



# TECHNICAL REPORT



## ASSESSMENT WORK REPORT

# Assessment Report of 2012 Reverse Circulation Exploration at the Martison Phosphate Project

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### 1.0 SUMMARY

A multipurpose 9-hole drilling program was carried out between January and March 2012 on the Martison Phosphate Project, located approximately 70 km northeast of Hearst, Ontario. The purpose of the program was to: 1) test the residuum geology to bedrock; 2) conduct borehole geophysical surveys to further refine the subsurface geological units, and 3) install well screen and casing for future hydrogeological studies. The program was conducted by AMEC Environment and Infrastructure (AMEC) of Sudbury, Ontario, generally along the margin of the main Phosphate deposit (Anomaly A) (See Figure 8-1 for Borehole Locations). A Foremost DR-12 dual rotary and compressed air truck-mounted drill supplied by Davidson Well Drilling Ltd. (Davidson) of Wingham, Ontario was used. This method was preferred, as it has proven to provide superior material recovery in challenging hydrogeological conditions. Overburden/residuum logging and sampling were conducted over approximately 3 m lengths (see Appendix B and C for Borehole Logs and Sampling lengths). Samples were sent to ALS Canada Ltd. (ALS) of Timmins, Ontario for element and whole rock analysis. Gamma ray borehole geophysics was conducted on all holes by Lotowater Technical Services Inc. of Paris, Ontario, during March 2012. Given the remote location and ground conditions the program was required to be conducted during the winter freeze up. As such, a winter camp and winter trail construction was required to facilitate this project.

The information contained in Sections 2.0 to 7.0 has been based on excerpts from the 2008 N.I. 43-101 Technical Report: Martison Phosphate Project Preliminary Feasibility Study by Spalding et al.

### 2.0 PROPERTY DESCRIPTION AND LOCATION

The proposed mine site is located about 70 km northeast of the town of Hearst, Ontario, and 15 km southwest of Martison Lake in the James Bay Lowlands. The project is located in the "South of Ridge Lake" area and centered about 50° 18' 52" N, 83° 24' 52" W, as shown on Figure 2-1.



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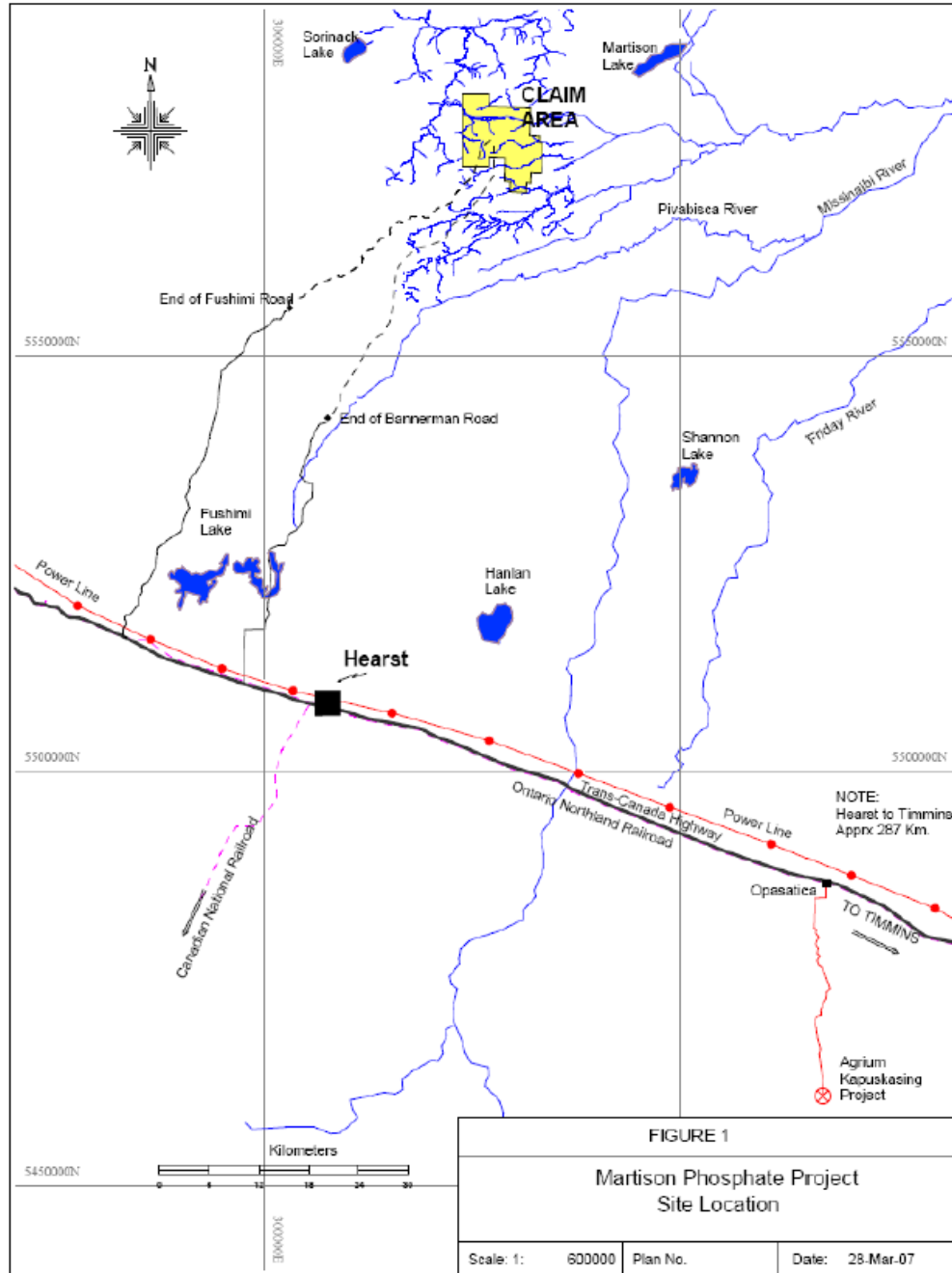


Figure 2-1: Martison Phosphate Project Location Map (Spalding et al, 2008)



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The property consists of three (3) mining leases P1201625 (granted in September 2002), 108638 (CIm 477) and 108639 (CIm 478) (both granted May 1, 2011) and 19 unpatented contiguous mineral claims, totalling 250 units, which together comprise approximately 8,256 hectares. The mineral lease and all claims are located within the "South of Ridge Lake" area, Porcupine Mining Division, Cochrane Land Titles & Registry Division, Province of Ontario, as shown on Claim Map G-1716 on record at the Provincial Recording Office, Sudbury, Ontario. The claims are registered in the name of PhosCan Chemical Corporation (PhosCan) and Baltic Resources Inc. (Baltic). Each company owns title to 50 per cent of such lease and claims. PhosCan owns all of the issued and outstanding shares of Baltic, such that it owns, directly or indirectly, 100 per cent of the Martison Phosphate Project. A complete claim listing is presented in Table 2-1 and depicted on Figure 2-2.

**Table 2-1: Martison Phosphate Project Claim Status (5/23/2012)**

Number	Type	Status	Due Date	Claim units	Hectares
4208272	Claim	Active	June 27, 2012	16	256
4204292	Claim	Active	March 15, 2013	10	160
4214675	Claim	Active	March 15, 2013	16	256
4214676	Claim	Active	March 15, 2013	16	256
4214677	Claim	Active	March 15, 2013	16	256
4214678	Claim	Active	March 15, 2013	12	192
4214679	Claim	Active	March 15, 2013	6	96
4214680	Claim	Active	March 15, 2013	4	64
4214681	Claim	Active	March 15, 2013	16	256
4214682	Claim	Active	March 15, 2013	15	240
4202109	Claim	Active	April 10, 2013	15	240
4202112	Claim	Active	April 10, 2013	6	96
4202113	Claim	Active	April 10, 2013	15	240
4208263	Claim	Active	April 10, 2013	15	240
4214327	Claim	Active	April 16, 2013	9	144
4214328	Claim	Active	April 16, 2013	15	240
3002450	Claim	Active	June 27, 2013	16	256
3002451	Claim	Active	June 27, 2013	16	256
4202964	Claim	Active	August 11, 2013	16	256
CLM477	Lease	Active	April 30, 2032	130	2079
CLM478	Lease	Active	April 30, 2032	122	1951
p1201625	Lease	Active	July 31, 2023	14	226
<b>Total</b>				<b>8256</b>	

*Note: CLM 477 and 478 represent leases that are in the process of having their Assessment number granted.*

Within the mining lease, up to 10 per cent of the surface rights are withheld for future public transportation routes. Also withheld are unspecified areas for the future development of hydropower infrastructure, power transmission, and hydrocarbon pipeline corridors, as well as free use and passage upon all navigable waterways including access.



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The mineral claims withhold surface rights up to 122 m around all lakes and rivers, including land under water, as well as reserving all sand, gravel, and peat deposits.

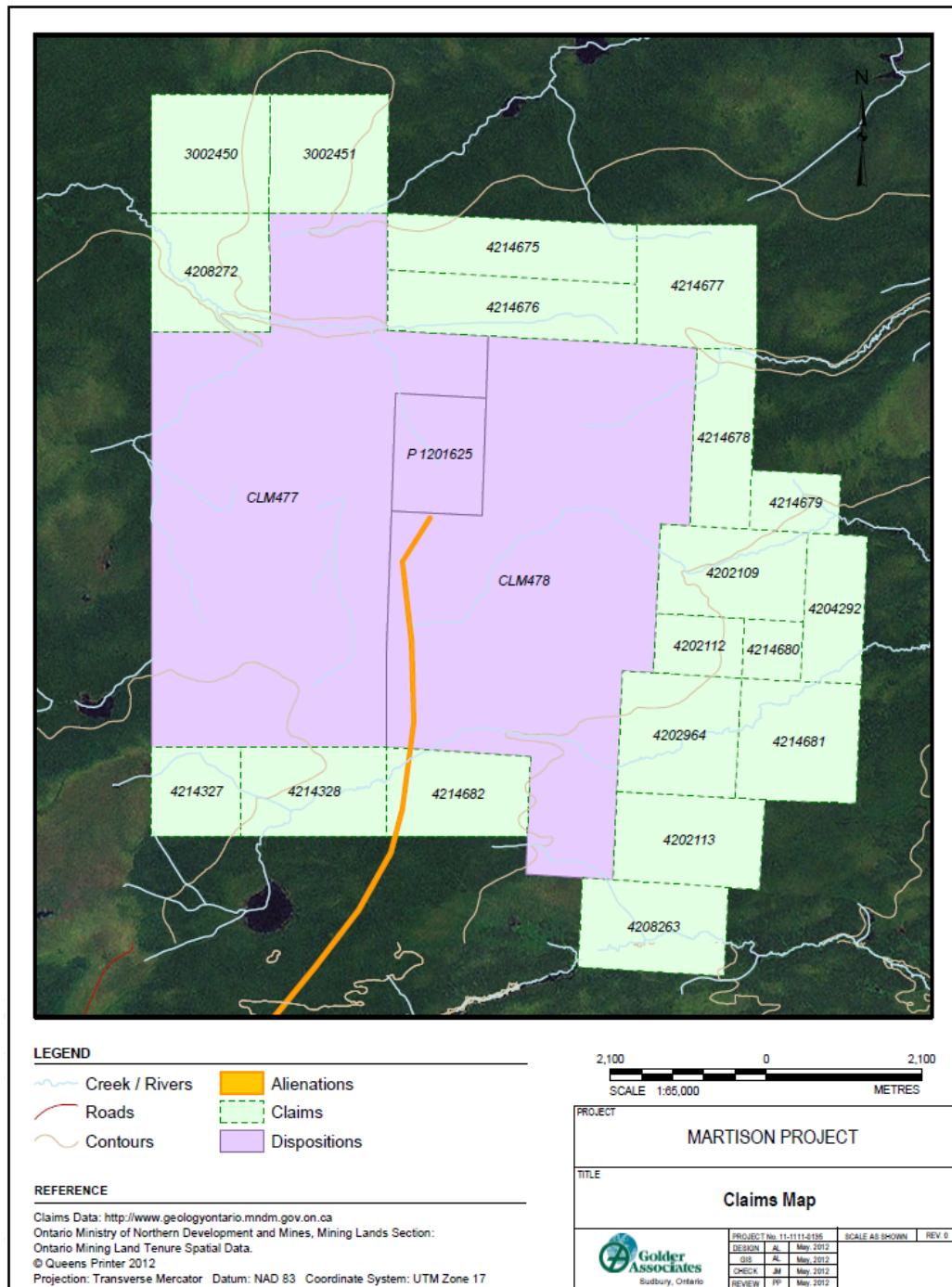


Figure 2-2: Martison Phosphate Project Claim Location Map



The properties controlled by PhosCan and its subsidiary, Baltic, are subject to certain royalty payments. These royalties are to be paid to Donald D. McKinnon of Timmins Ontario, his heirs and permitted assigns. A Net Sales Returns (NSR) royalty of 1 per cent of net sales returns on phosphate concentrate is in place as well as a Production royalty which varies with the price of phosphoric acid and is payable on each tonne of phosphate concentrate produced. Prior to the commencement of commercial production, PhosCan may elect to acquire the 1 per cent NSR royalty for a payment of CAD \$ 3,000,000. Further, a NSR for Special Products of 2 per cent of all special products sold is in place. "Special products" does not include any "ores" sold on the basis of their phosphate content, phosphate concentrate, any and all products manufactured downstream of the phosphate beneficiation plant, or any aggregate used for the purposes of the Martison Phosphate Project.

The Martison Phosphate Project property is located on lands which a First Nation asserts are its traditional lands and in respect of which the First Nation asserts it holds constitutionally protected rights. PhosCan expects to enter into an agreement with the First Nation regarding exploration and development of the Martison Phosphate Project.

### 3.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

There are two preliminarily identified access roads to the mine site area. One, identified as Bannerman Township Road, has been examined in past project studies. The total length of this access between Hearst and the deposit is 90 km comprised of 8 km on Highway 11, 38 km on the Bannerman Township Road, and 44 km of "path" which is used for winter access to the deposit.

The second access route, which has been the main access to the deposit during past exploration programs, is Fushimi Lake Road. This access route has been extended and upgraded by the timber industry in recent years. The total length of this route from Hearst to the Martison deposit is about 112 km comprised of 26 km on Highway 11, 48 km on Fushimi Lake Road, and 38 km of "path" which could be used for winter access to the deposit. Please see Figure 4.1 for road locations.

The terrain at the deposit consists of spruce forest, wet muskeg, and numerous small lakes and rivers. The maximum reported depth for the lakes in the area is 4 m. Local relief is minimal with variations of only a few metres, making the ground very poorly drained, alternating between wet and drier. The maximum relief over the deposit itself is reported to be 1.4 m. These conditions currently limit access to the site for field activities to only the winter season. This necessitates the use of local construction contractors to maintain winter roads. The Martison deposit is located astride a major drainage divide with generally the western portion draining into the Albany River System and the eastern portion draining into the Moose River System.

The weather in the project area is typical of a mid-continental climate with cold winters and short warm summers. Temperatures vary dramatically over short time intervals. The region experiences five months of often very cold winter and four months of warm summer.

The nearest national weather station with a long period of data is located at Kapuskasing about 125 km SE of the Martison Phosphate Project site. The period of record is from 1971 through 2000. At that location the average annual temperature is 0.8° C ranging from an average daily temperature of -18.7° C in January to 17.2° C in July. The average annual rainfall is 83.2 cm with the most occurring in July and the least in February. The average annual wind velocity is 12.6 km/h from the SW. Sea level atmospheric pressure averages 101.6 kPa.



Medical and emergency facilities are available at Hearst which has hospital facilities and is about one-half hour away by helicopter.

Local socio-economic resources are generally limited due to the paucity of population in the region. Basic food, lumber, exploration supplies, fuel, etc. can be purchased in Hearst, while other more technical supplies can be obtained in Timmins, Ontario (a long-established mining center). The residents of Hearst are favourably committed to the responsible development of the natural resources of the region and are eager for new employment opportunities. In the last several years, the First Nation peoples have expressed a keen interest in developing the Martison Phosphate Project.

The Martison Phosphate Project is located approximately 70 km by air from Hearst, and is in close proximity to rail, power, highway and other industrial infrastructure. It is believed, pending further study, that sufficient water is available nearby the site for anticipated mining and industrial use.

### 4.0 HISTORY

Carbonatite complexes occur in several parts of northern Ontario and some of them have been explored for minerals for many years. The Martison Carbonatite Complex was located by an airborne magnetic-electromagnetic survey in 1965. In 1965, ground surveys indicated a conductive zone about 500 m long with a coincident magnetic anomaly. This work, along with a hole drilled in the anomaly, was conducted by a consortium that included Falconbridge Nickel Mines, Uranium Ridge Mines Limited, and Matachewan Consolidated Mines Limited.

The Martison Carbonatite Complex was originally and incorrectly referred to as the Martison Lake Carbonatite Complex. Martison Lake is located 15 km NE of the carbonatite complex. The Martison Carbonatite Complex is named after N.W. Martison, a Shell Canada Resources Limited (Shell Canada) geologist, who explored the area for petroleum in 1946.

In 1967, the large northern magnetic anomaly (Anomaly A) was covered by 98 claims staked by an unknown party, probably Goldray Mines Ltd. An airborne magnetometer survey was performed and the resulting anomaly was recommended for testing by drilling. This work was never performed and the claims were allowed to lapse. The aeromagnetic surveys were completed by the Ontario Geological Survey and Geological Survey of Canada.

The existence of the Martison Carbonatite Complex was first formally interpreted in 1970 by the Ontario Department of Mines and Northern Affairs partly on the basis of the 1965 drill hole.

In 1980, Shell Canada staked 222 mining claims in a single contiguous block over the interpreted Martison Carbonatite Complex. In order to more precisely map the complex, which is completely buried by overburden and contains no rock outcrops, an airborne geophysical survey was completed in February 1981. In March and April of 1981, five drill holes were completed and were centered on Anomaly A (three) and Anomaly B (two). Based on the interpreted results from this work, a large field campaign was planned for the 1982 winter season. An additional 124 contiguous claims were staked in 1981 by Shell Canada. In late 1981, seismic and DC resistivity test surveys were completed on Anomaly A (between hole 81-03 and 81-04) to evaluate the methods for determining the thickness of the residuum. The tests were successful in outlining the carbonatite but unsuccessful in determining residuum thickness.





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In February 1982, Shell Canada made the decision to sell the Martison property to Eastern Petroleum Corporation and Camchib Mines Incorporated (Camchib) with Camchib being the operator for the joint-venture. However, pending the completion of the sale, the field program was conducted under the direction of Shell Canada. The program consisted of 38 drill holes (1 re-drill) completed between January 19 and April 5 using hole-spacings of 200 to 400 m. A total of 32 holes were completed using reverse-circulation methods and 6 using sonic drilling techniques. Lakefield Research of Canada Limited conducted beneficiation tests for the production of phosphate and niobium concentrates using sonic core from holes 82-32, 82-34, and 82-36.

The divestiture of the Martison property by Shell Canada was completed in December 1982. The 1983 field program, under the direction of Camchib, began on February 9 and drilling operations were complete by March 29. A total of 29 drill holes were completed using a mixture of sonic drilling techniques and reverse-circulation techniques, where drilling conditions dictated. The sonic drilling methods permitted the collection of core for use in lithologic descriptions and beneficiation testing. Additionally, geological, geochemical, geophysical, and geotechnical studies were completed in 1983. During 1983, comprehensive beneficiation batch and closed-cycle bench tests for phosphate and niobium concentrate production and additional residuum microscopic studies were completed.

In January 1984, Kilborn Limited completed a "Preliminary Capital and Operating Cost Estimate for an Open-Pit Mine/Mill Complex" at the Martison deposit. This work was completed for Camchib.

