figures 95 and 96.

DNI completed leaching testwork on a representative sample of the overburden material (LaBiche Shale Formation) which demonstrated that metals and REE can be extracted from the overburden by leaching methods similar to those tested on samples from the Buckton Zone (leaching testwork and results are discussed in greater detail in Section 14.2.5 of this report). The foregoing test demonstrate that overburden cover rocks overlying the Buckton resource may have recoverable value.

Variography and statistical grade distribution analysis carried out during the study noted that average sample grades and model grades are remarkably similar, and that the polymetallic mineralization hosted in the Second White Speckled Shale is characterized by exceptionally good lateral continuity of metals grades over large distances ranging 400m-2.1km (see Section 13.8, Dufresne et al 2011a and Eccles 2011).

Blocks <25 m from surface & >$USD7.5/Tonne	MoO_3	Ni	U_3O_8	V_2O_5	Zn	Cu	Co	Li_2CO_3	Subtotals
Tonnes (Overburden Only)*	43,122,000	43,122,000	43,122,000	43,122,000	43,122,000	43,122,000	43,122,000	43,122,000	43,122,000
Tons (Overburden Only)*	47,534,000	47,534,000	47,534,000	47,534,000	47,534,000	47,534,000	47,534,000	47,534,000	47,534,000
Tonnes (Mineralized Black Shale Only)*	19,847,000	19,847,000	19,847,000	19,847,000	19,847,000	19,847,000	19,847,000	19,847,000	19,847,000
Tons (Mineralized Black Shale Only)*	21,877,000	21,877,000	21,877,000	21,877,000	21,877,000	21,877,000	21,877,000	21,877,000	21,877,000
Raw Average Grade (ppm)	137.5	160.5	37.7	1423.3	310.2	77.5	23.8	304.8	
% Recovery	50%	90%	90%	40%	90%	60%	90%	50%	
Recoverable Grade (ppm)	68.7	144.5	34.0	569.3	279.2	46.5	21.4	152.4	
Recoverable Grade (lbs/ton)	0.137	0.289	0.068	1.139	0.558	0.093	0.043	0.305	
$USD/tonne (5yr average)	3.3	3.5	5.5	10.2	0.7	0.33	1.2	1.0	25.7
$USD/ton (5yr average)	3.0	3.2	5.0	9.2	0.6	0.30	1.1	0.9	23.3
Total lbs of recoverable metal (or oxide)	3,007,000	6,321,000	1,486,000	24,911,000	12,214,000	2,034,000	938,000	6,669,000	
Blocks <50 m from surface & >$USD7.5/Tonne	**MoO_3**	**Ni**	**U_3O_8**	**V_2O_5**	**Zn**	**Cu**	**Co**	**Li_2CO_3**	**Subtotals**
Tonnes (Overburden Only)*	254,005,000	254,005,000	254,005,000	254,005,000	254,005,000	254,005,000	254,005,000	254,005,000	254,005,000
Tons (Overburden Only)*	279,993,000	279,993,000	279,993,000	279,993,000	279,993,000	279,993,000	279,993,000	279,993,000	279,993,000
Tonnes (Mineralized Black Shale Only)*	112,519,000	112,519,000	112,519,000	112,519,000	112,519,000	112,519,000	112,519,000	112,519,000	112,519,000
Tons (Mineralized Black Shale Only)*	124,031,000	124,031,000	124,031,000	124,031,000	124,031,000	124,031,000	124,031,000	124,031,000	124,031,000
Raw Average Grade (ppm)	118.9	153.8	37.2	1323.3	305.2	76.4	23.7	303.5	
% Recovery	50%	90%	90%	40%	90%	60%	90%	50%	
Recoverable Grade (ppm)	59.5	138.4	33.5	529.3	274.7	45.8	21.4	151.7	
Recoverable Grade (lbs/ton)	0.119	0.277	0.067	1.059	0.549	0.092	0.043	0.303	
$USD/tonne (5yr average)	2.8	3.4	5.4	9.5	0.7	0.3	1.2	1.0	24.3
$USD/ton (5yr average)	2.6	3.1	4.9	8.6	0.6	0.3	1.1	0.9	22.0
Total lbs of recoverable metal (or oxide)	14,751,000	34,326,000	8,315,000	131,302,000	68,138,000	11,367,000	5,296,000	37,639,000	

Table 34 (Continued next page): Buckton Maiden Mo-Ni-U-V-Zn-Co-Cu-Li Inferred Resource (<75m), showing also mineralized material under <25, <50m,<100m and <125m thickness of cover rocks. After Buckton Maiden Resource Study 2011, Dufresne et al 2011b.

Blocks <75 m from surface & >$UDS7.5/Tonne**	MoO_3	Ni	U_3O_8	V_2O_5	Zn	Cu	Co	Li_2CO_3	Subtotals
Tonnes (Overburden Only)*	691,890,000	691,890,000	691,890,000	691,890,000	691,890,000	691,890,000	691,890,000	691,890,000	691,890,000
Tons (Overburden Only)*	762,678,000	762,678,000	762,678,000	762,678,000	762,678,000	762,678,000	762,678,000	762,678,000	762,678,000
Tonnes (Mineralized Black Shale Only)*	226,880,000	226,880,000	226,880,000	226,880,000	226,880,000	226,880,000	226,880,000	226,880,000	226,880,000
Tons (Mineralized Black Shale Only)*	250,092,000	250,092,000	250,092,000	250,092,000	250,092,000	250,092,000	250,092,000	250,092,000	250,092,000
Raw Average Grade (ppm)	114.6	147.6	36.7	1287.5	302.3	76.1	23.1	301.9	
% Recovery	50%	90%	90%	40%	90%	60%	90%	50%	
Recoverable Grade (ppm)	57.3	132.9	33.0	515.0	272.0	45.6	20.8	151.0	
Recoverable Grade (lbs/ton)	0.115	0.266	0.066	1.030	0.544	0.091	0.042	0.302	
$USD/tonne (5yr average)	2.7	3.3	5.3	9.2	0.7	0.3	1.2	1.0	23.7
$USD/ton (5yr average)	2.5	3.0	4.8	8.4	0.6	0.3	1.1	0.9	21.5
Total lbs of recoverable metal (or oxide)	28,656,000	66,454,000	16,513,000	257,604,000	136,065,000	22,832,000	10,412,000	75,507,000	
**Preferred Inferred Mineral Resource									
Blocks <100 m from surface & >$USD7.5/Tonne	MoO_3	Ni	U_3O_8	V_2O_5	Zn	Cu	Co	Li_2CO_3	Subtotals
Tonnes (Overburden Only)*	1,279,209,000	1,279,209,000	1,279,209,000	1,279,209,000	1,279,209,000	1,279,209,000	1,279,209,000	1,279,209,000	1,279,209,000
Tons (Overburden Only)*	1,410,086,000	1,410,086,000	1,410,086,000	1,410,086,000	1,410,086,000	1,410,086,000	1,410,086,000	1,410,086,000	1,410,086,000
Tonnes (Mineralized Black Shale Only)*	364,419,000	364,419,000	364,419,000	364,419,000	364,419,000	364,419,000	364,419,000	364,419,000	364,419,000
Tons (Mineralized Black Shale Only)*	401,703,000	401,703,000	401,703,000	401,703,000	401,703,000	401,703,000	401,703,000	401,703,000	401,703,000
Raw Average Grade (ppm)	111.5	144.1	36.2	1268.8	300.9	76.1	22.7	301.1	
% Recovery	50%	90%	90%	40%	90%	60%	90%	50%	
Recoverable Grade (ppm)	55.7	129.7	32.6	507.5	270.8	45.7	20.4	150.6	
Recoverable Grade (lbs/ton)	0.111	0.259	0.065	1.015	0.542	0.091	0.041	0.301	
$USD/tonne (5yr average)	2.7	3.2	5.2	9.1	0.6	0.3	1.1	1.0	23.3
$USD/ton (5yr average)	2.4	2.9	4.8	8.2	0.6	0.3	1.0	0.9	21.1
Total lbs of recoverable metal (or oxide)	44,771,000	104,166,000	26,203,000	407,743,000	217,543,000	36,705,000	16,392,000	120,9733,000	

Table 34: (Cnt'd): Buckton Maiden Mo-Ni-U-V-Zn-Co-Cu-Li Inferred Resource (<75m), showing also mineralized material under <25, <50m,<100m and <125m thickness of cover rocks. After Buckton Maiden Resource Study 2011, Dufresne et al 2011b.

Blocks <125 m from surface & >$USD7.5/Tonne	MoO_3	Ni	U_3O_8	V_2O_5	Zn	Cu	Co	Li_2CO_3	Subtotals
Tonnes (Overburden Only)*	2,086,417,000	2,086,417,000	2,086,417,000	2,086,417,000	2,086,417,000	2,086,417,000	2,086,417,000	2,086,417,000	2,086,417,000
Tons (Overburden Only)*	2,299,891,000	2,299,891,000	2,299,891,000	2,299,891,000	2,299,891,000	2,299,891,000	2,299,891,000	2,299,891,000	2,299,891,000
Tonnes (Mineralized Black Shale Only)*	499,977,000	499,977,000	499,977,000	499,977,000	499,977,000	499,977,000	499,977,000	499,977,000	499,977,000
Tons (Mineralized Black Shale Only)*	551,130,000	551,130,000	551,130,000	551,130,000	551,130,000	551,130,000	551,130,000	551,130,000	551,130,000
Raw Average Grade (ppm)	109.6	141.8	35.9	1251.8	299.5	75.8	22.4	300.9	
% Recovery	50%	90%	90%	40%	90%	60%	90%	50%	
Recoverable Grade (ppm)	54.8	127.7	32.3	500.7	269.6	45.5	20.2	150.4	
Recoverable Grade (lbs/ton)	0.110	0.255	0.065	1.001	0.539	0.091	0.040	0.301	
$USD/tonne (5yr average)	2.6	3.1	5.2	9.0	0.6	0.3	1.1	1.0	23.0
$USD/ton (5yr average)	2.4	2.8	4.7	8.1	0.6	0.3	1.0	0.9	20.9
Total lbs of recoverable metal (or oxide)	60,392,000	140,708,000	35,625,000	551,928,000	297,157,000	50,156,000	22,215,000	165,824,000	

*Tonne = metric tonne = 1,000 kg (2,204.6 lbs); Ton = short ton = 907.2 kg (2,000 lbs). Numbers may not add due to rounding. Average metal or oxide prices are for the period of August 1, 2006 to July 31, 2011.

Table 34: (Cnt'd): Buckton Maiden Mo-Ni-U-V-Zn-Co-Cu-Li Inferred Resource (<75m), showing also mineralized material under <125, thickness of cover rocks. After Buckton Maiden Resource Study 2011, Dufresne et al 2011b.

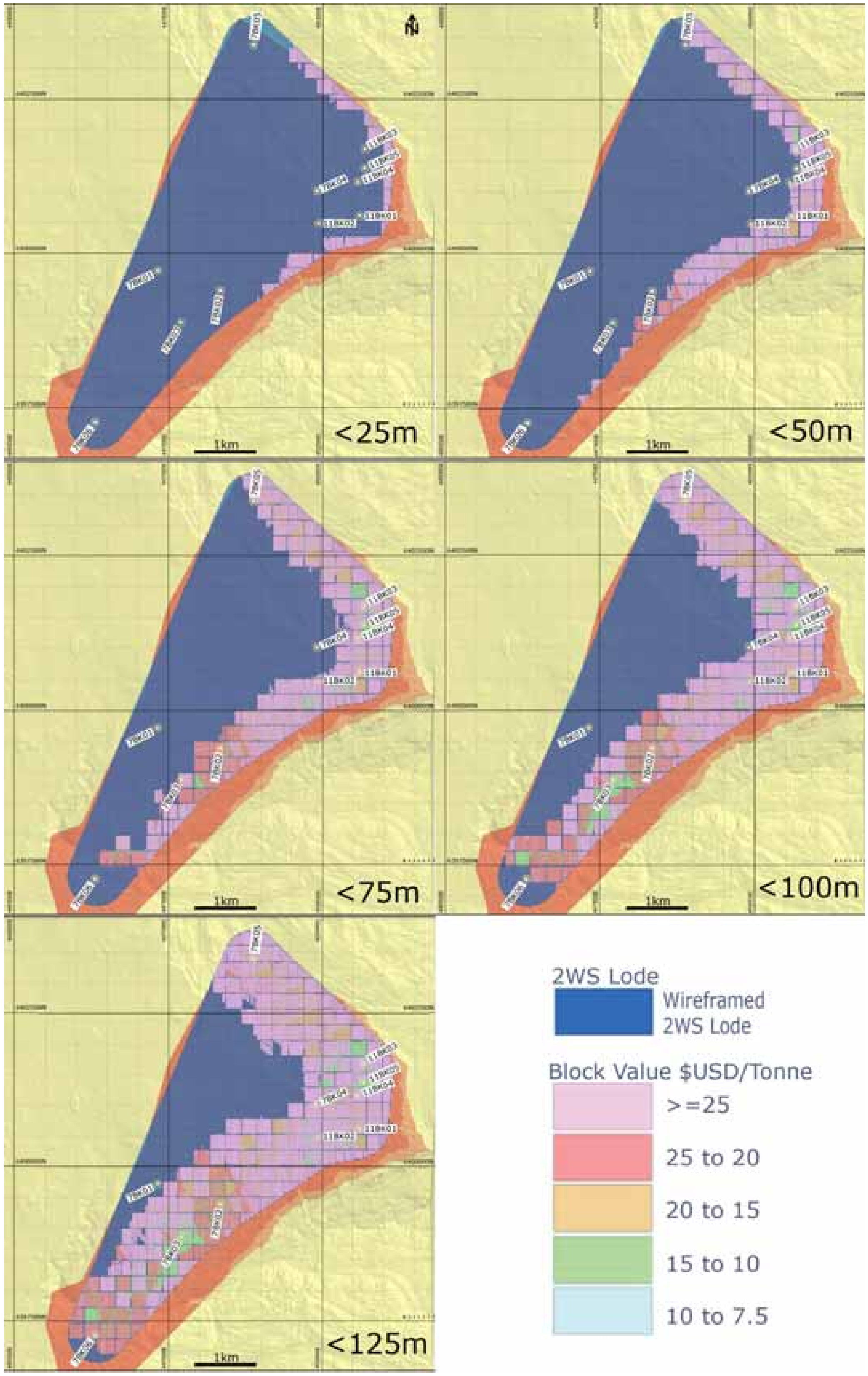

Figure 96: Geographic distribution of the Buckton Maiden Inferred Resource (under <75m cover), showing also geographic distribution of additional mineralized material which are under <25m, <50m,<100m and <125m of cover. Buckton Maiden Resource Study 2011, Dufresne et al 2011b.

The Buckton resource study made recommendations to implement certain additional mineralogical and leaching work, in addition to a 5,000m diamond drilling program intended to expand the Buckton inferred resource northward and eastward, and to upgrade a portion of it into an Indicated or higher resource classification. This drilling also includes initial holes to test the Buckton South Target (presented in Section 10.3.3 of this report) located approximately nine kilometres to the south of the Buckton inferred resource, and which may represent its southerly extension or an entirely separate similar Zone which has not yet been drilled (cored) by DNI, although 12m-23m thick intercepts of the Speckled Shale Formation are reported in downhole logs from approximately twenty historic oil/gas wells throughout a 100-150 square kilometre area. DNI organized permitting for some of the foregoing drilling for a winter 2011-2012 drilling program which was deferred to focus attentions and efforts on resolving significance of REE and specialty metals contained in the Buckton maiden resource and the overlying overburden cover rocks consisting mostly of LaBiche Formation shales.

