NI 43-101 Technical Report
Bankable Feasibility Study Update
of the Bonasika Project, Guyana

Prepared for
First Bauxite Corporation

Prepared by

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Prepared for

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IMPORTANT NOTICE

This Report was prepared as a National Instrument 43-101 Technical Report for First Bauxite Corporation (**"First Bauxite"**) by Met-Chem Canada Inc. (**"Met-Chem"**). The quality of information, conclusions and estimates contained herein is consistent with the level of effort involved in Met-Chem's services, based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this Report. This Report is intended for use by First Bauxite subject to the terms and conditions of its contract with Met-Chem. This Report can be filed as a Technical Report with Canadian Securities Regulatory Authorities pursuant to National Instrument 43-101, *Standards of Disclosure for Mineral Projects*. Except for the purposes legislated under Canadian securities laws, any other uses of this Report by any third party are at that party's sole risk.

DATE AND SIGNATURE PAGE

DATE AND SIGNATURE PAGE – CERTIFICATES

Effective Date: May 9, 2011
Issue Date: November 18, 2011

CERTIFICATE OF AUTHOR

To Accompany the Report entitled

"NI43-101 Technical Report – Bankable Feasibility Study Update of the Bonasika Project, Guyana for First Bauxite Corporation" dated November 18th, 2011.

I, Dominique L. Butty, Eurogeol, do hereby certify that:

1) I am a Consulting Geologist with Butty, Herinckx & Partners, working on behalf of Aluminium Industry Professionals Inc., with an office at Chemin de la Croix 16, 1070 Puidoux, Switzerland;

2) I hold a "Diplôme de Géologie'' from the University of Lausanne, Switzerland (1970) and a MA degree in Computer Management from Leiden University (1985);

3) I am a member of Swiss Association of Geologist and of the European Federation of Geologists (registration 214);

4) I have worked in mineral exploration industry continuously since 1970 and specifically in the bauxite industry as a geologist in exploration, development and mine operations;

5) I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent qualified person for the purposes of NI 43-101;

6) I have reviewed sections 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0,14.0, and 23.0 of this technical report and found these consistent with the NI 43 101,"Technical Report – Bonasika 7 Bauxite Deposit, Waratilla Cartwright Prospecting License" dated May 9, 2011, which I signed as "qualified person";

7) I have visited the project site in June, 2009, and subsequently carried out the resource evaluation of the Bonasika deposits 1 through 7;

8) I have no personal knowledge as of the date of this certificate of any material fact or change, which is not reflected in this report;

9) Neither I, nor any affiliated entity of mine, is at present, under an agreement, arrangement or understanding or expects to become, an insider, associate,

D. B.

affiliated entity or employee of First Bauxite Corporation, or any associated or affiliated entities;

10) Neither I, nor any affiliated entity of mine, own, directly or indirectly, nor expect to receive, any interest in the properties or securities of First Bauxite Corporation, or any associated or affiliated companies;

11) Neither I, nor any affiliated entity of mine, have earned the majority of our income during the preceding three (3) years from First Bauxite Corporation, or any associated or affiliated companies;

12) I have read NI 43-101 and Form 43-101F1 and have reviewed the technical report in compliance with NI 43-101 and Form 43-101F1; and have reviewed the report in conformity with generally accepted Canadian mining industry practice, and as of the date of the certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

This 18th day of November 2011.

"Dominique L. Butty" (signed)

____

Dominique L. Butty, Eurogeol
On behalf of Aluminium Industry Professionals Inc.

CERTIFICATE OF AUTHOR

To Accompany the Report entitled

"NI43-101 Technical Report – Bankable Feasibility Study Update of the Bonasika Project, Guyana for First Bauxite Corporation" dated November 18th, 2011.

I, Gerd M. Wiatzka, , B.A.Sc., P. Eng., do hereby certify that:

1) I am Consulting Civil/ Environmental Engineer and Principal, Vice President, and Director Mining with SENES Consultants Ltd with an office at 121 Granton Drive, Unit 12, Richmont Hill, Ontario, Canada;

2) I am a graduate of the University of Waterloo, Waterloo, Ontario, in 1974 with a B.A.Sc. (Honours) degree in Civil Engineering;

3) I am a registered as a Professional Engineer in the Province of Ontario (Reg.# 49882012);

4) I have worked as a civil/environmental project engineer and manager for a total of 36 years since my graduation. My relevant experience for the purpose of the Technical Report is:

   - more than 30 professional years of experience primarily in the resource section, which include:

   - more than 25 years experience as an environmental professional;

   - engineering design for numerous mine site projects, project management of major multi-discipline civil/environmental projects; and construction management for a 350 tpd gold mill;

   - worldwide project experience in the mining sector including environmental assessments, closure planning, numerous due diligence assessments, liability assessments, 43-101 reviews of projects ranging major mining operations; and

   - provision of expert services to state and federal governments as well as national and international financial institutions (including the European Bank for Reconstruction and Development, the International Finance Organization).

5) I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional

association and past relevant work experience, I fulfil the requirements to be an independent qualified person for the purposes of NI 43-101;

6) I have participated in the preparation of this technical report sections 5.0 and 20.0;

7) I have visited the project site on October 21st, 2010;

8) I have no personal knowledge as of the date of this certificate of any material fact or change, which is not reflected in this report;

9) Neither I, nor any affiliated entity of mine, is at present, under an agreement, arrangement or understanding or expects to become, an insider, associate, affiliated entity or employee of First Bauxite Corporation, or any associated or affiliated entities;

10) Neither I, nor any affiliated entity of mine, own, directly or indirectly, nor expect to receive, any interest in the properties or securities of First Bauxite Corporation, or any associated or affiliated companies;

11) Neither I, nor any affiliated entity of mine, have earned the majority of our income during the preceding three (3) years from First Bauxite Corporation, or any associated or affiliated companies;

12) I have read NI 43-101 and Form 43-101F1 and have prepared the technical report in compliance with NI 43-101 and Form 43-101F1; and have prepared the report in conformity with generally accepted Canadian mining industry practice, and as of the date of the certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

This 18th day of November 2011.

"Gerd M. Wiatzka" (signed and sealed)

Gerd M. Wiatzka, P. Eng.,
Principal, Director Mining
SENES Consultants Limited

CERTIFICATE OF AUTHOR

To Accompany the Report entitled

"NI43-101 Technical Report – Bankable Feasibility Study Update of the Bonasika Project, Guyana for First Bauxite Corporation" dated November 18th, 2011.

I, Philip R. Bedell, P. Eng., do hereby certify that:

1) I am a Senior Consultant with Golder Associates Ltd with an office at 309 Exeter Road, London, Ontario Canada;

2) I am a graduate from The University of Western Ontario, London with a B.E.Sc. in 1966 in Civil Engineering and a M.E.Sc. in 1967;

3) I am a registered member of the Professional Engineers of Ontario (03046018);

4) I have worked as a Project Manager on mining projects since 1995;

5) I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent qualified person for the purposes of NI 43-101;

6) I have participated in the preparation of this technical report and section 18.1;

7) I have not visited the project site;

8) I have no personal knowledge as of the date of this certificate of any material fact or change, which is not reflected in this report;

9) Neither I, nor any affiliated entity of mine, is at present, under an agreement, arrangement or understanding or expects to become, an insider, associate, affiliated entity or employee of First Bauxite Corporation, or any associated or affiliated entities;

10) Neither I, nor any affiliated entity of mine, own, directly or indirectly, nor expect to receive, any interest in the properties or securities of First Bauxite Corporation, or any associated or affiliated companies;

11) Neither I, nor any affiliated entity of mine, have earned the majority of our income during the preceding three (3) years from First Bauxite Corporation, or any associated or affiliated companies;

12) I have read NI 43-101 and Form 43-101F1 and have prepared the technical report in compliance with NI 43-101 and Form 43-101F1; and have prepared the report in conformity with generally accepted Canadian mining industry practice, and as of the date of the certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

This 18th day of November 2011.

"Phillip R. Bedell" (signed)

Philip R. Bedell, P. Eng.,
Senior Consultant,
Golder Associates Ltd.

CERTIFICATE OF AUTHOR

To Accompany the Report entitled

"NI43-101 Technical Report – Bankable Feasibility Study Update of the Bonasika Project, Guyana for First Bauxite Corporation" dated November 18th, 2011.

I, Rock Gagnon, Eng., do hereby certify that:

1) I am Senior Process Engineer, Consultant for Met-Chem Canada;

2) I am a graduate from Laval University, Québec with B.Eng. in Mining Engineering in 1993;

3) I am a registered member of "Ordre des Ingénieurs du Québec" (110811);

4) I have worked as a Mineral Processing Engineer continuously since my graduation from university;

5) I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent qualified person for the purposes of NI 43-101;

6) I have participated in the preparation of this technical report and sections 13.0 and part of 17.0;

7) I have visited the project site on October 21st, 2010 and from January 17th to January 21st, 2011;

8) I have no personal knowledge as of the date of this certificate of any material fact or change, which is not reflected in this report;

9) Neither I, nor any affiliated entity of mine, is at present, under an agreement, arrangement or understanding or expects to become, an insider, associate, affiliated entity or employee of First Bauxite Corporation, or any associated or affiliated entities;

10) Neither I, nor any affiliated entity of mine, own, directly or indirectly, nor expect to receive, any interest in the properties or securities of First Bauxite Corporation, or any associated or affiliated companies;

11) Neither I, nor any affiliated entity of mine, have earned the majority of our income during the preceding three (3) years from First Bauxite Corporation, or any associated or affiliated companies;

12) I have read NI 43-101 and Form 43-101F1 and have prepared the technical report in compliance with NI 43-101 and Form 43-101F1; and have prepared the report in conformity with generally accepted Canadian mining industry practice, and as of the date of the certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

This 18th day of November 2011.

"Rock Gagnon" (signed and sealed)

____

Rock Gagnon, Eng.,
Senior Process Engineer,
Met-Chem Canada Inc.

CERTIFICATE OF AUTHOR

To Accompany the Report entitled

"NI43-101 Technical Report – Bankable Feasibility Study Update of the Bonasika Project, Guyana for First Bauxite Corporation" dated November 18th, 2011.

I, Nicolas Ménard, Eng., do hereby certify that:

1) I am a Consultant - Mechanical Engineer with G Mining Services Inc. with an office at 7900, Taschereau Blvd., Building D, Suite 200, Brossard, Québec, Canada;
2) I am a graduate from École Polytechnique de Montréal, with B. Eng. in Mechanical Engineering in 2002;
3) I am a registered member of "Ordre des Ingénieurs du Québec" (130840);
4) I have worked as a Participant in studies and implementation of mining projects continuously since my graduation from university;
5) I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent qualified person for the purposes of NI 43-101;
6) I have participated in the preparation of section 18.2 of this technical report;
7) I have visited the project site on March 14th, 2011;
8) I have no personal knowledge as of the date of this certificate of any material fact or change, which is not reflected in this report;
9) Neither I, nor any affiliated entity of mine, is at present, under an agreement, arrangement or understanding or expects to become, an insider, associate, affiliated entity or employee of First Bauxite Corporation, or any associated or affiliated entities;
10) Neither I, nor any affiliated entity of mine, own, directly or indirectly, nor expect to receive, any interest in the properties or securities of First Bauxite Corporation, or any associated or affiliated companies;
11) Neither I, nor any affiliated entity of mine, have earned the majority of our income during the preceding three (3) years from First Bauxite Corporation, or any associated or affiliated companies;
12) I have read NI 43-101 and Form 43-101F1 and have prepared section 18.2 of the technical report in compliance with NI 43-101 and Form 43-101F1; and have prepared the report in conformity with generally accepted Canadian mining

industry practice, and as of the date of the certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

This 18th day of November 2011.