From January 13 through March 29, 1984, a total of 37 drill holes were completed (including four re-drills) by two drilling contractors. Of this total, 15 holes were completed using a combination of a standard diamond-drill penetrating through the glacial till and Cretaceous sediments using a tri-cone bit and NQ coring through the residuum. Sonic drilling techniques were used to recover core from 17 holes. Five holes were completed using reverse-circulation methods. Unfortunately, the program generally called for drilling to a predetermined depth of 76.2 m, regardless of the geology, and 22 of the drill holes were "stopped" in the residuum of economic interest for this reason. Additionally, drilling problems and/or equipment capacities forced the stoppage of another three holes in the residuum. During the drilling program, a test was completed comparing drill cuttings recovered from the circulating medium with the chemical analyses of the core recovered over the same interval. This test indicated that the cutting's analyses and the core analyses compared favourably, in general. In another program task, two 48-inch diameter (122 cm) churn-drill holes were attempted to collect 110 "tons" of bulk residuum sample for beneficiation pilot-plant studies at Lakefield Research (Lakefield). This location was selected beside the drill hole 83-60 and groundwater problems/program design forced the abandonment of one hole and completion of the other hole "early". A total of 65 tonnes were sent to Lakefield.

During June to July 1984, a sample of concentrate from Lakefield's work was evaluated at the International Fertilizer Development Center in Muscle Shoals, Alabama. The study tested the viability of producing phosphoric acid from the Martison concentrate by acidulation with sulphuric acid.

During the period from 1985 to 1987, no further fieldwork was completed on the property. Camchib continued to study the merits of various production plans, but was unable to conclude that it could penetrate the fertilizer market without a partner already engaged in the business. Thus, in 1987, Camchib formed a partnership with Sherritt Gordon Limited whereby Camchib contributed the Martison property and Sherritt the Kapuskasing deposit to a new entity in which each company held 50 per cent.



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In 1987, under contract to the Ontario Ministry of Northern Development and Mines, Jacobs Engineering and Blue, Johnson & Associates completed a summary evaluation of the prospects for development of the weathered carbonatite phosphate deposits in Ontario. Although the detailed study included both the Kapuskasing and Martison deposits, the study recommended that the Kapuskasing deposit be advanced. This was primarily due to the development stages of both deposits which favoured the Kapuskasing deposit.

In 1989, Camchib sold its 50 per cent interest in Kapuskasing and Martison to Newphos Ltd., a wholly owned subsidiary of Central Capital Corporation (CCC). Work began in earnest on the Kapuskasing deposit following the sale. Due to the pre-occupation with Kapuskasing, interest in the Martison deposit diminished.

During 1993, Sherritt allowed the Martison claim block to expire through lack of timely filing of assessment work. In the same year, McKinnon Prospecting of Timmins, Ontario established a new claim block covering the Martison Carbonatite Complex.

In early 1997, J.H. Reedman & Associates Ltd. completed a computer model and an “open-pit resource” estimate for a mining period of 10 years. This work was completed for McKinnon Prospecting.

Also in early 1997, MCK Mining Corporation (MCK), formerly named Hendricks Minerals Canada Limited, was reorganized to more aggressively pursue advanced mining projects. MCK entered an agreement with Baltic whereby each would earn 50 per cent in the Martison property from Donald McKinnon, principal and owner of McKinnon Prospecting, by completing work and issuing shares pursuant to an option and joint venture agreement. After having met all of the requirements under the option agreement, both MCK and Baltic have since earned their respective 50 per cent ownership interest in Martison. Both parties have signed the Martison Joint Venture Agreement which governs their relationships with respect to Martison and provides for production royalties to McKinnon.

Also, in 1997, MCK engaged MRDI to re-evaluate the previously collected data and to complete a Scoping Study for the Martison property. The Scoping Study evaluated the geology, constructed a computer resource model, presented a “reserves” statement, and completed a project level estimate of capital and operating costs for the development and operation of a mine and beneficiation plant at the Martison property. The final report was issued in May 1998.

Using several contractors in 1997, MCK and Baltic examined fertilizer markets, regional sulphuric acid production and forecasts, regional freight rates, fertilizer manufacturing plant capital and operating costs, and alternative financing and tax handling schemes.

In January 1998, a brief field program by MCK evaluated the use of lake sediment samples as a carbonatite exploration tool. Although the lake sediment samples were collected and analysed, the program was never completed to the point where definitive conclusions were published. In late 1998, an agreement was reached between MCK/Baltic and Cargill Fertilizer, Inc. (Cargill) whereby Cargill would “purchase” six (6) of the 13 drill holes scheduled for drilling in January 1999. Cargill would use the data generated from beneficiation tests on these six holes, as well as other MCK/Baltic data to complete its own evaluation of this deposit.

From February 22 through March 27, 1999, a total of 14 drill holes (including 1 re-drill) were completed under the field supervision of MCK. All holes were continuously cored from the surface to total depth using triple-tube HQ coring technology. The locations of the holes were along the previously defined “economic axis” of Anomaly A and provided some infill drilling, as well as corroboration of earlier work. Cargill’s report issued in October 1999



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indicated a favourable result and held out the possibility of a simplified beneficiation process flowsheet, as compared to earlier work. The report also generally confirmed earlier MCK resource estimates and recommended a slurry pipeline for concentrate transport to a rail siding at Hearst for drying and load-out prior to transport.

Also, in 1999, an aeromagnetic survey was conducted over the Martison Carbonatite Complex.

From February 17 through April 3, 2001, a total of 12 drill holes (1 re-drill) were completed on Anomaly B of the Martison Carbonatite Deposit. This was the first drilling program on this Anomaly since the very first holes were drilled at Martison in 1981. All holes were continuously cored from the surface to total depth using triple-tube HQ coring technology. The drilling centers on this Anomaly remain at about 200 m. Initial interpretations of this program show geologic conditions and analytical results similar to Anomaly A.

In February 2002, a revised block model and resource re-estimate were completed and reported. This block model and resource estimate include the first use of re-interpreted lithologic units from all previous drilling campaigns and the establishment of the nomenclature used for the 2007 Preliminary Feasibility Study. This re-estimate of resources is discussed further in Section 6.2.

From March 18 through April 2, 2002, a total of six (6) drill holes were completed on the NW fringes of Anomaly A. All holes were continuously cored from the surface to total depth using triple-tube HQ coring technology. The objectives of this program were to test the residuum in this sparsely drilled area and to examine the rare-earth elements and niobium-rich Cretaceous sediments in this location. A re-computation of resources issued in November 2002 includes the results of this program and highlights the significant tonnage of niobium-rich material in the NW sector of Anomaly A and in the Cretaceous sediments. This re-estimate of resources is discussed further in Section 6.2.

In June 2002, Falconbridge Limited formed an alliance with MCK and Baltic for promoting the development of Martison. Falconbridge's interest was solely in the supply of sulphuric acid to the project from its smelters in the Timmins and Sudbury areas.

In January 2006, MCK reorganized its Board of Directors to facilitate the development of the company and of the Project.

In July 2006, MCK changed its name to PhosCan.

In October 2006, PhosCan announced the initiation of a PFS for the Project. This study was completed in May 2008 and the results are summarized and presented in the 2008 N.I. 43-101 Technical Report: Martison Phosphate Project Preliminary Feasibility Study by Spalding et al.

In March 2008, PhosCan acquired all of the issued shares of Baltic, such that PhosCan now owns, directly and indirectly, 100 per cent of the Martison Phosphate Project.

From January through April 2008, PhosCan conducted a major field campaign to collect a bulk sample, to gather geotechnical information, to complete hydrological tests, and to begin the preparation of topographic maps of the Martison Carbonatite Complex. Analysis of the collected data is continuing and will be reported as the evaluation tasks are completed. Over 42 tonnes of residuum material were collected from seven sites and shipped to Jacobs Engineering in Lakeland, Florida for beneficiation-process analysis and pilot-scale beneficiation testing.



### 5.0 GEOLOGICAL SETTING AND MINERALIZATION

The Martison Carbonatite Complex (Martison Phosphate Project) is situated in the large expanse of “low ground” southwest of Hudson Bay. The property encloses a very gently rolling terrain dominated by muskeg and black spruce swamp. There are no exposures of the carbonatite or its enclosing wall rocks and all geological data result from drilling information and interpretations of geophysical surveys. Most carbonatites in Ontario are of Precambrian age and belong to two (2) age groupings: 1,800 to 1,900 Ma (Paleo-proterozoic) and 1,000 to 1,100 Ma (Meso-Proterozoic). It is currently not established in which grouping the Martison Complex belongs, if either.

The Martison Carbonatite Complex lies about 150 km west of the Kapuskasing Structural Zone which hosts numerous alkalic-carbonatite complexes. The Complex also lies 60 km east of a set of circular aeromagnetic anomalies underlying Paleozoic strata and once interpreted to be carbonatite intrusions. The Martison Complex is too far west to be associated with the Kapuskasing Structural Zone manifestations and current interpretations indicate that the circular anomalies to the west are the result of a different type of magmatic event. Examination of other geological data suggests that the Martison Carbonatite Complex lies along the NE extension of the Garden River fault zone, the western end of which is one of the bounding faults for the NW corner of the Lake Superior basin of Neo-Proterozoic age. The alkalic-carbonatite magmatism lying along the Trans-Superior Tectonic Zone, which bisects the Lake Superior Basin, is dominated by Proterozoic age events. It may ultimately be established that the Martison Carbonatite Complex belongs to this Neo-Proterozoic age grouping.

Differential weathering of the Martison Carbonatite Complex has resulted in an irregular surface of carbonatite the depth of which varies greatly over short distances. Depressions in this carbonatite surface are filled with the weathered carbonatite residuum that represents the bulk of the phosphatic material of economic interest.

The lithology of the deposit is characterized by three main lithologic units, which overlie three separate, but related, carbonatite intrusions over an area of about 56 square km (km<sup>2</sup>). These intrusions are identified as: Anomaly A, which covers approximately 12.5 km<sup>2</sup>; Anomaly B, located about five km to the SE and covers about 4 km<sup>2</sup>; and Anomaly C located about three km to the ESE of Anomaly A, and covers about 2 km<sup>2</sup>.

The surficial material in the project area, overlying the ubiquitous glacial till, is a muskeg deposit varying in thickness from 0.5 to about 4 m and averaging about 2 m.

Within Anomaly A, the overburden is divided into two main sub-units: glacial till and Cretaceous sediments. The glacial till material ranges from coarse gravel size sediment to clay and is competent in a dry condition. The thickness of the glacial till ranges from 30 to 82 m in thickness and averages about 47 m. The Cretaceous sediments range in thickness from “absent” to 135 m in thickness. The lithologies of the sediments range from lignitic peat to highly weathered lateritic material.

Within Anomaly A, the residuum material has been sub-divided into two main units based on lithology: Unit 2A, which is unconsolidated (0.0 to 58.5 m thick); and Unit 2B, which is consolidated (re-cemented) residuum material (0.0 to 91.6 m thick). A third and minor type of material, partially weathered carbonatite, occurs as “lenses” within the residuum.

Within Anomaly A, forming the base of the lithology of economic interest, is the carbonatite. The carbonatite is a massive, white, medium to coarse grained rock, composed mainly of calcite and dolomite with a wide range of other minerals characteristic of carbonatite assemblages.



In the late 1990s, with the advent of computer modelling and statistical analyses at Martison, every previous drill hole geology log was re-interpreted and the lithographic column was assigned number identifiers (“Litho Unit ID”) for use with this technology. The use of the Litho Unit codes and correlations was validated, in general, in the drilling programs in 1999, 2001 and 2002. Each of the above Litho Units is further subdivided based on lithologic and petrographic variations. These sub-units are not germane to either past or current work and still need to be validated for future use. Most likely, the sub-unit designations will play a role in quality control for the proposed mining operations.

### 6.0 DEPOSIT TYPES

Due to the nature of the deposit and nature of the exploration and development programs at the Martison Phosphate Project, extremely few samples of the carbonatite plug exist and have been examined. Almost all mineralogy studies have been focused on the residuum and the components for the various flow streams resulting from beneficiation study programs.

All drill holes that have intersected “bedrock” at the Martison Phosphate Project have recovered material that can be interpreted as being the product of the weathering of sovite or silicocarbonatite rocks. Mineralogical studies and whole rock analyses of this material are extremely limited and only one sample has been interpreted as showing no evidence of weathering. Minerals identified in the least weathered (“freshest”) sovite material are phlogopite, magnetite, apatite, and pyrochlore, all associated with a carbonate matrix. Mineralogical studies have been completed by a large number of investigators and all studies should be considered preliminary. The number of minerals present in the weathered carbonatite probably greatly exceeds the number reported in these studies.

As indicated elsewhere in this report, most detailed studies at the Martison Phosphate Project have been completed on material that occurs above the bedrock of the complex.

Heavy minerals identified in the glacial till overlying the Martison Carbonatite Complex include epidote, pyroxene, almandite garnet, hematite, pyrite, sphene, and hornblende, all of which are interpreted as being derived from Archean granites and gneisses located northeast of the complex. Apatite, siderite, ilmenite, pyrochlore, and sphene are all intuited to be derived from the local carbonatite.

Limited mineralogy studies have been completed with samples identified as deriving from the Cretaceous sediments which occur between the glacial till and residuum. Interest was shown in this material and was the focus of the 2002 field campaign on Anomaly A. However, no reports of studies of this material were reviewed specifically for this Assessment Work Report. The chief minerals of economic interest in the sediments are pyrochlore and its daughter weathering products.

The minerals of the residuum fall into three classifications: primary, secondary and detrital. The chief primary minerals are apatite, magnetite, pyrochlore, calcite, dolomite, barite, columbite, and occasional quartz. The secondary minerals are the result of the breakdown of the primary minerals, replacements of the primary minerals, or re-deposition of elements after dissolution of the primary minerals. Chief secondary minerals include francolite, calcite, dolomite, ankerite, siderite, limonite, goethite, hematite, ilmenite, phlogopite, pyrite, and pyrochlore. The detrital minerals include clay (tentatively identified as kaolin and crandallite), feldspars, and quartz.



Recent XRD analyses from phosphate concentrate derived from the 1999 and 2002 sample material show the following minerals to be present: fluorapatite, crandallite, magnetite, goethite, hematite, ilmenite, chlorite, carbonates, limonite, pyrochlore, anatase, pyrite, mica, quartz, feldspar, and garnet.

Based on work in progress, the phosphate concentrate derived from Litho Unit 2A contains the following mineral quantities:

- 25% to 75% - fluorapatite;
- 5% to 25% - crandallite, magnetite, goethite, chlorite;
- 1% to 5% - hematite, carbonates, limonite, mica, quartz, feldspar;
- identified – ilmenite, pyrochlore, anatase, pyrite, and garnet.

The phosphate concentrate derived from Litho Unit 2B contains the following mineral quantities:

- 25% to 75% - fluorapatite;
- 5% to 25% - crandallite, magnetite, chlorite;
- 1% to 5% - goethite, hematite, carbonates, limonite, mica, quartz, feldspar;
- identified – ilmenite, pyrochlore, anatase, hornblende and garnet.

As currently defined by past drilling campaigns, the phosphatic residuum of Anomaly A (Litho Units 2A and 2B) strikes about N 30° W and is without a definable dip. The currently defined strike length is about 1,700 m with a width varying between 300 and 600 m. As postulated above, the NE and SW edges of this zone are sharp due to the affects of possible faults and the resulting intensive weathering of the carbonatite in this fractured zone. At this time, the area of thickest residuum is open to the NW and to the SE, as well as at depth in the central area.

As stated elsewhere in this report, virtually nothing is known of the primary carbonatite and surrounding country rock into which the carbonatite plug was intruded.

## 7.0 PREVIOUS EXPLORATION

The Martison Carbonatite Complex was located by a Canada-wide airborne magnetic-electromagnetic survey in 1965. In 1965, ground surveys at Martison indicated a conductive zone about 500 m long with a coincident magnetic anomaly. This work, along with a hole drilled in the anomaly, was conducted by a consortium that included Falconbridge Nickel Mines, Uranium Ridge Mines Limited, and Matachewan Consolidated Mines Limited.

In 1967, the large northern magnetic anomaly (Anomaly A) was covered by 98 claims staked by an unknown party, probably Goldray Mines Ltd. An airborne magnetometer survey was performed and the resulting anomaly was recommended for testing by drilling. This work was never performed and the claims were allowed to lapse. The aeromagnetic surveys were completed by the Ontario Geological Survey and Geological Survey of Canada.

The existence of the Martison Carbonatite Complex was first formally interpreted in 1970 by the Ontario Department of Mines and Northern Affairs partly on the basis of the 1965 drill hole.



Between April 1980 and June 1981, Shell Canada staked 222 mining claims in a single contiguous block over the interpreted Martison Carbonatite Complex. In order to more precisely map the complex, which is completely buried by glacial till and contains no rock outcrops, an airborne geophysical survey was completed in February 1981. In March and April of 1981, five drill holes were completed and were centered on Anomaly A (three) and Anomaly B (two).

In late 1981, seismic and DC resistivity test surveys were completed on Anomaly A (between holes 81-03 and 81-04) to evaluate the methods for determining the thickness of the residuum. The tests were successful in outlining the carbonatite but unsuccessful in determining residuum thickness.

Additional drilling programs focusing on Anomaly A were conducted during the winter seasons of 1982, 1983, 1984, 1999, 2001, 2002, 2008, and 2012.

In 1999, a low-altitude aeromagnetic survey was conducted over the Martison Carbonatite Complex on behalf of the Martison Joint Venture.

## 8.0 CURRENT EXPLORATION DRILLING

Two drilling programs ran concurrently during the 2012 Winter season. One utilized sonic coring methods within the aforementioned Anomaly A, while the other (the purpose of this report) focused on the more hydrogeologically challenging perimeter of Anomaly A.

Between January and March 2012, 6 - 6" and 3 - 10" Reverse Circulation (RC) holes were drilled vertically to various depths at various locations generally along the margin of the known deposit (Anomaly A). The program purpose was multi-fold in 1) exploring the boundary geology of the deposit, 2) conducting downhole geophysics, and 3) installing groundwater monitoring and pumping wells for future studies. For the purposes of this report we will only focus on purposes 1 and 2. Davidson Well Drilling of Wingham, Ontario was subcontracted to complete the drilling program. A Foremost DR-12 dual rotary and compressed air truck-mounted drill was used. This method was preferred, as it has proved to provide superior material recovery in challenging hydrogeological conditions. The completion depths of all holes were determined in the field based on the observed stratigraphy and hydrogeological condition. Continuous overburden soil cutting samples (including residuum) were collected with the use of the diverter head for the total depth of the hole. Observations were made on geological material, texture, colour, reaction to a solution of 10% v/v Hydrochloric Acid (HCl) and the amount of water produced by the strata in each interval. All samples were submitted to ALS Assay Labs at their Timmins facility for element and whole rock analysis. See Figure 8-1 for borehole locations relative to claims and Table 8-1 for a list of hole locations and depths.