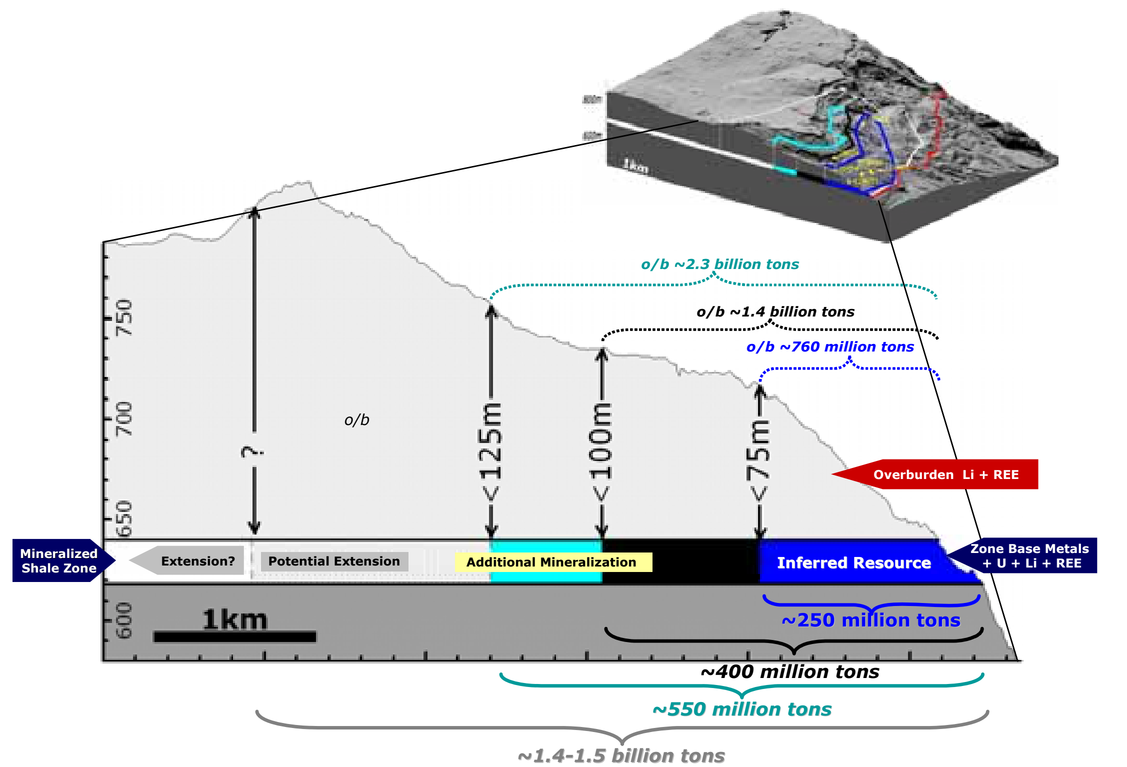

Figure 97: 3-D Cutaway sketch of the distribution of the Buckton Maiden Inferred Resource (under <75m cover), showing also distribution of additional mineralized material which are under <25m, <50m,<100m and <125m of cover. Buckton Maiden Resource Study 2011, Dufresne et al 2011b.

15.3 Supplemental Resource Study - REE-Y-Sc-Th - Buckton Zone

The Buckton supplemental resource study for REE-Y-Sc-Th was prepared by APEX under the supervision of Mr.Roy Eccles PGeol and Mr.Michael Dufresne PGeol, and it was completed in January 2012. The study relied on the same drilling as did the Buckton maiden resource study, namely; drilling completed during the 2010-2011 winter by DNI over the Zone, together with historic drilling from the area. The supplemental resource study focused on delineating a resource for REE-Y-Sc-Th contained within the Buckton maiden resource and is, accordingly, supplemental to the Buckton maiden resource for Mo-Ni-U-V-Zn-Cu-Co-Li. To the extent that REE-Y-Sc-Th are incidentally recovered during leaching of base metals from the mineralized black shales comprising the Zone, they are co-products which can be expected to offer additional value recoverable from the Buckton Zone. The study report (Eccles et al 2012) is appended herein as Appendix E2.

In preparation for the Buckton supplemental resource study for REE-Y-Sc-Th, all available drill core from the Buckton Zone were reanalyzed in a single analytical suite for REE to augment prior analytical work which had omitted some REEs. This work entailed analysis of all intercepts of the Second White Speckled Shale from DNI's 2010-2011 drilling program, in addition to material collected by DNI from archived historic drill core during its 2009 verification sampling program (see Alberta Mineral Assessment Report MIN20100017, Sabag 2010, for details of the verification sampling). Analytical certificates[61] related to the foregoing are append herein as Appendix C3.7 and C3.8.

Similarly to the Buckton maiden resource study, the Buckton Supplementary REE-Y-Sc-Th Resource Study relied on an aggregate of eleven vertical core holes distributed over an area of approximately 5.7 square kilometres, and spaced approximately 240m-2400m apart (averaging 1000m). Notwithstanding systematic vertical grade variations or zonation within the Second White Speckled Shale Formation, bulk averaged grades across the Formation show good uniformity over large distances across the Property. Considering this uniformity, the spacing and number of holes are considered sufficient for the determination of inferred resources, and extrapolation of grades between the drill holes is supported by statistical variography examined during the Supplementary Study.

The Buckton Supplementary REE-Y-Sc-Th Resource Study consisted of modeling and tonnage estimation using a 3-dimensional block model based on geostatistical applications using commercial mine planning software MICROMINE. The sample file comprised 549 samples of variable length for all lithologies but, when composited in MICROMINE, yielded a database of 200 sample composites for the Second White Speckled Shale which were used for the mineral resource estimation. All drill holes are short vertical holes and, as such, there are no down-hole surveys.

Variography was conducted on the composited drill hole data within the Second White Specks shale domain to produce spherical semi variograms. Each metal was modeled individually to determine the continuity and orientation of mineralization. As a result of the wide drill hole spacing a parent model block size of 250mx250mx2m was chosen for the resource estimate, with sub-blocking down to 25mx25mx1m. The block model was extended far enough past the mineralized wireframe to encompass the entire mineralized shale domain. The recoverable grades for the metals were translated into a US$ value for each block and sub-block relying on the three and one year trailing average metal/oxide price to Nov17/2011[62], and the collective values aggregated to enable testing against a block value base case cut-off of US$7.5 per tonne being the same cut-off previously utilized for the Buckton maiden resource study. According to the foregoing method, the Study concluded that the reported resource represents an average value of US$52.4 per short ton (US$57.7 per tonne) representing the aggregate value of recoverable grades for the fifteen REEs in addition to Sc and Th (Sc accounts for approximately US$30.3 per short ton, or US$33.5 per tonne, of the foregoing aggregate values). This cut-off is considered to be a reasonable benchmark which has been utilized by recent mineral resource estimates for open pit mineable poly-metallic black shales in Sweden as the break-even point and lower cut-off. Considering a scenario of possible open pit mining in northeast Alberta along the eastern edge of the Birch Mountains, with potential for a low strip ratio at startup, the likely free-dig nature of the poorly consolidated Speckled Shale, the potential for easy access to multiple working faces, the location of the project with respect to access, power and other important infrastructure, a lower cut-off value for the mineral resource estimate of US$7.5 per tonne is considered reasonable by the Study as a base case cut-off threshold which also captures a relatively continuous mineralized zone with favourable bulk mining configuration.

The REE-Y-Sc-Th inferred mineral resource reported by the Buckton Supplementary REE Resource Study is classified as an inferred resource consisting of 250,092,000 short tons (226,880,000 metric tonnes) of mineralized Second White Speckled black Shale, beneath less than 75m of overburden cover, which is mineralized with recoverable Lanthanum (La), Cerium (Ce), Praseodymium (Pr), Neodymium (Nd),

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[61] Actlabs Rpt#A11-10712.

[62] Three year trailing average to Nov17/2011 for La-Ce-Pr-Nd-Sm-Eu-Gd-Tb-Dy and Y; One year trailing average to Nov17/2011 for Ho-Er-Yb-Lu and Sc. Tm value per Montviel Core Zone REE resources study 2011 by SGS Canada Inc. Th value per USGS Mineral Commodity Summaries 2008-2010. Metal prices vary among various commodity information sources and, in all conflicting instances, the lower pricing was used.

Samarium (Sm), Europium (Eu), Gadolinium (Gd), Terbium (Tb), Dysprosium (Dy), Yttrium (Y), Scandium (Sc) and Thorium (Th), representing an average recoverable grade of 0.48 lb/ton TREOY (Total rare earth oxides including Y, excluding Sc and Th) in addition to 0.02 lb/ton Sc and 0.02 lb/ton Th. These metals are supplemental to Base metals, Uranium and Lithium contained within the Buckton maiden inferred resource. The resource includes 124,031,000 short tons and 19,847,000 short tons of similar grading material which are under less than 50m and 25m of overburden cover, respectively. Details of the inferred resource reported by the Buckton Supplementary REE-Y-Sc-Th Resource Study are summarized in Table 35 and its aerial extent shown in Figures 98 and 99.

REE-Y-Sc-Th Resource Estimate Supplementary to the Buckton Maiden Inferred Resource *(table cnt'd below)*								
REE-Y-Sc-Th Inferred Resource Mineralized Shale (tons)	250,092,000							
	La2O3	Ce2O3	Pr2O3	Nd2O3	Sm2O3	Eu2O3	Gd2O3	Tb2O3
Raw Grade (ppm)	60	96	13	50	11	2	10	2
Recovery %	70%	70%	65%	70%	85%	85%	85%	90%
Recoverable Grade (ppm)	42	67	8	35	9	2	8	1
Recoverable Grade (kg/tonne)	0.042	0.067	0.008	0.035	0.009	0.002	0.008	0.001
Recoverable Grade (lb/ton)	0.084	0.135	0.017	0.069	0.018	0.004	0.016	0.003
Metal Prices (US$/kg)	43	41	81	93	39	1,203	56	1,017
Recoverable Metal Oxide (kg)	9,475,841	15,258,501	1,911,792	7,868,316	2,047,474	417,068	1,831,110	303,420
Recoverable Metal Oxide (lb)	20,846,850	33,568,702	4,205,942	17,310,295	4,504,443	917,550	4,028,442	667,524

REE-Y-Sc-Th Resource Estimate Supplementary to the Buckton Maiden Inferred Resource									
REE-Y-Sc-Th Inferred Resource Mineralized Shale (tons)	250,092,000								
	Dy2O3	Ho2O3	Er2O3	Tm2O3	Yb2O3	Lu2O3	Y2O3	Sc2O3	ThO2
Raw Grade (ppm)	8	2	5	1	5	1	58	17	11
Recovery %	90%	75%	90%	75%	80%	75%	90%	55%	80%
Recoverable Grade (ppm)	7	1	4	1	4	1	52	10	9
Recoverable Grade (kg/tonne)	0.007	0.001	0.004	0.001	0.004	0.001	0.052	0.010	0.009
Recoverable Grade (lb/ton)	0.015	0.003	0.009	0.001	0.007	0.001	0.104	0.019	0.018
Metal Prices (US$/kg)	548	276	240	97	77	719	57	3,528	252
Recoverable Metal Oxide (kg)	1,682,194	284,728	964,717	117,273	819,952	120,851	11,782,391	2,150,578	2,069,674
Recoverable Metal Oxide (lb)	3,700,827	626,402	2,122,377	258,001	1,803,894	265,872	25,921,260	4,731,272	4,553,283

*Metal/Oxide commodity prices used to establish bulk recoverable values for cut-off grade thresholding tests are the three year trailing average to Nov17/2011 for La-Ce-Pr-Nd-Sm-Eu-Gd-Tb-Dy and Y, and the one year trailing average to Nov17/2011 for Ho-Er-Yb-Lu and Sc. Tm value from Montviel Core Zone REE resources study 2011 by SGS Canada Inc. Th value per USGS Mineral Commodity Summaries 2008-2010. Metal prices vary among various commodity information sources and, in all conflicting instances, the lower pricing was used. The 2011 drilling included an appropriate number of analytical standards, blanks and duplicates, and no analytical issues were identified. ton=short ton; lb=pound; kg=Kilogram; Figures may not add exactly due to rounding.

Table 35: Buckton Supplementary REE-Y-Sc-Th Resource, Buckton Supplementary REE-Y-Sc-Th Resource Study 2012. Eccles et al 2012.

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource reported herein will be converted into a mineral reserve. An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

Aggregated REE Summaries (excluding Sc and Th) **REE-Y-Sc-Th Resource Estimate Supplementary to the Buckton Maiden Inferred Resource**			
	HREOY*	LREO**	TREOY***
Raw Grade (ppm)	102	229	320
Recoverable Grade (ppm)	90	161	242
Recoverable Grade (kg/tonne)	0.08	0.16	0.24
Recoverable Grade (lb/ton)	0.16	0.32	0.48
Recoverable Metal Oxide (kg)	18,323,704	36,561,924	54,885,628
Recoverable Metal Oxide (lb)	40,312,149	80,436,233	120,748,382

*HREOY (Total Heavy Rare Earth Oxides) = the aggregate of Y203, Eu203, Gd203, Tb203, Dy203, Ho2O3, Er203, Tm203, Yb203 and Lu203; **LREO (Total Light Rare Earth Oxides) = the aggregate of La2O3, Ce2O3, Pr2O3, Nd2O3, Sm2O3. ***TREOY (Total Rare Earth Oxides) = HREOY plus: La203, Ce203, Pr203, Nd203and Sm203; Figures may not add up exactly due to rounding; Sc and Th are excluded from totals tabulated.

Table 36: Summary of grouped REE contained in the Buckton Supplementary REE-Y-Sc-Th Resource. Buckton Supplementary REE-Y-Sc-Th Resource Study 2012. After Eccles et al 2012.

The individual REEs from the Buckton REE-Y-Sc-Th inferred resource reported by the Buckton Supplementary REE Resource Study are grouped and summarized in Table 36.