"Nicolas Ménard" (signed)

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Nicolas Ménard, Eng.,
Consultant – Mechanical Engineer
G Mining Services Inc.

CERTIFICATE OF AUTHOR

To Accompany the Report entitled

"NI 43-101 Technical Report – Bankable Feasibility Study Update of the Bonasika Project, Guyana for First Bauxite Corporation" dated November 18th, 2011.

I, Robert Marchand, Eng., do hereby certify that:

1) I am Vice President – Mining Engineering with G Mining Services Inc. with an office at 7900, Taschereau Blvd, Building D, Suite 200, Brossard, Québec, Canada, J4X 1C2;

2) I am a graduate from Laval University, Québec with B. Sc.A. in mining Engineering in 1982;

3) I am a registered member of "Ordre des Ingénieurs du Québec" (#44928);

4) I have worked in the mining industry continuously since my graduation from university. I have been involved in mining operations, engineering, management and financial evaluations in the mineral industry for 29 years;

5) I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent qualified person for the purposes of NI 43-101;

6) I have participated in the preparation of this technical report and section 22.0;

7) I have not visited the project site;

8) I have no personal knowledge as of the date of this certificate of any material fact or change, which is not reflected in this report;

9) Neither I, nor any affiliated entity of mine, is at present, under an agreement, arrangement or understanding or expects to become, an insider, associate, affiliated entity or employee of First Bauxite Corporation, or any associated or affiliated entities;

10) Neither I, nor any affiliated entity of mine, own, directly or indirectly, nor expect to receive, any interest in the properties or securities of First Bauxite Corporation, or any associated or affiliated companies;

11) Neither I, nor any affiliated entity of mine, have earned the majority of our income during the preceding three (3) years from First Bauxite Corporation, or any associated or affiliated companies;

12) I have read NI 43-101 and Form 43-101F1 and have prepared the technical report in compliance with NI 43-101 and Form 43-101F1; and have prepared the report in conformity with generally accepted Canadian mining industry practice, and as of the date of the certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

This 18th day of November 2011.

"Robert Marchand" (signed and sealed)

____

Robert Marchand Eng.,
Vice President – Mining Engineering
G Mining Services Inc.

CERTIFICATE OF AUTHOR

To Accompany the Report entitled

"NI43-101 Technical Report – Bankable Feasibility Study Update of the Bonasika Project, Guyana for First Bauxite Corporation" dated November 18th, 2011.

I, Daniel M. Gagnon, Eng., do hereby certify that:

1) I am General Manager – Geology and Mining with Met-Chem Canada with an office at suite 300, 555 René-Lévesque Blvd. West, Montréal, Canada;

2) I am a graduate from École Polytechnique, Montréal with B. Eng. in Mining Engineering in 1995;

3) I am a registered member of "Ordre des Ingénieurs du Québec" (118521);

4) I have worked as a Mining Engineer continuously since my graduation from university;

5) I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent qualified person for the purposes of NI 43-101;

6) I have participated in the preparation of this technical report and sections15.0, 16.0 and part of section 21.0;

7) I have visited the project site on October 6th, 2009 and on October 21st, 2010;

8) I have no personal knowledge as of the date of this certificate of any material fact or change, which is not reflected in this report;

9) Neither I, nor any affiliated entity of mine, is at present, under an agreement, arrangement or understanding or expects to become, an insider, associate, affiliated entity or employee of First Bauxite Corporation, or any associated or affiliated entities;

10) Neither I, nor any affiliated entity of mine, own, directly or indirectly, nor expect to receive, any interest in the properties or securities of First Bauxite Corporation, or any associated or affiliated companies;

11) Neither I, nor any affiliated entity of mine, have earned the majority of our income during the preceding three (3) years from First Bauxite Corporation, or any associated or affiliated companies;

12) I have read NI 43-101 and Form 43-101F1 and have prepared the technical report in compliance with NI 43-101 and Form 43-101F1; and have prepared the report in conformity with generally accepted Canadian mining industry practice, and as of the date of the certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

This 18th day of November 2011.

"Daniel M. Gagnon" (signed and sealed)

Daniel M. Gagnon, Eng.,
General Manager – Geology and Mining,
Met-Chem Canada Inc.

CERTIFICATE OF AUTHOR

To Accompany the Report entitled

"NI43-101 Technical Report – Bankable Feasibility Study Update of the Bonasika Project, Guyana for First Bauxite Corporation" dated November 18th, 2011.

I, Daniel Houde, Eng., do hereby certify that:

1) I am General Manager – Projects with Met-Chem Canada with an office at suite 300, 555 René-Lévesque Blvd. West, Montréal, Canada;

2) I am a graduate from McGill University, Montréal with B. Eng. in Civil Engineering in 1984;

3) I am a registered member of "Ordre des Ingénieurs du Québec" (39985);

4) I have worked as a Construction Manager or Project Manager of mining projects continuously since my graduation from university;

5) I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent qualified person for the purposes of NI 43-101;

6) I have participated in the preparation of this technical report and sections 1.0, 2.0, 3.0, 4.0, 17.0, 19.0, 21.0, 24.0, 25.0, 26.0 and 27.0;

7) I have visited the project site on October 21st, 2010;

8) I have no personal knowledge as of the date of this certificate of any material fact or change, which is not reflected in this report;

9) Neither I, nor any affiliated entity of mine, is at present, under an agreement, arrangement or understanding or expects to become, an insider, associate, affiliated entity or employee of First Bauxite Corporation, or any associated or affiliated entities;

10) Neither I, nor any affiliated entity of mine, own, directly or indirectly, nor expect to receive, any interest in the properties or securities of First Bauxite Corporation, or any associated or affiliated companies;

11) Neither I, nor any affiliated entity of mine, have earned the majority of our income during the preceding three (3) years from First Bauxite Corporation, or any associated or affiliated companies;

12) I have read NI 43-101 and Form 43-101F1 and have prepared the technical report in compliance with NI 43-101 and Form 43-101F1; and have prepared the report in conformity with generally accepted Canadian mining industry practice, and as of the date of the certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

This 18th day of November 2011.

"Daniel Houde" (signed and sealed)

Daniel Houde, Eng.,
General Manager – Projects,
Met-Chem Canada Inc.

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

SECTION 1

SUMMARY

1.0 SUMMARY

1.1 Introduction and Terms of Reference

In September 2010, First Bauxite Corporation **("First Bauxite")** issued a "*NI 43-101 Technical Report – Feasibility Study of the Bonasika Project, Guyana*", prepared by Met-Chem Canada Inc. **("Met-Chem")**. The study was completed on a plan to mine refractory bauxite from the Bonasika 1, 2 and 5 deposits in order to produce 100,000 tonnes per year of sintered refractory bauxite **("sintered bauxite")**.

This NI 43-101 compliant Feasibility Study Update of the Bonasika project has been prepared at the request of First Bauxite, after additional investigation was carried out in 2010 on the Waratilla-Cartwright Prospecting Licence **("W-CPL")**. This field work demonstrated that the Bonasika 6 and 7 deposits were larger and contained bauxite of higher grade and lower iron content than the Bonasika 1, 2 and 5 deposits within the Bonasika Mining Licence **("BML")**. First Bauxite decided to initiate the updated feasibility study in order to add the Bonasika 7 reserves and start mining refractory grade bauxite from this deposit to produce 100,000 tonnes per year of sintered bauxite for a 22-year project. A second scenario has also been considered by including the reserves from the Bonasika 6 deposit, thus creating an overall 36 years project.

The following companies and consultants have been retained by First Bauxite to prepare some aspects of the Feasibility Study Update, their involvements are listed below:

- Met-Chem, under the supervision of Daniel Houde, Eng., General Manager – Projects, Daniel M. Gagnon, Eng., General Manager – Geology and Mining, Rock Gagnon, Eng., Senior Process Engineer (overall report preparation, property description and location, mineral processing and metallurgical testing, mineral reserves estimates, mining methods, recovery methods, capital and operating costs estimates);
- Aluminium Industry Professionals Inc. **("Aluminpro")**; Dominique L. Butty, Eurogeol. (all geology and mineral resource estimates related activities, data validation and adjacent properties);
- G Mining Services Inc. **("GMining")** Nicolas Ménard, Eng. (infrastructure and associated costs estimates) and Robert Marchand, Eng. (financial analysis);
- Golder Associates Ltd. **("Golder")** Philip R. Bedell, Eng. (rejects ponds),
- Environment Management Consultants and SENES Consultants Ltd. **("SENES")** Gerd M. Wiatzka P. Eng., Principal – Director Mining (local conditions and environment);
- CRU Strategies, ("CRU") Philip Macoud (market study) reviewed by Daniel Houde, Eng.

The effective date of this report is May 9, 2011.

1.2 Property Description and Ownership

The Bonasika project is located 70 km to the southwest of the capital city of Georgetown, Guyana, between the Essequibo and the Demerara rivers. Access to the property is provided by paved road to Timehri Docks, near the international airport, and by boat upstream and across the Demerara River to Sand Hills, and to the various sites on the property via a network of logging roads.

The property consists of the BML made up of three (3) Blocks (Bonasika 1, Bonasika 2 and Bonasika 5) totalling 3.8 km^2 and the W-CPL (Bonasika 6 and Bonasika 7) of 39.6 km^2, located some 10 km to the southeast. The Licences are surrounded by Permission for Geophysical and Geological Survey **("PGGS")** claim block of 2,466 km^2, and all are in good standing. The Bonasika 6 deposit extends the W-CPL into the PGGS.

Guyana Industrial Minerals Inc. **("GINMIN")**, a wholly-owned subsidiary of First Bauxite, holds 100% interest in the two (2) Licences and the PGGS. GINMIN intends to apply for a conversion of the W-CPL into a Mining Licence and for a modification of the boundary of the BML to encompass the three (3) Bonasika Blocks and the W-CPL ground, forming a single Mining Licence covering all the deposits.

The stockpiles, sediments ponds, process plant and wharf will be located at Sand Hills. Surface rights were obtained for the stockpiles, process plant and wharf.

GINMIN has applied to the GGMC to alienate the areas as "State Mining Reserves" and to only authorize GINMIN to mine sand and loam in the area for its construction and road building activities and to store its slimes rejects from the wash plant in the area in sediment pond areas. This essentially freezes the area from application for mineral rights by any third party and requests that the Government engages GINMIN should it be desirous of granting any Mineral Rights over the areas to a third party. GINMIN has simultaneously applied to the Guyana Lands & Surveys Commission for a long term surface rights lease to the area. This right will give GINMIN the surface rights to the area for a period as long as the life of the project.

These two (2) applications, when granted essentially grants GINMIN the unencumbered rights the sediment ponds area.