# ASSESSMENT WORK REPORT

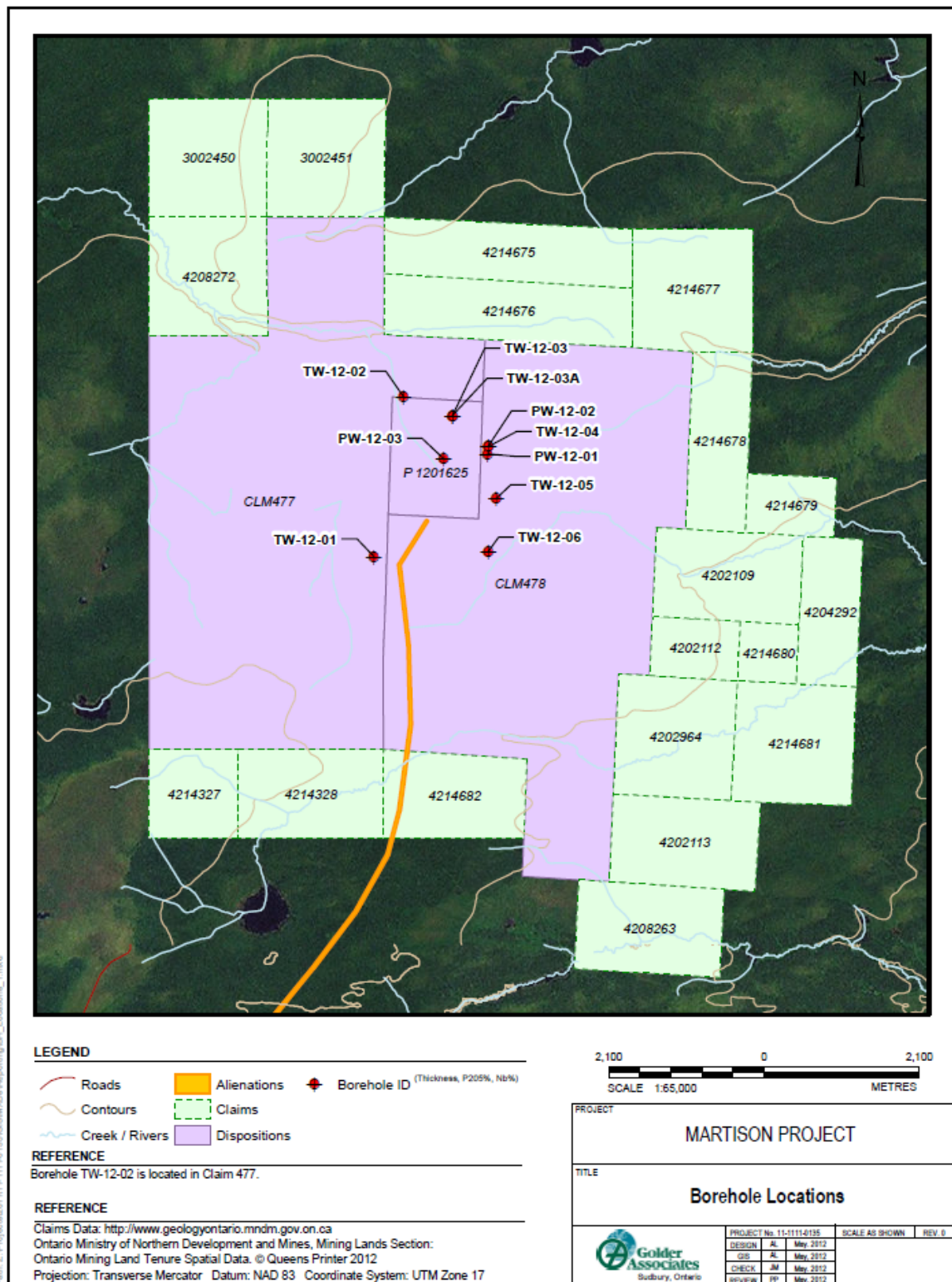


Figure 8-1: 2012 Borehole Locations Martison Phosphate Project





Table 8-1: 2012 Borehole Location and Depth at Martison Phosphate Project

Hole	Easting	Northing	Elevation	Depth
PW-12-01	328463.95	5576869.13	189.18	100
PW-12-02	328477.56	5576971.48	189.37	65.84
PW-12-03	327873.94	5576803.05	189.88	84.1
TW-12-01	326927.61	5575483.38	191.16	71.9
TW-12-02	327329.18	5577649.96	187.80	139.0
TW-12-03	327990.77	5577384.02	189.14	20.00
TW-12-03A	327996.31	5577382.76	189.23	81.08
TW-12-04	328483.84	5576972.90	189.40	74.98
TW-12-05	328585.74	5576265.28	188.35	148.1
TW-12-06	328476.71	5575545.59	187.92	73.1

Co-ordinates - NAD83 (CSRS)- Zone 17

Note: TW-12-03 was abandoned and replaced in close proximity with TW-12-03A. All Assays, Sections and Logs refer to hole TW-12-03A

## 9.0 SAMPLE PREPARATION, ANALYSES, AND SECURITY

Davidson Well Drilling Limited (Davidson) of Wingham, Ontario was subcontracted to complete the well drilling program. A Foremost DR-12 dual rotary and compressed air truck mounted drill was used. Foremost dual rotary drills have two rotary drives: one for advancing an outer steel casing through unconsolidated material; and one for advancing a drill bit out the base of the casing. Drill cuttings of the geologic material are returned to surface by forcing compressed air down through the inside of the drill rods. The pressure created by the injection of air at the drill bit, forces geologic material and formation water back to surface in the space between the drill rod and the steel casing or open hole. Once on surface, the geologic material and formation water captured and feed through cyclone diverter head to separate the formation water and samples. Some fine material is lost in this process along with the drill water. Samples of the geologic material are collected in pails from the discharge from the diverter head. The pails were exchanged as the drill bit advanced in 1.5 m intervals, and their contents decanted of excess water and placed into labelled pairs of sample bags. One bag of each pair was given to PhosCan for further assay analysis while the other (twinned) sample bag was utilized for observations on geological material, texture, colour, reaction to a solution of 10% v/v Hydrochloric Acid (HCl) and the amount of water produced by the strata in each interval. The completion depths of all wells were determined in the field by both field staff and the project hydrogeologist based on the observed stratigraphy and hydrogeological condition.

The representativeness of the samples is controlled by advancing the outer steel casing at the same time as the drill bit, such that the steel casing prevents the collapse of formation material and water into the hole from intervals above the drill bit. The steel casing can be readily advanced at the same rate as the drill bit in the overburden materials allowing for a high degree of control of the sampled material. High water producing zones can also be cut off by the advancing casing, allowing deeper samples to be collected without from higher producing washing down the samples. The steel casing cannot be advanced through competent bedrock. When bedrock is reached, the steel casing is rotated into the top of the rock until it forms a seal on the bedrock. For bedrock intervals, the competent bedrock does not collapse and the hole remains as an open interval, allowing



for sampling of the materials created by the drilling interval only. Where present, water from higher water producing zones in the bedrock will continue to be discharged to surface during sampling and, in extreme cases, can overwhelm the air compressor capacity on surface and prevent the return of samples. This occurred in TW2, TW4 and TW5 at the base of the holes. Other holes were terminated when a sufficient depth into the bedrock was reached

The duplicate samples given to PhosCan were rebagged and tagged with a single identifying sample ticket with each individual bag secured with a cable tie. A duplicate of the sample ticket was retained in the sample book for reference. The individual sample bags were collected in batches (typically by borehole) and placed in a larger “rice bag” which was also secured with a strong cable tie. The samples were then crated and shipped to ALS Laboratories in Timmins via Manitoulin Transport.

A total of 117 samples from this field campaign were submitted to ALS. Five samples were used as QA/QC samples (2 Blanks, 3 Standards) spread over the various holes (see Table 9.1). No discrepancies were observed with the results. The remaining samples are from 112 intervals and were analysed for La, Ce, Nb, and other minor elements by mass spectral ICP methods and reported as ppm. P2O5, TiO2, Fe2O3, and other metals were analysed by atomic emission spectral ICP methods and reported as oxide percents. Fusion XRF was utilized for determining Nb ore grade and reported as a per cent (see Appendix C for assay results by depth and lithology). The signed certificates of analysis can be found in Appendix A.

**Table 9-1: QA/QC Type and Location**

<b>Sample Number</b>	<b>QA/QC Type</b>	<b>Location</b>
L010159	Blank	TW 12-04
L010169	Standard	TW 12-01
L010241	Standard	TW 12-05
L010250	Standard	TW 12-05
L010260	Blank	TW 12-05

## **10.0 DISCUSSION AND RECOMMENDATIONS**

The drilling program was successful in as much as the project objectives were accomplished. There was good sample recovery via this drilling method with borehole logs produced and subsequent whole rock and element analyses (please see Appendices A, B, and C). Borehole geophysics (gamma) was completed in all holes and displayed on the borehole logs relative to the Lithology (please see Appendix B). Casing and screen were installed in all holes for future hydrogeological testing. The residuum thickness with Length Weighted P2O5 % and Nb % results are displayed in Table 10-1 and Figure 10-1.



**Table 10-1: 2012 Martison Phosphate Project Drill Program: Residuum Thickness and Assay Results**

<b>BHID</b>	<b>Residuum Thickness (m)</b>	<b>P2O5 %</b>	<b>Nb%</b>
PW 12-02	24.4	5.16	0.22
PW 12-03	36.5	17.02	0.39
TW 12-01	32.6	1.06	0.04
TW 12-02	24.1	12.91	0.35
TW 12-03	42.7	7.11	0.24
TW 12-04	33.5	10.64	0.39
TW 12-05	78.0	10.76	0.27
TW 12-06	18.2	2.26	0.52

The downhole geophysical responses are coincident with the residuum intersections. Higher gamma responses visually appear to show a reasonable correlation to higher P2O5 grades.

The results of the 2012 Reverse Circulation exploration program should be integrated into the larger historical database to better define the limits of the deposit. This compilation could then be used to better plan future exploration programs. The results of the geophysical data should be further investigated to ascertain the relationship between P2O5 and Gamma response.



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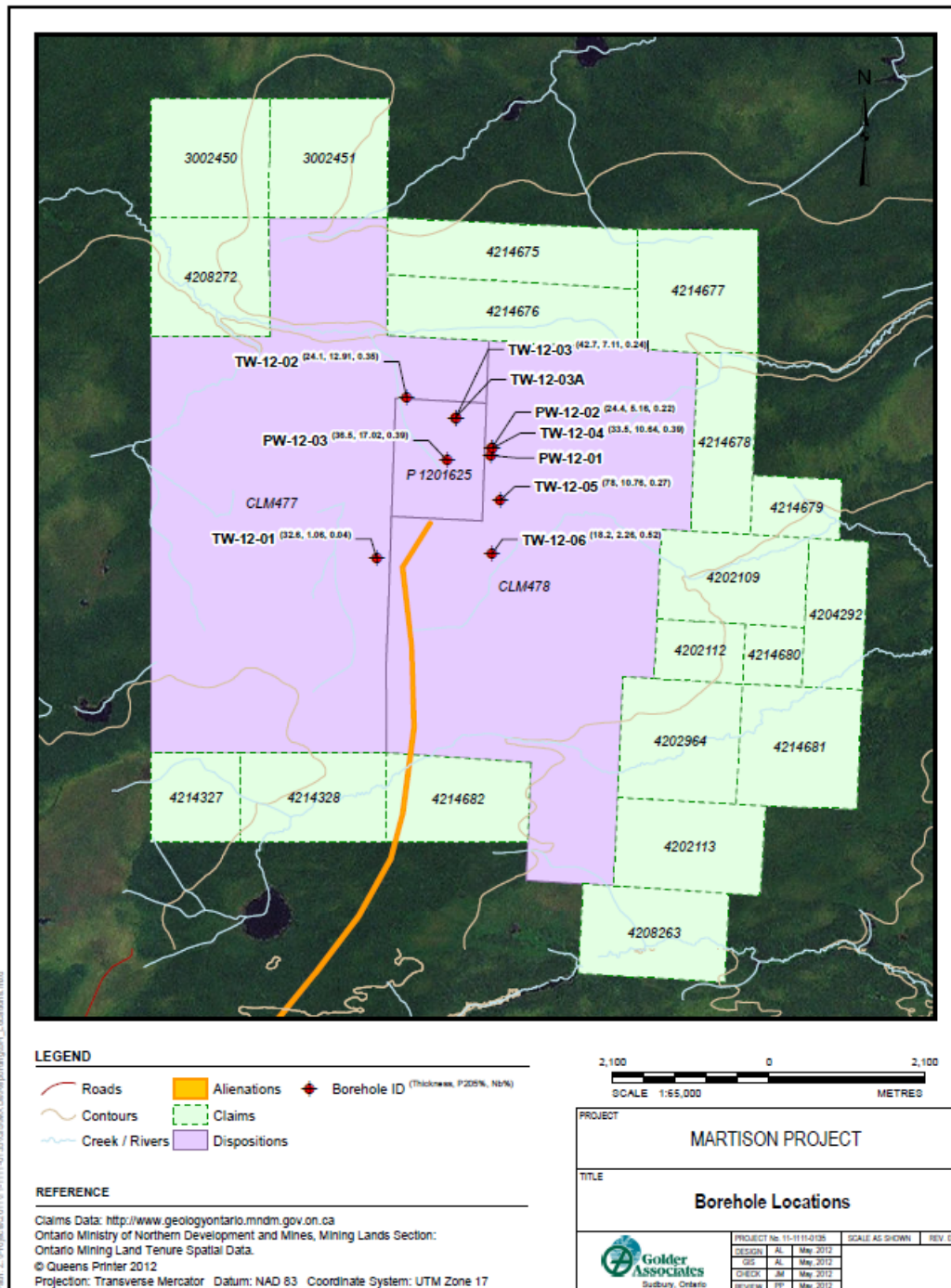


Figure 10-1: 2012 Martison Phosphate Project Borehole Residuum Thickness with Length Weighted Assay Data



## Report Signature Page

The report was prepared and signed by James McDonald, B.Sc., P.Geo., and Paul Palmer, P.Eng., P.Geo., of Golder. The signature and effective date of this Assessment Work report is (*insert date*).

### **GOLDER ASSOCIATES LTD.**

James McDonald, B.Sc., P.Geo.  
Senior Resource Geologist

Paul Palmer, P.Eng., P.Geo.  
Associate/Senior Geological Engineer

JM/PGP/cl

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## **11.0 REFERENCES**

2008 N.I. 43-101 Technical Report: Martison Phosphate Project Preliminary Feasibility Study. May 16, 2008.  
Spalding, James S., Sprott, David, Waters, Paul S., Demidovich, Joe and Jennings, Milton.



# **APPENDIX A**

## **Certificate of Assays**



# ASSESSMENT WORK REPORT



ALS Canada Ltd.  
 2103 Dollarton Hwy  
 North Vancouver BC V7H 0A7  
 Phone: 604 984 0221 Fax: 604 984 0218 www.alsglobal.com

To: PHOSCAN CHEMICAL CORP.  
 1 ST. CLAIR AVENUE WEST  
 SUITE 501  
 TORONTO ON M4V 1K6

Page: 1  
 Finalized Date: 17- APR- 2012  
 Account: PCANCC

## CERTIFICATE TM12065153

Project:  
 P.O. No.:  
 This report is for 39 Soil samples submitted to our lab in Timmins, ON, Canada on 23- MAR- 2012.

The following have access to data associated with this certificate:

STEVE CASE  
 TIM HORNER

BRUCE DAVIS  
 ROBERT SIM

RAY DUJARDIN

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI- 21	Received Sample Weight
LOG- 22	Sample login - Rcd w/o BarCode
PUL- QC	Pulverizing QC Test
CRU- 31	Fine crushing - 70% < 2mm
SPL- 21	Split sample - riffle splitter
PUL- 31	Pulverize split to 85% < 75 um
LOG- 23	Pulp Login - Rcvd with Barcode

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME- ICP06	Whole Rock Package - ICP- AES	ICP- AES
OA- GRA05	Loss on Ignition at 1000C	WST- SEQ
ME- MS81	38 element fusion ICP- MS	ICP- MS
TOT- ICP06	Total Calculation for ICP06	ICP- AES
ME- XRF10	Fusion XRF - Ore Grade	XRF
OA- GRA06	LOI for ME- XRF06	WST- SIM
Nb- XRF10	Fusion XRF - Nb Ore Grade	XRF

To: PHOSCAN CHEMICAL CORP.  
 ATTN: STEVE CASE  
 1 ST. CLAIR AVENUE WEST  
 SUITE 501  
 TORONTO ON M4V 1K6

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Comments: Samples with high rare earth elements will have low whole rock totals.

Signature:

Colin Ramshaw, Vancouver Laboratory Manager





# ASSESSMENT WORK REPORT



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Page: 2 - A  
 Total # Pages: 2 (A - D)  
 Finalized Date: 17- APR- 2012  
 Account: PCANCC

## CERTIFICATE OF ANALYSIS TM12065153

Sample Description	Method Analyte Units LOR	WEI- 21	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	
		Recvd Wt. kg 0.02	Ag ppm 1	Ba ppm 0.5	Ce ppm 0.5	Co ppm 0.5	Cr ppm 10	Cs ppm 0.01	Cu ppm 5	Dy ppm 0.05	Er ppm 0.03	Eu ppm 0.03	Ga ppm 0.1	Cd ppm 0.05	Hf ppm 0.2	Ho ppm 0.01	Ir ppm 0.01	Pb ppm 0.01	Th ppm 0.01
L010151		0.66	<1	4460	3100	14.9	70	1.50	18	38.8	15.30	31.1	19.8	68.7	3.0	6.50			
L010152		0.34	<1	5880	3680	67.4	280	5.77	93	66.4	25.5	50.7	33.8	118.5	14.1	11.00			
L010153		1.02	<1	1845	1050	18.5	130	1.25	16	19.95	7.78	14.80	12.8	35.1	5.8	3.32			
L010154		0.31	<1	344	40.5	6.0	40	1.31	11	1.71	0.95	0.67	8.6	2.16	2.8	0.33			
L010155		0.42	<1	384	37.2	6.4	40	1.49	14	1.70	0.91	0.62	9.3	1.98	2.8	0.32			
L010156		0.44	<1	448	37.0	6.3	40	1.49	12	1.75	0.95	0.68	9.3	2.17	3.0	0.34			
L010157		0.46	<1	1650	356	7.7	60	1.59	22	5.51	2.32	3.93	11.1	9.62	3.2	0.96			
L010158		0.56	<1	5120	4040	14.5	50	1.37	18	45.2	18.20	37.2	21.7	84.0	3.0	7.60			
L010159		0.36	<1	20.8	13.7	<0.5	10	0.21	<5	0.69	0.39	0.13	1.7	0.69	1.3	0.13			
L010160		0.45	2	5130	7620	35.6	100	1.85	29	118.5	47.7	90.2	40.8	210	6.5	19.80			
L010161		0.31	2	5000	4430	53.6	190	4.50	79	64.7	25.5	52.2	34.8	120.0	12.8	10.70			
L010162		1.78	<1	3120	2930	15.2	80	1.07	10	50.3	21.0	35.0	17.1	84.3	2.2	8.70			
L010163		1.66	1	1895	1175	9.2	80	0.72	9	15.45	6.32	11.85	9.1	27.9	1.9	2.65			
L010164		0.47	<1	>10000	6370	20.4	50	0.34	5	72.0	28.6	51.3	22.9	119.5	2.4	12.10			
L010165		0.72	<1	>10000	2490	8.7	30	0.37	5	27.9	10.90	22.7	11.0	51.7	1.5	4.64			
L010166		0.47	<1	8180	1660	4.2	10	0.13	<5	29.2	11.40	21.0	7.2	50.0	1.4	4.91			
L010167		0.48	<1	6710	1550	14.8	290	0.90	11	24.1	9.68	17.60	9.6	41.3	2.0	4.03			
L010168		0.61	<1	292	54.3	4.5	30	1.02	11	1.65	0.84	0.78	6.5	2.22	2.0	0.31			
L010169		0.02	<1	>10000	9880	118.0	390	1.85	148	206	78.3	149.5	56.5	360	15.2	33.7			
L010170		0.26	<1	723	116.0	14.1	90	2.80	26	3.88	2.00	1.79	16.4	5.35	4.5	0.73			
L010171		0.27	<1	1555	473	30.2	120	4.69	75	13.00	5.64	7.31	22.5	19.70	15.5	2.31			
L010172		0.48	<1	2680	301	21.7	70	3.84	49	8.10	3.63	4.75	27.1	12.20	11.9	1.44			
L010173		0.17	<1	2410	325	16.2	20	3.83	47	7.90	3.78	5.17	23.6	12.70	6.9	1.48			
L010174		0.17	<1	2640	185.0	9.5	10	1.83	44	3.89	1.77	2.33	34.0	5.78	7.1	0.70			
L010175		0.16	<1	1770	209	19.2	60	2.60	65	7.97	4.23	3.78	24.2	10.35	7.7	1.56			
L010176		0.19	<1	2310	313	16.1	10	4.66	58	7.42	3.17	4.59	26.2	11.85	7.8	1.30			
L010177		0.46	<1	2870	831	10.5	20	2.36	31	14.05	6.31	10.30	18.6	24.9	5.8	2.46			
L010178		0.93	<1	3720	356	10.2	<10	9.10	34	7.87	3.32	5.30	17.3	13.25	6.0	1.38			
L010179		0.64	<1	3690	398	9.5	10	4.35	28	8.27	3.78	5.51	24.3	13.45	6.7	1.48			
L010180		0.22	<1	3530	351	8.1	10	3.36	29	6.60	2.96	4.43	25.4	10.95	6.5	1.15			
L010181		1.07	<1	5250	367	11.3	30	4.68	25	6.68	2.80	4.68	26.7	10.60	6.5	1.14			
L010182		1.60	<1	1950	430	25.0	80	1.91	266	11.15	4.35	7.35	15.8	18.20	4.4	1.93			
L010183		2.27	<1	1635	482	35.2	70	2.39	151	18.10	7.13	11.35	21.0	28.3	7.0	3.20			
L010184		2.04	<1	1800	525	36.5	10	3.95	164	20.6	8.75	12.90	24.2	32.0	5.4	3.69			
L010185		0.81	<1	3090	678	37.2	370	2.82	110	15.00	5.95	10.10	16.6	24.4	6.1	2.64			
L010186		0.83	1	1660	436	37.4	90	2.94	159	13.95	5.27	9.39	18.8	22.9	4.1	2.42			
L010187		1.23	<1	1845	473	36.0	10	3.04	146	18.40	7.49	10.70	22.5	27.6	6.7	3.24			
L010188		0.97	<1	2450	405	34.2	10	3.43	148	14.80	5.99	9.81	22.0	24.3	5.9	2.61			
L010189		1.13	<1	1970	664	31.5	10	1.16	141	24.7	9.56	16.70	21.0	41.1	5.4	4.25			

Comments: Samples with high rare earth elements will have low whole rock totals.