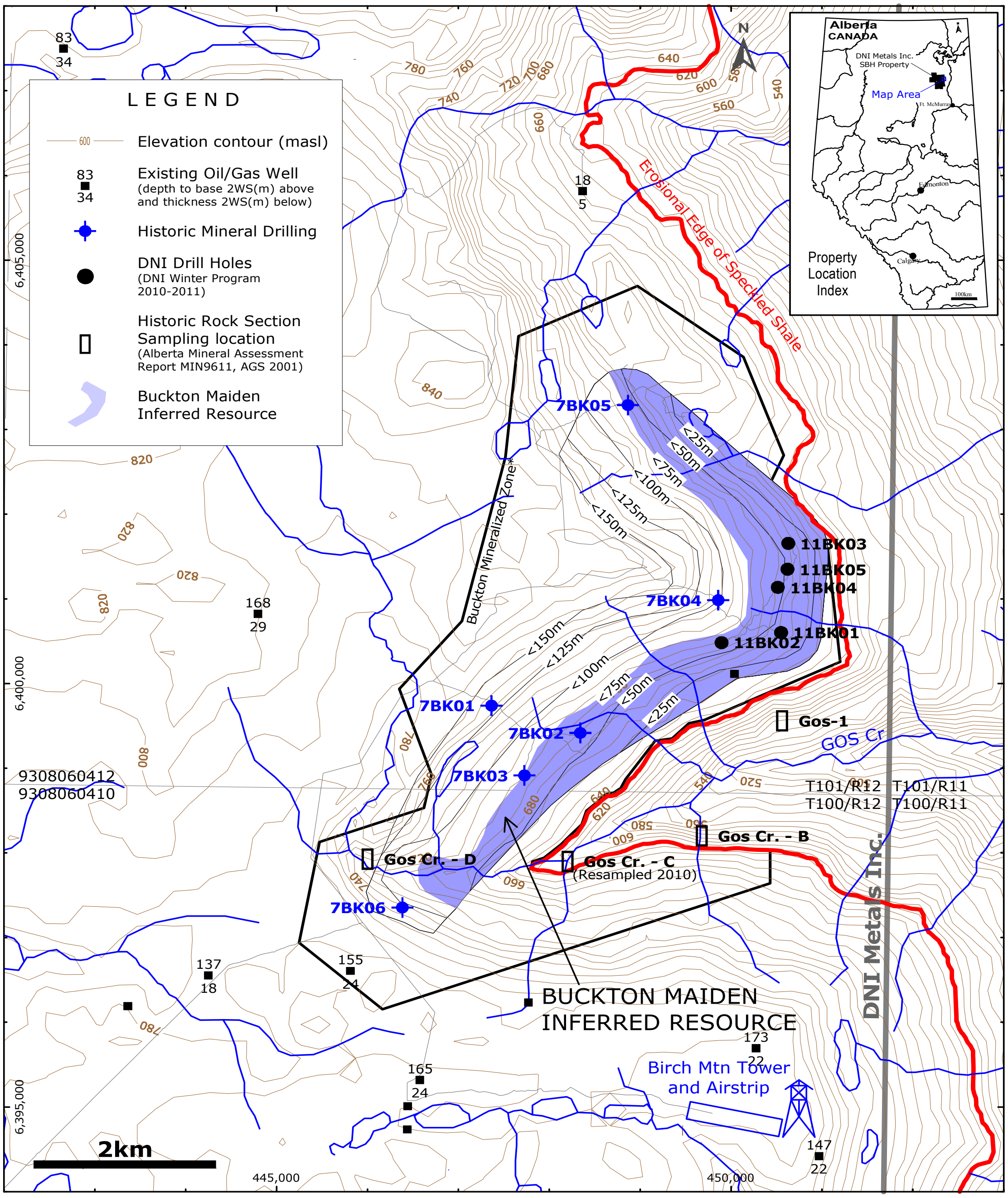

Figure 98: Summary of geographic distribution of the Buckton Supplemental REE-Y-Sc-Th Resource (under <75m cover), showing also geographic distribution of additional mineralized material which are under <25m, <50m,<100m, <125m and <150m of cover. Buckton Supplemental REE-Y-Sc-Th Resource Study 2012, Eccles et al 2012

The REE-Y-Sc-Th resource is Supplementary to the Buckton Maiden Inferred Resource and is classified as an inferred resource according to CIM standards. This classification is based on a number of factors, namely; limited number of drill holes and their wide spacing, good continuity of mineralization and geological control between drill holes and between sections along ~6km of strike.

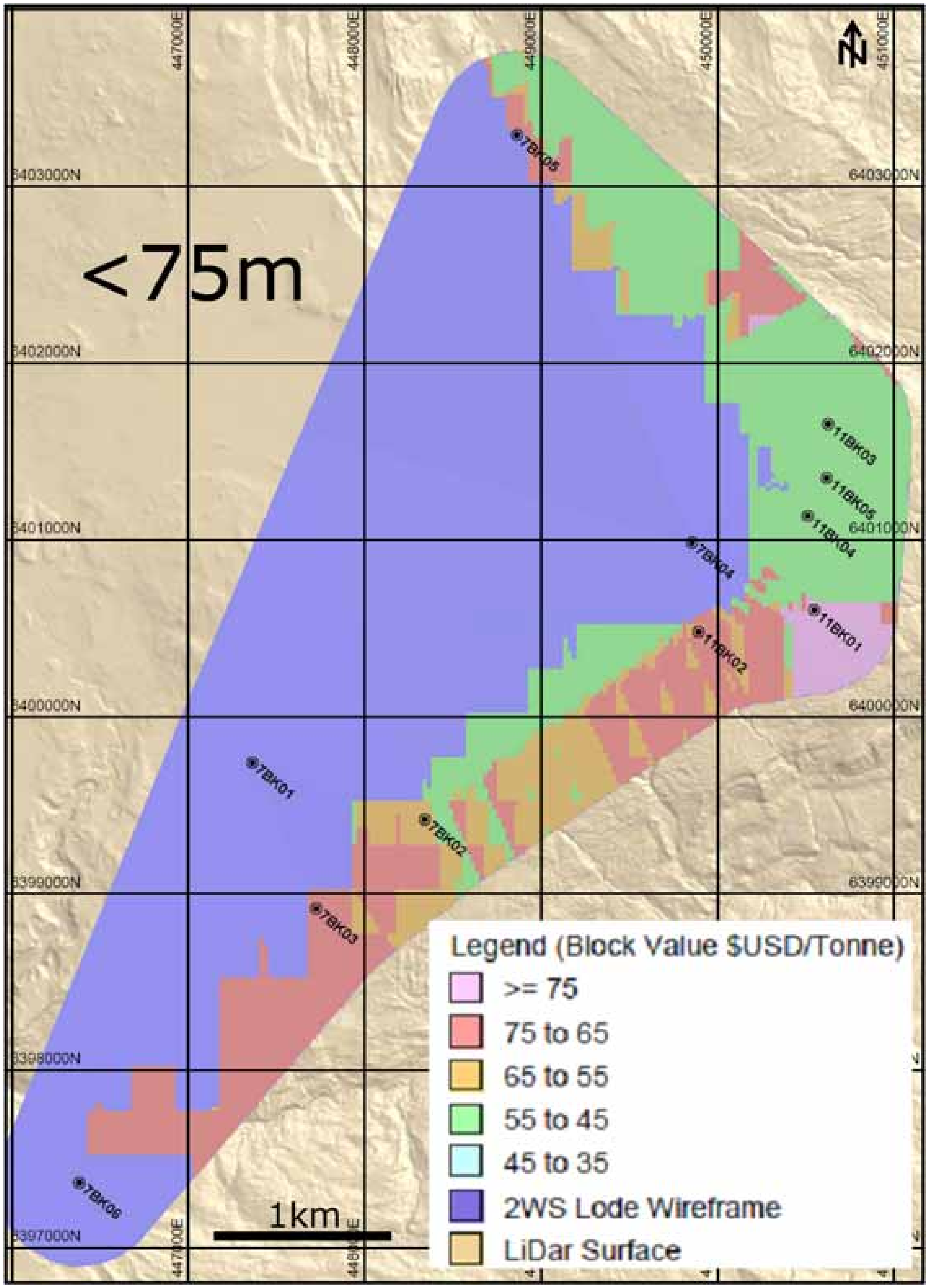

Figure 99: Geographic distribution of the Buckton Supplemental REE-Y-Sc-Th Resource (under <75m cover,. Buckton Supplemental REE-Y-Sc-Th Resource Study 2012, Eccles et al 2012.

The Buckton Supplementary REE Resource Study concluded that the Buckton inferred mineral resource is mineralization that is believed to have a reasonable prospect for extraction in the future. It represents material which is at a depth of less than 75m from surface, at a US$7.5 per tonne lower cut-off, whose value is represented by the collective value of contained recoverable REEs+Y+Sc+Th relying on the best achieved metals recoveries as reported from the collective of DNI's leaching testwork.

The Buckton supplementary REE-Y-Sc-Th resource comprises an approximately 5.7 square kilometer, 13m to 23m thick, near-horizontal tabular zone hosted entirely within the Second White Speckled Shale Formation, bounded by its upper and lower contacts. This Formation is exposed throughout the erosional edge of the Birch Mountains but is overlain westward by progressively thicker sequences of other shales and till. Given the uniformity of metals grades within the Shale, the resource is laterally delimited based on depth criteria rather than continuity of metallic mineralization which extends well beyond its limits. Presence of the Speckled Shale for at least 6km to its north and south, and beyond, has been confirmed by oil/gas downhole well logs in the area which report sections of this Shale over a large area extending well beyond the current boundaries of the resources. The resource is open to the north and northeast, and for approximately 300m eastward to the erosional edge of the Birch Mountains over a large area with thin overburden cover where mineralization intermittently outcrops at surface or is intermittently exposed throughout several kilometres of valley walls.

The Buckton Supplementary REE-Y-Sc-Th Resource Study cautions that although the resource reported represents recoverable REEs which would be incidental co-products to leaching of base metals and uranium from the Second White Speckled Shale at the Buckton Mineralized Zone, the values per ton (or tonne) reported are subject to uncertainties, notably to: (i) uncertainties in long term REE pricing and viability of demand; (ii) the unknown effect of new production on REE markets; and (iii) the ultimate cost of separating REEs from pregnant leaching solutions once they have been leached from the shale and their refinement into useable saleable final products.

Of particular note in the above regard, is the recent announcement[63] by Avalon Rare Metals Inc (C:AVL) of the results of a prefeasibility study by SNC-Lavalin Inc. (SNC), for the construction of a rare earth elements separation plant in the USA with an annual capacity to produce 10,000 tonnes of rare earth oxide product. The study estimates a capital cost (Capex) of US$302 million for construction of the plant, and an operating cost (Opex) of US$5,634 per tonne of rare earth oxide product. Amortized over a hypothetical 1 billion tonne mineral deposit, the foregoing Capex represents a unit cost of US$0.30 per tonne of ore, and the Opex translates into US$5.63 per kilogram of rare earth oxide product (US$2.54/lb). These costs are relevant to evaluation of the Buckton Supplemental REE-Y-Sc-Th inferred resource since the costs have not been incorporated into the US$7.5 per tonne threshold benchmark lower cut-off used for the resource study, and would be additional to the cut-off threshold. Implications of these costs in the context of the Buckton Supplemental REE-Y-Sc-Th inferred resource are as follows:

- The Buckton Supplemental REE-Y-Sc-Th inferred resource contains an aggregated recoverable grade of 0.48lb total rare earth oxides (TREO) per short ton with an aggregate value of US$20;
- The above SNC prefeasibility study estimates refining/separation unit cost of US$2.54/lb per pound of rare earth oxide product, equivalent to approximately US$1.25 per 0.5lb. This estimate suggests a refining/separation unit cost of approximately US$1.25 per short ton of resource for the Buckton inferred resource;
- Amortized over a hypothetical 1 billion tonne mineral deposit, the Capex estimated by SNC translates into a unit cost of US$0.30 per tonne of ore (approximately US$0.27 per short ton);
- As a revised general guideline benchmark, SNC's estimated Capex and Opex together represent an aggregate nominal cost of approximately US$1.5 per short ton which would be incremental to the US$7.5 per tonne threshold benchmark lower cut-off used to estimate the Buckton resource, and should, accordingly, be additional to it to revise it to approximately US$9-$10 per tonne. This provides a new validated benchmark which is tolerated by the Buckton resource model according to which resource tonnages remain unchanged at a higher cut-off of $10 per tonne.

[63] Press - April 12, 2012, Avalon Rare Metals Inc.

The Buckton Supplementary REE Resource Study estimates that the Buckton inferred resource is overlain by 762,678,000 short tons (691,890,000 metric tonnes) of overburden cover material consisting of LaBiche Formation shales and overlying till glacially scoured from it. The foregoing overburden material is substantially barren of base metals and uranium, and was, accordingly, considered to be "waste" by the Buckton maiden resource study for the purposes of estimating the base metals and uranium resources. The overburden material does, however, contain REE, Sc and Li which have not yet been fully evaluated even though, based on partial analytical data, their grades are comparable to grades from the Buckton Mineralized Zone (see press Sept8/2011 and Dec2/2011). Average REE, Sc and Li grades of all drill hole intercepts across the overburden material are summarized in Table 37.

Overburden Cover Rocks - REE-Y,Sc and Li - Average Grade of All Drill Intercepts									
	La2O3	Ce2O3	Pr2O3	Nd2O3	Sm2O3	Eu2O3	Gd2O3	Tb2O3	Dy2O3
Raw Grade (ppm)	45	82	9	35	6	2	6	1	5
Raw Grade (lb/ton)	0.091	0.164	0.019	0.070	0.013	0.003	0.011	0.002	0.010
	Ho2O3	Er2O3	Tm2O3	Yb2O3	Lu2O3	Y2O3	Sc2O3	ThO2	Li2CO3
Raw Grade (ppm)	na	3	na	3	na	37	22	na	379
Raw Grade (lb/ton)	na	0.006	na	0.007	na	0.075	0.043	na	0.76
	HREOY	LREO	TREOY						
Raw Grade (ppm)	57	178	235						
Raw Grade (lb/ton)	0.11	0.36	0.47						

** na=no data available; HREOY (Total Heavy Rare Earth Oxides) = the aggregate of Y203, Eu203, Gd203, Tb203, Dy203, Ho2O3, Er203, Tm203, Yb203 and Lu203; LREO (Total Light Rare Earth Oxides) = the aggregate of La2O3, Ce2O3, Pr2O3, Nd2O3, Sm2O3. TREOY (Total Rare Earth Oxides) = HREOY plus: La203, Ce203, Pr203, Nd203and Sm203.*

Table 37: Summary of weighted average REE, Sc and Li grades of all drill hole intercepts across the overburden cover material overlying the Buckton Maiden Resource. Averages based on DNI's 2010-2011 winter drilling program results.

Considering that the Buckton resource is laterally delimited based on depth criteria rather than continuity of metallic mineralization which extends well beyond its limits, the Buckton Supplementary REE Resource model was tested and iterated at various scenarios to estimate tonnages constrained by different overburden thicknesses at a US$7.5 per tonne cut-off, including estimation of potential tonnages which are less than 100m-150m below surface. The Buckton Supplemental Resource Study concluded that mineralized tonnages ranging 401,703,000-678,523,671 short tons can be blocked, with similar grades as those of the inferred resource, which are under less than 100m-150m of the surface, which are overlain by 1,410,086,000-3,019,895,222 short tons of overburden cover. This is discussed in detail in Section 15.4 of this report. Tonnages noted are summarized in Table 38 and their distribution is shown in Figures 100 and 101.

The above tonnages are not resources and cannot currently be classified as resources and they are currently regarded to be mineralized material which is the target for further work whose ultimate quantity and grade are conceptual in nature as there has been insufficient exploration to define a mineral resource and it is uncertain whether further exploration will result in discovery of a mineral resource.

In addition to delineating a resource, the Buckton Supplementary REE-Y-Sc-Th Resource Study reached significant conclusions as follows:

(i) Whereas base metals and uranium within the Speckled Shale Formation are typically better enriched over its upper portions, REEs are better concentrated over the lower portions of the Formation;

(ii) REEs are believed to occur principally in ionic form as charged particles adsorbed on clays; and

(iii) Variography and statistical grade distribution analysis carried out during the study noted that average sample grades and model grades are remarkably similar, and that the mineralization is characterized by exceptionally good lateral continuity of metals grades over large distances ranging 1km-2.2km for REEs, 1km for Sc and 4.8km for Th (see Section 14.8, Eccles et al 2012).