1.3 Geology and Mineralization

The Bonasika bauxite deposits are located in the Coastal Plains region, within an arcuate, NW-trending Belt that hosts known bauxite deposits as well as past and present producers.

The local bedrock geology is poorly understood as the Pleistocene continental-deltaic sediments (Berbice White Sand Formation), the Tertiary sediments, the weathering and forest cover all combine to hide the bauxite and create an environment with scarce outcrops.

The geology of the First Bauxite deposits is essentially defined by drilling, trenching, and by some outcrops, notably at Bonasika 7, that cumulatively have allowed to construct an overall stratigraphic column. The bauxite deposits are covered by poorly-consolidated sediments and rest on white kaolinitic clay. The bauxite shows a core of higher-grade mineralization including interlayered granular, massive and fine units commonly enveloped by clayey bauxite. The Bonasika bauxites are high-grade, gibbsitic and of low iron content.

The Bonasika bauxites are interpreted as buried, in-situ (residual) or locally transported bauxites, distinct by their lack of an iron cap, lower iron and higher alumina contents throughout the profile from typical plateau-type bauxite.

The Bonasika deposits exhibit a simple geometry of sub-horizontal strata, tapering at the extremities and locally affected by a system of interpreted “collapse fractures”. The bauxite thickness can attain almost 10 m but all deposits display an average thickness of some 4 m. They are exposed at surface, except Bonasika 6, and have been explored to depths of 60 m.

1.4 Exploration of the Bonasika Resources

DEMBA, a Guyanese subsidiary of ALCAN, drilled in the Bonasika area as early as in 1937-43, and the Waratilla Cartwright area in the early 1960’s. The Bonasika 1 prospect was partially re-drilled by GINMIN in 2005. Historical resources estimates were derived from the DEMBA data but are not compliant with NI 43-101. This earlier drilling however, has been a useful guide to First Bauxite’s exploration strategy.

Systematic exploration by First Bauxite started in mid 2008 and continued until early 2011. Resource drilling over this period consisted of 803 sonic core holes totalling almost 25,000 m (192 holes on Bonasika 7, totalling 7,017 m). Other work consisted of sampling and analysis on core (2,688 samples for Bonasika 7, density determination, pitting, trenching and drilling to collect samples for process test work and resource and reserves estimates.

All the exploration work was completed under the supervision of Bryan S. Osborne, P. Geo. acting as Qualified Person. First Bauxite applied a thorough QA-QC protocol on all the exploration activities, including the re-survey of random hole collars, laboratory monitoring by insertion of controls into the sample stream, cross checks by third party laboratory and reconciliation with results from composite samples. The samples were prepared by the certified ACME Analytical Laboratories Ltd. in Georgetown and analysed by XRF and for LOI at ACME’s facilities in Vancouver.

The results from all this exploration and development work (Bonasika 1, 2, 5 and 6) were incorporated into a feasibility study and a NI 43-101 compliant technical report prepared by Met-Chem in 2010.

The validation of the results of the exploration work on Bonasika 7, drilling in 2010, and the resource estimate for this deposit were prepared by Dominique L. Butty of

Aluminpro in a NI 43-101 Technical Report entitled "Bonasika 7 Bauxite Deposit Waratilla Cartwright Prospecting License" dated May 9, 2011. This Report is attached in Appendix A.

1.5 Mineral Processing and Metallurgical Testwork

Bonasika 7 deposit is of higher grade than Bonasika 1, 2 and 5 deposits and contains less of the iron contaminants considered deleterious in the production of high quality refractory products. To validate and optimize the process, a new testing program was commissioned. This program contained all the process steps envisaged for the operation such as washing, crushing and grinding, briquetting as well as sintering. Some additional tests were conducted to compare expected plant feed size distribution with feed conditions on the small scale sample obtained by sonic drilling.

At the beginning of the test program the Bonasika 7 deposit geological model was reviewed with mining personnel to establish the optimal mining approach. The decision was taken to use selective mining to recover Direct Feed Bauxite **("DFB")** on-grade that could be fed directly to grinding and sintering without beneficiation. The residual bauxite of lesser grade, Regular Grade Bauxite **("RGB")**, would require beneficiation to meet acceptable sinter feed quality.

Based on the above mining approach, wash tests were done at site and in the United States to determine the wash plant weight recovery and silica reduction. High pressure washing equipment was used. All test results were analyzed and it was concluded that the high pressure unit offered a better performance than a traditional scrubber.

Some additional tests were conducted to complete the process plant flow sheet and technology selection. This included a crushing test at Stedman to compare the cage mill crushing to the impact crusher for size reduction in the wash plant as well as a feed size gradation comparison of trenched material versus sonic drill core samples used for the representative sample testing.

To finalize the testing program, a representative sample of the average Bonasika 7 deposit was processed to confirm the ability of the process to reach the required product grade and to confirm that the grinding, briquetting and sintering operations would perform as expected in production of the final targeted refractory product. The briquetting and sintering tests were performed in the United States and also in Germany.

The wash plant recovery for RGB is estimated at 50%. The DFB is recovered 100% since it by-passes the wash plant. The sintering plant recovery is estimated at 68.5%.

1.6 Mineral Resource Estimates

Deposit modelling and resource estimation for all the BML and W-CPL deposits were conducted by Dominique Butty, Eurogeol. Discrete lithological units have short range continuity and were found inappropriate for domaining. They were consolidated into larger units (Main Geological Units) reflecting the mineralization, the off-grade horizons and the waste by adjustment based on grades. The Refractory Grade Bauxite unit of Bonasika 7 was divided into a Regular Grade **(“RGB”)** and a Direct Feed **(“DFB”)** unit.

Variography was carried out using data obtained by vertical sonic core holes. Cut-off grade selection was driven by the need to produce an upgradable to sinter plant feed or amenable to direct feed.

Optimum block size, search range and maximum sample selection, resource classification were based on Kriging Efficiency and Kriging Slope Regression, coupled with criteria based on the quality of the exploration database, geological, mining and process considerations. A summary of the resource estimate for the Bonasika project is presented in Table 1.1 and Table 1.2 that show the resource statement for Bonasika Deposits.

Table 1.1– Unwashed Mineral Resource Statement for the Bonasika Deposits – Measured and Indicated Categories

Resources	Tonnage (‘000 t)	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
Bonasika 1						
Measured	1,443	55.8	11.5	2.0	1.9	28.4
Indicated	90	53.9	13.7	2.5	1.9	27.6
Sub-total	1,533	55.7	11.7	2.0	1.9	28.4
Bonasika 2						
Measured	342	54.7	13.5	1.7	1.9	27.6
Indicated	90	54.9	13.4	1.8	1.8	27.5
Sub-total	432	54.8	13.5	1.7	1.9	27.6
Bonasika 5						
Indicated	645	55.1	12.8	2.0	1.8	27.9
Bonasika 6						
Indicated (W-CPL)	4,596	58.9	7.9	1.0	2.3	29.3
Indicated (PGGS)	322	58.9	7.0	0.9	2.4	30.1
Bonasika 7						
RGB Indicated	3,174	55.5	12.2	1.0	2.3	27.9
DFB Indicated	2,387	60.8	3.0	0.7	2.7	31.6

Table 1.2 – Unwashed Resource Statement for the Bonasika Deposits – Inferred Category

Resources	Tonnage ('000 t)	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
Bonasika 1						
Inferred	8	52.1	11.2	5.6	1.8	28.3
Bonasika 2						
Inferred	35	53.6	14.1	2.5	1.9	27.1
Bonasika 5						
Inferred	12	55.8	13.0	1.0	1.6	28.1
Bonasika 6						
Inferred (W-CPL)	269	58.5	9.6	1.0	2.1	28.4
Inferred (PGGS)	34	58.0	9.0	0.7	2.3	29.2
Bonasika 7						
RGB Inferred	84	55.4	12.1	1.0	2.5	27.9
DFB Inferred	100	60.6	3.7	0.8	2.5	31.3

The resource was estimated using the terms and definitions set out in the CIM Definition Standards (November 2010) and adopted by NI 43-101. The Measured and Indicated resources are sufficient in quantity and acceptable in quality to support a study at the feasibility level. The Bonasika 1, 2, 5 and 6 deposit resource estimates are dated June 2010 and the Bonasika 7 resource estimate is dated May 2011. Met-Chem cautions that mineral resources that are not mineral reserves have not demonstrated economic viability.

1.7 Mineral Reserve Estimates

Mineral Reserves were determined for the Bonasika 1, 2, 5 during the study carried out in 2010, refer to report prepared by Met-Chem for First Bauxite titled "NI 43-101 Technical Report – Feasibility Study of the Bonasika Project", Guyana September 2010.

During 2011, the mineral reserves were updated for Bonasika 6 and 7.

Table 1.3 summarizes the proven and probable mineral reserves for the five (5) Bonasika deposits.

Table 1.3 – Bonasika Mineral Reserves

	Ore ('000 t)	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
Bonasika 1						
Proven	1,398	54.6	12.6	2.15	1.9	27.8
Probable	63	52.7	14.6	2.93	1.9	27.0
Sub-Total	**1,461**	**54.5**	**12.7**	**2.18**	**1.9**	**27.7**
Bonasika 2						
Proven	330	53.9	14.8	1.77	1.9	27.0
Probable	76	54.0	14.6	1.93	1.8	27.0
Sub-Total	**406**	**53.9**	**14.8**	**1.80**	**1.9**	**27.0**
Bonasika 5						
Proven	0	0.0	0.0	0.00	0.0	0.0
Probable	637	54.2	13.9	2.08	1.7	27.1
Sub-Total	**637**	**54.2**	**13.9**	**2.08**	**1.7**	**27.1**
Bonasika 6						
Proven	0	0.0	0.0	0.00	0.0	0.0
Probable	4,010	59.0	7.8	1.00	2.3	29.4
Sub-Total	**4,010**	**59.0**	**7.8**	**1.00**	**2.3**	**29.4**
Bonasika 7						
Proven	0	0.0	0.0	0.00	0.0	0.0
Probable	4,584	58.3	7.4	0.86	2.5	29.8
Sub-Total	**4,584**	**58.3**	**7.4**	**0.86**	**2.5**	**29.8**
Bonasika Total						
Proven	1,728	54.5	13.0	2.08	1.9	27.6
Probable	9,370	58.3	8.1	1.02	2.4	29.4
Total Reserves	**11,098**	**57.7**	**8.9**	**1.19**	**2.3**	**29.1**

1.8 Mining methods

The mining method selected for the Project is conventional truck and shovel for both overburden stripping and ore mining. The shallow pit depth, relatively low production levels and soft ground conditions favour a fleet of backhoe oriented hydraulic excavators and small rigid frame mining haul trucks, as no rock blasting is required.

Vegetation and topsoil will be cleared by dozers ahead of the mining operation. Suitable organic material will be stockpiled for future reclamation use. Overburden and off-grade clays will be stripped with excavators exposing the bauxite ore zone. No drilling and blasting is required, however dozers may be required to rip the ore to assist the excavators.

Bauxite will be hauled approximately 21 km to the Sand Hills plant site using the same mine truck fleet.

To properly manage water infiltration into the pit, a sump will be established at the lowest point on the pit floor. Water collected in this sump will be pumped to a collection point at surface.