# ASSESSMENT WORK REPORT



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Page: 2 - B  
 Total # Pages: 2 (A - D)  
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## CERTIFICATE OF ANALYSIS TM12065153

Sample Description	Method Analyte Units LOR	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	
		La ppm	Lu ppm	Mo ppm	Nb ppm	Nd ppm	Ni ppm	Pb ppm	Pr ppm	Rb ppm	Sm ppm	Sn ppm	Sr ppm	Ta ppm	Tb ppm	Th ppm	U ppm	V ppm	W ppm
L010151		1895	1.82	11	1915	981	81	133	311	27.0	129.5	4	2500	18.1	8.32	72.7			
L010152		1925	2.70	17	>2500	1365	216	173	398	111.5	206	12	2980	83.8	14.55	269			
L010153		569	0.85	9	1070	375	51	55	111.0	50.9	56.0	3	1625	16.5	4.35	62.0			
L010154		21.7	0.14	<2	12.2	15.9	16	9	4.53	46.7	2.83	<1	259	0.5	0.30	5.36			
L010155		19.8	0.13	<2	8.1	14.9	18	9	4.21	51.0	2.75	<1	270	0.4	0.30	5.45			
L010156		19.5	0.14	<2	7.3	15.2	18	9	4.25	49.9	2.82	<1	258	0.4	0.30	5.51			
L010157		226	0.28	3	237	113.0	33	17	35.6	51.8	15.25	1	520	2.5	1.19	14.10			
L010158		2580	2.13	13	2140	1245	65	183	398	23.7	156.0	4	2600	21.4	9.82	82.6			
L010159		8.2	0.07	<2	2.6	4.7	<5	<5	1.43	10.3	0.81	<1	25.8	0.2	0.11	3.27			
L010160		4400	5.79	33	>2500	2580	121	419	797	24.9	352	8	3160	36.0	25.3	263			
L010161		2560	2.78	17	>2500	1455	150	221	455	71.1	198.5	10	2410	45.4	14.25	257			
L010162		1740	2.58	38	>2500	947	47	93	296	20.7	132.0	4	3170	17.7	10.50	78.8			
L010163		725	0.75	14	981	362	30	49	117.5	26.8	46.8	2	2920	3.2	3.37	24.0			
L010164		4220	3.00	18	>2500	1795	18	290	595	13.3	213	7	4320	15.9	15.00	110.0			
L010165		1540	1.21	18	2020	746	12	87	243	14.2	93.0	3	4030	10.2	6.12	57.5			
L010166		906	1.26	42	1640	533	<5	87	165.5	5.7	78.9	3	5380	4.2	6.22	52.2			
L010167		813	1.10	13	>2500	490	85	69	153.5	26.2	68.0	4	4560	6.2	5.10	45.0			
L010168		30.8	0.12	<2	27.1	19.5	13	7	5.76	34.0	3.19	<1	200	0.5	0.32	4.79			
L010169		5390	8.62	18	>2500	3510	212	374	>1000	1.3	547	19	>10000	255	44.5	>1000			
L010170		65.2	0.29	<2	68.3	43.0	38	15	12.60	84.7	7.30	1	316	1.9	0.74	12.80			
L010171		294	0.66	3	375	160.0	37	22	49.3	92.1	26.4	3	709	11.7	2.62	26.7			
L010172		179.0	0.47	4	439	104.0	21	13	31.4	136.0	16.50	2	628	13.2	1.63	18.45			
L010173		175.0	0.49	5	348	120.5	9	7	35.3	96.4	18.65	1	1760	9.3	1.62	21.1			
L010174		117.5	0.22	7	468	56.6	<5	13	18.20	178.5	8.38	1	948	9.9	0.78	11.95			
L010175		133.0	0.56	6	405	71.8	16	13	21.6	128.5	12.15	1	1580	9.3	1.47	14.75			
L010176		202	0.36	8	473	102.0	<5	14	31.8	124.0	15.80	1	1625	14.9	1.52	16.05			
L010177		535	0.79	7	255	263	9	29	83.6	78.7	38.3	1	2160	7.0	2.99	34.7			
L010178		195.0	0.41	10	333	131.5	<5	6	39.1	63.4	19.45	1	4720	15.4	1.63	21.1			
L010179		240	0.48	34	511	136.5	<5	20	41.5	120.5	20.00	1	2850	16.1	1.66	23.6			
L010180		225	0.37	12	415	111.0	<5	14	35.3	124.0	16.00	1	2500	11.0	1.36	15.50			
L010181		221	0.36	46	449	125.5	10	23	38.7	118.5	17.00	1	2530	11.7	1.37	15.00			
L010182		271	0.43	18	144.0	145.0	27	20	43.7	50.7	24.2	1	1220	3.7	2.35	14.30			
L010183		292	0.73	33	288	179.0	27	20	51.0	52.3	34.8	2	1800	11.0	3.73	21.9			
L010184		334	0.94	94	208	197.0	<5	56	55.5	50.7	40.2	2	1595	7.9	4.15	18.65			
L010185		421	0.60	13	198.0	229	93	21	69.0	68.2	34.5	2	2360	10.0	3.13	27.9			
L010186		247	0.54	16	317	167.5	24	14	47.4	69.3	30.0	2	1865	11.3	2.97	19.30			
L010187		279	0.77	22	304	175.5	<5	15	50.5	48.0	33.1	3	1625	12.8	3.69	15.40			
L010188		254	0.62	24	237	149.0	5	16	41.7	43.9	30.6	2	1575	8.6	3.10	14.00			
L010189		426	0.93	42	248	231	<5	30	67.1	44.9	49.0	2	1705	7.6	5.20	31.7			

Comments: Samples with high rare earth elements will have low whole rock totals.



# ASSESSMENT WORK REPORT



ALS Canada Ltd.  
 2103 Dollarton Hwy  
 North Vancouver BC V7H 0A7  
 Phone: 604 984 0221 Fax: 604 984 0218 www.alsglobal.com

To: PHOSCAN CHEMICAL CORP.  
 1 ST. CLAIR AVENUE WEST  
 SUITE 501  
 TORONTO ON M4V 1K6

Page: 2 - C  
 Total # Pages: 2 (A - D)  
 Finalized Date: 17- APR- 2012  
 Account: PCANCC

## CERTIFICATE OF ANALYSIS TM12065153

Sample Description	Method Analyte Units LOR	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	
		Ti ppm	Tm ppm	U ppm	V ppm	W ppm	Y ppm	Yb ppm	Zn ppm	Zr ppm	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %					
L010151		-0.5	2.08	39.4	313	6	192.5	12.00	978	191	18.65	5.31	9.12	28.3	2.05	0.59					
L010152		1.1	3.36	70.5	1005	28	310	18.45	853	763	15.65	8.33	25.4	11.90	4.28	0.28					
L010153		-0.5	1.04	13.15	302	5	91.5	5.67	213	259	40.3	5.99	5.93	18.20	4.14	1.60					
L010154		-0.5	0.14	1.27	38	1	9.3	0.87	30	103	39.9	7.16	2.37	20.5	4.65	1.51					
L010155		-0.5	0.14	1.37	41	1	9.6	0.86	31	109	43.1	7.88	2.55	18.80	4.63	1.60					
L010156		-0.5	0.13	1.32	41	1	9.4	0.86	32	107	41.9	7.61	2.64	19.55	4.64	1.56					
L010157		-0.5	0.31	3.33	70	1	26.3	1.87	137	131	40.4	7.72	3.41	19.55	4.14	1.48					
L010158		0.6	2.43	45.6	298	6	211	13.95	991	207	17.45	5.35	9.14	29.4	1.65	0.60					
L010159		-0.5	0.07	1.02	<5	<1	4.2	0.44	6	43	96.9	1.15	0.60	0.27	0.16	0.01					
L010160		1.3	6.58	67.8	1050	13	557	38.8	1280	349	10.30	4.12	20.2	23.5	1.18	0.39					
L010161		1.0	3.33	67.8	830	15	283	18.70	843	631	18.55	8.07	22.3	14.60	2.96	0.51					
L010162		0.5	2.86	23.9	392	3	255	16.80	708	98	9.82	2.45	9.00	36.4	2.05	0.52					
L010163		-0.5	0.84	7.09	142	1	75.0	5.04	215	82	24.3	3.75	4.57	30.8	3.95	1.06					
L010164		-0.5	3.66	36.6	402	5	347	20.2	1170	167	3.85	0.63	9.94	39.0	1.24	0.53					
L010165		-0.5	1.42	20.1	237	3	125.5	8.09	385	100	8.79	1.43	5.35	38.3	3.04	0.52					
L010166		-0.5	1.53	6.55	180	3	134.5	8.65	277	83	1.43	0.24	3.77	42.3	5.69	0.25					
L010167		-0.5	1.28	6.33	254	5	114.5	7.44	243	117	5.46	1.02	5.30	42.3	3.87	0.46					
L010168		-0.5	0.12	1.16	36	1	8.9	0.75	25	79	28.1	5.02	2.00	22.4	10.70	0.89					
L010169		2.1	10.30	144.0	1430	28	944	56.7	1050	948	2.68	11.65	45.2	2.92	0.71	0.09					
L010170		-0.5	0.29	2.99	105	2	21.0	1.81	77	198	52.3	12.10	5.21	10.25	3.20	1.82					
L010171		0.5	0.77	7.02	416	15	60.3	4.50	151	836	53.5	13.10	14.55	2.59	1.69	0.49					
L010172		-0.5	0.49	5.47	360	12	39.7	3.02	138	821	50.1	15.05	11.40	3.58	1.81	1.06					
L010173		-0.5	0.54	4.04	422	24	41.8	3.18	136	438	38.2	13.30	8.72	14.85	2.42	1.04					
L010174		-0.5	0.24	4.99	234	10	20.8	1.47	122	613	49.0	15.60	5.55	7.56	1.49	0.76					
L010175		0.6	0.64	6.06	415	30	46.1	3.70	138	427	37.6	11.05	8.00	14.95	3.02	0.54					
L010176		-0.5	0.44	7.77	346	10	36.8	2.39	139	578	39.3	12.90	7.93	15.40	2.84	1.06					
L010177		-0.5	0.89	4.58	370	27	71.0	5.26	166	327	32.8	9.81	6.93	17.75	5.02	0.80					
L010178		-0.5	0.46	6.64	385	10	38.0	2.62	120	395	30.0	10.35	7.37	22.4	2.67	2.01					
L010179		-0.5	0.52	20.7	315	13	41.6	3.02	144	537	36.8	12.40	6.31	15.85	3.90	1.74					
L010180		-0.5	0.40	7.61	319	9	33.5	2.36	134	499	39.3	14.00	6.03	14.15	3.02	1.47					
L010181		-0.5	0.38	9.65	336	8	31.0	2.38	149	474	37.1	13.25	6.88	14.45	3.14	1.68					
L010182		-0.5	0.53	3.22	262	5	51.7	2.98	118	218	37.0	6.72	7.05	20.7	5.51	1.44					
L010183		-0.5	0.91	5.79	423	11	83.0	5.19	168	500	27.7	7.01	11.35	22.3	7.56	0.69					
L010184		0.5	1.14	5.18	388	8	99.0	6.69	224	479	29.8	9.30	12.00	21.4	6.09	1.36					
L010185		-0.5	0.74	9.09	396	9	70.4	4.23	162	368	21.5	5.66	9.03	25.4	8.11	0.53					
L010186		-0.5	0.65	7.29	495	12	62.2	3.68	145	254	25.9	6.80	11.10	22.5	7.23	0.74					
L010187		-0.5	0.95	5.10	378	11	87.1	5.47	198	576	30.1	7.95	12.10	21.6	6.72	0.91					
L010188		-0.5	0.74	5.05	387	7	69.8	4.38	164	453	31.0	7.72	11.35	22.6	6.87	0.92					
L010189		-0.5	1.19	4.15	427	15	111.5	6.71	191	371	25.6	6.57	10.55	21.9	7.36	0.91					

Comments: Samples with high rare earth elements will have low whole rock totals.



# ASSESSMENT WORK REPORT



ALS Canada Ltd.  
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 North Vancouver BC V7H 0A7  
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To: PHOSCAN CHEMICAL CORP.  
 1 ST. CLAIR AVENUE WEST  
 SUITE 501  
 TORONTO ON M4V 1K6

Page: 2 - D  
 Total # Pages: 2 (A - D)  
 Finalized Date: 17- APR- 2012  
 Account: PCANCC

## CERTIFICATE OF ANALYSIS TM12065153

Sample Description	Method Analyte Units LOR	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	OA- GRA05	TOT- ICP06	Nb- XRF10
		K2O %	Cr2O3 %	TiO2 %	MnO %	P2O5 %	SrO %	BaO %	LOI %	Total %	Nb %	
L010151		0.68	0.01	0.63	1.20	16.65	0.27	0.47	11.55	95.48	0.23	
L010152		1.66	0.04	3.33	2.14	10.90	0.34	0.64	11.10	95.99	0.40	
L010153		1.66	0.02	0.76	0.44	4.29	0.19	0.21	13.70	97.43	0.13	
L010154		1.51	0.01	0.25	0.04	0.09	0.03	0.04	21.9	99.96	0.01	
L010155		1.67	0.01	0.27	0.04	0.09	0.03	0.04	20.1	100.81	0.01	
L010156		1.66	0.01	0.26	0.06	0.09	0.03	0.05	20.7	100.76	0.01	
L010157		1.59	0.01	0.32	0.13	1.54	0.06	0.19	19.55	100.09	0.03	
L010158		0.65	0.01	0.59	1.27	18.45	0.31	0.59	10.50	95.96	0.27	
L010159		0.30	-0.01	0.03	0.01	0.02	-0.01	-0.01	0.75	100.20	0.01	
L010160		0.47	0.01	1.13	3.72	17.70	0.36	0.59	10.15	93.82	0.59	
L010161		1.18	0.03	2.64	1.93	11.15	0.29	0.61	11.80	96.62	0.42	
L010162		0.55	0.01	0.33	1.76	23.4	0.35	0.35	8.74	95.73	0.63	
L010163		0.92	0.01	0.22	0.62	5.18	0.34	0.22	23.2	99.14	0.14	
L010164		0.30	0.01	0.37	1.72	24.7	0.48	1.22	6.72	92.71	1.32	
L010165		0.40	-0.01	0.30	1.27	7.24	0.48	1.34	27.5	95.96	0.28	
L010166		0.17	-0.01	0.19	0.90	4.01	0.63	0.94	35.5	96.02	0.25	
L010167		0.73	0.04	0.54	1.07	3.60	0.52	0.78	33.0	98.69	0.33	
L010168		1.24	-0.01	0.22	0.04	0.12	0.02	0.03	29.6	100.38	0.01	
L010169		0.04	0.05	3.27	3.03	8.31	1.56	1.34	12.35	93.20	1.58	
L010170		2.38	0.01	0.54	0.13	0.30	0.04	0.08	12.45	100.81	0.02	
L010171		1.82	0.02	2.35	0.14	1.14	0.08	0.18	9.40	101.05	0.04	
L010172		4.88	0.01	1.55	0.20	1.02	0.08	0.33	7.71	98.78	0.05	
L010173		3.89	-0.01	1.09	0.45	1.75	0.20	0.28	14.05	100.24	0.04	
L010174		8.49	-0.01	0.64	0.22	0.76	0.11	0.31	9.39	99.88	0.05	
L010175		5.61	0.01	1.41	0.41	1.38	0.18	0.21	15.60	99.97	0.04	
L010176		5.52	-0.01	1.20	0.32	1.25	0.19	0.27	12.15	100.33	0.05	
L010177		3.80	-0.01	0.82	0.46	1.01	0.26	0.34	18.35	98.15	0.03	
L010178		2.47	-0.01	1.05	0.30	1.22	0.55	0.43	17.65	98.47	0.03	
L010179		5.18	-0.01	0.78	0.34	0.95	0.33	0.44	15.00	100.02	0.05	
L010180		5.54	-0.01	0.76	0.30	0.77	0.29	0.42	14.45	100.50	0.04	
L010181		5.18	-0.01	0.70	0.31	0.82	0.28	0.58	14.10	98.47	0.04	
L010182		1.86	0.01	1.08	0.24	2.48	0.14	0.22	14.25	98.70	0.01	
L010183		2.11	0.01	2.24	0.37	2.32	0.21	0.18	15.10	99.15	0.03	
L010184		2.24	-0.01	2.09	0.38	2.37	0.18	0.20	10.90	98.31	0.03	
L010185		2.07	0.05	1.79	0.41	2.38	0.27	0.34	20.6	98.14	0.04	
L010186		2.75	0.01	2.32	0.33	2.23	0.22	0.19	16.10	98.42	0.05	
L010187		1.85	-0.01	2.63	0.36	2.12	0.19	0.21	11.90	98.64	0.04	
L010188		1.78	-0.01	2.04	0.37	2.00	0.19	0.28	11.50	98.62	0.03	
L010189		2.24	-0.01	1.98	0.45	2.49	0.20	0.22	17.60	98.07	0.03	

Comments: Samples with high rare earth elements will have low whole rock totals.



# ASSESSMENT WORK REPORT



ALS Canada Ltd.  
2103 Dollarton Hwy  
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Phone: 604 984 0221 Fax: 604 984 0218 www.alsglobal.com

To: PHOSCAN CHEMICAL CORP.  
1 ST. CLAIR AVENUE WEST  
SUITE 501  
TORONTO ON M4V 1K6

Page: 1  
Finalized Date: 21- APR- 2012  
Account: PCANCC

## CERTIFICATE TM12065154

Project:  
P.O. No.:  
This report is for 47 Drill Core samples submitted to our lab in Timmins, ON, Canada on 23- MAR- 2012.  
The following have access to data associated with this certificate:  
STEVE CASE  
TIM HORNER  
BRUCE DAVIS  
ROBERT SIM  
RAY DUJARDIN

SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
WEI- 21	Received Sample Weight
LOG- 22	Sample login - Rcd w/o BarCode
CRU- QC	Crushing QC Test
CRU- 31	Fine crushing - 70% <2mm
PUL- QC	Pulverizing QC Test
SPL- 21	Split sample - riffle splitter
PUL- 31	Pulverize split to 85% <75 um

ANALYTICAL PROCEDURES		
ALS CODE	DESCRIPTION	INSTRUMENT
ME- ICP06	Whole Rock Package - ICP- AES	ICP- AES
OA- GRA05	Loss on Ignition at 1000C	WST- SEQ
ME- MS81	38 element fusion ICP- MS	ICP- MS
TOT- ICP06	Total Calculation for ICP06	ICP- AES
ME- XRF10	Fusion XRF - Ore Grade	XRF
OA- GRA06	LOI for ME- XRF06	WST- SIM
Nb- XRF10	Fusion XRF - Nb Ore Grade	XRF

To: PHOSCAN CHEMICAL CORP.  
ATTN: ROBERT SIM  
1 ST. CLAIR AVENUE WEST  
SUITE 501  
TORONTO ON M4V 1K6

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Comments: Samples with high rare earth elements will have low whole rock totals.