<25m from Surface

	La2O3	Ce2O3	Pr2O3	Nd2O3	Sm2O3	Eu2O3	Gd2O3	Tb2O3
Tonnes (Overburden Only)*	43,121,789	43,121,789	43,121,789	43,121,789	43,121,789	43,121,789	43,121,789	43,121,789
Tons (Overburden Only)*	47,533,636	47,533,636	47,533,636	47,533,636	47,533,636	47,533,636	47,533,636	47,533,636
Tonnes (Mineralized Shale Only)*	19,846,804	19,846,804	19,846,804	19,846,804	19,846,804	19,846,804	19,846,804	19,846,804
Tons (Mineralized Shale Only)*	21,877,356	21,877,356	21,877,356	21,877,356	21,877,356	21,877,356	21,877,356	21,877,356
Raw Grade(ppm)	53.8	87.8	11.6	45.5	9.5	1.9	8.8	1.3
%Recovery	70%	70%	65%	70%	85%	85%	85%	90%
Recovered Grade (ppm)	37.7	61.5	7.6	31.9	8.1	1.6	7.5	1.2
US$/ton	$1.46	$2.31	$0.56	$2.70	$0.29	$1.79	$0.38	$1.12
US$/tonne	$1.61	$2.54	$0.61	$2.98	$0.32	$1.97	$0.42	$1.23
Kg of metal	747,562	1,219,935	149,913	632,789	160,181	32,575	148,620	24,002
	La2O3 ($USD/kg)	Ce2O3 ($USD/kg)	Pr2O3 ($USD/kg)	Nd2O3 ($USD/kg)	Sm2O3 ($USD/kg)	Eu2O3 ($USD/kg)	Gd2O3 ($USD/kg)	Tb2O3 ($USD/kg)
Metal Prices	42.85	41.34	81.26	93.37	39.31	1202.64	55.99	1017.43

	Dy2O3	Ho2O3	Er2O3	Tm2O3	Yb2O3	Lu2O3	Y2O3	Sc2O3	ThO2
Tonnes (Overburden Only)*	43,121,789	43,121,789	43,121,789	43,121,789	43,121,789	43,121,789	43,121,789	43,121,789	43,121,789
Tons (Overburden Only)*	47,533,636	47,533,636	47,533,636	47,533,636	47,533,636	47,533,636	47,533,636	47,533,636	47,533,636
Tonnes (Mineralized Shale Only)*	19,846,804	19,846,804	19,846,804	19,846,804	19,846,804	19,846,804	19,846,804	19,846,804	19,846,804
Tons (Mineralized Shale Only)*	21,877,356	21,877,356	21,877,356	21,877,356	21,877,356	21,877,356	21,877,356	21,877,356	21,877,356
Raw Grade(ppm)	7.5	1.5	4.4	0.6	4.2	0.7	50.8	17.0	10.9
%Recovery	90%	75%	90%	75%	80%	75%	90%	55%	80%
Recovered Grade (ppm)	6.8	1.1	4.0	0.5	3.4	0.5	45.8	9.3	8.7
US$/ton	$3.36	$0.28	$0.86	$0.04	$0.24	$0.33	$2.38	$29.92	$1.99
US$/tonne	$3.70	$0.31	$0.95	$0.05	$0.26	$0.36	$2.63	$32.98	$2.19
Kg of metal	134,044	22,613	78,436	9,597	67,093	9,908	908,212	185,482	172,493
	Dy2O3 ($USD/kg)	Ho2O3 ($USD/kg)	Er2O3 ($USD/kg)	Tm2O3 ($USD/kg)	Yb2O3 ($USD/kg)	Lu2O3 ($USD/kg)	Y2O3 ($USD/kg)	Sc2O3 ($USD/kg)	ThO2 ($USD/kg)
Metal Prices	547.63	275.72	240.00	97.00	76.85	719.37	57.36	3528.48	252.00

<50m from Surface

	La2O3	Ce2O3	Pr2O3	Nd2O3	Sm2O3	Eu2O3	Gd2O3	Tb2O3
Tonnes (Overburden Only)*	254,005,063	254,005,063	254,005,063	254,005,063	254,005,063	254,005,063	254,005,063	254,005,063
Tons (Overburden Only)*	279,992,653	279,992,653	279,992,653	279,992,653	279,992,653	279,992,653	279,992,653	279,992,653
Tonnes (Mineralized Shale Only)*	112,519,302	112,519,302	112,519,302	112,519,302	112,519,302	112,519,302	112,519,302	112,519,302
Tons (Mineralized Shale Only)*	124,031,299	124,031,299	124,031,299	124,031,299	124,031,299	124,031,299	124,031,299	124,031,299
Raw Grade(ppm)	56.9	92.0	12.3	47.9	10.0	2.0	9.2	1.4
%Recovery	70%	70%	65%	70%	85%	85%	85%	90%
Recovered Grade (ppm)	39.8	64.4	8.0	33.5	8.5	1.7	7.8	1.3
US$/ton	$1.55	$2.42	$0.59	$2.84	$0.30	$1.89	$0.40	$1.18
US$/tonne	$1.71	$2.66	$0.65	$3.13	$0.33	$2.09	$0.44	$1.30
Kg of metal	4,478,545	7,246,656	898,341	3,769,234	958,334	195,197	876,815	143,935
	La2O3 ($USD/kg)	Ce2O3 ($USD/kg)	Pr2O3 ($USD/kg)	Nd2O3 ($USD/kg)	Sm2O3 ($USD/kg)	Eu2O3 ($USD/kg)	Gd2O3 ($USD/kg)	Tb2O3 ($USD/kg)
Metal Prices	42.85	41.34	81.26	93.37	39.31	1202.64	55.99	1017.43

	Dy2O3	Ho2O3	Er2O3	Tm2O3	Yb2O3	Lu2O3	Y2O3	Sc2O3	ThO2
Tonnes (Overburden Only)*	254,005,063	254,005,063	254,005,063	254,005,063	254,005,063	254,005,063	254,005,063	254,005,063	254,005,063
Tons (Overburden Only)*	279,992,653	279,992,653	279,992,653	279,992,653	279,992,653	279,992,653	279,992,653	279,992,653	279,992,653
Tonnes (Mineralized Shale Only)*	112,519,302	112,519,302	112,519,302	112,519,302	112,519,302	112,519,302	112,519,302	112,519,302	112,519,302
Tons (Mineralized Shale Only)*	124,031,299	124,031,299	124,031,299	124,031,299	124,031,299	124,031,299	124,031,299	124,031,299	124,031,299
Raw Grade(ppm)	8.0	1.6	4.6	0.7	4.4	0.7	55.1	17.2	11.4
%Recovery	90%	75%	90%	75%	80%	75%	90%	55%	80%
Recovered Grade (ppm)	7.2	1.2	4.1	0.5	3.5	0.5	49.6	9.5	9.1
US$/ton	$3.57	$0.30	$0.89	$0.04	$0.24	$0.34	$2.58	$30.27	$2.09
US$/tonne	$3.93	$0.33	$0.99	$0.05	$0.27	$0.37	$2.84	$33.36	$2.30
Kg of metal	808,368	135,728	462,366	56,160	394,853	58,497	5,576,674	1,063,927	1,028,658
	Dy2O3 ($USD/kg)	Ho2O3 ($USD/kg)	Er2O3 ($USD/kg)	Tm2O3 ($USD/kg)	Yb2O3 ($USD/kg)	Lu2O3 ($USD/kg)	Y2O3 ($USD/kg)	Sc2O3 ($USD/kg)	ThO2 ($USD/kg)
Metal Prices	547.63	275.72	240.00	97.00	76.85	719.37	57.36	3528.48	252.00

<75m from Surface

	La2O3	Ce2O3	Pr2O3	Nd2O3	Sm2O3	Eu2O3	Gd2O3	Tb2O3
Tonnes (Overburden Only)*	691,889,562	691,889,562	691,889,562	691,889,562	691,889,562	691,889,562	691,889,562	691,889,562
Tons (Overburden Only)*	762,677,689	762,677,689	762,677,689	762,677,689	762,677,689	762,677,689	762,677,689	762,677,689
Tonnes (Mineralized Shale Only)*	226,879,871	226,879,871	226,879,871	226,879,871	226,879,871	226,879,871	226,879,871	226,879,871
Tons (Mineralized Shale Only)*	250,092,248	250,092,248	250,092,248	250,092,248	250,092,248	250,092,248	250,092,248	250,092,248
Raw Grade(ppm)	59.7	96.1	13.0	49.5	10.6	2.2	9.5	1.5
%Recovery	70%	70%	65%	70%	85%	85%	85%	90%
Recovered Grade (ppm)	41.8	67.3	8.4	34.7	9.0	1.8	8.1	1.3
US$/ton	$1.62	$2.52	$0.62	$2.94	$0.32	$2.01	$0.41	$1.23
US$/tonne	$1.79	$2.78	$0.68	$3.24	$0.35	$2.21	$0.45	$1.36
Kg of metal	9,475,841	15,258,501	1,911,792	7,868,316	2,047,474	417,068	1,831,110	303,420
	La2O3 ($USD/kg)	Ce2O3 ($USD/kg)	Pr2O3 ($USD/kg)	Nd2O3 ($USD/kg)	Sm2O3 ($USD/kg)	Eu2O3 ($USD/kg)	Gd2O3 ($USD/kg)	Tb2O3 ($USD/kg)
Metal Prices	42.85	41.34	81.26	93.37	39.31	1202.64	55.99	1017.43

	Dy2O3	Ho2O3	Er2O3	Tm2O3	Yb2O3	Lu2O3	Y2O3	Sc2O3	ThO2
Tonnes (Overburden Only)*	691,889,562	691,889,562	691,889,562	691,889,562	691,889,562	691,889,562	691,889,562	691,889,562	691,889,562
Tons (Overburden Only)*	762,677,689	762,677,689	762,677,689	762,677,689	762,677,689	762,677,689	762,677,689	762,677,689	762,677,689
Tonnes (Mineralized Shale Only)*	226,879,871	226,879,871	226,879,871	226,879,871	226,879,871	226,879,871	226,879,871	226,879,871	226,879,871
Tons (Mineralized Shale Only)*	250,092,248	250,092,248	250,092,248	250,092,248	250,092,248	250,092,248	250,092,248	250,092,248	250,092,248
Raw Grade(ppm)	8.2	1.7	4.7	0.7	4.5	0.7	57.7	17.2	11.4
%Recovery	90%	75%	90%	75%	80%	75%	90%	55%	80%
Recovered Grade (ppm)	7.4	1.3	4.3	0.5	3.6	0.5	51.9	9.5	9.1
US$/ton	$3.68	$0.31	$0.93	$0.05	$0.25	$0.35	$2.70	$30.34	$2.09
US$/tonne	$4.06	$0.35	$1.02	$0.05	$0.28	$0.38	$2.98	$33.45	$2.30
Kg of metal	1,682,194	284,728	964,717	117,273	819,952	120,851	11,782,391	2,150,578	2,069,674
	Dy2O3 ($USD/kg)	Ho2O3 ($USD/kg)	Er2O3 ($USD/kg)	Tm2O3 ($USD/kg)	Yb2O3 ($USD/kg)	Lu2O3 ($USD/kg)	Y2O3 ($USD/kg)	Sc2O3 ($USD/kg)	ThO2 ($USD/kg)
Metal Prices	547.63	275.72	240.00	97.00	76.85	719.37	57.36	3528.48	252.00

Table 38 (Cotinued next page): Buckton Supplemental REE-Y-Sc-Th Inferred Resource (<75m), showing also mineralized material under <25m, <50m, <100m, ,125m and <150m thickness of cover rocks. After Buckton Supplemental REE-Y-Sc-Th Resource Study 2012, Eccles et al 2012.

<100m from Surface

	La2O3	Ce2O3	Pr2O3	Nd2O3	Sm2O3	Eu2O3	Gd2O3	Tb2O3
Tonnes (Overburden Only)*	1,279,208,628	1,279,208,628	1,279,208,628	1,279,208,628	1,279,208,628	1,279,208,628	1,279,208,628	1,279,208,628
Tons (Overburden Only)*	1,410,086,139	1,410,086,139	1,410,086,139	1,410,086,139	1,410,086,139	1,410,086,139	1,410,086,139	1,410,086,139
Tonnes (Mineralized Shale Only)*	364,419,278	364,419,278	364,419,278	364,419,278	364,419,278	364,419,278	364,419,278	364,419,278
Tons (Mineralized Shale Only)*	401,703,492	401,703,492	401,703,492	401,703,492	401,703,492	401,703,492	401,703,492	401,703,492
Raw Grade(ppm)	61.0	98.2	13.3	51.4	10.9	2.2	9.8	1.5
%Recovery	70%	70%	65%	70%	85%	85%	85%	90%
Recovered Grade (ppm)	42.7	68.7	8.6	36.0	9.2	1.9	8.4	1.4
US$/ton	$1.66	$2.58	$0.64	$3.05	$0.33	$2.06	$0.43	$1.26
US$/tonne	$1.83	$2.84	$0.70	$3.36	$0.36	$2.27	$0.47	$1.39
Kg of metal	15,558,398	25,053,063	3,143,720	13,105,240	3,367,223	688,764	3,050,895	498,012
	La2O3 ($USD/kg)	Ce2O3 ($USD/kg)	Pr2O3 ($USD/kg)	Nd2O3 ($USD/kg)	Sm2O3 ($USD/kg)	Eu2O3 ($USD/kg)	Gd2O3 ($USD/kg)	Tb2O3 ($USD/kg)
Metal Prices	42.85	41.34	81.26	93.37	39.31	1202.64	55.99	1017.43

	Dy2O3	Ho2O3	Er2O3	Tm2O3	Yb2O3	Lu2O3	Y2O3	Sc2O3	ThO2
Tonnes (Overburden Only)*	1,279,208,628	1,279,208,628	1,279,208,628	1,279,208,628	1,279,208,628	1,279,208,628	1,279,208,628	1,279,208,628	1,279,208,628
Tons (Overburden Only)*	1,410,086,139	1,410,086,139	1,410,086,139	1,410,086,139	1,410,086,139	1,410,086,139	1,410,086,139	1,410,086,139	1,410,086,139
Tonnes (Mineralized Shale Only)*	364,419,278	364,419,278	364,419,278	364,419,278	364,419,278	364,419,278	364,419,278	364,419,278	364,419,278
Tons (Mineralized Shale Only)*	401,703,492	401,703,492	401,703,492	401,703,492	401,703,492	401,703,492	401,703,492	401,703,492	401,703,492
Raw Grade(ppm)	8.4	1.7	4.8	0.7	4.6	0.7	60.6	17.3	11.4
%Recovery	90%	75%	90%	75%	80%	75%	90%	55%	80%
Recovered Grade (ppm)	7.6	1.3	4.3	0.5	3.7	0.5	54.5	9.5	9.1
US$/ton	$3.76	$0.32	$0.94	$0.05	$0.26	$0.35	$2.84	$30.44	$2.08
US$/tonne	$4.15	$0.35	$1.04	$0.05	$0.28	$0.39	$3.13	$33.55	$2.29
Kg of metal	2,760,083	464,433	1,572,146	191,286	1,333,442	195,963	19,869,222	3,465,370	3,314,455
	Dy2O3 ($USD/kg)	Ho2O3 ($USD/kg)	Er2O3 ($USD/kg)	Tm2O3 ($USD/kg)	Yb2O3 ($USD/kg)	Lu2O3 ($USD/kg)	Y2O3 ($USD/kg)	Sc2O3 ($USD/kg)	ThO2 ($USD/kg)
Metal Prices	547.63	275.72	240.00	97.00	76.85	719.37	57.36	3528.48	252.00