The production target for the Project is 100,000 tonnes of final product (sintered bauxite) annually. In order to meet this demand, the mining operation at Bonasika 7 is required to supply an average of 208,500 tonnes of dry run of mine ore annually for a Bonasika 7 mine life of 22 years.

Mining operations for the Project will be five (5) days per week, operating around the clock on three (3) eight (8) hour shifts. Ore will only be mined on dayshifts in order to maximize recovery in the pit.

The haul truck selected for the Project is the Komatsu HD325. This rigid frame mining truck will be robust enough to manage the soft ground conditions expected in the pit and be able to satisfy the 21 km ore haul. The nominal payload of the Komatsu HD325 is 36.5 tonnes.

A fleet of four (4) trucks is required during pre-production. This number increases to five (5) in Year 2 and six (6) in Year 6 before being reduced to four (4) in Year 17.

The loading machine selected for the Project is the CAT 374 hydraulic excavator.

In order to mine the tonnages presented in the mine plan, one (1) excavator is required during pre-production, followed by two (2) for the remainder of the life of the mine.

A fleet of two (2) Komatsu D155X dozers, a CAT 320 Excavator, two (2) CAT 950 wheel loaders, 2 graders and service trucks complete the mining fleet.

The Bonasika 7 mine life is estimated at 22 years while Bonasika 6 will add another 14 years to the Project’s mine life.

1.9 Mineral Processing

The plant capacity has been established at 100,000 tonnes per year of sintered bauxite briquets. The bauxite will be hauled from the mine and selectively stockpiled in RGB and DFB piles ahead of the crushing units. Both types of bauxite will be crushed. The crushed DFB will be stockpiled in the concentrate shelter. The crushed RGB will be sent to the wash plant for further beneficiation. The RGB will first be pressure washed in a high pressure washing equipment it will then go through a series of screens, mill, cyclones, hydro classifier before being sent to the concentrate shelter.

The concentrate will house six (6) stockpiles depending on bauxite characteristics (RGB, DFB, Si content and moisture content), the bauxite will be blended before it is sent to the sintering plant.

After the bauxite has been blended, it will be dried then crushed in a roller mill. The green briquets will be formed in briquetting machines and sent to two (2) high temperature pressurized vertical shaft kilns (cap. 50,000 tpy each). The sintered briquets will then be crushed and sent to the sintered bauxite shelter near the wharf. From the sintered bauxite shelter the briquets will be loaded on ocean vessels.

1.10 Infrastructure

The infrastructure required to support the Project will be mainly roll on/roll off ramps on both sides for the Demerara River, a wharf, camp, mine equipment maintenance facilities, warehouse, office building, assay laboratory, HFO power generation equipment, fuel storage facilities, water services, main haul road from Sand Hills to deposits and rejects ponds.

1.11 Market Study

A market study has been conducted by CRU Strategies **("CRU")** on behalf of First Bauxite. The study has gathered information from an extensive program of contact with the industry, interviewing key people in the refractory industry to make assessments of their uses of bauxite, the trends in that usage, and their outlook for future consumption. CRU has also used its understanding of metal markets to project demand forecasts for the key consuming industries, both in terms of metal demand, and the unit consumption of refractories.

1.11.1 Synthesis

The market will welcome a new producer of refractory grade bauxite. Refractory companies have experienced supply disruptions over many years, firstly with RASC grade, and more recently with Chinese grades. Refractory companies are concerned generally about security of supply, and several have already implemented strategies to gain greater control over raw materials. There may be some expectation that a new producer will introduce greater price competition, to their benefit, but more generally, producers feel exposed by the extent of their reliance on Chinese sourced or Chinese owned supply.

Concerns over security of supply will provide a very powerful tool for First Bauxite to use when seeking to gain an initial foothold in the market, and to grow its market share. Most refractory producers spoken to expressed at least strong interest in a new refractory bauxite grade, and most are open to testing and evaluating the material. (if they have not done so already).

The global demand for bauxite is likely to grow steadily over the next 10 to 15 years, supported by strong steel growth in developing countries, particularly China, but also in other parts of Asia, India and Brazil. The growth in aluminium will also be positive for bauxite refractory demand, as will expected growth in other refractory consuming industries – cement, other non-ferrous metals, and glass. Thereafter, CRU expects the rate of growth in steel to slow, and demand for refractories to slow even more.

Refractory demand will mirror the growth in their consuming industries, but at a slower rate. This is due to declining unit consumption of refractories, as the refractory quality improves, and production methods increase the life of the refractories. In the developing regions, specific consumption can reduce significantly as rates approach those of the developed world. New plants replace old technology in a rapidly growing environment. Therefore, growth in refractory demand in the developing regions will be tempered by falling unit consumption, while in the developed regions, metal production will be weaker, and growth more modest.

Bauxite demand will follow the demand for refractories, although bauxite is also expected to lose some share of its refractory market over time, as higher performance materials are used in refractories to provide higher quality product and longer lining life.

The supply of bauxite is likely to undergo some significant changes over the forecast period to 2035. Currently the market is dominated by Chinese supply. However, there are a number of major pressures on Chinese refractory bauxite production. Reserve life has declined and while the Chinese government is striving to increase reserves through exploration, it is unlikely that substantial additional reserves will be found, and directed, to refractory applications.

Cost pressures are increasing on the major input costs – ore and energy – to the extent that producers are currently struggling to make profits. Government policies that dictate the use of natural gas over coal, and eliminate some furnace types have also impacted costs.

In CRU's view, given the very strong demand outlook for metallurgical alumina, and the very strong growth outlook in China for alumina, any growth in bauxite resources are likely to be directed towards alumina production and refractory bauxite production is likely to stall. As this happens, the government may further restrict exports.

While these pressures are evident in China at present, their impact on the global refractory industry is not. Refractory bauxite demand in China is currently weaker than had been expected, and surplus product is looking to find a home overseas. As a result, refractory companies report adequate availability of Chinese bauxite even if demand is not yet back to pre-financial crisis levels. In fact Chinese bauxite prices have weakened during this year (2011) in most regions.

CRU expects the Chinese refractory bauxite industry to continue to struggle, as the availability of high grade bauxite declines, becomes more expensive, and is directed into metallurgical use. As a result, there will be a growing requirement for new production to fill a gap that is likely to grow to 1 million tonnes by 2020. First Bauxite can fill a part of that gap, and Bosai Minerals Group Co. Ltd. of China **("Bosai")** may make good previously announced plans to expand its Guyanese operations.

Refractory producers will also need to look for other materials to meet their requirements. CRU has not identified other regions likely to host new refractory bauxite producers. While bauxite resources are available and will be developed in other regions, most will be developing lower grade resources, better suited to production of alumina. India and Russia may well develop bauxite projects for refractory application, but the grades are not regarded as of refractory bauxite quality and would be unlikely to find markets outside of their domestic market. However, if CRU's expectation of a decline in the Chinese supply is correct, producers in many regions will look at these lower grade alternatives, while in other regions, higher grade, synthetic alumina will be preferred. Relative price and performance will dictate the choices.

CRU's price forecast reflects the outlook of declining Chinese supply. CRU believes that prices will be supported by the rising cost of production in China, and there is unlikely to be any relief on costs for Chinese producers. CRU expects both nominal and real prices to rise over the next ten years, before slowing. Real prices will decline in the mid to late 2020's and 2030's as refractory demand slows.

1.12 Environmental Matters

1.12.1 Existing Environmental Conditions

The primary land use within the proposed Bonasika and Waratilla-Cartwright mining areas is logging. Timber leases in the form of State Forest Permissions (**"SFPs"**) surround the entire properties. The land tenure system in Guyana for State Lands allows for multiple land uses. As such, both mining and logging can occur on the same parcel of land. However, mining has precedence over forestry and can occur on lands allocated for logging. In this regard, an agreement has to be worked out with the forestry operation giving the concessionaire an opportunity to remove the merchantable timber.

Current exploratory activities being conducted by Guyana Industrial Minerals Inc. (**"GINMIN"**) dominates these areas. At Waratilla-Cartwright SFP, the GINMIN base camp is the only residential area within the property.

As part of the environmental assessment process for the proposed Project, GINMIN has undertaken a community engagement program. This program includes consultations with communities that could be potentially affected by the proposed project, disclosure of relevant project information, including the public release of the 2010 EIA/EMP document, and a grievance mechanism to respond to community concerns relating to the proposed project.

The primary stakeholders for the proposed Project are the communities of Makouria, Vreed-en Rust, Sand Hills and Princess Carolina. The secondary level stakeholder communities include Bartica, Goshen, Bonasika and Timehri. The mining operations will be closest to the community of Makouria located within 6 km. The shipping and processing operations will be located at Sand Hills thereby resulting in social and environmental impacts to that and other nearby communities.

1.12.2 Potential Impacts and Mitigation Measures

Construction and mining activities will disturb the soil and alter the landform within the proposed project area which could lead to erosion and sedimentation. The use of heavy duty machinery can also result in soil compaction.

a) Landscape

Mining activities will expose the soil. Vegetation will be removed from the pit area and the areas to be used for ore stockpiling and overburden dump. In order to reach the bauxite layer, clearing of the plant debris, removal of topsoil and subsequent stripping of the overburden is necessary. Stripping will be done by bulldozers, excavators and dump trucks. The material removed will initially be located in an overburden dump. However, as mining progresses, in-pit disposal will be done whereby the material will be placed in a mined out section of the pit.

The overburden material dump and the ore stockpiles will also be susceptible to erosion and can lead to sedimentation of waterways. Holding/settlement pond(s) will be constructed to collect pit water and runoff drainage to ensure the receiving environment water quality is met prior to discharge.

Heavy equipment such as bulldozers, excavators and trucks will be utilised during the mine’s operation. The constant movement of equipment over bare ground can result in soil compaction beyond permeability which can lead to ponding after periods of heavy rainfall. Compaction will also make it difficult for the regeneration of vegetation. To mitigate this problem, designated routes will be utilised for the movement of the equipment/machinery and transportation of materials.

With the implementation of mitigation measures, erosion, sedimentation and compaction are not expected to be a significant concern for the proposed project. In addition, over time, some of the exposed areas that are not utilized will be reclaimed by vegetation, thus reducing the soil susceptibility to erosion. While vegetation is being established in rehabilitated areas, it may be necessary to employ other erosion prevention techniques. Existing drainage channels will be maintained to the greatest extent possible, during the initial re-vegetation phase. Deep ripping may improve water infiltration, again reducing flow of surface water that causes soil erosion.

b) Surface Water

Activities and processes associated with the proposed project, as well as actions by employees could potentially adversely impact surface water quality. These include:

- Clearing land for mining could leave large tracts of land without protective vegetation cover and therefore susceptible to erosion. Eroded materials can be transported into waterways via surface runoff and can increase the turbidity of surface water bodies and at the same time result in sedimentation.
- Runoff from the mine areas including the overburden dumps and the ore stockpile area can enter the drainage system and potentially local streams resulting in contamination and siltation.
- Mine dewatering can contribute to siltation of water bodies.
- Spillage/leakage of fuel and waste oil, if not properly managed, can result in water contamination of nearby water bodies.
- Direct dumping of solid wastes in water bodies can result in contamination and blockage.
- Runoff from solid waste disposal areas may contain contaminants that can affect water quality.
- Discharge of waste water from washing of dishes, bathing and washing of vehicles into water courses.
- Improper disposal of sewage from the camp site.