Signature:

Colin Ramshaw, Vancouver Laboratory Manager



# ASSESSMENT WORK REPORT



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Page: 2 - A  
 Total # Pages: 3 (A - D)  
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## CERTIFICATE OF ANALYSIS TM12065154

Sample Description	Method Analyte Units LOR	WEI- 21 Recvd Wt. kg	ME- MS81 Ag ppm	ME- MS81 Ba ppm	ME- MS81 Ce ppm	ME- MS81 Co ppm	ME- MS81 Cr ppm	ME- MS81 Cs ppm	ME- MS81 Cu ppm	ME- MS81 Dy ppm	ME- MS81 Er ppm	ME- MS81 Eu ppm	ME- MS81 Ga ppm	ME- MS81 Gd ppm	ME- MS81 Hf ppm	ME- MS81 Ho ppm
L010190		0.95	<1	400	40.8	6.7	50	1.41	10	1.70	0.91	0.89	9.7	2.13	2.8	0.33
L010191		0.73	<1	5380	1490	18.2	120	3.26	28	27.5	10.95	19.40	16.4	44.5	2.9	4.65
L010192		0.34	1	4140	2510	28.3	220	0.93	25	44.7	18.20	33.1	17.0	73.5	4.1	7.56
L010193		0.27	2	3640	2560	42.8	600	1.99	51	38.2	15.40	28.7	21.1	61.5	3.8	6.58
L010194		0.40	<1	3090	1830	53.5	370	2.11	56	35.7	12.05	30.0	19.8	68.8	5.0	5.64
L010195		0.65	1	2800	1640	21.8	110	0.90	19	28.6	11.65	20.9	11.3	47.8	2.0	4.86
L010196		0.42	1	2250	1565	13.6	70	0.37	8	27.6	10.05	22.0	8.6	50.1	2.0	4.46
L010197		0.90	2	1445	957	10.5	30	0.18	<5	21.6	8.30	15.45	6.1	36.0	1.0	3.58
L010198		0.33	<1	1945	1120	5.6	10	0.11	<5	16.80	6.76	13.20	6.6	28.9	2.1	2.86
L010199		0.44	<1	24.1	18.3	0.5	10	0.20	<5	0.78	0.43	0.22	2.1	0.86	1.2	0.15
L010200		0.24	<1	670	66.1	9.5	60	1.90	15	2.57	1.38	1.04	12.0	3.31	3.6	0.49
L010201		0.18	<1	960	362	11.3	60	1.53	14	7.07	2.57	5.91	11.7	13.45	3.6	1.14
L010202		0.34	1	1500	1195	8.2	40	0.41	7	26.1	7.17	28.2	8.4	61.8	1.9	3.77
L010203		0.28	1	1685	1485	13.6	50	0.84	11	25.0	7.59	24.2	13.0	53.7	3.4	3.73
L010204		0.51	1	3420	2200	20.3	60	1.12	13	36.0	11.60	32.8	16.3	73.8	3.4	5.56
L010205		0.42	1	1280	1040	11.4	30	0.55	5	17.15	5.44	16.45	7.5	34.7	1.4	2.59
L010206		0.36	1	1540	1300	11.3	60	0.67	8	21.4	6.63	20.3	11.8	46.0	3.5	3.26
L010207		0.58	<1	1390	1160	10.5	40	0.43	6	19.00	5.96	18.05	10.4	39.9	2.9	2.87
L010208		1.44	<1	1170	791	7.2	30	0.37	6	13.75	4.31	12.30	8.7	27.1	3.0	2.08
L010209		1.39	<1	1345	1200	10.6	30	0.41	6	20.8	6.61	18.90	9.6	41.5	2.9	3.17
L010210		1.36	1	1410	1120	12.4	50	0.51	16	17.60	5.69	16.20	10.8	36.1	3.1	2.66
L010211		0.39	1	1340	1160	11.6	40	0.33	32	18.90	5.99	17.65	8.6	38.7	2.7	2.88
L010212		0.52	1	1160	783	9.5	30	0.58	9	14.80	4.40	14.05	11.7	31.1	2.4	2.17
L010213		0.18	<1	1295	783	7.2	30	0.37	7	16.40	4.87	14.85	9.6	33.3	2.4	2.44
L010214		0.68	<1	940	908	8.6	20	0.37	8	20.3	5.86	19.25	9.8	43.2	2.4	2.99
L010215		0.63	<1	803	728	4.1	<10	0.11	<5	12.25	4.32	10.05	5.3	22.4	1.0	1.95
L010216		0.47	<1	914	846	5.2	10	0.12	<5	10.60	3.68	9.38	4.9	19.95	0.5	1.67
L010217		0.55	1	891	748	3.8	<10	0.14	<5	13.30	4.63	10.90	4.6	23.8	0.9	2.10
L010218		1.05	<1	481	53.4	9.1	60	1.79	18	2.39	1.29	0.92	11.9	2.96	3.5	0.47
L010219		0.60	<1	780	153.5	18.0	110	3.16	22	5.60	2.80	2.48	16.9	7.24	7.4	1.05
L010220		0.35	<1	1260	938	20.0	130	0.54	19	31.6	10.45	19.00	26.2	58.3	9.4	4.74
L010221		0.12	<1	1830	1745	16.8	210	0.84	49	68.2	21.2	33.1	35.8	109.0	15.8	10.25
L010222		0.39	4	3350	3820	15.5	300	0.63	58	110.5	43.7	65.7	68.4	173.0	21.8	19.15
L010223		0.08	2	3120	3880	18.6	290	0.60	51	105.5	39.1	70.3	59.7	179.5	21.1	17.55
L010224		0.41	2	4000	3160	16.2	460	0.65	69	180.5	55.3	124.0	55.6	337	22.3	27.9
L010225		0.68	14	>10000	7020	481	440	1.07	179	173.5	80.9	104.0	75.3	276	20.9	32.5
L010226		0.26	3	4600	4170	46.5	220	0.60	79	61.2	25.3	46.3	56.4	105.0	20.0	10.50
L010227		0.15	3	6820	4520	69.4	240	0.65	91	77.4	34.7	54.9	54.2	129.0	17.4	13.75
L010228		0.28	6	6440	4270	93.6	270	0.77	94	87.7	39.7	57.1	55.0	141.0	16.1	15.85
L010229		0.18	4	6920	1865	140.0	130	0.38	86	41.3	18.75	26.9	26.2	67.4	7.4	7.51

Comments: Samples with high rare earth elements will have low whole rock totals.



# ASSESSMENT WORK REPORT



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To: PHOSCAN CHEMICAL CORP.  
 1 ST. CLAIR AVENUE WEST  
 SUITE 501  
 TORONTO ON M4V 1K6

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## CERTIFICATE OF ANALYSIS TM12065154

Sample Description	Method Analyte Units LOR	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81
		La ppm	Lu ppm	Mo ppm	Nb ppm	Nd ppm	Ni ppm	Pb ppm	Pr ppm	Rb ppm	Sm ppm	Sn ppm	Sr ppm	Ta ppm	Tb ppm	Th ppm	U ppm	V ppm
L010190		21.5	0.14	<2	13.4	16.9	18	10	4.61	50.6	2.93	1	259	0.7	0.31	6.10		
L010191		931	1.25	4	2290	516	95	62	150.5	44.4	72.7	3	2150	16.0	5.73	126.0		
L010192		1470	2.19	5	>2500	879	164	102	262	7.8	122.0	4	3410	32.6	9.48	208		
L010193		1365	1.80	5	1940	871	230	55	264	28.1	110.0	5	2750	8.3	7.87	156.5		
L010194		886	1.15	8	>2500	746	174	70	208	59.0	112.5	6	2780	161.0	8.22	90.3		
L010195		914	1.34	5	2050	556	44	37	169.0	22.5	77.0	3	5480	38.6	6.09	114.0		
L010196		846	0.99	3	1390	557	21	23	167.0	9.1	79.8	2	5850	86.4	6.20	311		
L010197		567	0.94	3	933	374	38	36	101.5	2.2	53.5	1	2190	18.5	4.66	96.5		
L010198		630	0.77	<2	732	398	<5	15	110.0	3.2	48.9	3	6390	34.5	3.68	121.0		
L010199		10.7	0.07	<2	8.4	6.6	<5	<5	1.94	11.2	1.08	<1	38.3	0.5	0.14	3.90		
L010200		35.7	0.19	<2	34.2	26.5	26	12	7.32	63.8	4.44	1	243	1.3	0.49	9.24		
L010201		191.0	0.27	<2	594	146.0	23	22	40.1	53.2	22.2	2	839	4.5	1.59	33.2		
L010202		606	0.50	3	1080	512	10	40	133.0	9.4	100.5	2	3800	4.9	6.65	74.9		
L010203		794	0.62	4	2260	565	18	39	159.0	24.8	89.4	3	3170	17.5	5.98	84.0		
L010204		1160	1.02	6	>2500	821	26	64	234	10.9	121.5	4	5270	28.8	8.48	130.0		
L010205		520	0.49	3	1150	419	9	25	110.5	9.4	60.9	2	4820	8.7	3.96	61.2		
L010206		669	0.53	3	2200	493	17	36	139.5	23.2	74.8	3	3050	25.0	5.15	93.6		
L010207		592	0.47	3	2180	466	11	29	124.5	20.0	66.5	3	3270	22.9	4.53	91.8		
L010208		404	0.37	2	1700	315	10	21	84.1	22.5	45.3	2	2950	21.1	3.15	90.8		
L010209		603	0.56	3	1940	470	10	34	125.0	10.8	68.9	3	4270	28.2	4.88	152.0		
L010210		572	0.47	4	2470	439	18	28	116.5	20.3	62.0	4	3060	26.8	4.08	100.0		
L010211		576	0.48	8	2170	461	20	26	123.0	10.4	65.0	4	4150	25.9	4.46	116.5		
L010212		394	0.35	4	2130	329	10	17	85.5	29.4	50.3	2	2770	14.2	3.53	69.5		
L010213		387	0.39	3	1925	331	9	26	89.1	22.8	53.5	2	2600	9.2	3.86	88.5		
L010214		440	0.41	3	2030	405	8	21	100.5	20.3	66.5	2	3320	11.0	4.89	57.0		
L010215		377	0.44	3	1850	261	<5	10	75.4	6.5	35.9	2	6000	3.3	2.71	24.0		
L010216		519	0.37	3	803	274	<5	12	83.3	3.8	34.3	1	6340	1.9	2.38	16.00		
L010217		383	0.49	2	1455	274	<5	25	79.5	3.0	38.9	2	5260	2.7	2.95	44.1		
L010218		29.2	0.19	<2	22.8	22.2	25	11	6.05	63.2	3.84	1	229	1.0	0.44	8.00		
L010219		90.4	0.40	2	119.0	61.6	38	21	17.35	86.4	9.78	2	315	2.9	1.05	17.40		
L010220		498	1.04	7	762	289	30	58	85.2	38.8	51.6	5	978	9.4	7.43	71.6		
L010221		927	1.70	13	710	515	55	101	155.5	22.8	88.1	7	1985	9.7	14.90	139.5		
L010222		2150	4.32	17	>2500	1420	53	166	377	3.1	239	9	5790	72.0	22.4	283		
L010223		2310	3.81	17	>2500	1590	54	154	421	6.3	263	8	6350	84.3	22.9	299		
L010224		2070	4.08	16	1735	2130	73	137	472	4.9	433	7	4290	47.3	40.3	211		
L010225		3710	9.49	44	>2500	2420	348	197	713	1.3	396	16	>10000	199.0	35.3	553		
L010226		2240	3.92	11	>2500	1345	84	124	396	2.7	186.5	13	4700	138.0	12.90	335		
L010227		2450	5.25	13	>2500	1530	142	137	447	3.6	221	10	8200	120.5	16.20	357		
L010228		2320	5.99	11	>2500	1470	121	137	419	8.7	220	8	6820	100.5	18.20	322		
L010229		990	2.93	23	2060	673	184	86	198.5	11.7	103.5	7	5020	42.4	8.61	142.0		

Comments: Samples with high rare earth elements will have low whole rock totals.



# ASSESSMENT WORK REPORT



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 1 ST. CLAIR AVENUE WEST  
 SUITE 501  
 TORONTO ON M4V 1K6

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## CERTIFICATE OF ANALYSIS TM12065154

Sample Description	Method Analyte Units LOR	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	
		Ti ppm	Tm ppm	U ppm	V ppm	W ppm	Y ppm	Yb ppm	Zn ppm	Zr ppm	SiO2 %	Al2O3 %	Fe2O3 %	CaO %	MgO %	Na2O %					
L010190		-0.5	0.14	1.32	42	<1	9.7	0.85	30	109	41.1	7.38	2.41	19.60	4.91	1.50					
L010191		-0.5	1.44	31.0	279	8	128.0	8.32	536	156	23.3	6.47	8.62	25.5	3.44	0.87					
L010192		-0.5	2.45	30.0	398	8	204	14.75	779	315	8.91	2.40	11.05	36.0	1.83	0.36					
L010193		0.7	2.05	21.9	526	8	184.5	12.30	657	202	11.70	3.42	13.65	30.8	3.74	0.25					
L010194		0.9	1.48	24.2	460	6	140.0	8.13	509	355	13.20	2.97	12.20	32.2	5.51	0.25					
L010195		0.6	1.55	30.4	224	3	132.0	9.17	307	131	5.36	1.44	5.53	42.5	3.45	0.21					
L010196		-0.5	1.24	57.4	192	2	114.0	6.91	223	109	2.64	0.71	5.11	44.0	4.27	0.18					
L010197		-0.5	1.09	74.3	383	2	101.0	6.40	598	70	1.48	0.38	5.90	47.6	0.60	0.08					
L010198		-0.5	0.89	38.6	127	<1	76.4	5.29	71	136	0.75	0.22	3.50	45.4	4.44	0.11					
L010199		-0.5	0.07	1.27	<5	<1	4.7	0.45	8	39	96.3	1.24	0.52	0.41	0.18	0.01					
L010200		-0.5	0.20	1.98	65	1	14.2	1.25	45	141	48.3	8.75	3.32	16.10	3.49	1.36					
L010201		-0.5	0.33	6.18	85	1	30.4	1.90	119	156	44.2	7.56	4.14	17.95	3.49	1.25					
L010202		-0.5	0.78	18.70	113	2	90.6	3.84	399	118	10.30	1.82	5.39	35.8	6.05	0.34					
L010203		-0.5	0.87	19.85	131	2	93.0	4.38	333	188	28.6	4.60	5.68	25.7	3.45	0.94					
L010204		0.8	1.36	39.8	188	4	134.0	7.21	733	193	10.65	3.63	9.86	30.4	5.43	0.32					
L010205		0.5	0.65	24.8	62	1	65.3	3.42	388	69	7.14	1.23	4.37	36.6	8.41	0.25					
L010206		0.5	0.78	24.4	122	2	80.3	3.97	273	183	36.6	4.39	4.68	22.9	4.00	1.04					
L010207		-0.5	0.68	21.7	134	1	70.8	3.45	231	146	32.8	3.73	4.42	25.1	4.41	0.93					
L010208		-0.5	0.51	16.05	105	1	52.0	2.70	163	143	38.7	3.91	3.34	24.8	2.97	1.00					
L010209		-0.5	0.77	34.4	277	1	80.0	4.04	302	150	16.60	2.08	5.96	35.4	3.33	0.48					
L010210		-0.5	0.65	27.0	222	2	67.6	3.39	289	159	33.9	3.80	7.14	24.3	3.58	0.88					
L010211		-0.5	0.69	27.9	193	2	72.2	3.63	314	143	15.25	1.90	8.31	34.0	4.25	0.50					
L010212		0.5	0.50	19.85	77	1	54.9	2.49	238	126	40.0	4.68	3.81	22.1	4.02	1.29					
L010213		-0.5	0.56	13.05	79	1	60.0	2.84	198	118	35.9	4.22	3.70	23.8	4.69	1.16					
L010214		-0.5	0.65	12.95	85	1	72.8	3.17	208	130	31.8	3.65	3.81	27.7	3.85	1.03					
L010215		-0.5	0.54	5.01	144	<1	52.1	2.99	44	40	1.98	0.33	2.38	44.4	5.69	0.14					
L010216		-0.5	0.46	4.32	119	1	44.6	2.59	169	22	0.98	0.17	2.91	41.4	8.53	0.09					
L010217		-0.5	0.59	6.99	29	1	55.4	3.37	91	38	0.98	0.20	1.98	45.4	5.79	0.10					
L010218		-0.5	0.19	1.66	66	1	13.5	1.20	41	140	51.3	9.06	3.47	15.10	3.18	1.49					
L010219		0.5	0.41	3.92	134	3	29.7	2.56	82	297	67.1	12.00	4.84	2.33	1.46	1.31					
L010220		-0.5	1.33	23.7	630	16	104.0	7.73	97	505	47.1	15.65	17.25	2.40	0.55	1.27					
L010221		-0.5	2.51	44.1	845	27	212	13.65	87	872	30.4	25.8	19.85	1.42	0.47	0.43					
L010222		-0.5	5.43	103.0	1255	42	470	30.9	119	1180	14.00	26.2	35.8	0.61	0.12	0.11					
L010223		-0.5	4.80	97.3	1070	36	413	27.7	115	1210	17.70	23.7	33.3	1.32	0.28	0.17					
L010224		-0.5	6.04	90.9	846	40	525	32.7	121	1210	26.5	25.7	26.7	0.50	0.12	0.11					
L010225		2.3	10.50	165.5	1615	37	925	63.6	675	1650	6.14	13.15	49.7	1.13	0.59	0.18					
L010226		0.6	3.54	112.0	1210	43	290	22.7	389	1350	21.6	19.30	38.6	0.94	0.36	0.14					
L010227		0.8	4.76	134.0	914	43	413	30.3	500	1110	23.7	19.25	29.1	3.59	0.29	0.18					
L010228		1.2	5.50	125.0	717	47	458	35.6	323	972	27.9	21.6	24.8	2.21	0.45	0.38					
L010229		1.4	2.61	101.0	842	21	222	16.65	901	564	17.00	5.94	25.9	21.2	0.50	0.51					

Comments: Samples with high rare earth elements will have low whole rock totals.





# ASSESSMENT WORK REPORT



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## CERTIFICATE OF ANALYSIS TM12065154

Sample Description	Method Analyte Units LOR	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	OA- GRA05	TOT- ICP06	Nb- XRF10
		K2O %	Cr2O3 %	TiO2 %	MnO %	P2O5 %	SrO %	BaO %	LOI %	Total %	Nb %
L010190		1.65	0.01	0.26	0.04	0.10	0.03	0.04	21.0	100.03	0.01
L010191		1.21	0.01	0.61	0.71	12.45	0.25	0.61	14.10	98.15	0.29
L010192		0.22	0.03	0.60	1.61	25.0	0.40	0.48	7.78	96.67	0.35
L010193		0.78	0.08	1.28	1.74	22.3	0.33	0.45	6.72	97.24	0.41
L010194		1.60	0.05	1.22	1.14	23.6	0.32	0.36	3.99	98.61	0.78
L010195		0.61	0.01	0.59	1.15	8.92	0.64	0.32	28.0	98.73	0.28
L010196		0.25	0.01	0.24	0.89	9.75	0.70	0.26	30.0	99.02	0.22
L010197		0.05	0.01	0.14	0.49	33.1	0.26	0.17	6.03	96.29	0.17
L010198		0.09	-0.01	0.07	0.70	3.08	0.76	0.23	38.8	98.15	0.14
L010199		0.34	-0.01	0.03	0.01	0.05	0.01	-0.01	0.82	99.92	0.01
L010200		1.93	0.01	0.35	0.06	0.22	0.03	0.08	16.80	100.80	0.01
L010201		1.68	0.01	0.34	0.20	1.90	0.10	0.12	16.75	99.69	0.07
L010202		0.31	-0.01	0.15	0.96	6.84	0.45	0.17	29.6	98.18	0.19
L010203		0.83	0.01	0.31	0.81	9.84	0.36	0.19	15.40	96.72	0.28
L010204		0.25	0.01	0.35	1.16	12.05	0.61	0.39	21.4	96.51	0.34
L010205		0.26	-0.01	0.12	0.93	5.50	0.56	0.15	33.6	99.12	0.20
L010206		0.85	0.01	0.36	0.44	10.45	0.36	0.18	12.95	99.21	0.26
L010207		0.76	-0.01	0.28	0.46	9.35	0.38	0.16	15.80	98.58	0.26
L010208		0.84	-0.01	0.23	0.32	5.39	0.35	0.14	17.75	99.74	0.19
L010209		0.36	-0.01	0.28	0.62	8.35	0.49	0.16	24.2	98.31	0.29
L010210		0.73	0.01	0.39	0.69	8.34	0.36	0.17	15.25	99.54	0.27
L010211		0.38	0.01	0.28	0.62	9.50	0.49	0.16	23.0	98.65	0.30
L010212		0.98	-0.01	0.33	0.38	6.73	0.32	0.13	14.90	99.67	0.24
L010213		0.84	-0.01	0.22	0.40	5.89	0.31	0.16	18.25	99.54	0.22
L010214		0.74	-0.01	0.28	0.40	8.21	0.39	0.12	17.75	99.73	0.24
L010215		0.15	-0.01	0.09	0.37	3.51	0.71	0.09	37.9	97.74	0.31
L010216		0.09	-0.01	0.05	0.57	1.96	0.76	0.11	40.4	98.02	0.14
L010217		0.07	-0.01	0.03	0.46	2.61	0.62	0.11	40.5	98.85	0.25
L010218		2.00	0.01	0.37	0.06	0.12	0.03	0.06	15.50	101.75	0.01
L010219		2.35	0.01	0.67	0.11	0.30	0.04	0.09	6.41	99.02	0.02
L010220		1.39	0.02	1.69	0.59	0.77	0.13	0.15	9.05	98.01	0.12
L010221		0.64	0.03	2.75	0.10	1.17	0.25	0.22	15.25	98.78	0.17
L010222		0.03	0.04	3.66	0.11	2.51	0.68	0.42	14.85	99.14	0.41
L010223		0.14	0.04	3.13	0.10	2.58	0.72	0.40	15.20	98.78	0.43
L010224		0.09	0.06	3.30	0.13	2.33	0.49	0.48	12.55	99.06	0.28
L010225		0.01	0.06	3.21	3.58	5.78	1.13	1.54	11.20	97.40	1.09
L010226		0.05	0.03	3.04	0.51	2.72	0.54	0.55	11.40	99.78	0.51
L010227		0.08	0.03	2.53	0.81	5.59	0.92	0.80	11.95	98.82	0.58
L010228		0.27	0.03	2.35	1.00	3.92	0.79	0.78	12.50	98.98	0.54
L010229		0.40	0.02	1.23	2.59	14.95	0.57	0.84	7.18	98.83	0.36

Comments: Samples with high rare earth elements will have low whole rock totals.