<125m from Surface

	La2O3	Ce2O3	Pr2O3	Nd2O3	Sm2O3	Eu2O3	Gd2O3	Tb2O3
Tonnes (Overburden Only)*	2,086,416,866	2,086,416,866	2,086,416,866	2,086,416,866	2,086,416,866	2,086,416,866	2,086,416,866	2,086,416,866
Tons (Overburden Only)*	2,299,880,909	2,299,880,909	2,299,880,909	2,299,880,909	2,299,880,909	2,299,880,909	2,299,880,909	2,299,880,909
Tonnes (Mineralized Shale Only)*	499,976,607	499,976,607	499,976,607	499,976,607	499,976,607	499,976,607	499,976,607	499,976,607
Tons (Mineralized Shale Only)*	551,129,869	551,129,869	551,129,869	551,129,869	551,129,869	551,129,869	551,129,869	551,129,869
Raw Grade(ppm)	60.6	97.8	13.2	52.3	10.8	2.2	10.0	1.5
%Recovery	70%	70%	65%	70%	85%	85%	85%	90%
Recovered Grade (ppm)	42.4	68.4	8.6	36.6	9.2	1.9	8.5	1.4
US$/ton	$1.65	$2.57	$0.63	$3.10	$0.33	$2.05	$0.43	$1.25
US$/tonne	$1.82	$2.83	$0.70	$3.42	$0.36	$2.26	$0.48	$1.38
Kg of metal	21,214,933	34,215,634	4,286,518	18,287,053	4,580,527	938,796	4,265,066	677,966
	La2O3 ($USD/kg)	Ce2O3 ($USD/kg)	Pr2O3 ($USD/kg)	Nd2O3 ($USD/kg)	Sm2O3 ($USD/kg)	Eu2O3 ($USD/kg)	Gd2O3 ($USD/kg)	Tb2O3 ($USD/kg)
Metal Prices	42.85	41.34	81.26	93.37	39.31	1202.64	55.99	1017.43

	Dy2O3	Ho2O3	Er2O3	Tm2O3	Yb2O3	Lu2O3	Y2O3	Sc2O3	ThO2
Tonnes (Overburden Only)*	2,086,416,866	2,086,416,866	2,086,416,866	2,086,416,866	2,086,416,866	2,086,416,866	2,086,416,866	2,086,416,866	2,086,416,866
Tons (Overburden Only)*	2,299,880,909	2,299,880,909	2,299,880,909	2,299,880,909	2,299,880,909	2,299,880,909	2,299,880,909	2,299,880,909	2,299,880,909
Tonnes (Mineralized Shale Only)*	499,976,607	499,976,607	499,976,607	499,976,607	499,976,607	499,976,607	499,976,607	499,976,607	499,976,607
Tons (Mineralized Shale Only)*	551,129,869	551,129,869	551,129,869	551,129,869	551,129,869	551,129,869	551,129,869	551,129,869	551,129,869
Raw Grade(ppm)	8.4	1.7	4.8	0.7	4.5	0.7	61.8	17.3	11.3
%Recovery	90%	75%	90%	75%	80%	75%	90%	55%	80%
Recovered Grade (ppm)	7.6	1.3	4.3	0.5	3.6	0.5	55.6	9.5	9.1
US$/ton	$3.78	$0.32	$0.93	$0.05	$0.25	$0.35	$2.90	$30.46	$2.07
US$/tonne	$4.16	$0.35	$1.03	$0.05	$0.28	$0.38	$3.19	$33.58	$2.28
Kg of metal	3,801,111	630,564	2,141,500	260,114	1,815,565	266,262	27,817,661	4,757,650	4,527,468
	Dy2O3 ($USD/kg)	Ho2O3 ($USD/kg)	Er2O3 ($USD/kg)	Tm2O3 ($USD/kg)	Yb2O3 ($USD/kg)	Lu2O3 ($USD/kg)	Y2O3 ($USD/kg)	Sc2O3 ($USD/kg)	ThO2 ($USD/kg)
Metal Prices	547.63	275.72	240.00	97.00	76.85	719.37	57.36	3528.48	252.00

<150m from Surface

	La2O3	Ce2O3	Pr2O3	Nd2O3	Sm2O3	Eu2O3	Gd2O3	Tb2O3
Tonnes (Overburden Only)*	2,739,602,865	2,739,602,865	2,739,602,865	2,739,602,865	2,739,602,865	2,739,602,865	2,739,602,865	2,739,602,865
Tons (Overburden Only)*	3,019,895,222	3,019,895,222	3,019,895,222	3,019,895,222	3,019,895,222	3,019,895,222	3,019,895,222	3,019,895,222
Tonnes (Mineralized Shale Only)*	615,546,321	615,546,321	615,546,321	615,546,321	615,546,321	615,546,321	615,546,321	615,546,321
Tons (Mineralized Shale Only)*	678,523,671	678,523,671	678,523,671	678,523,671	678,523,671	678,523,671	678,523,671	678,523,671
Raw Grade(ppm)	60.0	97.2	13.1	52.4	10.6	2.2	10.0	1.5
%Recovery	70%	70%	65%	70%	85%	85%	85%	90%
Recovered Grade (ppm)	42.0	68.0	8.5	36.7	9.0	1.9	8.5	1.3
US$/ton	$1.63	$2.55	$0.63	$3.11	$0.32	$2.02	$0.43	$1.24
US$/tonne	$1.80	$2.81	$0.69	$3.42	$0.36	$2.23	$0.48	$1.36
Kg of metal	25,854,729	41,880,536	5,223,172	22,565,398	5,560,033	1,141,905	5,257,662	824,134
	La2O3 ($USD/kg)	Ce2O3 ($USD/kg)	Pr2O3 ($USD/kg)	Nd2O3 ($USD/kg)	Sm2O3 ($USD/kg)	Eu2O3 ($USD/kg)	Gd2O3 ($USD/kg)	Tb2O3 ($USD/kg)
Metal Prices	42.85	41.34	81.26	93.37	39.31	1202.64	55.99	1017.43

	Dy2O3	Ho2O3	Er2O3	Tm2O3	Yb2O3	Lu2O3	Y2O3	Sc2O3	ThO2
Tonnes (Overburden Only)*	2,739,602,865	2,739,602,865	2,739,602,865	2,739,602,865	2,739,602,865	2,739,602,865	2,739,602,865	2,739,602,865	2,739,602,865
Tons (Overburden Only)*	3,019,895,222	3,019,895,222	3,019,895,222	3,019,895,222	3,019,895,222	3,019,895,222	3,019,895,222	3,019,895,222	3,019,895,222
Tonnes (Mineralized Shale Only)*	615,546,321	615,546,321	615,546,321	615,546,321	615,546,321	615,546,321	615,546,321	615,546,321	615,546,321
Tons (Mineralized Shale Only)*	678,523,671	678,523,671	678,523,671	678,523,671	678,523,671	678,523,671	678,523,671	678,523,671	678,523,671
Raw Grade(ppm)	8.4	1.7	4.7	0.7	4.5	0.7	62.0	17.3	11.3
%Recovery	90%	75%	90%	75%	80%	75%	90%	55%	80%
Recovered Grade (ppm)	7.6	1.2	4.2	0.5	3.6	0.5	55.8	9.5	9.0
US$/ton	$3.76	$0.31	$0.92	$0.05	$0.25	$0.34	$2.90	$30.47	$2.06
US$/tonne	$4.14	$0.34	$1.02	$0.05	$0.28	$0.38	$3.20	$33.58	$2.28
Kg of metal	4,658,602	766,241	2,607,721	316,678	2,212,361	324,282	34,357,773	5,858,745	5,559,664
	Dy2O3 ($USD/kg)	Ho2O3 ($USD/kg)	Er2O3 ($USD/kg)	Tm2O3 ($USD/kg)	Yb2O3 ($USD/kg)	Lu2O3 ($USD/kg)	Y2O3 ($USD/kg)	Sc2O3 ($USD/kg)	ThO2 ($USD/kg)
Metal Prices	547.63	275.72	240.00	97.00	76.85	719.37	57.36	3528.48	252.00

Table 38 (Cnt'd): Buckton Supplemental REE-Y-Sc-Th Inferred Resource (<75m), showing also mineralized material under <25m, <50m, <100m, , <125m and <150m thickness of cover rocks. After Buckton Supplemental REE-Y-Sc-Th Resource Study 2012, Eccles et al 2012.

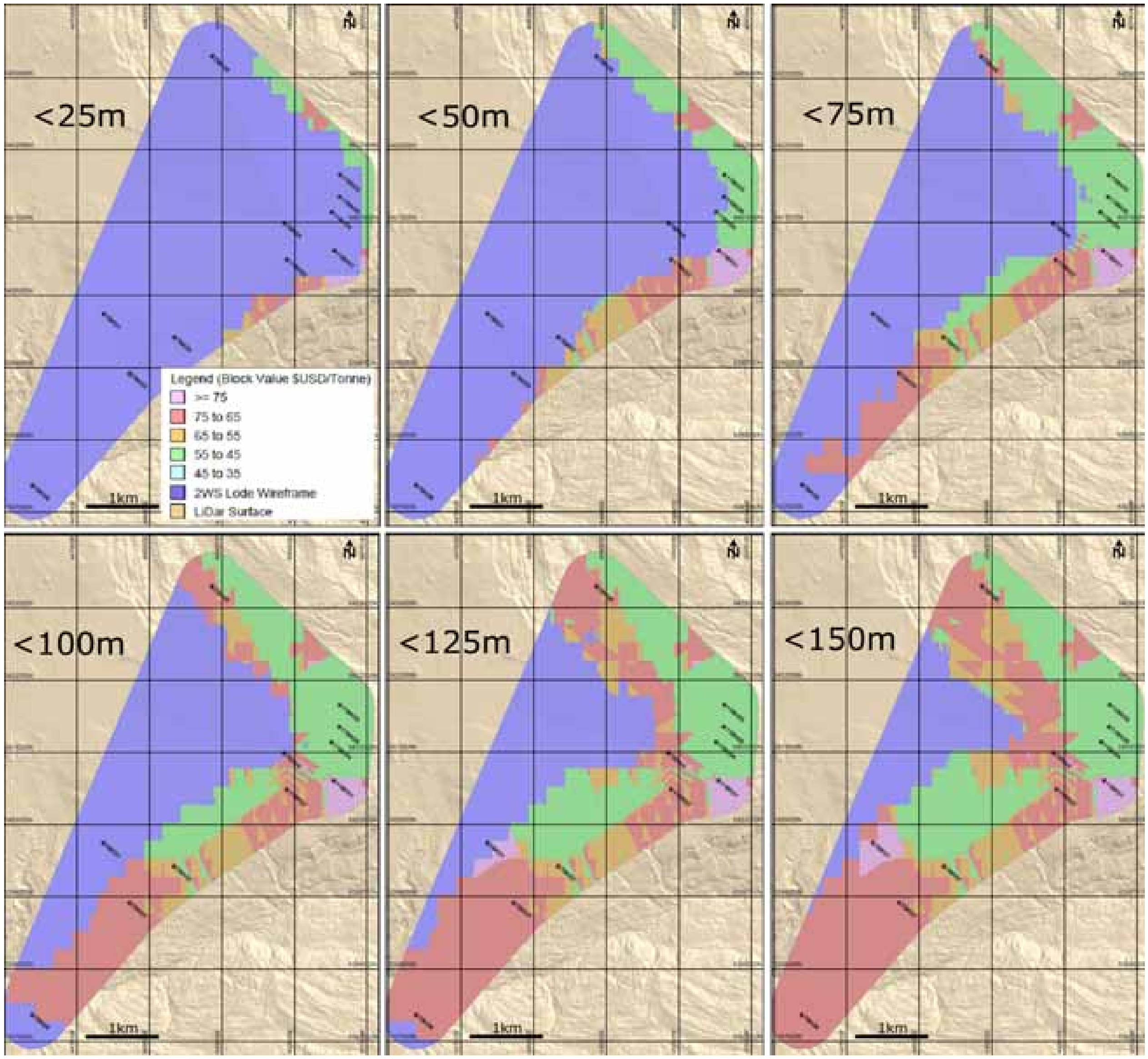

Figure 100: Geographic distribution of the Buckton Supplemental REE-Y-Sc-Th Inferred Resource (under <75m cover), showing also geographic distribution of additional mineralized material which are under <25m, <50m,<100m, <125m and <150m of cover. Buckton Supplemental REE-Y-Sc-Th Resource Study 2012, Eccles et al 2012.

The Buckton Supplementary REE Resource Study concluded that the Buckton Inferred Resource has excellent potential for expansion to the north and northeast subject to further drilling, and recommended implementation of certain additional mineralogical and leaching work, in addition to a 5,000m diamond drilling program to expand the resource and to upgrade a portion of it into an Indicated or higher resource classification. This drilling also includes initial holes to test the Buckton South Zone located approximately nine kilometres to the south of the Buckton inferred resources, and which may represent its southerly extension or an entirely separate similar Zone which has not yet been drilled (cored) by DNI, although 12m-23m thick intercepts of the Speckled Shale Formation are reported in downhole logs from approximately twenty historic oil/gas wells throughout a 100-150 square kilometre area.

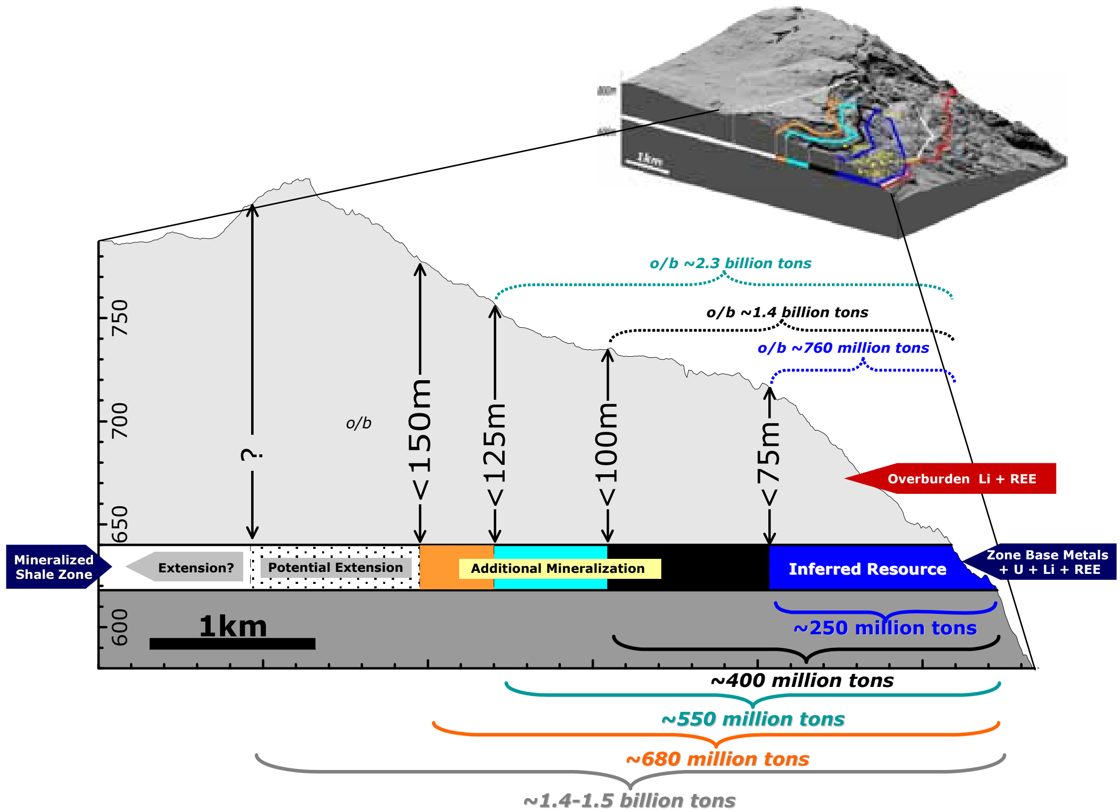

Figure 101: 3-D Cutaway sketch of the distribution of the Buckton Supplemental REE-Y-Sc-Th Resource (under <75m cover), showing also distribution of additional mineralized material which are under <25m, <50m,<100m, <125m and <150m of cover. Based on information from the Buckton Supplemental REE-Y-Sc-Th Resource Study 2012, Eccles et al 2012.