Acid Rock Drainage (**"ARD"**) from overburden stockpiles and open pits may occur and would potentially contaminate surface water. The occurrence of ARD is variable across the historical bauxite mining areas of Guyana.

Most of the zones tested exhibit minimal negative Net Neutralizing Potential **("NNP")**, except for the thin lignite zone which is indicated to be strongly acid generating. The bauxite zones are indicated to be so low in sulphide sulphur content, and with an NNP close to zero, that the bauxite can be considered to be non acid generating.

The potential exists to effectively manage ARD potential by placing (or retaining) the most potential ARD producers in reducing conditions similar to pre-existing conditions. This can be readily achieved by placing these materials in anoxic, fully saturated conditions in the mined-out areas or at the bottom of the surface overburden waste pile.

Should ARD appear in the mine water as mining progresses, the acidity levels are expected to be relatively low, indicating that neutralisation of the acidity would be effective by the addition of a small amount of hydrated lime. In addition, the small amount of dissolved aluminum in the mine water would work as an effective coagulation agent (aluminum sulphate – alum analogy) in the mine water planned sedimentation basin.

To avoid, reduce and/or eliminate the potential adverse impact on surface water quality, the following mitigation measures are proposed:

- Fuel, lubricants and waste oil will be stored either in double wall tanks or in concrete containment.
- Top soil, overburden dumps and ore piles will be located at a minimal distance of 100 m from water courses.
- Mine water will be collected in a sump and channelled to mine water pond(s) for decantation, (and treatment with lime, if necessary), before release of final discharge into the environment. Although the natural receiving waters are generally acidic (pH of 4.5 approximately) the pH of discharged water will be at least 5, but closely controlled to not exceed 7.5.
- As possible, stormwater will be separated from process water to remove settleable and floatable materials prior to discharge into the environment. Silt fences will be installed at discharge points to aid this process.
- Rainfall and fresh water will be managed separately as far as is practical. Efforts will be made to ensure maximum fresh and storm water diversion away from the mine areas.
- Ditches will be dug around the perimeter of the external waste dumps to collect runoff/stormwater which will be channelled to the mine water basin for decantation.
- The ore stockpile areas will be profiled to allow for the flow of storm water into the drainage basin.
- The unnamed streams flowing through the deposits will be diverted where possible to ensure the flow is maintained.

The following activities and processes associated with the proposed project, as well as actions by employees could potentially adversely impact groundwater quality.

- Mining to depths below the water table.
- Spillage/leakage of fuel and waste oil, if not properly managed, can result in water contamination of groundwater.
- Spillage of fuel during the refuelling of heavy equipment such as bulldozers, working within the pit, especially since mining will occur below the water table.
- Leachate from solid waste disposal areas.
- The improper management of liquid waste.

Although mining is proposed at depths below the water table and because of the impermeability of materials below the bauxite horizons, there appears to be little potential for downward infiltration of mine waters and thus little if any potential for contamination of the lower aquifers.

Even if the groundwater is impacted, it is not considered to present a significant risk because of the quality of the water and because the groundwater is not used for water supply. Based on observations associated with historical operations at Linden, the changes in groundwater quality and quantity on the local creeks and the Demerara River are not believed to be significant (SENES, 2003).

Further to the above, to avoid, reduce and/or eliminate the potential adverse impacts on groundwater quality, the following mitigation measures are proposed:

- Management and mitigation measures will be incorporated into the project design and mining activities to ensure the groundwater regime is not adversely affected.
- Fuel, lubricants and waste oil will be stored either in double wall tanks or in concrete containment.
- Refuelling in the pits will be done in accordance with measures outlined for onsite refuelling.
- The provision of spill kits onsite to assist in any clean up as a result of accidents.
- Employees will be trained in the proper handling of fuel and the containment and management of fuel spills.

1.12.3 Air Quality

There are several potential sources of air emissions from the proposed project, the key ones being power generation, road transportation, bauxite processing, vehicle tailpipes and fugitive emissions from ore stockpiles and material handling.

Air dispersion modelling was conducted for the air emissions from the proposed mining and processing operation, using AERMOD for the 1-hour, 24-hour and annual averaging periods.

All the predicted concentrations for nitrogen dioxide, carbon monoxide and fine particulate matter are well below their corresponding criterion for all averaging periods at the two closest receptors.

It is proposed that once the design is complete and the specific process equipment and the HFO supplier are chosen, the Air Dispersion Modelling and Air Quality Assessment be revised to reflect more accurate estimate of air emissions.

To further reduce SO_2 impact, it is also recommended to increase the exit velocity of exhaust from the dryer stack by coning the exit, or increasing the exhaust temperature, in order to improve the dispersion of emissions, which would lower the concentrations at the nearest receptors.

1.12.4 Noise

The existing noise environment in the vicinity of the mining areas (i.e. Bonasika 7) characterized by sounds of nature. The mining areas are in undeveloped lands with no nearby roads or communities. The existing sound environment in the vicinity of the proposed Sand Hills Complex is characterized by sounds of nature, community noises, and very limited traffic.

To establish background noise levels at Sand Hills and Bonasika 7, SENES undertook continuous background noise monitoring at one location in Sand Hills and at one location at Bonasika 7, commencing October 21, and ending October 25, 2011.

The noise monitoring results indicate overall low sound levels at both locations, however, hourly LAeq sound levels in excess of 50 dBA were regularly recorded during daytime and nighttime at both monitoring locations. Minimum hourly LAeq of 33.8 and 38.5 dBA, were recorded at Sand Hills and Bonasika 7, respectively. In general, lower sound levels were recorded during daytime hours rather than at nighttime. This was expected, because of the rural nature of both sites and the likelihood for nocturnal creatures/insects to be the dominant source of continuous noise. Similarly, the noise levels at the Bonasika 7 monitoring location was higher than at Sand Hills because of the heavier tree cover harbouring a larger quantity of nocturnal creatures/insects at that location. However, overall, the noise environment in both areas is similar, indicative of their rural setting.

The project is a potential source of occupational as well as environmental noise. Most of the noise at the mine sites will originate from the operation of mobile mining equipment such as excavators, bulldozers, forklifts, mine trucks, etc. Stationary equipment, such as dewatering pumps, are also potential sources of mine site noise.

The Sand Hills Complex will also contain mobile and stationary sources of noise. Mobile noise sources will include frontend loaders, forklifts and trucks used for handling materials and product at the site. Potential sources of stationary noise at the Sand Hills Complex will include the power plant, the wash plant, concentrate storage facility, the dryer building, the grinding building, the briquetting building, the sintering kilns building, etc.

Heavy truck movement along the proposed haul road is another potential source of noise. However, the hourly truck volume along the haul road is expected to be quite low, less than five vehicles per hour. Furthermore, there are little to no residential receptors along the proposed haul route, except in the Sand Hills area.

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1.12.5 Flora

Flora will be affected by land clearing and vegetation removal to facilitate the proposed project. Land clearing would be necessary at the mine site, the mine pit, overburden dump and ore stockpile areas.

While the clearing of vegetation to facilitate the proposed project is unavoidable, mitigative measures were indicated in the Report.

1.12.6 Fauna

Similarly, the project could potentially cause effects on faunal species. The effects were noted and mitigations measures indicated in the Report.

1.12.7 Economic

The establishment of the proposed mine and processing facility is expected to result in a number of economic benefits as are outlined below:

- The project will inject new life into the ailing bauxite industry in Guyana.
- Increased employment opportunities for skilled individuals previously employed in the bauxite industry.
- Increased employment opportunities for communities in close proximity to the proposed project sites, where employment opportunities are currently quite limited. Individuals within these communities will be given preference for employment and would most likely enjoy an improvement in their standard of living.
- Individuals employed by the proposed project will experience a significant increase in income, as daily wages for working on the proposed project could be two to three times higher than for other available jobs in these communities. This would help to retain the youth population within the local communities and reverse the trend of youth out-migration.
- Additional income for the Government of Guyana through royalties and taxes.

- Opportunity for employees to be exposed to widened knowledge base and experience through technology transfer in using modern state of the art equipment.
- The project can serve as a model within Guyana, as well as, a global model, demonstrating good environmental practices, social sensitivity, and economic viability.
- Given the quality of the ore, niche markets in the global market place can be targeted.
- The project can serve as a model in Guyana where a small local company is promoting the development of a bauxite mining operation.

1.13 Project Schedule

The project schedule shows a construction period of 18 months. A pre-detailed engineering period of three (3) months is added to prepare the necessary documents for the purchase of long lead equipment (i.e. the vertical kilns and mining equipment). The detailed engineering is schedule for 12 months with an additional 6 months for site support. The critical path of the Project is the engineering, procurement, installation and commissioning of the sintering plant.

1.14 Capital Cost Estimates

The effective date of the capital costs estimates is the end of the second quarter of 2011.

1.14.1 Bonasika 7

The summary capital costs estimate for the total project over the life of Bonasika 7 exploitation is shown in Table 1.4.

Table 1.4 – Summary of Capital Costs Estimate Bonasika 7

Area	Initial Capital ('000 $)	Sustaining Capital ('000 $)	Total ('000$)
Direct Costs			
Off Site Infrastructure (including Main Haul Road)	2,244		2,244
Mining	11,326	8,156	19,482
Ore Processing			
Crushing	1,925		1,925
Wash Plant	5,378		5,378
Drying and Fine Grinding	9,352		9,352
Briquetting and Sintering	27,127		27,127
Rejects and Water Management	1,458	1,240	2,698
Infrastructure and Power	14,613		14,613
Sintered Bauxite Storage	2,995		2,995
Wharf	1,634		1,634
Auxiliary Services	4,680		4,680
Sub-total Direct Costs	**82,732**	**9,396**	**92,128**
Indirect Costs			
Project Development	733		733
EPCM	10,049		10,049
Spares and Consumables	1,415		1,415
Commissioning	1,796		1,796
Owner's Costs	10,321		10,321
Owner's Project Team	1,362		1,362
Room and Board Transportation	2,398		2,398
Sub-total Indirect Costs	**28,074**		**28,074**
Contingency	**13,119**	**597**	**13,716**
TOTAL COSTS	**123,925**[1]	**9,993**	**133,918**
Closure Costs		3,000	3,000
Contingency		450	450

[1] Difference in total with financial analysis is due to rounding.

1.14.2 Bonasika 6 and 7

Bonasika 6 production will follow Bonasika 7.

Bonasika 6 will benefit from the infrastructure, buildings and equipment already in place for the Bonasika 7 operation. Additions to the mining fleet will be necessary in Years 21, 23 and 25. Increased sedimentation capacity will be required and additional ponds will be needed in Year 22 and 29. A total of $20.9 million will be required as initial expenditures to prepare Bonasika 6 for production and an additional $6.0 million will be required during the production period for a total of $26.9 million.

Closure costs were adjusted accordingly.

The total capital costs for Bonasika 6 and 7 are:

- Initial Direct Capital Costs of Bonasika 7 = $82.7 million.
- Initial Indirect Capital Costs of Bonasika 7 = $41.2 million.
- Sustaining Capital during Bonasika 7 Production = $10.0 million.
- Sustaining Capital during Bonasika 6 pre-production = $20.9 million.
- Sustaining Capital during Bonasika 6 production = $6.0 million.