# ASSESSMENT WORK REPORT



ALS Canada Ltd.  
 2103 Dollarton Hwy  
 North Vancouver BC V7H 0A7  
 Phone: 604 984 0221 Fax: 604 984 0218 www.alsglobal.com

To: PHOSCAN CHEMICAL CORP.  
 1 ST. CLAIR AVENUE WEST  
 SUITE 501  
 TORONTO ON M4V 1K6

Page: 1  
 Finalized Date: 20- APR- 2012  
 Account: PCANCC

## CERTIFICATE TM12065155

Project:  
 P.O. No.:  
 This report is for 32 Soil samples submitted to our lab in Timmins, ON, Canada on 23- MAR- 2012.  
 The following have access to data associated with this certificate:

STEVE CASE TIM HORNER	BRUCE DAVIS ROBERT SIM	RAY DUJARDIN
--------------------------	---------------------------	--------------

## SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI- 21	Received Sample Weight
LOG- 22	Sample login - Rcd w/o BarCode
CRU- QC	Crushing QC Test
CRU- 31	Fine crushing - 70% < 2mm
PUL- QC	Pulverizing QC Test
SPL- 21	Split sample - riffle splitter
PUL- 31	Pulverize split to 85% < 75 um
LOG- 23	Pulp Login - Rcvd with Barcode

## ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME- ICP06	Whole Rock Package - ICP- AES	ICP- AES
OA- GRA05	Loss on Ignition at 1000C	WST- SEQ
ME- MS81	38 element fusion ICP- MS	ICP- MS
TOT- ICP06	Total Calculation for ICP06	ICP- AES
ME- XRF10	Fusion XRF - Ore Grade	XRF
OA- GRA06	LOI for ME- XRF06	WST- SIM
Nb- XRF10	Fusion XRF - Nb Ore Grade	XRF

To: PHOSCAN CHEMICAL CORP.  
 ATTN: STEVE CASE  
 1 ST. CLAIR AVENUE WEST  
 SUITE 501  
 TORONTO ON M4V 1K6

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

Colin Ramshaw, Vancouver Laboratory Manager



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## CERTIFICATE OF ANALYSIS TM12065155

Sample Description	Method Analyte Units LOR	WEI- 21	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81
		Recvd Wt. kg 0.02	Ag ppm 1	Ba ppm 0.5	Ce ppm 0.5	Co ppm 0.5	Cr ppm 10	Cs ppm 0.01	Cu ppm 5	Dy ppm 0.05	Er ppm 0.03	Eu ppm 0.03	Ga ppm 0.1	Cd ppm 0.05	Hf ppm 0.2	Ho ppm 0.01		
L010237		0.81	<1	370	34.7	7.1	50	1.32	13	1.62	0.91	0.61	9.5	2.10	2.8	0.34		
L010238		0.84	<1	3700	1900	27.5	80	3.35	82	36.2	14.50	23.7	24.4	58.9	6.8	6.25		
L010239		0.84	<1	2720	1890	46.4	40	7.71	87	38.6	16.20	24.5	31.5	60.7	14.3	6.84		
L010240		0.97	<1	2020	1520	14.1	70	0.80	23	42.4	20.6	23.3	12.5	59.9	4.0	8.04		
L010241		0.02	<1	>10000	9590	111.5	370	1.55	143	212	81.1	150.5	60.2	374	16.5	35.5		
L010242		0.20	<1	1590	1030	51.4	20	10.15	118	21.1	9.12	13.75	24.8	33.4	24.3	3.65		
L010243		0.67	<1	4190	1565	29.3	30	6.43	120	29.6	12.80	19.45	23.9	50.0	13.8	5.29		
L010244		0.36	<1	1875	1930	25.7	30	1.15	48	184.5	92.2	58.4	18.0	182.0	7.5	35.8		
L010245		0.34	<1	1890	1350	40.3	320	4.13	90	35.7	15.25	22.1	24.4	56.2	16.9	6.32		
L010246		0.30	<1	1725	1475	26.3	20	7.57	104	38.0	15.90	22.9	23.9	58.9	22.0	6.74		
L010247		0.88	<1	2310	1385	27.3	100	8.49	123	49.7	23.2	26.4	23.8	69.1	16.7	9.27		
L010248		0.52	<1	2210	1910	30.5	30	4.61	109	40.2	16.25	26.2	27.6	65.7	17.3	7.00		
L010249		0.15	<1	1455	1340	27.8	20	4.14	117	32.2	13.10	20.5	23.4	52.7	14.1	5.61		
L010250		0.02	<1	3410	2470	54.8	350	1.36	72	45.2	16.70	34.5	22.3	82.1	7.2	7.38		
L010251		0.04	<1	1605	1325	22.4	660	4.71	82	36.4	16.25	21.8	18.5	56.2	13.5	6.62		
L010252		1.57	<1	1600	1325	24.7	380	1.76	60	28.9	11.60	19.30	14.0	48.3	6.1	5.01		
L010253		0.43	<1	1095	1325	20.7	150	1.48	48	29.0	11.15	20.00	13.8	50.4	6.6	4.93		
L010254		1.31	<1	1240	1015	17.0	80	1.47	35	22.5	9.32	14.70	13.2	37.1	6.5	3.95		
L010255		0.83	<1	1490	1630	26.7	110	5.40	69	31.4	12.15	23.5	25.2	55.4	9.7	5.14		
L010256		1.55	<1	905	1130	18.7	110	1.11	37	26.1	10.30	18.70	15.5	45.1	4.0	4.31		
L010257		0.21	<1	864	1280	23.0	40	1.16	43	26.9	10.30	19.70	15.9	47.1	6.9	4.36		
L010258		0.23	<1	1710	1285	20.8	40	1.93	55	25.5	10.10	19.05	18.7	45.1	7.7	4.19		
L010259		0.44	<1	1360	969	23.0	50	2.61	52	23.7	8.98	16.90	20.4	40.5	11.3	3.86		
L010260		0.57	<1	79.6	54.6	1.1	10	0.24	6	1.36	0.69	0.68	2.1	1.86	1.6	0.26		
L010261		0.40	<1	1560	1140	29.6	50	1.33	57	31.6	12.40	21.5	18.3	52.8	7.1	5.28		
L010262		0.41	<1	1705	1335	25.2	40	1.05	44	34.1	13.70	22.3	16.4	56.2	5.6	5.67		
L010263		0.20	<1	2170	1350	23.8	90	1.78	47	31.5	12.60	22.0	18.4	54.5	6.3	5.30		
L010264		0.57	<1	1675	1095	22.1	90	0.84	39	27.6	11.30	18.10	14.8	44.7	4.4	4.63		
L010265		0.54	<1	1405	1100	26.7	50	2.54	74	30.4	11.75	20.2	22.3	50.1	10.4	4.99		
L010266		0.23	<1	1890	1225	18.5	70	1.95	43	29.4	11.65	20.7	16.6	50.3	7.0	4.85		
L010267		0.25	<1	3100	1145	21.2	80	2.08	56	26.5	10.15	18.50	19.2	44.4	7.9	4.36		
L010268		0.38	<1	3070	843	19.5	20	1.15	46	19.25	7.72	13.50	17.3	32.0	7.6	3.24		



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## CERTIFICATE OF ANALYSIS TM12065155

Sample Description	Method Analyte Units LOR	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81	ME- MS81
		La ppm 0.5	Lu ppm 0.01	Mo ppm 2	Nb ppm 0.2	Nd ppm 0.1	Ni ppm 5	Pb ppm 5	Pr ppm 0.03	Rb ppm 0.2	Sm ppm 0.03	Sr ppm 0.1	Ta ppm 0.1	Tb ppm 0.01	Th ppm 0.05			
L010237		18.7	0.13	<2	7.9	14.9	21	8	4.13	49.0	2.59	<1	259	0.4	0.28	4.90		
L010238		1140	1.70	4	2050	638	57	56	203	50.5	88.1	4	2180	16.5	7.45	94.4		
L010239		1125	1.94	5	2190	623	54	56	197.5	47.8	87.9	10	1890	27.8	7.88	122.0		
L010240		927	2.74	4	>2500	566	43	30	176.0	6.5	83.2	4	2500	7.1	8.08	68.3		
L010241		5340	9.02	16	>2500	3650	185	365	>1000	0.9	532	17	>10000	241	45.7	>1000		
L010242		602	1.09	3	293	352	83	24	107.5	53.6	50.4	7	1140	1.3	4.28	40.2		
L010243		932	1.56	8	1065	529	34	36	161.0	48.1	73.8	5	1515	22.6	6.23	179.5		
L010244		1145	10.80	11	1420	768	18	79	216	19.5	160.5	5	6110	18.2	31.4	359		
L010245		762	1.66	4	598	506	95	36	146.5	43.1	79.2	5	1950	11.1	7.31	103.5		
L010246		882	1.91	4	1625	524	13	39	163.5	80.2	80.9	9	1355	25.7	7.72	92.6		
L010247		831	2.96	7	686	501	9	52	147.0	65.6	84.0	6	1995	9.1	9.51	127.5		
L010248		1100	1.93	7	1395	657	15	42	198.0	41.9	94.3	8	1645	15.4	8.41	118.5		
L010249		774	1.46	5	1010	487	17	26	144.5	45.4	73.6	6	1735	8.0	6.77	69.8		
L010250		1405	1.68	9	1730	891	197	68	261	14.4	129.0	5	2930	63.8	10.10	251		
L010251		838	2.27	5	1085	512	107	49	152.0	49.5	77.7	8	1875	11.3	7.40	88.7		
L010252		767	1.35	5	1925	489	116	29	144.5	24.2	70.6	5	1710	19.8	6.00	90.4		
L010253		735	1.24	4	2380	504	36	26	146.5	15.7	74.6	4	2200	19.2	6.16	88.4		
L010254		592	1.07	4	1590	381	25	18	112.0	19.4	54.5	3	2330	15.7	4.67	73.8		
L010255		919	1.27	4	2080	598	31	33	180.0	44.4	88.8	5	2520	25.4	6.86	98.3		
L010256		699	1.14	5	1475	469	31	22	131.5	15.3	66.7	3	2610	10.8	5.70	62.1		
L010257		745	1.11	6	1250	469	27	27	140.0	14.5	71.0	3	2310	15.8	5.96	51.4		
L010258		801	1.13	5	1125	459	18	33	137.0	27.2	67.7	4	1650	11.8	5.61	58.7		
L010259		572	1.01	4	1455	398	20	21	109.5	49.4	59.2	6	1590	13.4	5.07	55.9		
L010260		33.5	0.11	<2	37.9	19.1	<5	<5	5.78	10.7	2.74	<1	65.9	0.6	0.26	4.84		
L010261		641	1.30	5	1340	460	19	21	129.0	23.2	73.7	5	1680	17.0	6.86	76.0		
L010262		781	1.49	7	1855	487	12	33	147.5	20.2	76.2	5	2540	22.2	7.29	97.0		
L010263		786	1.30	7	1565	483	21	37	145.0	34.6	73.9	5	2700	23.7	7.02	101.5		
L010264		659	1.23	6	849	413	18	27	114.5	27.9	59.5	3	2650	17.1	5.88	84.4		
L010265		632	1.21	5	1260	445	13	23	122.5	40.6	67.2	6	2050	14.5	6.51	65.4		
L010266		709	1.27	5	1410	443	17	32	133.0	28.9	69.9	5	2650	24.5	6.44	104.5		
L010267		656	1.14	11	1725	442	17	32	123.0	39.6	63.3	6	2420	21.9	5.61	83.5		
L010268		487	0.90	28	943	322	5	27	88.3	62.9	46.2	6	2510	19.1	4.13	56.9		



# ASSESSMENT WORK REPORT



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## CERTIFICATE OF ANALYSIS TM12065155

Sample Description	Method Analyte Units LOR	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	ME-ICP06	
		Ti ppm 0.5	Tm ppm 0.01	U ppm 0.05	V ppm 5	W ppm 1	Y ppm 0.5	Yb ppm 0.03	Zn ppm 5	Zr ppm 2	SiO2 % 0.01	Al2O3 % 0.01	Fe2O3 % 0.01	CaO % 0.01	MgO % 0.01	Na2O % 0.01					
L010237		<0.5	0.13	1.14	46	1	9.0	0.90	33	101	41.1	7.78	2.56	20.0	4.66	1.55					
L010238		0.5	1.88	13.15	571	34	161.5	11.50	676	372	25.7	7.95	14.20	18.95	3.20	0.73					
L010239		0.5	2.14	10.25	777	31	182.0	13.15	952	768	23.3	9.42	22.4	13.75	3.02	0.35					
L010240		<0.5	2.81	23.5	368	9	245	17.80	785	223	4.60	1.71	9.84	42.2	0.57	0.23					
L010241		1.8	10.25	133.0	1315	28	902	59.5	964	900	2.59	11.55	45.0	2.96	0.67	0.13					
L010242		<0.5	1.19	8.21	463	20	96.2	7.67	1150	884	23.7	9.10	20.4	14.10	4.06	0.19					
L010243		<0.5	1.71	14.80	403	14	137.0	10.65	775	606	19.50	8.16	13.80	21.5	4.67	0.24					
L010244		<0.5	12.50	37.4	494	27	1125	75.1	374	425	6.87	2.35	11.10	39.4	0.99	0.31					
L010245		<0.5	1.89	13.35	628	19	170.5	11.65	415	866	17.45	6.84	20.1	20.6	5.67	0.25					
L010246		0.6	2.06	9.59	533	30	174.0	12.55	338	1080	27.9	10.00	16.60	13.10	5.10	0.22					
L010247		0.6	3.16	12.90	484	24	252	19.65	356	869	23.2	8.15	14.25	17.85	6.79	0.24					
L010248		<0.5	2.11	10.60	577	26	181.5	12.75	476	868	21.0	7.18	16.95	17.95	7.88	0.32					
L010249		<0.5	1.63	10.10	459	18	150.0	10.15	428	754	19.90	7.07	15.35	20.4	7.61	0.23					
L010250		0.6	2.02	29.9	605	14	186.5	11.75	801	421	8.72	5.16	18.20	28.1	5.64	0.20					
L010251		<0.5	2.21	14.55	480	21	186.5	14.25	560	670	16.25	5.61	15.95	23.5	5.31	0.28					
L010252		<0.5	1.51	8.26	427	16	128.5	9.03	295	314	9.42	3.31	12.95	34.7	4.01	0.15					
L010253		<0.5	1.42	8.13	307	12	126.0	8.40	284	369	8.76	3.07	10.75	36.7	4.78	0.20					
L010254		<0.5	1.17	9.52	321	13	102.5	7.10	242	357	10.25	3.30	9.62	37.3	4.10	0.20					
L010255		<0.5	1.56	8.51	402	19	129.0	8.86	389	569	16.30	5.67	12.00	26.0	7.98	0.22					
L010256		<0.5	1.32	7.46	397	16	111.5	7.74	275	226	8.06	2.21	9.46	38.9	2.85	0.13					
L010257		<0.5	1.35	7.74	354	23	111.0	7.62	281	389	8.46	2.57	10.80	36.1	4.15	0.15					
L010258		<0.5	1.34	7.19	339	24	109.0	7.76	315	525	12.05	3.94	10.25	32.6	5.51	0.18					
L010259		<0.5	1.19	5.80	379	23	100.0	6.69	274	659	19.70	5.94	11.50	26.3	4.54	0.36					
L010260		<0.5	0.11	1.30	14	1	7.3	0.68	18	57	94.8	1.18	0.74	1.18	0.31	0.02					
L010261		<0.5	1.59	7.26	383	25	133.5	8.95	290	430	11.55	3.80	10.85	33.4	4.82	0.19					
L010262		<0.5	1.79	9.28	384	23	148.0	10.05	243	321	8.69	2.47	9.97	38.3	2.26	0.17					
L010263		0.6	1.60	9.68	384	24	134.0	9.13	244	361	11.75	3.46	9.31	36.3	2.78	0.22					
L010264		<0.5	1.50	12.25	364	25	118.0	8.45	214	239	10.90	2.58	7.38	39.2	1.82	0.15					
L010265		<0.5	1.52	5.84	423	25	126.0	8.50	306	609	19.45	5.74	12.25	25.1	5.54	0.42					
L010266		<0.5	1.52	10.55	360	21	123.0	8.74	238	424	12.30	3.46	9.17	34.8	3.37	0.32					
L010267		0.5	1.37	19.85	417	23	111.0	7.69	252	462	15.50	4.45	9.75	29.6	6.22	0.41					
L010268		0.7	1.03	19.70	497	30	89.1	6.04	220	432	16.25	4.59	8.13	24.7	8.47	0.34					



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## CERTIFICATE OF ANALYSIS TM12065155