15.4 Overburden Cover Rocks - Waste or Stacked Mineralized Zone?

As presented above, the Buckton inferred resource is a near-horizontal tabular zone hosted entirely within the Second White Speckled (black) Shale Formation, bounded within its upper and lower contacts. This Formation is exposed throughout the erosional edge of the Birch Mountains (eg: Buckton Zone) but is overlain westward by progressively thicker sequences of other shales and till made up of material glacially scoured from them. Given the uniformity of metals grades within the Speckled Shale, the Buckton resource has been laterally delimited based on depth criteria (ie: volume of "waste" material which would have to be excavated to access the mineralized zone by open pit) rather than based on continuity of metallic mineralization which extends well beyond the limits of the current resource. In the foregoing regard, thickness of cover rocks is a significant delimiter of the size and distribution of resources which might be delineated within the Second White Speckled Shale Formation if the cover rocks are "waste" with no recoverable value.

Overburden cover rocks overlying the Buckton inferred resource consist of LaBiche Formation shales (black shales) with a thin veneer of overlying till glacially scoured therefrom. The overburden rocks are substantially devoid of base metals and have, accordingly, previously been considered to be "waste" material for the purposes of estimating the Buckton maiden resource. The overburden rocks, however, contain REE and Specialty metals (eg:Li,Sc,Th), in addition to low levels of base metals and uranium, all of which are sufficiently recoverable through conventional bioleaching to merit a re-evaluation of the overburden rocks as a separate zone overlying the Buckton Zone, or in the least material which may be sufficiently mineralized to not be considered to be "waste" for the purposes of delimiting the underlying Buckton inferred resource. Weighted average compositions of LaBiche Shale intercepts from DNI's 2010-2011 drilling program over the Buckton Zone are summarized in Table 39, showing also compositions of tills, where available, which overlie LaBiche. A global weighted average for the Second White Speckled Shale from DNI's drilling over the Buckton Zone is also shown in the Table for comparison.

Considering the uniformity of grades among all drill holes across the Buckton Mineralized Zone, the analyses shown in Table 39 serve to characterize grades which can be reasonably expected from overburden cover rocks overlying this Zone. If amortized over the volume of overburden material above the Buckton Zone, the apparently modest grades tabulated are significant and represent an immense in-situ metallic budget of specialty metals and rare earth elements, provided they are recoverable.

DNI's leaching testwork (see Section 14) demonstrated recoverability of REE and metals (including Specialty Metals Li-Sc-Th) from the overburden rocks and suggest that the overburden material may represent potential value given that contained metals and REE are extractable by the same bioleaching procedures as those used to recover metals from the Second White Speckled Shale.

A summary of the best calculated metal recoveries achieved as reported by AITF from the recent bioleaching testwork are as follows: Mo-57%, Ni-82%, U-78%, V-10%, Zn-76%, Cu-65%, Co-80%, Li-41% (See Section 14.2.5). Recoveries for Specialty Metals and REE as calculated by DNI, based on the difference of metal content between head sample feed material and final tail residues per analytical results from AITF's testwork, range as follows: La-13%-20%, Ce-21%-28%, Pr-28%-34%, Nd-35%-41%, Sm-49%-53%, Eu-55%-59%, Gd-61%-64%, Tb-60%-63%, Dy-61%-65%, Ho-58%-62%, Er-51%-55%, Tm-53%-57%, Yb-42%-47%, Lu-53%-57%, Y-56%-59%, Sc-28%-37%, Th-32%-34%.

The foregoing results are from bioleaching of a homogenized composite drill core sample of the LaBiche Shale overlying the Buckton resource, representing a 3m long intercept in an archived historic drill hole which was collected by DNI during its 2009 verification sampling program (Hole 7BK04 from 79.6m to 82.6m). The interval is geochemically representative of the LaBiche Shale which comprises bulk of the overburden cover above the Buckton resource.

The Buckton maiden resource study for Mo-Ni-U-V-Zn-Cu-Co-Li and the Buckton supplemental resource study for REE-Y-Sc-Th estimated that the Buckton inferred resource is overlain by 762,678,000 short tons of overburden cover material consisting of LaBiche Formation shales with a thin veneer of overlying till glacially scoured therefrom. In addition, the two resource studies also concluded that mineralized tonnages ranging 400-679 million short tons with similar grades as the Buckton inferred resource can be blocked at a US$7.5 per tonne cut-off, representing extensions of the Buckton resource, which are beneath less than 100m-150m of the surface and which are overlain by 1.4-3.0 billion short tons of overburden cover rocks. *These tonnages are not resources and have currently not been classified as resources. In the absence of a resource study for the overburden material, and a separate study to revise the Buckton inferred resource, the foregoing tonnages estimated by a quantitative resource model can only be considered to be mineralized material which is a target for further work whose ultimate quantity and grade are conceptual in nature as there has been insufficient exploration to define a mineral resource and it is uncertain whether further exploration will result in discovery of a mineral resource.*

Recoverability of Metals and REE from the overburden cover above the Buckton resource might serve to: (i) enable expansion of the Buckton inferred resource beyond its current limits to surrounding areas under thicker overburden cover, and (ii) provide an additional mineralized zone within the overburden cover rocks which were previously considered to be "waste" material. The foregoing represents a significant new milestone development from the Buckton Zone. DNI is currently planning additional work to evaluate significance of recoverable mineralization hosted in the overburden cover rocks.

DNI plans to shortly commence a resource study for overburden cover rocks overlying the Buckton maiden inferred resource and vicinity. Subject to conclusions of the overburden resource study, the Buckton maiden inferred resource may be revised to include additional adjacent material which has been quantified by the Buckton maiden resource study and the Buckton supplemental resource study for REE-Y-Sc-Th.

			11BK01	11BK02	11BK03	11BK03	11BK04	11BK05	11BK05	Buckton
	UTM	Easting	450,549	449,894	450,628	450,628	450,513	450,620	450,620	All Drill
	UTM	Northing	6,400,602	6,400,482	6,401,655	6,401,655	6,401,136	6,401,350	6,401,350	Holes 2011
	Depth	From (m)	7.00	9.00	16.00	20.00	15.00	16.50	17.50	n/a
	Depth	To (m)	46.57	67.00	20.00	41.15	54.47	17.50	61.94	n/a
	Depth	Length (m)	39.57	58.00	4.00	21.15	39.47	1.00	44.44	n/a
	Elevation	From(m)	674.53	702.14	664.24	660.24	670.08	674.02	673.02	n/a
	Elevation	To(m)	634.96	644.14	660.24	639.09	630.61	673.02	628.58	n/a
		Formation	L	L	ob	L	L	ob	L	2WS
Analyte Symbol	Detection	Method								
Mo (ppm)	1	ICP	3	3	3	3	2	2	2	72
Ni (ppm)	1	ICP	48	47	47	46	44	47	44	150
U (ppm)	0.5	INA	4.5	4.1	4.1	4.0	4.6	3.4	4.5	28.0
V (ppm)	2	ICP	250	249	260	240	246	194	250	742
Zn (ppm)	1	ICP	142	143	141	137	140	116	140	281
Cu (ppm)	1	ICP	32	31	30	30	29	24	28	74
Co (ppm)	1	INA	16	16	12	15	13	14	13	24
Li (ppm)	0.5	MS	78.6	73.3	69.0	60.8	86.9	49.4	68.6	56.6
La (ppm)	0.1	FUS-MS	39.0	40.2	46.4	40.0	41.6	28.2	38.0	50.0
Ce (ppm)	0.1	FUS-MS	71.0	73.0	82.8	72.5	73.4	55.3	69.6	80.6
Pr (ppm)	0.05	FUS-MS	8.40	8.42	9.42	8.38	8.57	6.28	8.20	10.71
Nd (ppm)	0.1	FUS-MS	32.6	31.7	34.1	31.0	33.2	23.9	31.1	41.6
Sm (ppm)	0.1	FUS-MS	6.2	6.1	6.0	5.9	6.4	4.7	6.0	8.5
Eu (ppm)	0.05	FUS-MS	1.33	1.28	1.36	1.28	1.34	0.98	1.24	1.83
Gd (ppm)	0.1	FUS-MS	5.1	5.1	4.5	4.8	5.2	4.2	5.0	8.2
Tb (ppm)	0.1	FUS-MS	0.8	0.8	0.7	0.7	0.8	0.7	0.8	1.2
Dy (ppm)	0.1	FUS-MS	4.8	4.6	3.8	4.4	4.8	3.7	4.6	7.2
Ho (ppm)	0.1	FUS-MS	1.0	1.0	0.8	0.9	1.0	0.7	1.0	1.5
Er (ppm)	0.1	FUS-MS	2.8	2.8	2.4	2.6	2.9	2.1	2.9	4.0
Tm (ppm)	0.05	FUS-MS	0.45	0.44	0.35	0.40	0.45	0.34	0.44	0.59
Yb (ppm)	0.1	FUS-MS	2.9	2.9	2.3	2.6	2.9	2.3	2.9	3.7
Lu (ppm)	0.04	FUS-MS	0.48	0.48	0.39	0.43	0.47	0.38	0.48	0.58
Y (ppm)	2	FUS-ICP	27	26	27	26	27	21	27	43
Sc (ppm)	1	FUS-ICP	15	16	15	15	15	12	15	11
Th (ppm)	0.1	FUS-MS	10.7	10.7	10.6	10.2	11.1	8.6	10.9	10.2
C-Total (%)	0.01	IR	1.38	1.36	1.33	1.51	1.41	0.90	1.47	8.07
C-Graph (%)	0.05	IR	0.10	0.15	0.22	0.10	0.16	0.03	0.10	0.12
C-Organ (%)	0.05	IR	0.79	0.78	0.87	0.80	0.91	0.65	0.93	6.62
CO2 (%)	0.01	COU	1.76	1.62	0.89	2.25	1.21	0.73	1.62	4.99
S (%)	0.01	ICP	0.59	0.58	0.98	0.69	0.77	1.11	0.64	4.39
S Total (%)	0.01	IR	0.57	0.57	0.97	0.71	0.81	1.05	0.66	4.28
SO4 (%)	0.3	IR	1.1	0.9	1.0	1.1	1.0	1.4	1.1	2.6
Paste pH (-)	0.01	Met	7.16	7.23	7.01	7.22	7.07	6.55	7.31	6.93
Spec Grav (-)	0.01	GRV	2.69	2.71	2.66	2.71	2.70	2.71	2.72	2.45
Al (%)	0.01	ICP	6.00	6.17	5.62	5.68	5.88	4.81	5.98	4.56
Na (%)	0.01	INA	0.50	0.51	0.40	0.49	0.44	0.47	0.44	0.54
K (%)	0.01	ICP	2.28	2.29	2.09	2.26	2.21	2.06	2.18	2.11
Ca (%)	0.01	ICP	0.69	0.68	0.66	0.76	0.71	0.54	0.80	5.36
Mg (%)	0.01	ICP	0.94	0.95	0.89	0.96	0.95	0.74	0.96	0.93
Fe (%)	0.01	INA	4.64	4.43	3.58	4.88	3.89	4.23	4.04	4.47
SiO2 (%)	0.01	FUS	62.11	62.75	63.98	61.96	63.35	67.71	63.45	46.44

Table 39: Weighted average grades for intercepts of LaBiche Shale (L) and overlying till (ob) for select elements, Buckton Zone drilling. Comparative weighted average grade of all intercepts of the Second White Speckled Shale(2WS) also shown. DNI 2010-2011 Winter Drilling Program.

15.5 CONSOLIDATED BUCKTON ZONE INFERRED RESOURCE AND POSSIBLE EXTENSIONS

As presented in the above Sections, the Buckton Maiden inferred resource is the first resource delineated on the Property, and it relates to Mo-Ni-U-V-Zn-Co-Cu-Li. The Buckton supplemental resource relates to REE-Y-Sc-Th contained within the Buckton maiden inferred resource and is, accordingly, supplemental to the Buckton maiden inferred resource. To the extent that REE-Y-Sc-Th are incidentally recovered during leaching of base metals from the mineralized black shales comprising the Zone, they are co-products which can be expected to offer additional value recoverable from the Buckton Zone.

The Buckton inferred resource, accordingly, comprises a 250,092,000 short ton volume of mineralization hosted in the Second White Speckled Shale, and bounded within its upper and lower contacts, mineralized with recoverable Mo-Ni-U-V-Zn-Co-Cu-Li-REE-Y-Sc-Th. A summary of the Buckton inferred resource on a consolidated basis, combining findings of the Maiden Resource Study and the Supplemental Resource Study is presented in Table 40, noting the quantities of recoverable metals/oxides and the per ton value ascribed to them by the respective resource studies.

Buckton Maiden Inferred Resource 250,092,000 tons			**Potential Extensions to Buckton Maiden Inferred Resource** 401,703,000 to 551,130,000 tons Beneath <100m to <125m Overburden Cover Rocks		
Recoverable Metal/Oxide			Recoverable Metal/Oxide (lbs)		
	lbs	US$/ton		lbs	US$/ton
MoO_3	28,656,000	2.5	MoO_3	44,771,000 - 60,392,000	2.4 - 2.4
Ni	66,454,000	3.0	Ni	104,166,000 - 140,708,000	2.9 - 2.8
U_3O_8	16,513,000	4.8	U_3O_8	26,203,000 - 35,625,000	4.8 - 4.7
V_2O_5	257,604,000	8.4	V_2O_5	407,743,000 - 551,928,000	8.2 - 8.1
Zn	136,065,000	0.6	Zn	217,543,000 - 297,157,000	0.6 - 0.6
Cu	22,832,000	0.3	Cu	36,705,000 - 50,156,000	0.3 - 0.3
Co	10,412,000	1.1	Co	16,392,000 - 22,215,000	1.0 - 1.0
Li_2CO_3	75,507,000	0.9	Li_2CO_3	424,576,895 - 165,824,000	0.9 - 0.9
	Total	21.5		Total	21.1 - 20.8

Buckton Supplemental Inferred Resource 250,092,000 tons			**Potential Extensions to Buckton Maiden Inferred Resource** 401,703,000 to 678,523,671 tons Beneath <100m to <150m Overburden Cover Rocks		
Recoverable Oxide			Recoverable Oxide		
	lbs	US$/ton		lbs	US$/ton
La_2O_3	20,894,230	1.6	La_2O_3	34,306,268 - 57,009,677	1.7 - 1.6
Ce_2O_3	33,644,994	2.5	Ce_2O_3	55,242,003 - 92,346,582	2.6 - 2.6
Pr_2O_3	4,215,501	0.6	Pr_2O_3	6,931,904 - 11,517,095	0.6 - 0.6
Nd_2O_3	17,349,636	2.9	Nd_2O_3	28,897,055 - 49,756,704	3.0 - 3.1
Sm_2O_3	4,514,681	0.3	Sm_2O_3	7,424,727 - 12,259,874	0.3 - 0.3
Eu_2O_3	919,636	2.0	Eu_2O_3	1,518,724 - 2,517,900	2.1 - 2.0
Gd_2O_3	4,037,598	0.4	Gd_2O_3	6,727,223 - 11,593,145	0.4 - 0.4
Tb_2O_3	669,041	1.2	Tb_2O_3	1,098,116 - 1,817,216	1.3 - 1.2
Dy_2O_3	3,709,238	3.7	Dy_2O_3	6,085,983 - 10,272,218	3.8 - 3.8
Ho_2O_3	627,826	0.3	Ho_2O_3	1,024,075 - 1,689,561	0.3 - 0.3
Er_2O_3	2,127,201	0.9	Er_2O_3	3,466,583 - 5,750,026	0.9 - 0.9
Tm_2O_3	258,586	0.0	Tm_2O_3	421,786 - 698,275	0.0 - 0.0
Yb_2O_3	1,807,994	0.3	Yb_2O_3	2,940,239 - 4,878,255	0.3 - 0.3
Lu_2O_3	266,477	0.3	Lu_2O_3	432,099 - 715,043	0.4 - 0.3
Y_2O_3	25,980,171	2.7	Y_2O_3	43,811,634 - 75,758,888	2.8 - 2.9
Sc_2O_3	4,742,026	30.3	Sc_2O_3	7,641,140 - 12,918,533	30.4 - 30.5
ThO_2	4,563,632	2.1	ThO_2	7,308,374 - 12,259,060	2.1 - 2.1
	Total	52.4		Total	53.0 - 53.0

tons = short tons

Table 40: A consolidated summary of the Buckton Inferred Resource as at April 2012 showing quantities of recoverable contained metals/oxides. Potential extension of the resource, subject to a determination of the status of overburden cover rocks, is also shown. Data summarized from the Buckton Resource Studies 2011-2012, Dufresne et al 2011b and Eccles 2012.