Total Project Capital Costs for Bonasika 6 and 7 are = $168.0 million.

1.15 Operating Cost Estimates

The overall operating costs of the operation covers: mining, ore processing, rejects and water management, infrastructure and services as well as general and administration.

1.15.1 Bonasika 7

Table 1.5 shows the summary of Operating Costs for a typical year of operation using the average mining cost and average waste/ore stripping ratio over the life of the operation for Bonasika 7.

Table 1.5 – Summary Operating Cost Estimate – Bonasika 7

Area	Unit Cost ($/t final product)[1]
Mining (Average over life)	38.44
Ore Processing	130.07
Infrastructure & Services	5.89
General & Administration	25.87
Total	**200.27**[2]

1 Considering an annual nominal final product tonnage of 100,000 tonnes

2 Rejects and water management operating costs are included in mining and ore processing

1.15.2 Bonasika 6 and 7

Adjustments to operating costs were made for Bonasika 6 to allow for increased tonnage, travelling distances, increasing crushing and washing (all the bauxite will be washed) and increased power consumption.

The average operating costs of the combined plans are at $211.04/tonne of sintered bauxite produced. Bonasika 6 operating costs are averaging $228.21/tonne of sintered bauxite produced.

Table 1.6 shows the summary of Operating Costs for a typical year of operation using the average mining cost and average waste/ore stripping ratio over the life of the operation for Bonasika 6 and 7.

Table 1.6 – Summary Operating Cost Estimate – Bonasika 6 and 7

Area	**Unit Cost ($/t final product)**[1]
Mining (Average over life)	46.30
Ore Processing	132.99
Infrastructure & Services	5.88
General & Administration	25.87
Total	**211.04**[2]

1 Considering an annual nominal final product tonnage of 100,000 tonnes

2 Rejects and water management operating costs are included in mining and ore processing

1.16 Economic Analysis

1.16.1 Assumptions

The assumptions used in the development of the financial analysis are shown in Table 1.7.

Table 1.7 – Financial Assumptions

Refractory Bauxite Price	$475 per tonne
Allowance for Off-Spec Material	5%
Discount for Off-Spec Material	20%
Royalty	1.5% of gross revenue
Corporate Tax Rate First Five (5) years	0%
Corporate Tax Rate After Five (5) years	30%
Capital Depreciation (After Five (5) years)	20% per year
Accounts Receivable	90% paid on shipping
Accounts Receivable	10% paid after 60 days

1.16.2 Bonasika 7

Over Bonasika 7's LOM period, the undiscounted cash flow is $439.1 million before tax and $351.1 million after tax.

The before- and after-tax cash flows evaluate internal rates of return ("**IRR**") of 18.4% and 17.5% respectively. The project cash flow shows a payback period of 5 years.

The cash flow results in a net present value at a discount rate of 7.5% ($NPV_{7.5\%}$) of $126.2 million before tax and $102.3 million after tax.

1.16.3 Bonasika 6 and 7

Over Bonasika 6 and 7's LOM period, the undiscounted cash flow is $732.5 million before tax and $556.6 million after tax.

Internal rates of return are evaluated at 18.7% and 17.7% respectively. The small differences in IRR comparing to the Bonasika 7 evaluation are time related as Bonasika 6 is mined late in the project life.

The cash flow results in a net present value at a discount rate of 7.5% ($NPV_{7.5\%}$) of $157.1 million before tax and $123.6 million after tax.

1.17 Conclusion and Recommendations

The exploration work supervised by Aluminpro on the five (5) Bonasika deposits has shown the existence of approximately 13.1 million tonnes **("Mt")** of Measured and Indicated Resources.

Mine planning, including allowance for the mining losses and dilution, has indicated a total mineral reserve of 11.1 Mt, of which 1.7 Mt are in the Proven and 9.4 Mt are in the Probable category.

The processing plant, to be located at Sand Hills, will be designed to produce annually 100,000 tonnes of sintered refractory briquets.

Metallurgical testing and mine planning have illustrated that the Bonasika 7 deposit can be mined selectively to produce two (2) separate concentrates that can be blended under controlled conditions to achieve a chemically consistent sinter feed: Direct Feed Bauxite and Regular Grade bauxite that can be upgraded by crushing, high-pressure washing and screening, before being recombined with the Direct Feed material, ahead of sintering. Testing of a representative sample from Bonasika 7, blended from the DFB and RGB, sintered and briquetted, showed that it had acceptable physical and chemical properties. All the Bonasika 1, 2, 5 and 6 deposits were modelled as Regular Grade Bauxite, which is conservative.

The total Capital Costs for the Project, based on Bonasika 7 deposit only, are estimated at $123.9 million. The Sustaining Capital Costs for the 22-year life of the Project are estimated at $10.0 million. The average Operating Costs for the Project are estimated at $200.27/tonne of sintered bauxite. Assuming the same process beneficiation and washing of the total volume of RGB for the Bonasika 6 Mineral Reserves for the additional 14 years Project, an additional $26.9 million will be required as Sustaining Capital Costs, while the average Operating Costs will increase to $228.21/tonne of sintered refractory bauxite. The combined average Operating Costs will be $211.04/tonne of sintered refractory bauxite for the 36-year life of mine.

The financial analysis of the Project has demonstrated that at an estimated sale price of sintered refractory briquets of $475/tonne, the IRR is 18.4% (before taxes) and 17.5% after taxes. The payback period is estimated at five (5) years (undiscounted) for the 22 years Life of Mine. For the 36 years Life of Mine, the IRR are 18.7% and 17.7% respectively.

The market study concluded that:

- First Bauxite production will provide consumers a new supply source of premium product;
- The global demand for bauxite is likely to grow steadily over the next 10 to 15 years, and
- The nominal and real refractory grade bauxite prices are expected to rise over the next 10 years.

The following recommendations are put forth:

- Drill 168 holes at Bonasika 7 (60 by 60 m pattern) to upgrade the resources into the measured category and allow detailed mine planning. The budget for this work is estimated at $385,000.
- Drill the initial pit area (30-m spacing) covering the first year and a half of the mine plan, to assist with scheduling and control of bauxite grades. Short-range continuity drilling is recommended to help developing grade control programs. The budget for this work is estimated at $20,000.
- Drill additional holes at Bonasika 6 to upgrade the resources into the Measured category; model the DFB and RGB for selective mining, thus reducing the amount of ore to be processed by the washing plant as well as lowering the operating costs past year 22. This work will be reviewed and realized during operation and will be sustaining capital.
- Index the sintered bauxite selling price to the fuel price variations. No cost is associated with this recommendation.

SECTION 2

INTRODUCTION

2.0 INTRODUCTION

This NI 43-101 Technical Report (**"Report"**) on the Bonasika Project ("**Project**") has been prepared at the request of First Bauxite Corporation ("**First Bauxite**") after additional investigations, carried out in 2010, on the Waratilla-Cartwright Prospecting Licence (**"W-CPL"**) demonstrated that larger bauxite deposits, better in quality as well, were contained in Bonasika 6 and 7, than those of the Bonasika 1, 2 and 5 deposits in the Bonasika Mining Licence (**"BML"**).

In September 2010, First Bauxite issued a report titled "NI 43-101 Technical Report - Feasibility Study of the Bonasika Project, Guyana" that was prepared by Met-Chem Canada Inc. ("**Met-Chem**"), presenting the results of the study to mine refractory grade bauxite from Bonasika 1, Bonasika 2 and Bonasika 5 in order to produce 100,000 tonnes per year (**"tpy"**) of sintered refractory bauxite ("**sintered bauxite**"). This report is available on SEDAR.

During the preparation of the 2010 study, additional investigations and drilling was conducted on the Bonasika 6 and Bonasika 7 deposits. The results of these investigations showed that the bauxite of these deposits was of better grades, had a lower iron content, which is advantageous for production of high quality refractory products, and would produce a longer mine life. In addition, the higher grade of the Bonasika 7 deposit allowed the mining of Direct Feed Bauxite (**"DFB"**) that does not require pressure washing, thus reducing the operating costs. The low iron content of both deposits eliminates the need for magnetic separation thus reducing capital costs and operating costs.

The technical data developed from 2007 to 2011 of the in situ geology, mine development, metallurgy, geotechnical, and environmental was updated during this Study. In addition to these technical aspects, the economic evaluation of the Project has been updated based on new estimated capital and operating expenditures, covering the various elements of the proposed mine and plant operations. A market study was also conducted in September 2011.

The Bankable Feasibility Study Update of the Bonasika Project, Guyana Report was completed in November 2011 by Met-Chem.

The effective date of the Report is May 9, 2011.

2.1 Terms of Reference

For this Study, First Bauxite mandated G Mining Services Inc. (**"GMining"**) to act as Study Manager to review and coordinate all activities of the Study.

First Bauxite decided to initiate a feasibility study update and technical report to add Bonasika 7 resources and reserves and to start the mining of refractory grade bauxite from Bonasika 7 deposit to produce 100,000 tpy of sintered bauxite, for a 22 year

Project. A second scenario has also been considered by including the reserves from the Bonasika 6 deposit thus creating a Project's life of 36 years.

First Bauxite has retained the services of specialized firms for which respective scopes were executed under the supervision of First Bauxite and GMining.

Table 2.1 provides a detailed list of qualified persons and their respective sections of responsibility. The certificates for people listed as Qualified Persons can be found at the beginning of the Report.

Table 2.1 – Qualified Persons and their Respective Sections of Responsibility

Section	Title of Section	Qualified Person
1.0	Summary	Daniel Houde, Met-Chem
2.0	Introduction	Daniel Houde, Met-Chem
3.0	Reliance on other experts	Daniel Houde, Met-Chem
4.0	Property description and location	Daniel Houde, Met-Chem
5.0	Accessibility, climate, local resources, infrastructure and physiography	Gerd M. Wiatzka, Senes
6.0	History	Dominique L. Butty, Aluminpro
7.0	Geological setting and mineralization	Dominique L. Butty, Aluminpro
8.0	Deposit types	Dominique L. Butty, Aluminpro
9.0	Exploration	Dominique L. Butty, Aluminpro
10.0	Drilling	Dominique L. Butty, Aluminpro
11.0	Sample preparation, analyses and security	Dominique L. Butty, Aluminpro
12.0	Data verification	Dominique L. Butty, Aluminpro
13.0	Mineral processing and metallurgical testing	Rock Gagnon, Met-Chem
14.0	Mineral resource estimates	Dominique L. Butty, Aluminpro
15.0	Mineral reserve estimates	Daniel M. Gagnon, Met-Chem
16.0	Mining methods	Daniel M. Gagnon, Met-Chem
17.0	Recovery methods	Daniel Houde, Met-Chem
18.0	Project infrastructure	
18.1	Rejects Sedimentation Ponds	Philip R. Bedell, Golder

Section	Title of Section	Qualified Person
18.2	Infrastructure	Nicolas Ménard, GMining
19.0	Market studies and contracts	Daniel Houde, Met-Chem
20.0	Environmental studies, permitting and social or community impact	Gerd M. Wiatzka, Senes
21.0	Capital and operating costs	Daniel Houde, Met-Chem
22.0	Economic analysis	Robert Marchand, GMining
23.0	Adjacent properties	Dominique L. Butty, Aluminpro
24.0	Other relevant data and information	Daniel Houde, Met-Chem
25.0	Interpretation and conclusions	Daniel Houde, Met-Chem
26.0	Recommendations	Daniel Houde, Met-Chem
27.0	References	Daniel Houde, Met-Chem

Capital and Operating Cost estimates were provided by those consultants involved in relevant areas of the Study under their responsibility requiring such information.