Sample Description	Method Analyte Units LOR	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	ME- ICP06	OA- GRA05	TOT- ICP06	Nb- XRF10
		K2O %	Cr2O3 %	TiO2 %	MnO %	P2O5 %	SrO %	BaO %	LOI %	Total %	Nb %
L010237		1.63	0.01	0.27	0.04	0.09	0.03	0.04	20.7	100.46	0.01
L010238		1.54	0.01	1.55	0.98	9.41	0.25	0.41	13.40	98.28	0.25
L010239		1.47	0.01	2.71	0.90	8.52	0.21	0.30	11.75	98.11	0.27
L010240		0.19	0.01	0.68	1.20	29.5	0.29	0.23	7.68	98.93	0.46
L010241		0.01	0.05	3.09	2.90	8.33	1.54	1.29	12.35	92.46	1.58
L010242		1.12	<0.01	4.92	0.67	9.65	0.14	0.20	10.65	98.90	0.13
L010243		1.32	<0.01	1.93	1.39	14.10	0.17	0.51	9.95	97.24	0.23
L010244		0.96	<0.01	1.60	0.71	27.5	0.68	0.22	4.11	96.80	0.30
L010245		1.29	0.04	3.02	0.52	12.85	0.22	0.23	8.32	97.40	0.16
L010246		2.90	<0.01	3.98	0.58	8.18	0.15	0.19	9.38	98.28	0.19
L010247		2.26	<0.01	3.06	1.39	12.60	0.25	0.30	8.54	98.88	0.18
L010248		1.76	<0.01	2.92	1.25	12.15	0.19	0.28	8.78	98.61	0.27
L010249		1.65	<0.01	2.50	0.70	13.50	0.20	0.17	8.27	97.55	0.24
L010250		0.47	0.05	1.93	1.86	20.3	0.36	0.44	8.21	99.64	0.32
L010251		1.67	0.10	2.70	0.69	15.85	0.22	0.20	8.21	96.54	0.24
L010252		0.95	0.05	1.47	0.87	7.11	0.20	0.18	23.4	98.77	0.24
L010253		0.58	0.02	1.41	0.59	8.56	0.25	0.13	23.3	99.10	0.30
L010254		0.88	0.01	1.39	0.67	6.66	0.27	0.14	25.1	99.89	0.21
L010255		1.22	0.01	2.23	0.69	8.83	0.30	0.18	16.95	98.58	0.25
L010256		0.60	0.01	1.00	0.67	7.26	0.29	0.11	26.6	98.15	0.18
L010257		0.56	0.01	1.96	0.72	7.80	0.27	0.11	25.0	98.66	0.15
L010258		1.13	<0.01	1.70	1.05	6.09	0.19	0.21	24.1	99.00	0.14
L010259		2.34	0.01	2.46	0.62	5.60	0.18	0.16	19.45	99.16	0.18
L010260		0.33	<0.01	0.07	0.04	0.12	0.01	0.01	1.62	100.43	0.01
L010261		1.03	0.01	2.03	1.02	7.75	0.19	0.18	22.9	99.72	0.16
L010262		0.99	<0.01	1.58	0.96	9.40	0.28	0.20	22.8	98.07	0.22
L010263		1.66	0.01	1.59	1.17	7.11	0.30	0.25	24.0	99.91	0.19
L010264		1.66	0.01	1.19	0.67	4.40	0.30	0.19	29.0	99.45	0.11
L010265		1.82	0.01	2.58	0.68	6.62	0.24	0.17	17.85	98.47	0.16
L010266		1.45	0.01	1.51	0.60	6.63	0.30	0.22	24.6	98.74	0.18
L010267		1.86	0.01	1.76	0.58	5.55	0.27	0.36	22.4	98.72	0.21
L010268		3.31	<0.01	1.98	0.56	3.26	0.28	0.36	23.8	96.03	0.12



# **APPENDIX B**

## **Record of Boreholes**



# ASSESSMENT WORK REPORT

LITHOLOGY PROFILE		GAMMA				CALIPER				INSTRUMENTATION INSTALLATION	COMMENTS			
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (cpm)				Caliper (cm)						
					2000	4000	6000	8000	10	20	30	40		
	Local Ground Surface Elevation: 189.2 m													Estimated Water Production Acid Reactivity Test
	ORGANICS over brownish grey SILTY CLAY some sand and gravel (S)	5.0	185											
	grey GRAVEL some sand and silt, wet	174.2	175											Very little water
	grey SILTY CLAY some sand and gravel, moist to wet	172.2	170											Very little water
	grey CLAY some silt, gravel and sand (S), wet	160.2	160											Very little water
	brown SAND and GRAVEL some organics, wet	149.7	150											Very little water
	brown SAND and GRAVEL wet, (possible residuum)	135.2	135											10 gal/min
		54.0	130											10 - 50 gal/min
														10 - 50 gal/min
														50 gal/min
<p>AMEC Environment &amp; Infrastructure A division of AMEC Americas Limited 131 Fielding Road Lively, Ontario Canada P5Y 1L7 Tel +1(705) 682-2632 Fax +1(705) 682-2260 www.amec.com</p>		<p>No groundwater was observed on completion of drilling.</p> <p>Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.</p>										<p>Scale: 1 : 315 Page: 1 of 2</p>		

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# ASSESSMENT WORK REPORT

LITHOLOGY PROFILE		GAMMA				CALIPER				INSTRUMENTATION INSTALLATION	COMMENTS		
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (gpc)				Caliper (cm)					
					2000	4000	6000	8000	10	20	30	40	
	brown SAND and GRAVEL wet, (possible residuum)	123.2	65.0										40 gal/min
	white / grey BEDROCK rock chips	66.0	66.0										40 gal/min
			70.0										Low acid reaction, 5 - 10 gal/min
			75.0										Casing Set at 67 m
			80.0										Low acid reaction, <5 gal/min
			85.0										<5 gal/min
			90.0										<5 gal/min
			95.0										5 gal/min
			100.0										5 gal/min
			105.0										5 gal/min
			110.0										5 gal/min
			115.0										5 gal/min
			120.0										5 gal/min
			125.0										5 gal/min
	END OF BOREHOLE	92.7	96.5										3 - 5 gal/min

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires Interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.

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# ASSESSMENT WORK REPORT

LITHOLOGY PROFILE				GAMMA		CALIPER		INSTRUMENTATION INSTALLATION	COMMENTS					
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (cpm)		Caliper (cm)								
		Local Ground Surface Elevation: 189.4 m			2000	4000	6000	8000	10	20	30	40		
	ORGANICS over													
	gray CLAY some silt	185.4	4.0											
	gray SAND and GRAVEL trace silt, moist to wet	175.4	14.0											5 gal/min
	gray GRAVEL some sand, trace silt, wet	172.4	17.0											5 gal/min
	gray SAND some gravel, trace silt, wet	153.9	35.5											5 gal/min, driller adding foam
	gray to brown SILTY SAND some clay and gravel, moist													5 gal/min
														<5 gal/min
														5 gal/min
<p>AMEC Environment &amp; Infrastructure A division of AMEC Americas Limited 131 Fielding Road Lively, Ontario Canada P3Y 1L7 Tel: +1(705) 682-2632 Fax: +1(705) 682-2260 www.amec.com</p>				<p>No groundwater was observed on completion of drilling.</p>				<p>Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Borehole Log'.</p>				<p>Scale: 1 : 315 Page: 1 of 2</p>		

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# ASSESSMENT WORK REPORT

RECORD OF BOREHOLE No. <b>PW12-02 Co-Ord. 0328479 E, 5576971 N</b>				<b>amec</b>			
Project Number: <b>TY360021</b>		Drilling Location: <b>Marlison Phosphate Project</b>		Logged by: <b>ASIAP</b>			
LITHOLOGY PROFILE	DESCRIPTION	DEPTH (m)	ELEVATION (m)	GAMMA	CALIPER	INSTRUMENTATION INSTALLATION	COMMENTS
				Gamma (cpi)	Caliper (cm)		
				2000 4000 6000 8000	10 20 30 40		
Lithology Plot	gray to brown SILTY SAND some clay and gravel, moist	123.4	85.0				100-150 gal/min
	brown to gray SAND and GRAVEL wet, (possible residuum)	66.0	125				200 gal/min
			120				END OF CASING at 65 m SCREEN TO 78 m <200 gal/min
			70.0				Approx. 300 gal/min
			115				Approx. 400 gal/min
			75.0				Approx. 400 gal/min
	END OF BOREHOLE (no refusal)	111.4	78.0				

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.

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# ASSESSMENT WORK REPORT

**RECORD OF BOREHOLE No. PW12-03 Co-Ord. 0327874 E, 5576803 N**

Project Number: TY860021 Drilling Location: Martison Phosphate Project Logged by: AP

Project Client: PhosCan Chemical Corporation Drilling Method: 250 mm Dual Rotary Drill Compiled by: KKJ

Project Name: 2012 Hydrogeology Study Drilling Machine: Truck Mounted Drill, DR 12 Reviewed by: AJS

Project Location: Hearst, Ontario Date Started: 19 Feb 12 Date Completed: 21 Feb 12 Revision No.: 0, 4/9/12



LITHOLOGY PROFILE		GAMMA				CALIPER		INSTRUMENTATION INSTALLATION	COMMENTS				
Lithology Pkt	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (cpm)						Caliper (cm)			
	Local Ground Surface Elevation: 189.9 m			2000	4000	6000	8000	10	20	30	40		
	FEAT over brown CLAY and SILT some sand, moist	184.9	5.0	185									
	gray SAND some silt and gravel, moist	179.9	10.0	180									<1 gal/min
	gray SAND some silt, clay and gravel (sil), moist	172.9	15.0	175									<1 gal/min
	gray to brown SAND and GRAVEL some silt and clay (sil), wet	149.9	20.0	170									<1 gal/min
			25.0	165									<1 gal/min
			30.0	160									<1 gal/min
			35.0	155									<1 gal/min
			40.0	150									<1 gal/min
	gray to brown SAND and GRAVEL some silt and clay (sil), wet, (possible residuum)	141.9	48.0	142									Approx. 5 gal/min
			45.0	145									Approx. 5-10 gal/min
			50.0	140									Approx. 10-20 gal/min
	brown SANDY SILT trace gravel, (possible residuum)	133.9	55.0	135									Approx. 10-20 gal/min
			56.0	134									Approx. 40 gal/min
			58.0	132									Approx. 40 gal/min
			60.0	130									Approx. 200 gal/min

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No groundwater was observed on completion of drilling.

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretative assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Borehole Log'.





# ASSESSMENT WORK REPORT

LITHOLOGY PROFILE		GAMMA				CALIPER				INSTRUMENTATION INSTALLATION	COMMENTS			
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (cpk)				Caliper (cm)						
					2000	4000	6000	8000	10	20	30	40		
	brown SAND trace gravel, (possible residuum)	65.0	125										1 steel casing Screen	Estimated Water Production Acid Reactivity Test
		70.0	120											Approx. 200 gal/min
		117.9												Approx. 300 gal/min
	ROCK some sand	72.0												END OF CASING at 68 m SCREEN TO 86 m Approx. 300 gal/min
		75.0	115											Short small acid reaction, Approx. 800 gal/min
		80.0	110											Short small acid reaction, Approx. 800 gal/min
		108.9												Short small acid reaction, Approx. 800 gal/min
	white / brown / grey BEDROCK rock chips	81.0												Moderate acid reaction, Approx. 300 gal/min
		85.0	105											Approx. 300 gal/min
	END OF BOREHOLE	102.9												
		87.0												

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires Interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Exploration of Borehole Log.

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# ASSESSMENT WORK REPORT

RECORD OF BOREHOLE No. <b>TW12-01</b> Co-Ord. <b>0326928 E, 5575483 N</b>				<b>amec</b> <sup>®</sup>		
Project Number: <b>TY860021</b>		Drilling Location: <b>Martison Phosphate Project</b>		Logged by: <b>ASI/AP</b>		
Project Client: <b>PhosCan Chemical Corporation</b>		Drilling Method: <b>150 mm Dual Rotary Drill</b>		Compiled by: <b>KKJ</b>		
Project Name: <b>2012 Hydrogeology Study</b>		Drilling Machine: <b>Truck Mounted Drill, DR 12</b>		Reviewed by: <b>AJS</b>		
Project Location: <b>Heerst, Ontario</b>		Date Started: <b>4 Feb 12</b> Date Completed: <b>4 Feb 12</b>		Revision No.: <b>0, 4/5/12</b>		
LITHOLOGY PROFILE		GAMMA		CALIPER		COMMENTS
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	INSTRUMENTATION INSTALLATION		
	Local Ground Surface Elevation: 191.2 m		Gamma (cpm)		Caliper (cm)	
		2000 4000 6000 8000		10 20 30 40		
ORGANICS over						
grey SILTY SAND some gravel & clay (S), moist						
		190				High acid reaction          Moderate acid reaction    Low acid reaction, Approx. 10 gal/min
		5.0				
		185				
		10.0				
		180				
		15.0				
		175				
		20.0				
		170				
		25.0				
		165				
		30.0				
		160				
		157.7				
grey SILTY CLAY some sand and gravel, dry		33.5				
		155.7				
grey SANDY SILT some gravel and clay, moist		35.5				
		151.7				
grey SILTY CLAY some gravel		38.4				
brown and grey SAND and GRAVEL some silt, trace clay, moist		40.7				
		150.7				
		145				
		45.0				
		140				
		50.0				
		135				
		54.0				
brown SAND and GRAVEL moist		57.0				
		137.2				
		134.2				
grey / white BEDROCK rock chips		57.0				
		135				
		60.0				
AMEC Environment & Infrastructure A division of AMEC Americas Limited 131 Fielding Road Lively, Ontario Canada P3Y 1L7 Tel +1(705) 682-2632 Fax +1(705) 682-2260 www.amec.com		<input type="checkbox"/> Groundwater depth recorded on completion at a depth of <u>30 m</u>		Scale: 1 : 315 Page: 1 of 2		
Continued on Next Page		Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.				



# ASSESSMENT WORK REPORT

<b>RECORD OF BOREHOLE No. TW12-01 Co-Ord. 0326928 E, 5575483 N</b> <span style="float: right;"><b>amec</b><sup>®</sup></span>					
Project Number: <b>TY860021</b>		Drilling Location: <b>Martison Phosphate Project</b>		Logged by: <b>AS/AP</b>	
LITHOLOGY PROFILE		GAMMA		CALIPER	COMMENTS
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (cpm)	
				2000 4000 6000 8000	10 20 30 40
	grey / white <b>BEDROCK</b> rock chips	130 85.0 125 70.0 120 118.2 73.0			END OF CASING at 89.7 m Low acid reaction, 5-10 gal/min  5-10 gal/min  5-10 gal/min
	END OF BOREHOLE				

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.





# ASSESSMENT WORK REPORT

LITHOLOGY PROFILE		GAMMA				CALIPER				INSTRUMENTATION INSTALLATION	COMMENTS		
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (cpm)				Caliper (cm)					
	Local Ground Surface Elevation: 187.8 m			2000	4000	6000	8000	10	20	30	40	<div style="display: flex; justify-content: space-around; font-size: 8px;"> <span>1 steel casing</span> <span>Screen</span> </div>	Estimated Water Production Acid Reactivity Test
	ORGANICS over brownish gray SILTY CLAY some sand, trace gravel (S), moist	185	179.8										
	grey SAND and GRAVEL trace silt, wet	178.8	178.8										
	grey SILT some clay, sand and gravel, moist	175	175										
	grey SILTY CLAY some sand and gravel, moist	172.3	172.3										
	brownish gray SILTY SAND some gravel and clay (S), moist to wet	16.0	16.0										
		130	130										
		100	100										
		75	75										
		50	50										
		25	25										
		0	0										
<b>AMEC Environment &amp; Infrastructure</b> A division of AMEC Americas Limited 131 Fielding Road Lively, Ontario Canada P3Y 1L7 Tel +1(705) 682-2632 Fax +1(705) 682-2260 www.amec.com		Groundwater depth recorded on completion at a depth of <b>4.3 m</b>										Scale: 1 : 315 Page: 1 of 3	
Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires Interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.													

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# ASSESSMENT WORK REPORT

LITHOLOGY PROFILE				GAMMA				CALIPER				INSTRUMENTATION INSTALLATION	COMMENTS
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (cpm)				Caliper (cm)					
				2000	4000	6000	8000	10	20	30	40	<input type="checkbox"/> 1 steel casing <input type="checkbox"/> Screen  Estimated Water Production Acid Reactivity Test	
	brownish grey SILTY SAND some gravel and clay (Bl), moist to wet	115.8	72.0									Less than 3 gal/min	
	reddish brown SAND some silt and gravel, wet	112.8	75.0										
	red CLAY some silt, trace sand and gravel, wet	97.8	90.0									Minimal water	
	brownish red to orange to reddish brown SAND some silt, clay and gravel, wet, (possible residuum)	76.3	111.5										
	reddish brown to brown GRAVEL and SAND trace silt, wet, (possible residuum)											10 gal/min	
												20 gal/min	
												Minimal water, driller added foam	
												5 gal/min, driller added foam	
												5 gal/min	

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.

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# ASSESSMENT WORK REPORT

LITHOLOGY PROFILE				GAMMA				CALIPER				INSTRUMENTATION INSTALLATION	COMMENTS
Lithology Pic	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (cpk)				Caliper (cm)					
					2000	4000	6000	8000	10	20	30	40	
	reddish brown to brown GRAVEL and SAND trace silt, wet, (possible residuum)	130.0	54.9										5 gal/min
	brown SAND some silt, trace gravel, wet, (possible residuum)	133.0	48.9										25 gal/min
	reddish brown SAND and GRAVEL some silt, wet, (possible residuum)	139.0	43.3										40 gal/min
	END OF BOREHOLE	144.5											END OF CASING at 140 m SCREEN TO 143 m 10 gal/min 100 - 200 gal/min

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretative assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.

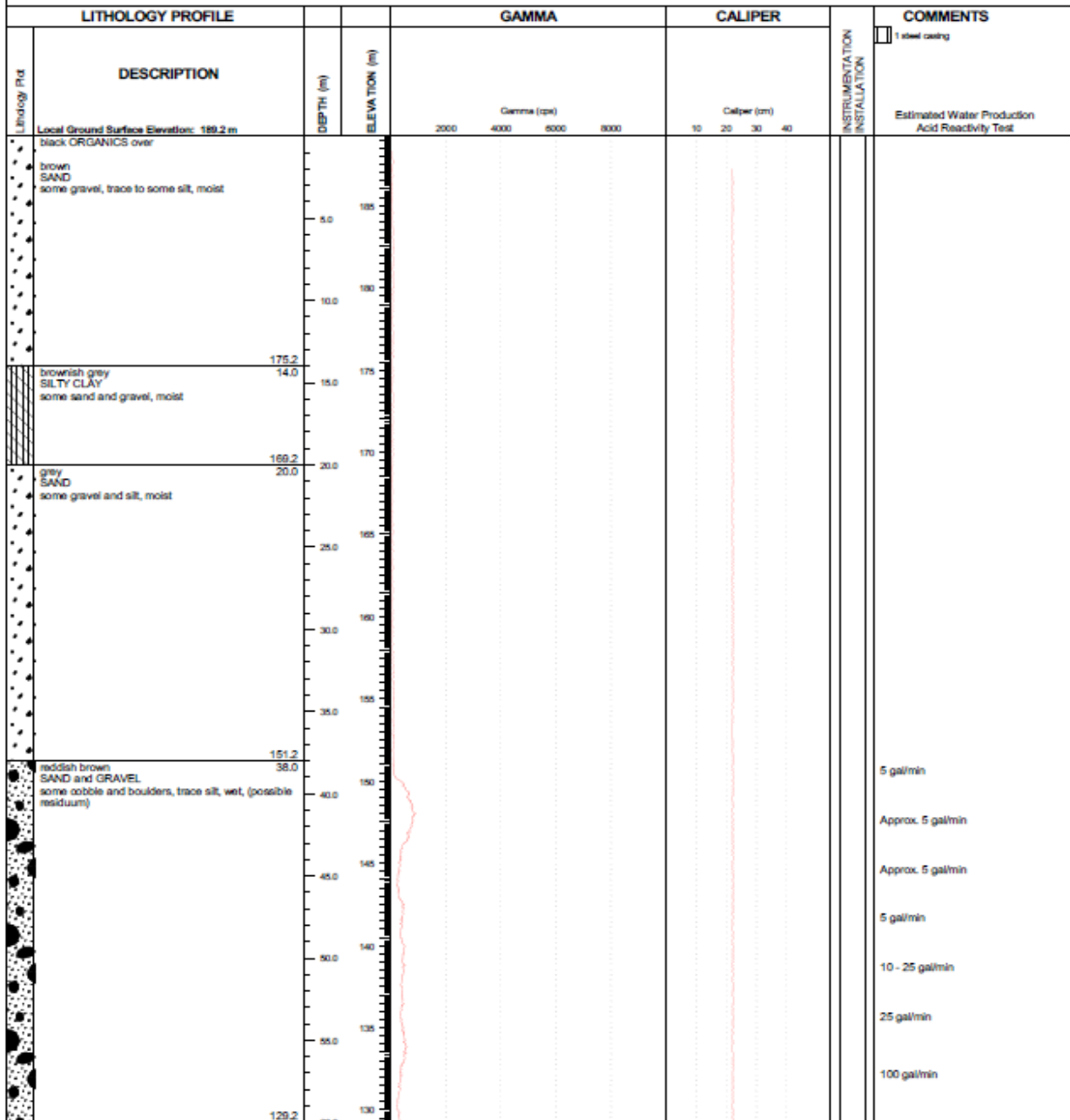
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# ASSESSMENT WORK REPORT

**RECORD OF BOREHOLE No. TW12-03A Co-Ord. 0327996 E. 5577383 N**

Project Number: TY860021 Drilling Location: Martinson Phosphate Project Logged by: ASI/AP  
 Project Client: PhosCan Chemical Corporation Drilling Method: 200 mm Dual Rotary Drill Compiled by: KKJ  
 Project Name: 2012 Hydrogeology Study Drilling Machine: Track Mounted Drill Reviewed by: AJS  
 Project Location: Hearst, Ontario Date Started: 31 Jan 12 Date Completed: 3 Feb 12 Revision No.: 0, 4/5/12



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No groundwater was observed on completion of drilling.