The table also shows the potential extensions to the Buckton inferred resource, subject to a definitive determination of the status of the rocks overlying the resource, namely; whether they are waste or material with recoverable value. The potential size and recoverable contained metals/oxides for the extensions are shown in ranges since they are not "resources" and can only be deemed, under NI-43-101 *to be mineralization which is a target for further work whose ultimate quantity and grade are conceptual in*

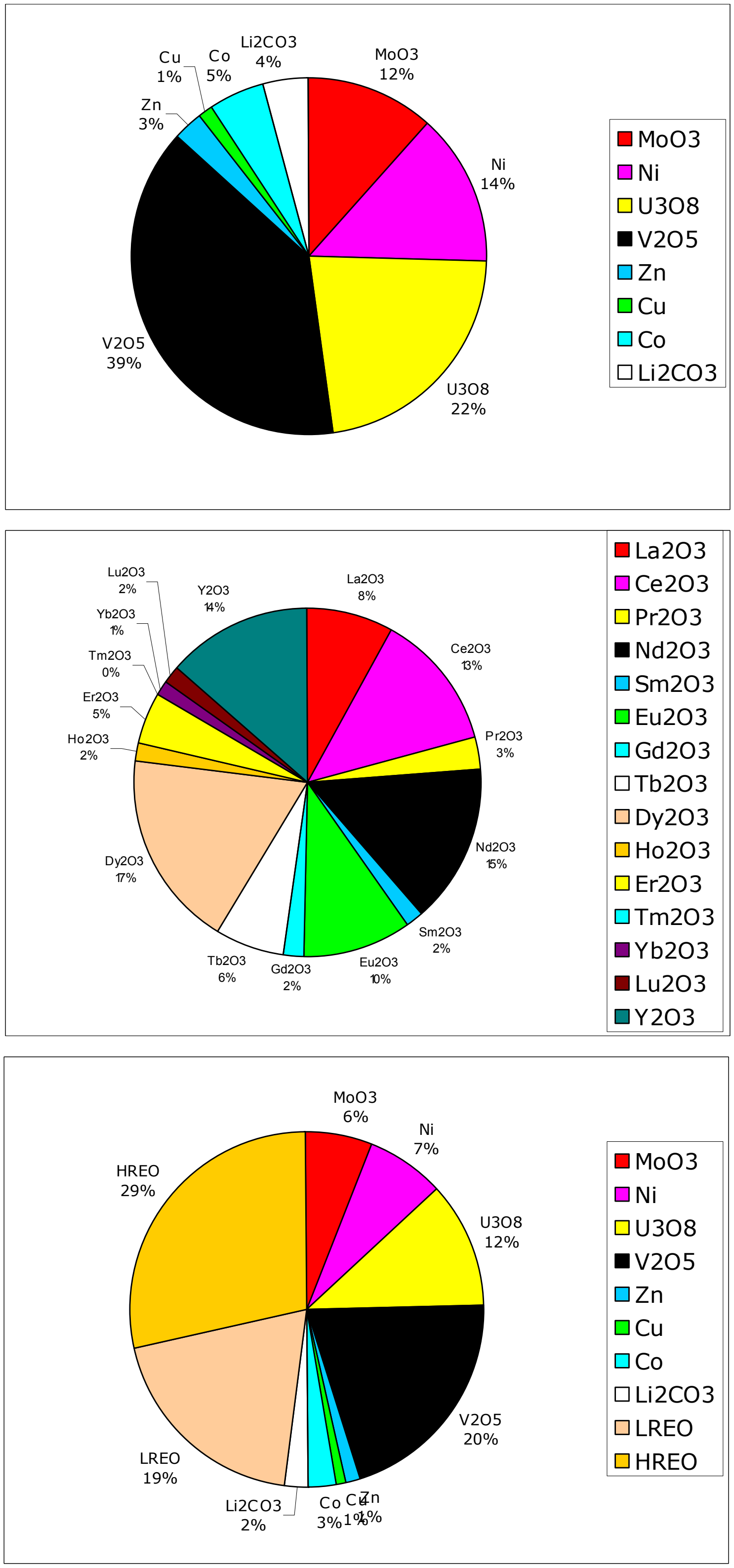

Figure 102: Distribution of relative recoverable value represented by the various metal/oxide components of the Buckton Inferred Resource. (TOP): Buckton Maiden Resource Mo-Ni-U-V-Zn-Co-Cu-Li; (Middle): REE suite excluding Sc-Th;(Bottom) Entire Buckton Inferred Resource excluding Sc-Th.

nature as there has been insufficient exploration to define a mineral resource and it is uncertain whether further exploration will result in discovery of a mineral resource.

As discussed in Section 15.4 of this report, given the uniformity of metals grades within the Speckled Shale, the Buckton resource has been laterally delimited based on depth criteria (ie: volume of "waste" material which would have to be excavated to access the mineralized zone by open pit) rather than based on continuity of metallic mineralization which extends well beyond the limits of the current resource. In the foregoing regard, thickness of cover rocks is a significant delimiter of the size and distribution of resources which might be delineated within the Second White Speckled Shale Formation if the cover rocks are "waste" with no recoverable value. Potential extensions shown in Table 40 are under too thick a layer of cover to be classified as resources. Should the cover rocks be ultimately be shown not be be waste but rather mineralized material with sufficient value to offset costs of its removal, then the Buckton resource might be expanded based on the available drilling database.

The relative distribution of value for various metal/oxide components of the Buckton Inferred Resource are shown in pie chart format in Figure 102, showing the relative values represented by Mo-Ni-U-V-Zn-Co-Cu-Li, the relative value distribution among the Rare Earth Elements, and the relative value distribution among Mo-Ni-U-V-Zn-Co-Cu-Li-LREO-HREO. All charts exclude Sc given uncertainties in its demand, and similarly also Th. The charts are self explanatory.

16. PENDING PROGRAMS AND WORK IN PROGRESS 2012-2013

As at the date hereof, a number of work programs are pending or are in their planning stages scheduled to commence later in 2012. These are as follows:

- Completion, during summer-fall 2012, of miscellaneous outstanding site reclamation and seeding of certain surface disturbances related to the 2010-2011 winter drilling program;
- A project life-cycle audit study to commence in May in collaboration with the Pembina Institute. Consideration is also being given to commence collecting environmental baseline data from field work scheduled for the summer-fall 2012;
- Ongoing data review and interpretation in connection with bioleaching and CO_2 sparging leaching testwork conducted in 2011-2012 by AITF, focusing on Specialty Metals, REE and other diagnostic elements;
- A set of bioleaching tests to commence at AITF in May 2012 on composite drill core samples of overburden cover material overlying the Buckton maiden resource which is hosted entirely in the Second White Speckled Shale Formation to determine recovery of Base Metals, Specialty Metals and REE. Samples will be prepared from drill core collected during DNI's 2010-2011 drilling program, and the testwork will repeat prior leaching test procedures (2011-2012) of a single sample of a representative drill intercept of LaBiche Shale.
- Re-sampling of historic drill cores archived at the MCRF from the Asphalt and Buckton Zones to collect drill core of all intercepts of overburden cover rocks overlying the Second White Speckled Shale Formation, for detailed analytical work to follow to establish Specialty Metals and REE content of the cover rocks. Data from this work will be incorporated into a resource study for the overburden material;
- A resource study, scheduled to commence in June 2012, to estimate an initial resource for overburden cover rocks overlying the Buckton inferred resource and its vicinity;
- A resource study, scheduled to commence in July 2012, subject to findings of the above resource study for overburden cover rocks, to expand the Buckton inferred resource;
- A Preliminary Economic Analysis (Scoping Study) for the Buckton maiden inferred resource scheduled to commence in August 2012;
- An integrated R&D program, in collaboration with CANMET, to expand on prior bioleaching testwork by testing larger samples and to commence initial column leaching and agglomeration tests. This work is scheduled to commence in May 2012, and it will also direct considerable resources toward investigating Specialty Metals and REE separation processes relying on REE separation processes from China ionic (eg: JunT. 2010) adsorbed clays as a guideline;
- DNI is giving consideration to resuming diamond drilling during late 2012, subject to availability of funding, to complete holes which had previously been deferred over the Asphalt and Buckton Zones. Intentions are (i) to upgrade and expand the Buckton inferred resource, (ii) to delineate an initial resource over the Asphalt Zone, and (iii) to commence drill testing the Buckton South target area are also being considered.

Some expenditures in connection with planning and pre-field preparatory work related to the above have been incorporated into aggregate expenditures included in this report which are being filed toward assessment work requirements.

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17. CONCLUDING SUMMARY – 2010-2012 WORK PROGRAMS

17.1 SUMMARY OF RESULTS AND CONCLUSIONS

DNI commenced its exploration work on the Property prior to commencing land assembly in September 2007, and has since actively continued its work on the Property to advance its development. A detailed report of its work for the period 2007-2010 was filed in Alberta Mineral Assessment Report MIN20100017 in August 2010 (Sabag 2010).

Exploration work completed during the period Jul/2010-Jan/2012 consisted of a variety of efforts culminating in preparation of two mineral resource studies, concluded in 2012, reporting an initial resource from a portion of the Buckton Zone. Other activities leading up to preparation of the resource studies consisted of a winter 2010-2011 drilling program, and ongoing leaching testwork to establish metals recoveries from the Second White Speckled Shale and the overlying overburden material. The foregoing work programs also included conclusion of analytical work outstanding from prior sampling programs and bioleaching testwork, in addition to testwork investigating use of CO2 as a leaching agent.

While DNI's principal focus during 2007-2010 had been on evaluating and developing the Mo-Ni-U-V-Zn-Cu-Co-Li potential of the Property, its 2010-2012 work programs recognized the significance of Specialty Metals (eg:Li,Sc,Th) and REE also contained in the Shale as recoverable co-products of value which are incidentally leached from the Second White Speckled Shale along with base metals.

Considerable progress was made by DNI during its 2010-2012 work programs reported herein to advance the Property through leaching testwork and drilling to delineation of the Buckton maiden inferred resource, which is the first resource ever identified at the Property. The technical work completed by DNI follows recommendations of its NI-43-101 Technical Report for the Property (Sabag 2008), and its work is ongoing.

An abstracted summary of work programs completed and conclusions therefrom are outlined below:

- Bioleaching testwork completed by AITF on composite drill core samples from the Buckton Zone confirmed metals recoveries achieved during prior bioleaching tests which had been conducted on surface trenching samples. The best metal recoveries achieved during the above bioleaching tests, accordingly, as reported by AITF, are as follows: Mo-41%, Ni-89%, U-92%, V-24%, Zn-93%, Cu-78%, Co-94%, Li-29%. The results are consistent with results previously reported by AITF whose work focused on Mo-Ni-U-V-Zn-Cu-Co-Li only.

  Recoveries for Specialty Metals and REE incidentally leached as co-products during the testwork, as calculated by DNI based on the difference of metal content between head sample feed material and final tail residues after the HCl wash per analytical results from AITF's testwork, are as follows: La-39%, Ce-47%, Pr-61%, Nd-66%, Sm-76%, Eu-79%, Gd-83%, Tb-88%, Dy-84%, Ho-86%, Er-82%, Tm-73%, Yb-75%, Lu-73%, Y-85%, Th-60%, Sc-31%.

  All of the above results were achieved under test conditions which are yet to be optimized and, as such, are regarded by DNI as initial results which future work will endeavor to improve by further optimizing and refining test parameters.

- Bioleaching testwork completed by AITF reported metals losses (notably Mo,V,Cu) from the pregnant solution due to metals re-precipitation as likely sulfates, provisionally attributed to abrupt changes in pH. AITF had similarly reported losses from its prior tests and no attempt was made to optimize leaching parameters to mitigate losses during the 2011-2012 tests. DNI's next stage of work will focus on optimizing leaching parameters, notably relying on continuous pH monitoring, to prevent losses through re-precipitation and to enhance recoveries.

- Preliminary experimental testwork completed by AITF in 2009-2010, intended to collect baseline data relating to chemical interaction of CO_2-shale with samples of Second White Speckled Shale, had noted incidental solubilization of metals. Further tests conducted in 2011-2012 focusing specifically on assessing the potential of using CO_2 as a leaching agent to extract (leach) metals from the Shale confirmed prior observations and noted that initial equilibration of shale samples in a mild electrolyte (0.01M $NaNO_3$) achieved partial dissolution and recovery of metals (except for Cd, V and Zn) with recoveries ranging 0.04% to 2.6% of the head value. Subsequent leaching (sparging) with CO_2 achieved further metals liberation from the Shale with recoveries ranging 0.08% to 7.2 %. Aggregate metal recoveries achieved during the sparging tests ranged 0.1% to 10.5% (Mo-9.8%, Ni-3.3%, U-10.5%, V-0.1%, Zn-0.3%, Co-2.3%, Cd-0.8%, Li-5.7%).

While, as expected, overall metals recoveries reported by the CO_2 sparging tests are lower than those reported from DNI's bioleaching testwork, the tests demonstrated that CO_2 can be used to leach metals from the black shales, supporting a proposal that leaching with CO_2 offers previously unrecognized possibilities as a pretreatment to bioleaching to reduce reagent consumption. The AITF tests suggested that the metals recoveries documented during the CO_2 sparging are likely due to the mild acidic pH conditions generated by the CO_2 (pH 5.6) compared to higher acidities (pH 1.6-2) typifying bioleaching testwork.

The possibility of relying on CO_2 as a partial leaching agent is a new development from the Property and an exciting CO_2 consumption opportunity which might ultimately benefit adjacent oil sands operations by providing a practical use for carbon emissions captured therefrom.