2.2 Sources of Information

The information presented in this Technical Report has been derived from the Feasibility Study Report titled: “Bankable Feasibility Study Update of the Bonasika Project, Guyana Report, November 2011. The Bankable Feasibility Study Update report compiled various studies and fieldwork done by First Bauxite and Consultants for the development of a new sintered bauxite production plant in Guyana. The reports are listed in Section 27.

2.3 Personal inspection on the property by each Qualified Person

The following Qualified persons visited the site in relation with this work:

- Daniel Houde, Eng. Met-Chem visited the site on October 21, 2010.
- Daniel M. Gagnon, Eng. Met-Chem visited the site on October 6, 2009 and on October 21, 2010.
- Rock Gagnon Eng. Met-Chem visited the site on October 21, 2010 and from January 17, to January 21, 2011.
- Bryan S. Osborne, P. Geo., Aluminpro visited the site on 13 occasions between July, 2008 and October, 2010.
- Dominic L. Butty, Eurogeol., Aluminpro visited the site on June 2009.
- Nicolas Ménard, Eng., GMining visited the site on March 14, 2011.
- Gerd M. Wiatzka, P. Eng., Senes visited the site on October 21, 2010.

2.4 Units and Currency

In this Report, all currency amounts are US Dollars (**"USD"**) unless otherwise stated. Quantities are generally stated in Système International d'Unités (**"SI"**) metric units unless otherwise stated, the Canadian standard and international practice, including metric tonnes (tonnes, t) for weight, and kilometres (km) or metres (m) for distance. Abbreviations used in this Report are listed in Table 2.2.

Table 2.2 – List of Abbreviations

Symbol	Abbreviation	Symbol	Abbreviation
µg/m^3	Microgram per cubic metre	CAD	Canadian Dollar
µm	Microns, micrometre	CAPEX	Capital Expenditures
'	Feet	CDP	Closure and Decommissioning Plan
"	Inch	cfm	Cubic feet per minute
$	Dollar sign	CGB	Cement Grade Bauxite
%	Percent sign	Cl	Clay
% w/w	Percent solid by weight	COG	Cut Off Grade
¢/kwh	Cent per kilowatt hour		
°	Degree	d	Day
°C	Degree Celsius	d/w	Days per week
3D	Three dimensions	d/y	Days per year
		dB	Decibel
AI	Abrasion Index	dBA	Adjusted Decibel
AMSL	Above Mean Sea Level	DDH	Diamond drill hole
AWG	American Wire Gauge	deg	Angular degree
az	Azimuth	DGPS	Differential Global Positioning System
bank	Bank cubic metre – Volume of material in situ	E	East
BML	Bonasika Mining Licence	EA	Environmental Assessment
BMLP	Bonasika Mining Licence Project	EAB	Environmental Assessment Board
BQ	Drill core size (3.65 cm diameter)	EBS	Environmental Baseline Study
BSG	Bulk Specify Gravity	EHS	Environment Health and Safety
BWI	Bond Ball Mill Work Index		
BX	Bauxite, Bauxitic		

Symbol	Abbreviation	Symbol	Abbreviation
EIA	Environmental Impact Assessment	hp	Horse power
EIS	Environmental Impact Statement	HQ	Drill core size (6.4 cm Diameter)
EMP	Environmental Management Plant	HVAC	Heating Ventilation and Air Conditioning
EOH	End of Hole	HFO	Heavy Fuel Oil
EP	Environmental Permit		
EPA	Environmental Protection Agency	I/O	Input/Output
EPCM	Engineering, Procurement and Construction Management	IRR	Internal Rate of Return
ER	Electrical room	IT	Information Technology
FDS	Fused Disconnect Switch	KE	Kriging Efficiency
Fe	Iron	kl	Kilolitre
ft	Feet	km	Kilometre
FVNR	Full Voltage Non Reversible	km/h	Kilometre per hour
		kPa	Kilopascal
g	Grams	KSR	Kriging Slope Regression
gal	Gallons	kt	‘000 tonnes
GEMS	Global Earth-System Monitoring Using Space	kV	Kilovolt
GGMC	Guyana Geology and Mines Commission	kVA	Kilovolt Ampere
GINMIN	Guyana Industrial Minerals Inc.	kW	Kilowatt
GoG	Government of Guyana	kWh	Kilowatt-hour
GPS	Global Positioning System	kWh/t	Kilowatt-hour per metric tonne
GR	Granular		
GYD	Guyanese Dollar		
		l	Litre
h	Hour	L	Line
H	Horizontal	LFO	Light Fuel Oil
h/d	Hours per day	LOI	Loss On Ignition
h/y	Hour per year	LOM	Life Of Mine
ha	Hectare	LV	Low Voltage

Symbol	Abbreviation	Symbol	Abbreviation
HDPE	High Density Polyethylene		
m	Metre	NGR	Neutral Grounding Resistor
m/h	Metre per hour	NI	National Instrument
m/s	Metre per second	Nm^3/h	Normal cubic metre per hour
m^2	Square metre	NPV	Net Present Value
m^3	Cubic metre	NQ	Drill core size (4.8 cm diameter)
m^3/d	Cubic metre per day	NTP	Normal Temperature and Pressure
m^3/h	Cubic metre per hour		
m^3/y	Cubic metre per year	O/F	Overflow
mA	MilliAmpère	OB	Overburden
Ma	Million years	OK	Ordinary Kriging
MAZ	Metallurgical Grade Bauxite	OPEX	Operating Expenditures
MCC	Motor Control Center		
mg/l	Milligram per litre	P&ID	Piping and Instrumentation Diagram
min	Minute	PGGS	Permission for Geological and Geophysical Survey
min/h	Minute per hour	ph	Phase (electrical)
ml	Millilitre	pH	Hydrogen Potential
mm	Millimetre	PLC	Programmable Logic Controllers
mm/d	Millimetre per day	psi	Pounds per square inch
Mm^3	Million cubic metres	PVC	Polyvinyl Chloride
Mt	Million tonnes		
MV	Medium voltage	QA/QC	Quality Assurance/Quality Control
MW	Megawatts	QKNA	Quantitative Kriging Neighbourhood Analysis
My	Million years		
		RASC	Refractory “A” Grade Super Calcined Bauxite
N	North	RCMS	Remote Control and Monitoring System
Nb	Number	RER	Rare Earth Magnetic Separator
NE	Northeast	rpm	Revolutions per minute

Symbol	Abbreviation	Symbol	Abbreviation
NFPA	National Fire Protection Association	RWI	Bond Rod Mill Work Index
S	South	U/F	Under flow
S/R	Stripping ratio	USD	United States Dollar
SAG	Semi-Autogenous Grinding	USGPM	Us Gallons Per Minute
sec	Second	UTM	Universal Transverse Mercator
Set/y/unit	Set per year per unit		
SFP	State Forest Permit	V	Vertical
SG	Specific Gravity	V	Volt
SMC	SAG Mill Comminution	VAC	Ventilation and Air Conditioning
SPT	Standard Penetration Tests	VFD	Variable Frequency Drive
SW	Switchgear		
		W	Watt
t	Metric tonne	W	West
t/d	Metric tonne per day	W-CPL	Waratilla-Cartwright Prospecting Licence
t/h	Metric tonne per hour	WHO	World Health Organization
t/h/m	Metric tonne per hour per metre	wt	Weight
$t/h/m^2$	Metric tonne per hour per square metre		
t/m^2	Metric tonne per square metre	X	X Coordinate (E-W)
t/m^3	Metric tonne per cubic metre	XRD	X-Ray Diffraction
t/y	Metric tonne per year	XRF	X-Ray Fluorescence
TIN	Triangulated Irregular Network		
TOR	Terms Of Reference	y	Year
tpd	Tonne per day	Y	Y coordinate (N-S)
tph	Tonne per hour		
tph/m	Metric tonne per hour per metre	Z	Z coordinate (depth or elevation)
tpy	Tonne per year		
TSS	Total Suspended Solids		

SECTION 3

RELIANCE ON OTHER EXPERTS

3.0 RELIANCE ON OTHER EXPERTS

This Report has been prepared by Met-Chem for First Bauxite. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to Met-Chem at the time of the preparation of this Report;
- Assumptions, conditions and qualifications as set forth in this Report; and
- Data, reports, and opinions supplied by First Bauxite and other third party sources.

The Reports supplied and forming basis of this Technical Report are listed in Section 27.

Met-Chem believes that information supplied to be reliable but does not guarantee the accuracy of conclusions, opinions, or estimates that rely on third party sources for information that is outside the area of technical expertise of Met-Chem. As such, responsibilities for the various components of the Summary, Conclusions and Recommendations are dependent on the associated sections of the Report from which those components were developed.

The following companies and consultants have been retained by First Bauxite to prepare some aspects of the Feasibility Study Update and Technical Report, their involvements are listed below:

- Met-Chem, under the supervision of Daniel Houde, Eng., General Manager – Projects, Daniel M. Gagnon, Eng., General Manager – Geology and Mining, Rock Gagnon, Eng., Senior Process Engineer (overall report preparation, property description and location, mineral processing and metallurgical testing, mineral reserves estimates, mining methods, recovery methods, capital and operating costs estimates);
- Aluminium Industry Professionals Inc. **("Aluminpro")**; Bryan S. Osborne, P. Geo., and Dominique L. Butty, Eurogeol. (all geology and mineral resource estimates related activities, data validation and adjacent properties);
- G Mining Services Inc. **("GMining")** Nicolas Ménard, Eng. (infrastructure and associated costs estimates) and Robert Marchand, Eng. (financial analysis);
- Golder Associates Ltd. **("Golder")** Philip R. Bedell, Eng. (rejects ponds),
- SENES Consultants Ltd. **("SENES")** Gerd M. Wiatzka P. Eng., Principal – Director Mining (local conditions and environment);
- CRU Strategies, ("CRU") Philip Macoud (market study) reviewed by Daniel Houde, Eng.

This Report is intended to be used by First Bauxite as a Technical Report with Canadian Securities Regulatory Authorities pursuant to provincial securities legislation. Except for the purposes contemplated under provincial securities laws, any other use of this Report by any third party is at the party's sole risk.

Permission is given to use portions of this Report to prepare advertising, press releases and publicity material, provided such advertising, press releases and publicity material does not impose any additional obligations upon, or create liability for Met-Chem.