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires Interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.

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# ASSESSMENT WORK REPORT

RECORD OF BOREHOLE No. <b>TW12-03A</b> Co-Ord. <b>0327996 E, 5577383 N</b>				<b>amec</b>			
Project Number: <b>TY860021</b>		Drilling Location: <b>Marlison Phosphate Project</b>		Logged by: <b>A.S./A.P.</b>			
Lithology Plot	LITHOLOGY PROFILE			GAMMA	CALIPER	INSTRUMENTATION INSTALLATION	COMMENTS
	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (cpm)	Caliper (cm)		
				2000 4000 6000 8000	10 20 30 40		<input type="checkbox"/> 1 steel casing Estimated Water Production Acid Reactivity Test
•••••	brown SAND trace gravel and silt, (possible residuum)	60.0	125				150 - 200 gal/min
		65.0	120				Slight acid reaction, 5 - 20 gal/min
		70.0	115				Slight acid reaction, 5 - 20 gal/min
		114.2	115				Slight acid reaction, Approx. 25 gal/min
	white / grey / orange / brown BEDROCK rock chips	75.0	75.0				END OF CASING at 74 m Slight acid reaction, Approx. 50 gal/min
		80.0	110				Slight acid reaction, Approx. 50 gal/min
		85.0	105				Moderate acid reaction, Approx. 50 gal/min
		90.0	100				Moderate acid reaction, Approx. 50 gal/min
		95.0	95				Moderate acid reaction, 10 - 60 gal/min
		100.0	90				Moderate to high acid reaction, 10 - 60 gal/min
		105.0	85				Moderate acid reaction, Approx. 60 gal/min
		110.0	80				Moderate acid reaction, Approx. 60 gal/min
		115.0	75				Moderate acid reaction, Approx. 60 gal/min
		120.0	70				Moderate acid reaction, Approx. 60 gal/min
		125.0	65				Mid acid reaction, Approx. 60 gal/min
							Mid acid reaction, Approx. 60 gal/min

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.

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# ASSESSMENT WORK REPORT

RECORD OF BOREHOLE No. <b>TW12-03A</b> Co-Ord. <b>0327996 E, 5577383 N</b>				<b>amec</b>		
Project Number: <b>TY960021</b>		Drilling Location: <b>Marlison Phosphate Project</b>		Logged by: <b>AS/AP</b>		
LITHOLOGY PROFILE		GAMMA		CALIPER		
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Caliper (cm)		INSTRUMENTATION INSTALLATION
				Gamma (cpk)		
	white / grey / orange / brown <b>BEDROCK</b> rock chips	130.0	60	2500 4000 6000 8000	10 20 30 40	<input type="checkbox"/> steel casing  Estimated Water Production Acid Reactivity Test  gal/min Mid acid reaction, Approx. 60 gal/min Mid acid reaction, Approx. 60 gal/min Mid acid reaction, Approx. 60 gal/min Mid acid reaction, Approx. 60 gal/min Mid acid reaction, Approx. 60 gal/min Mid acid reaction, Approx. 60 gal/min Mid acid reaction, Approx. 60 gal/min Mid acid reaction, Approx. 60 gal/min Mid acid reaction, Approx. 60 gal/min Mid acid reaction, Approx. 60 gal/min
		135.0	55			
		140.0	50			
		145.0	45			
		150.0	40			
		155.0	35			
		30.7				
	<b>END OF BOREHOLE</b>	158.5				

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretative assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Borehole Log'.



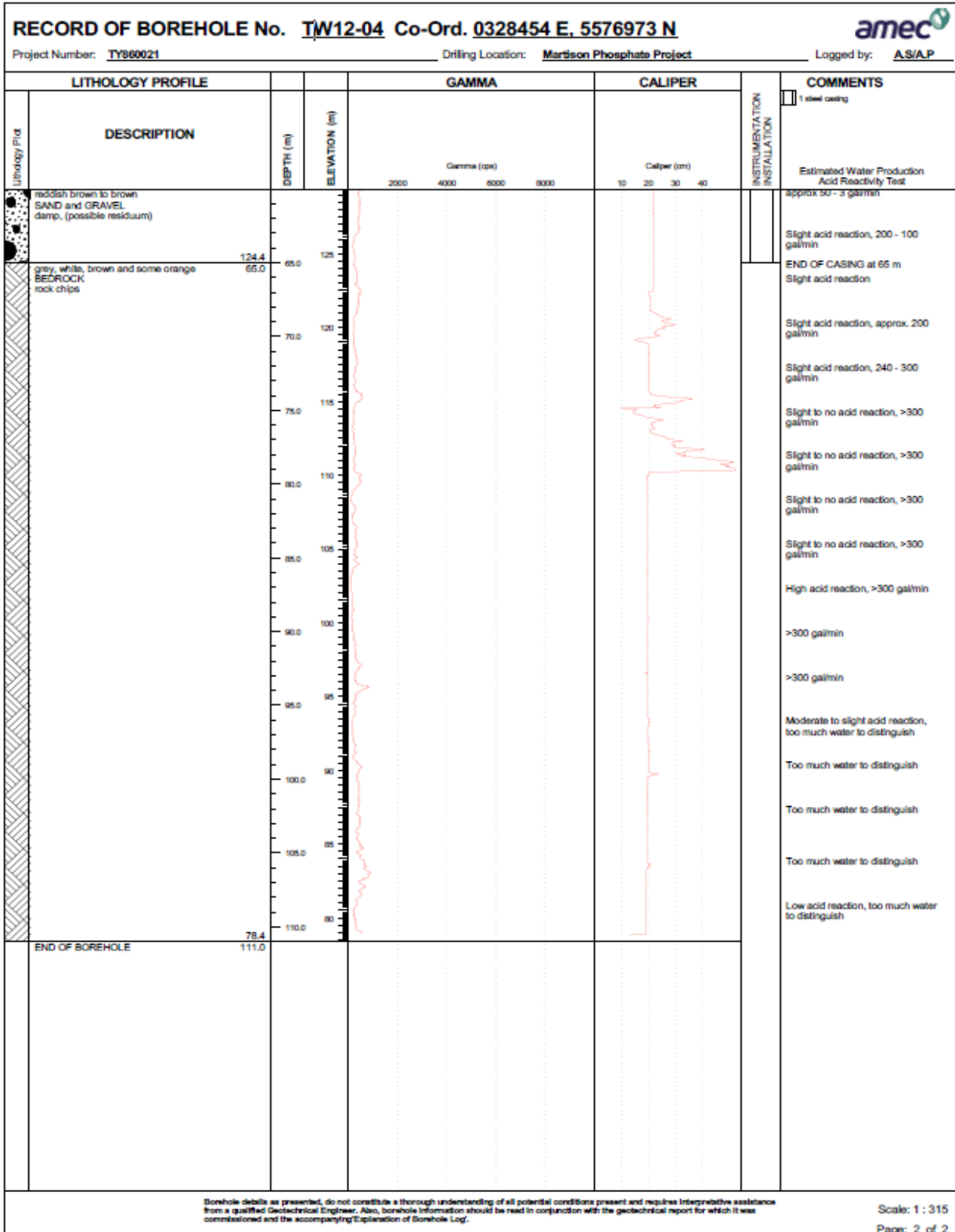


# ASSESSMENT WORK REPORT

LITHOLOGY PROFILE				GAMMA			CALIPER		INSTRUMENTATION INSTALLATION	COMMENTS			
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (cpm)			Caliper (cm)						
	Local Ground Surface Elevation: 189.4 m			2000	4000	6000	8000	10	20	30	40	<input type="checkbox"/> Steel casing	
	ORGANICS over brown SAND some to trace silt, moist	5.0	185										<5 gal/min
		11.0	178.4										<5 gal/min
	brown SAND some gravel, trace silt	15.0	175										<5 gal/min
		23.0	166.4										
	grey SAND some silt, moist	26.0	163.4										
	grey SAND some gravel, trace silt, moist	29.0	160.4										
	grey SAND some gravel, silt and clay (sil), moist	35.0	155										
		41.5	147.9										
	grey SILTY CLAY some to trace sand and gravel (sil), moist to wet	45.0	145										Mild acid reaction
		50.0	140										Mild acid reaction
		54.0	135.4										Mild acid reaction, approx 50 gal/min
	reddish brown to brown SAND and GRAVEL damp, (possible residuum)	55.0	135										
		130	130										
<p>AMEC Environment &amp; Infrastructure A division of AMEC Americas Limited 131 Fielding Road Lively, Ontario Canada P3Y 1L7 Tel +1(705) 682-2632 Fax +1(705) 682-2290 www.amec.com</p>										<p><input type="checkbox"/> No groundwater was observed on completion of drilling.</p>		<p>Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.</p>	
<p>Continued on Next Page</p>										<p>Scale: 1 : 315</p>		<p>Page: 1 of 2</p>	



# ASSESSMENT WORK REPORT



Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretative assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.

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# ASSESSMENT WORK REPORT

RECORD OF BOREHOLE No. <b>TW12-05</b> Co-Ord. <b>0328586 E, 5576265 N</b>						
Project Number: <b>TY860021</b>		Drilling Location: <b>Marlison Phosphate Project</b>		Logged by: <b>A.S./A.P.</b>		
Project Client: <b>PhosCan Chemical Corporation</b>		Drilling Method: <b>150 mm Dual Rotary Drill</b>		Compiled by: <b>KKJ</b>		
Project Name: <b>2012 Hydrogeology Study</b>		Drilling Machine: <b>Truck Mounted Drill, DR 12</b>		Reviewed by: <b>AJS</b>		
Project Location: <b>Hearst, Ontario</b>		Date Started: <b>27 Jan 12</b> Date Completed: <b>29 Jan 12</b>		Revision No.: <b>0, 4/9/12</b>		
LITHOLOGY PROFILE		GAMMA		CALIPER		COMMENTS
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	INSTRUMENTATION INSTALLATION		
	Local Ground Surface Elevation: 188.4 m		Gamma (cpm)		Caliper (cm)	
ORGANICS ↓ grey CLAY with silt, trace sand brown SAND trace silt, moist		2000 4000 6000 8000 10 20 30 40		10 20 30 40		
185.4 183.4 8.0 159.4 29.0 151.9 36.5 148.4 40.0		188.4 185.4 183.4 8.0 159.4 29.0 151.9 36.5 148.4 40.0		20 gal./min.		
grey GRAVEL trace sand, wet  grey SAND AND SILT trace gravel and organics, dry  grey SANDY GRAVEL with silt and cobbles, dry						
AMEC Environment & Infrastructure A division of AMEC Americas Limited 131 Fielding Road Lively, Ontario Canada P3Y 1L7 Tel +1(705) 682-2632 Fax +1(705) 682-2260 www.amec.com		<input type="checkbox"/> No groundwater was observed on completion of drilling.		Scale: 1 : 315 Page: 1 of 3		

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# ASSESSMENT WORK REPORT

LITHOLOGY PROFILE				GAMMA		CALIPER		COMMENTS	
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (cpm)		Caliper (cm)		INSTRUMENTATION INSTALLATION	<input type="checkbox"/> 1 steel casing Estimated Water Production Acid Reactivity Test
				2000	4000	6000	8000		
		127.4							
	brown SILTY CLAY with gravel, wet	61.0							
		124.4	125						
	brown GRAVEL with rock chips,	64.0	65.0						50 gal/min
		121.4							
	brown SILTY CLAY with gravel, wet	67.0	120						
		118.4	70.0						
	brown GRAVEL with weathered rock chips and mica,		115						
		113.4	75.0						
	brown SILT with sand, gravel and unweathered rock, wet	75.0							
		110.4	110						
	brown SAND AND GRAVEL some silt, (possible residuum)	78.0	90.0						
			105						
			85.0						
			100						30 gal/min, no acid reaction
			95.0						
			90						
			100.0						
			85						
			105.0						
			80						
			110.0						
			75						
			115.0						
			70						
			120.0						5 gal/min
			65						moderate acid reaction
			125.0						

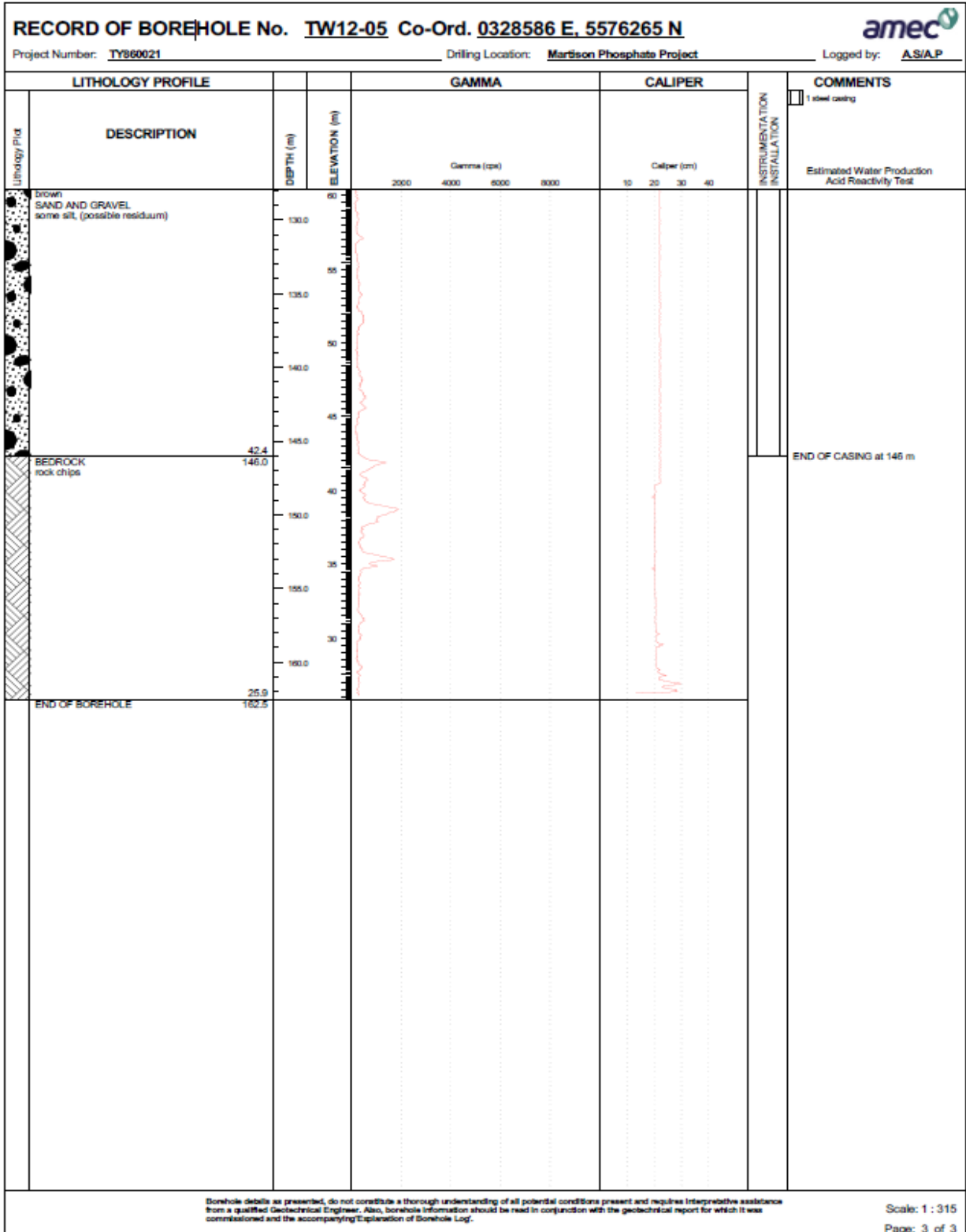
Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and require interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying 'Explanation of Borehole Log'.

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# ASSESSMENT WORK REPORT





# ASSESSMENT WORK REPORT

LITHOLOGY PROFILE				GAMMA				CALIPER			COMMENTS		
Lithology Plot	DESCRIPTION	DEPTH (m)	ELEVATION (m)	Gamma (cpm)				Caliper (cm)			INSTRUMENTATION INSTALLATION	COMMENTS	
				2000	4000	6000	8000	10	20	30			40
Local Ground Surface Elevation: 187.9 m													
	grey GRAVEL some sand, dry	0.0 - 166.9	187.9 - 21.0					10	20	30	40		Estimated Water Production Acid Reactivity Test
	grey GRAVEL some sand, silt and clay, dry	166.9 - 23.0	21.0 - 164.9										
	grey SAND some silt, trace gravel, wet	23.0 - 151.4	164.9 - 36.5										Hole plugged due to sand
	black SAND trace gravel, moist	151.4 - 147.9	36.5 - 40.0										Medium acid reaction (120' - 170')
	black SAND some gravel, wet	147.9 - 144.9	40.0 - 43.0										High water output
	grey GRAVEL and SAND wet	144.9 - 138.9	43.0 - 49.0										No water output
	grey GRAVEL some sand, moist	138.9 - 133.9	49.0 - 54.0										High acid reaction, 50 gal/min
	grey/green ROCK (chips) wet	133.9 - 129.9	54.0 - 58.0										END OF CASING at 57 m No water output, high acid reaction
		129.9 - 88.8	58.0 - 88.8										
AMEC Environment & Infrastructure A division of AMEC Americas Limited 131 Fielding Road Lively, Ontario Canada P3Y 1L7 Tel +1(705) 682-2632 Fax +1(705) 682-2290 www.amec.com				<input type="checkbox"/> No groundwater was observed on completion of drilling.								Scale: 1 : 315 Page: 1 of 2	
Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretive assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.													

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# ASSESSMENT WORK REPORT

RECORD OF BOREHOLE No. <b>TW12-06</b> Co-Ord. <b>0328477 E, 5575546 N</b>				<b>amec</b>			
Project Number: <b>TY860021</b>		Drilling Location: <b>Marlison Phosphate Project</b>		Logged by: <b>AS/AP</b>			
Lithology Plot	LITHOLOGY PROFILE	DEPTH (m)	ELEVATION (m)	GAMMA	CALIPER	INSTRUMENTATION INSTALLATION	COMMENTS
	DESCRIPTION			Gamma (cpm)	Caliper (cm)		
	grey/green BEDROCK rock chips, trace mica, dry	125 120 115 110 105 100 96.4		2000 4000 6000 8000	10 20 30 40		<input type="checkbox"/> steel casing  Estimated Water Production Acid Reactivity Test
	END OF BOREHOLE	91.5					

Borehole details as presented, do not constitute a thorough understanding of all potential conditions present and requires interpretative assistance from a qualified Geotechnical Engineer. Also, borehole information should be read in conjunction with the geotechnical report for which it was commissioned and the accompanying Explanation of Borehole Log.



# **APPENDIX C**

## **Borehole Logs of Geology and Assay Data**











ASSESSMENT WORK REPORT

Table with columns: Borehole ID, CORE RUN (m), Geo-log Description, Litho Unit, SAMPLE, and various elements (Ag, Ba, Ce, Co, Cr, Cs, Cu, Dy, Er, Eu, Ga, Gd, Hf, Ho, La, Lu, Mo, Nb, Nd, Ni, Pb, Pr, Rb, Sb, Sn, Sr, Ta, Tb, Th, Tl, Tm, U, V, W, Y, Yb, Zn, Zr, SiO2, Al2O3, Fe2O3, CaO, MgO, Na2O, K2O, Cr2O3, TiO2, MnO, P2O5, SrO, BaO, LOI, Total, Ce, Nb) under sub-headers ME-MS81 and ME-ICP06.





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