- The 2010-2011 Winter Drilling program successfully completed a total of eight HQ diameter vertical holes which were cored during the period Jan19-Feb14, 2011, (aggregate of approximately 648m) to test portions of the Asphalt and Buckton polymetallic Mineralized Zones which are exposed or are near surface under thin cover. All, except one, of the eight holes completed successfully cored across the Second White Speckled Shale Formation and reported intercepts ranging 11m to 23m. One of the holes was lost in bad ground.

  Five of the eight holes drilled over the Buckton Zone were localized over approximately 3 square kilometres of the Buckton Mineralized Zone to enable completion of a resource study to upgrade a portion of this Mineralized Zone into a NI-43-101 compliant classified resource. A number of additional drill holes planned for the Buckton Zone were necessarily deferred, including holes intended to verify projected extensions thereof. Sufficient holes were completed over the Buckton Mineralized Zone to commence an initial resource study which was completed in October 2011.

  Of the three holes drilled over the Asphalt Mineralized Zone, located approximately 30 kilometres to the south of the Buckton Zone, two holes confirmed the Formation beneath the surface, and one hole was lost in overburden. A number of additional drill holes planned for the Asphalt Zone were necessarily deferred, including holes intended to upgrade a portion of the Asphalt Mineralized Zone into a NI-43-101 compliant classified resource and holes intended to verify projected extensions thereof. Drilling over the Asphalt Mineralized Zone served to confirm presence of metallic mineralization within the shales, although the drilling completed is too sparse to support estimation of resources, and the planned resource study for the Asphalt Mineralized Zone was deferred until additional holes are completed.

- The 2010-2011 winter drilling program successfully completed sufficient holes over the Buckton Zone to enable preparation of an initial resource estimate for a 5.7 sq km portion of the Buckton Zone which is believed to extend over 26 sq km. Insufficient drilling was completed over the Asphalt Zone to support a resource study, although the three holes completed at Asphalt confirmed mineralization in the subsurface in the Second White Speckled and documented some as yet unresolved stratigraphic disturbances (overturning) from the area.

- The 2010-2011 winter drilling program over the Asphalt and Buckton Zones reiterated prior historic conclusions that the polymetallic mineralization hosted in the Second White Speckled Shale has excellent lateral consistency over large distances, but has considerable vertical zonation. The foregoing was confirmed and quantified by variography and statistical grade distribution analysis carried out during subsequent resource studies, demonstrating that average sample grades and model grades are remarkably similar, and that the mineralization is characterized by exceptionally good lateral continuity of metals grades over large distances ranging up to 1km-2.2km for REEs, 1km for Sc, 4.8km for Th and 400m-2.1km for Mo-Ni-U-V-Zn-Cu-Co-Li. These distances provide guidelines for spacing of future drilling over the Zones.

- In addition to delineating a resource, the Buckton Supplementary REE-Y-Sc-Th Resource Study reached significant conclusions, noting that: (i) whereas base metals and uranium within the Speckled Shale Formation are typically better enriched over its upper portions, REEs are better concentrated over the lower portions of the Formation; (ii) REE grades depict a bipopular distribution; and (iii) REEs likely occur principally in ionic form as charged particles adsorbed on clays.

- The 2010-2011 winter drilling program successfully competed sufficient holes over the Buckton Zone to enable preparation of an initial resource estimate for a 5.7 sq km portion of the Buckton Zone which is believed to extend over 26 sq km. The Buckton Maiden Resource Study 2011 for Mo-Ni-U-V-Zn-Cu-Co-Li, and the Buckton Supplemental Resource Study 2012 for REE-Y-Sc-Th, delineated the Buckton *inferred resource* comprising a 250,092,000 short tons hosted in the Second White Speckled Shale, and bounded within its upper and lower contacts, mineralized with recoverable Mo-Ni-U-V-Zn-Co-Cu-Li-REE-Y-Sc-Th.

  The two studies together ascribed a recoverable value of US$73.9 per short ton to the Buckton inferred resource, US$21.4 per short ton of which is related to Mo-Ni-U-V-Zn-Co-Cu-Li, US$20 per short is related to REE-Y, and US$32.4 per short ton is related to Sc-Th.

  Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource reported herein will be converted into a mineral reserve. An 'Inferred Mineral Resource' is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.

- The Buckton Maiden Resource is the first resource delineated at the Property, and it relates to recoverable Mo-Ni-U-V-Zn-Cu-Co-Li hosted in the Second White Speckled Shale Formation beneath less than 75m of overburden cover, over a 5.7 sq km portion of the Buckton Zone, relying on 11 drill holes which are spaced approximately 240m-2400m apart (averaging 1000m). The inferred resource comprises a 13m-23m thick near-horizontal tabular zone of polymetallic mineralization hosted entirely within the Second White Speckled Shale Formation, bounded by its upper and lower contacts. Given excellent uniformity of metals grades within the Shale, the resource is laterally delimited based on depth criteria (ie: thickness of cover rocks which would have to be removed to excavate the zone by open pit) rather than continuity of metallic mineralization which extends well beyond its limits. The Resource Study relied on the best achieved metals recoveries as reported from the collective of DNI's leaching testwork.

  The aggregate value of recoverable grades, relying on the five year average metal/oxide price to Aug/2006 for the Maiden resource, meets a block value base case cut-off of US$7.5 per tonne, and an average value of US$21.5 per short ton (US$23.7 per tonne) was ascribed to the resource representing the aggregate value of recoverable grades for the eight metals. Testing and iteration of the Buckton resource model at a higher cut-off of US$10 per tonne reported a similar tonnage as the US$7.5 per tonne cut-off base case scenario save for approximately 100,000 tonnes which did not meet the US$10 per tonne threshold criteria.

- The Buckton Supplemental Resource relates to recoverable REE-Y-Sc-Th contained within the Buckton Maiden Resource, namely; to REE-Y-Sc-Th hosted in the Second White Speckled Shale Formation beneath less than 75m of overburden cover, over a 5.7 sq km portion of the Buckton Zone. The Buckton Supplemental Resource is, accordingly, "supplemental" to the Buckton maiden resource for Mo-Ni-U-V-Zn-Cu-Co-Li. To the extent that REE-Y-Sc-Th are incidentally recovered during leaching of base metals from the mineralized black shales comprising the Zone, they are co-products which can be expected to offer additional value recoverable from the Buckton Zone.

  The aggregate value of recoverable grades, relying on the three and one year trailing average metal/oxide price to Nov17/2011, meets a block value base case cut-off of US$7.5 per tonne being the same cut-off previously utilized for the Buckton maiden resource study. The Supplemental Resource concluded that the reported resource represents an value of US$52.4 per short ton (US$57.7 per tonne) representing the aggregate value of recoverable grades for the fifteen REEs (avg recoverable grade of 0.48 lb per short ton TREOY) in addition to Sc and Th. Sc accounts for approximately US$30.3 per short ton of the foregoing (US$33.5 per tonne). The Resource Study relied on the best achieved metals recoveries as reported from the collective of DNI's leaching testwork.

The Buckton Supplementary REE Resource Study noted that although the resource reported represents recoverable REEs which would be incidental co-products to leaching of base metals and uranium from the Second White Speckled Shale at the Buckton Mineralized Zone, the values per ton (or tonne) reported are subject to uncertainties, notably to: (i) uncertainties in long term REE pricing and viability of demand; (ii) the unknown effect of new production on REE markets; and (iii) the ultimate cost of separating REEs from pregnant leaching solutions once they have been leached from the shale and their refinement into useable saleable final products.

- The Buckton Maiden Resource Study 2011 for Mo-Ni-U-V-Zn-Cu-Co-Li, and the Buckton Supplemental Resource Study 2012 for REE-Y-Sc-Th concluded that the Buckton inferred resource has excellent potential for expansion and that it is "open" to the north and northeast, as presence of the Speckled Shale has been confirmed by oil/gas downhole well logs in the area for at least 6km to its north, its south, and beyond. The resource is also open for approximately 300m eastward to the erosional edge of the Birch Mountains over a large area with thin overburden cover where mineralization intermittently outcrops at surface or is intermittently exposed throughout several kilometres of valley walls.
- The Buckton maiden resource study for Mo-Ni-U-V-Zn-Cu-Co-Li and the Buckton supplemental resource study for REE-Y-Sc-Th estimated that the Buckton inferred resource is overlain by 762,678,000 short tons of overburden cover material consisting of LaBiche Formation shales with a thin veneer of overlying till glacially scoured therefrom. In addition, the two resource studies also concluded that mineralized tonnages ranging 400-679 million short tons with similar grades as the Buckton inferred resource can be blocked at a US$7.5 per tonne cut-off, representing extensions of the Buckton resource, which are beneath less than 100m-150m of the surface and which are overlain by 1.4-3.0 billion short tons of overburden cover rocks, which were previously considered to be "waste" material.
- Overburden cover rocks overlying the Buckton inferred resource consist of LaBiche Formation shales (black shales) with a thin veneer of overlying till glacially scoured therefrom. The overburden rocks are substantially devoid of base metals and have, accordingly, previously been considered to be "waste" material for the purposes of estimating the Buckton inferred resource. The overburden rocks, however, contain REE and Specialty metals (eg:Li,Sc,Th), in addition to low levels of base metals and uranium, all of which are sufficiently recoverable through conventional bioleaching to merit a re-evaluation of the overburden rocks as a separate zone overlying the Buckton Zone, or in the least material which may be sufficiently mineralized to not be considered to be "waste" for the purposes of delimiting the underlying Buckton inferred resource (ie: constraining the lateral extents).
- Bioleaching testwork completed in 2011-2012 by AITF demonstrated that base metals, specialty metals and REE contained within the overburden cover rocks are recoverable by the same procedures as those utilized for the recovery of base metals from the Second White Speckled Shale. The results suggest that the overburden cover rocks might not be "waste" and might represent some recoverable value.

  The best calculated metal recoveries achieved as reported by AITF from bioleaching testwork of the sample of LaBiche Shale are as follows: Mo-57%, Ni-82%, U-78%, V-10%, Zn-76%, Cu-65%, Co-80%, Li-41%. Recoveries for Specialty Metals and REE as calculated by DNI, based on the difference of metal content between head sample feed material and final tail residues per analytical results from AITF's testwork, range as follows: La-13%-20%, Ce-21%-28%, Pr-28%-34%, Nd-35%-41%, Sm-49%-53%, Eu-55%-59%, Gd-61%-64%, Tb-60%-63%, Dy-61%-65%, Ho-58%-62%, Er-51%-55%, Tm-53%-57%, Yb-42%-47%, Lu-53%-57%, Y-56%-59%, Sc-28%-37%, Th-32%-34%.

- Recoverability of Metals and REE from the overburden cover above the Buckton resource might serve to: (i) enable expansion of the Buckton inferred resource beyond its current limits to surrounding areas under thicker overburden cover, and (ii) provide an additional zone of recoverable mineralization overlying the Second White Speckled Shale hosted polymetallic Zones which have to date been DNI's principal and only focus.

17.2 RECOMMENDATIONS

The Buckton resource studies made recommendations to implement certain additional mineralogical and leaching work, in addition to a 5,000m diamond drilling program intended to expand the Buckton inferred resource northward and eastward, and to upgrade a portion of it into an Indicated or higher resource classification. This drilling also includes initial holes to test the Buckton South Zone located approximately nine kilometres to the south of the Buckton inferred resources, and which may represent its southerly extension or an entirely separate similar Zone which has not yet been drilled (cored) by DNI, although 12m-23m thick intercepts of the Speckled Shale Formation are reported in downhole logs from approximately twenty historic oil/gas wells throughout a 100-150 square kilometre area. The studies recommend budgets ranging $5-$6 million related to the foregoing.

The author concurs with the above recommendations, and further recommends that: (i) future leaching testwork advance to the testing of progressively larger samples, focusing particular attention to modifying leaching procedures to prevent metal losses through re-precipitation after they are leached from the shale; (ii) future work commence to optimize test parameters to enhance recovery of Mo, V, Cu and Li, and that a series of tests be conducted to collect and test physical parameters of the Second White Speckled Shale in advance of formulating column leaching, such tests intended to establish permeability/porosity characteristics of the shale, as well as exploring available options for its agglomeration with various leaching reagents (eg:Sulfur); (iii) various available options for the separation of REE into saleable final products be investigated and tested with samples of the Second White Speckled Shale; (iv) existing bioleaching databases collected from work completed thus far be reviewed in greater detail to extract additional geochemical information; and (v) status of the overburden cover rocks, whether "waste" or mineralization, be definitively established as quickly as possible since ultimate size and distribution of the underlying polymetallic zones hosted in Second White Speckled Shale is to a large extent dependant almost entirely on thickness of material which would have to be removed to exploit the polymetallic zones by open pit. It is estimated that the foregoing recommendations can be implemented within a one year period with an aggregate budget of approximately $1 million.

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243 Pages (incl Cover & TOC)
19 Sections
6 Appendices
102 Figures
40 Tables
9 Plates

19. CERTIFICATION

CERTIFICATE OF THE AUTHOR

I, Shahé F.Sabag, of 134 Albertus Avenue, Toronto, Ontario, Canada, M4R 1J7, hereby certify that I am responsible for the overall preparation of this report entitled "*Assessment Report On Exploration Programs 2010-212, SBH Property, Birch Mountains, Athabasca Region, Alberta, Canada; prepared for DNI Metals Inc.",* dated April 20, 2012, with an effective date January 31, 2012 (the "Report"), and that:

- I am a graduate of the University of Toronto with Honours Geology B.Sc degree (1974) and Specialist Geology M.Sc. degree (1979);
- I have actively practiced my profession since 1974 and have been involved in mineral exploration for base and precious metals, industrial minerals and uranium throughout North America (notably Ontario, Quebec, Alberta, Saskatchewan, NWT, Utah, Nevada and Arizona) during which time I have implemented, directed, managed and evaluated regional and local exploration programs, including underground and open-pit exploratory and pre-development work;
- I am a member of the Association of Professional Geoscientists of Ontario (APGO Member #250), the Canadian Institute of Mining and Metallurgy, the Prospectors and Developers Association, the Utah Mining Association and the Alberta Chamber of Resources;
- I have visited, actively mapped and sampled over, the Property, and surrounding areas, on countless occasions during the period 1993-1999 and 2009-2011;
- DNI's 2010-2012 work programs reported upon herein were carried out under my direction or supervision, or by me, as DNI's QP for the project;
- I expect to receive no remuneration from DNI Metals Inc. other than payment of fees and disbursements for services rendered in connection with preparation of this report;
- I am President and CEO, and a director, of DNI Metals Inc. ("DNI"), and that I am, accordingly, not independent of DNI; and that I hold securities of DNI including stock options granted to me under DNI's Stock Option Plan;
- I have read the definition of "Qualified Person" set out in National Instrument 43-101 ("NI-43-101") and certify that by reason of my education, my licensure from a professional association as defined in NI-43-101, and my past relevant work experience, I fulfill the requirements to be a "Qualified Person" for the purposes of NI-43-101. That I, furthermore, certify that I am the designated Qualified Person for DNI Metals Inc. in connection with the Property;
- I acknowledge that as of the date of the certificate, and to the best of my knowledge, information and belief, this Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading. This Report is, however, not intended as a NI-43-101 technical report;
- I consent to the filing of the Report with the Alberta Department of Energy, and any publication and reproduction by them of the Report, in whole or in part, including its electronic publication in the public company files or on their websites accessible by the public.

Executed this 20th day of April, 2012, in the City of Toronto, Ontario, Canada.

[Seal]
APGO#250

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Shahé F.Sabag MSc PGeo