SECTION 4

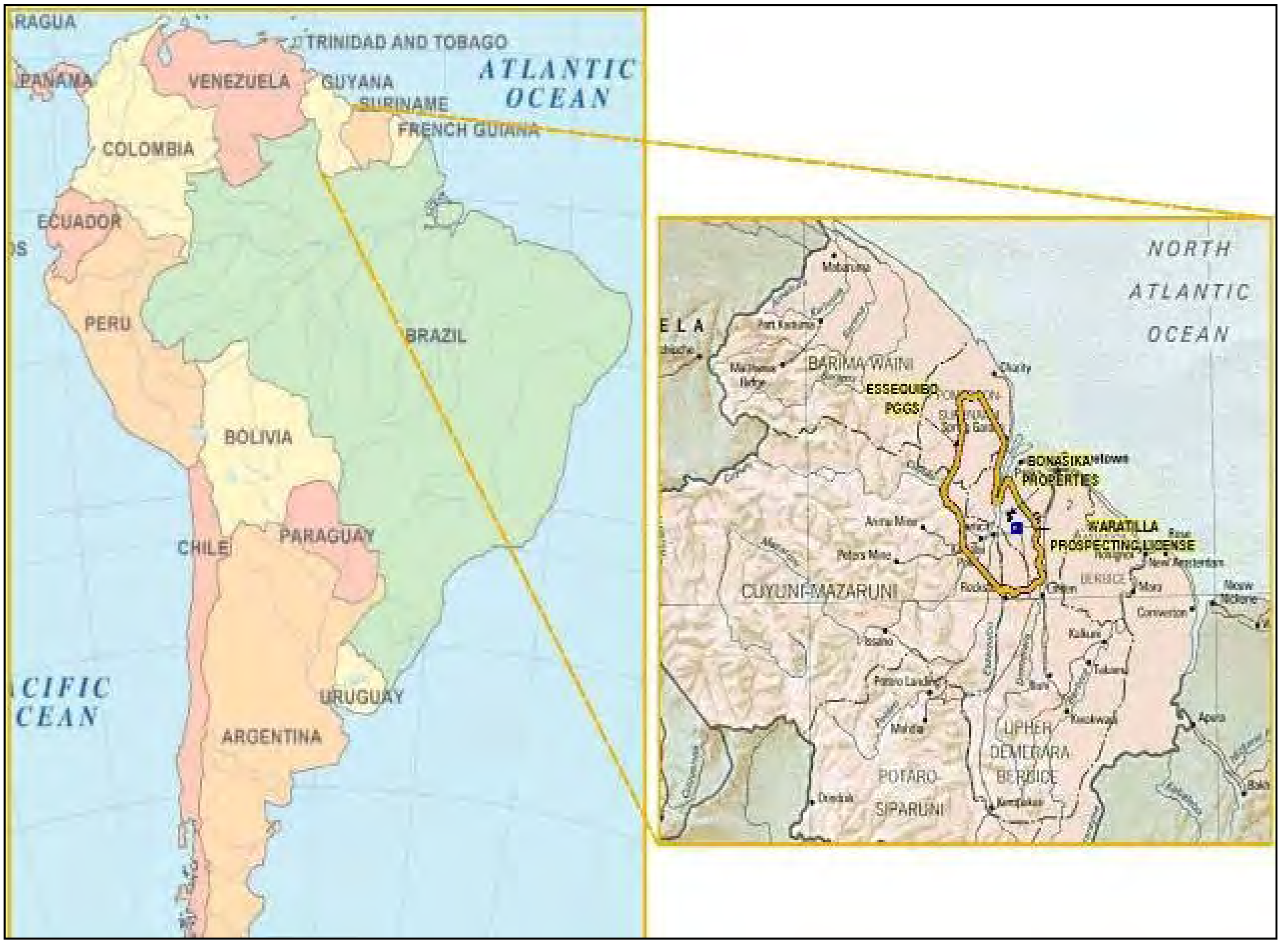
PROPERTY DESCRIPTION AND LOCATION

4.0 PROPERTY DESCRIPTION AND LOCATION

4.1 Property Location

The Property is located between the Essequibo River, approximately 16 km downstream from Bartica and the Demerara River, approximately 70 km southwest of the capital city of Georgetown, Guyana. The general location is shown in Figure 4.1 and Figure 4.2.

Figure 4.1 – Location of Bonasika Project



Source: Guyana Geology and Mines Commission (compiled by GINMIN).

Figure 4.2 – PGGS Limits

Source Guyana Geology and Mines Commission, Guyana Lands and Surveys Commission and UN 1:50,000 topographic Map sheets

The Property consists of the BML made up of three (3) blocks in close proximity covering a total area of 928 acres or 3.8 km^2. The centre of the Bonasika 1 block (401 acres) is at approximately 6°30’ N and 58°30’ W. The Bonasika 2 block (189 acres) is approximately 1.5 km southwest and the Bonasika 5 block (338 acres) is approximately 3 km northwest of the Bonasika 1 block. The W-CPL (Bonasika 6 and Bonasika 7) of 39.6 km^2 is located some 10 km to the southeast. The Licences are surrounded by Permission for Geophysical and Geological Survey **(“PGGS”)** claim block of 2,466 km^2, and all are in good standing. The Bonasika 6 deposit extends the W-CPL into the PGGS.

The area of the W-CPL was adjusted from 9,884 acres to 9,791 acres (39.6 km^2) when the licence was renewed in 2011, as a result of enhanced software accuracy. However, the boundaries and the coordinates of the four (4) corners have not changed and are shown in Table 4.1.

Table 4.1 – Coordinates of the Limits of the W-CPL

Corner	Longitude (W)	Latitude (N)
A	58°28’59”	6°28’1”
B	58°25’15”	6°28’1”
C	58°25’15”	6°24’55”
D	58°28’59”	6°24’55”

Guyana Industrial Minerals Inc. **(“GINMIN”)**, a wholly-owned subsidiary of First Bauxite, holds 100% interest in the two (2) Licences and the PGGS.

4.2 Land Tenure and Mining Rights

The BML was granted to GINMIN (the Licensee, and a wholly owned subsidiary of First Bauxite) in May, 2001 under Licence No. 01/2001 and is for a term of 15 years with the right to apply for renewal for an additional seven (7) years or the life of the deposit. The granting of the Licence was subjected to approval of an Environmental Impact Assessment (“**EIA**”) by the Guyana Environment Protection Agency (“**EPA**”). All processing of the bauxite is to be carried out in Guyana at a site to be approved by the Guyana Geology and Mines Commission (“**GGMC**”).

An extension to the BML has been applied for by GINMIN. This extended Licence of 10,703 acres (43.3 km^2) will encompass the three (3) Bonasika Blocks into a single continuous block that will adjoin the north boundary of the W-CPL.

The W-CPL was granted to GINMIN (the Licensee) under Licence 03/2006 in March 2006 for the purposes of bauxite prospecting. The Licence was granted for a period of three (3) years during which time the Licensee has the right to apply for a Mining Licence under similar terms as those provided for in the BML. The Licensee has received a letter from the GGMC, dated May 6, 2011 confirming renewal of the Licence (under PL 14/2011) for an additional three (3) year term to April 7, 2014.

GINMIN will submit an application to the GGMC to convert the W-CPL into a Mining Licence shortly after the mining plan and the Environmental Management Plan **(“EMP”)** are available.

Subsequently, GINMIN will apply for a new BML that would include the Bonasika 6 and 7 deposits.

Both the BML and the W-CPL are in good standing and wholly-owned by GINMIN. Annual rental (in USD) for the PL is due at a rate of $0.50 per English Acre in Year 1, increasing to $0.60 and $1.00 in Years 2 and 3. The ML is subject to an annual rental of $3.00 per English Acre and a royalty of 1.5% *ad valorem* of gross production sale or of production costs leaving the plant will be levied.

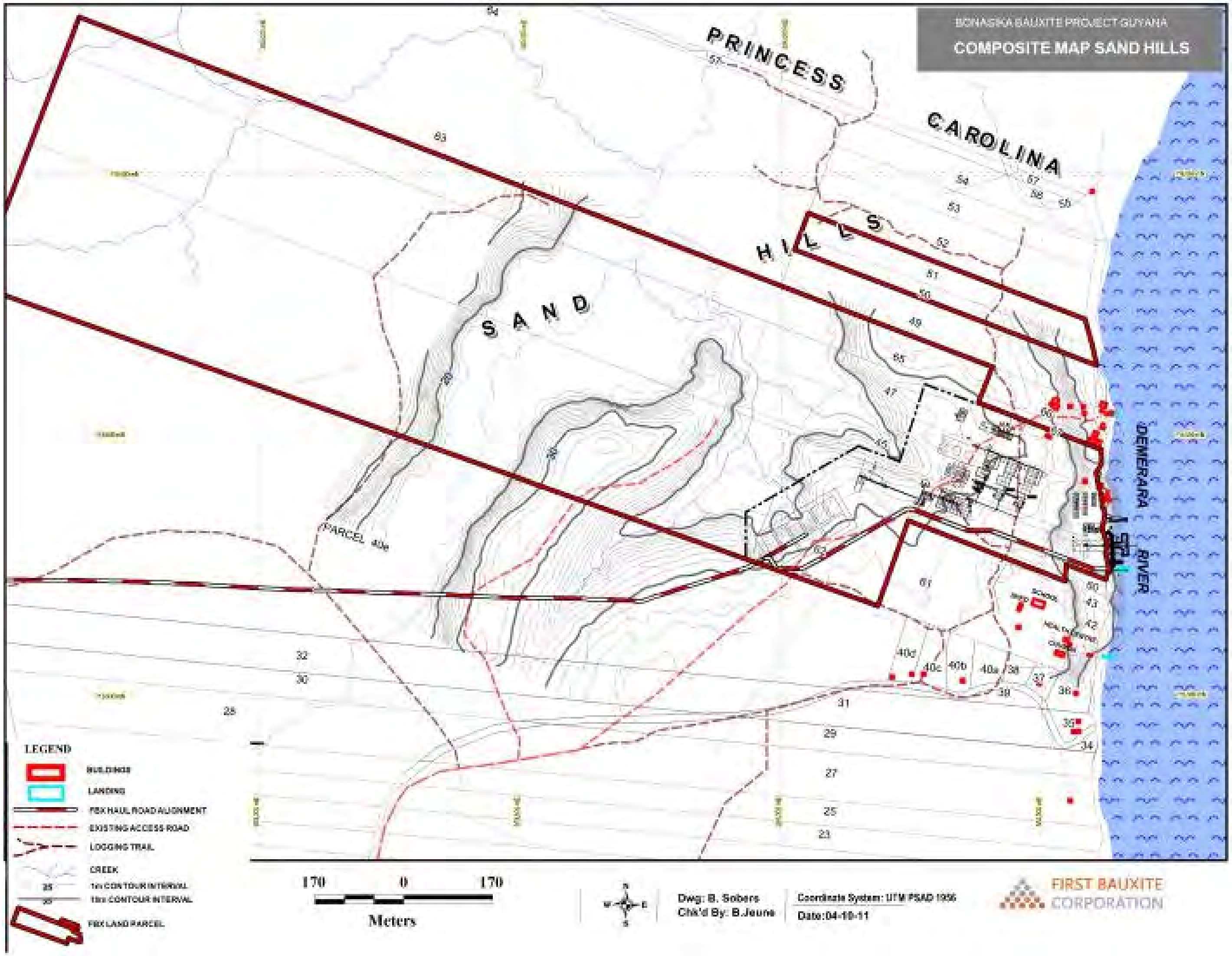
GINMIN must spend no less than 9.5 million Guyana dollars ($47,500) in a Work Program for the W-CPL area in the first year, and sums approved by the GGMC in the ensuing years, with a 10% guarantee posted annually.

The north and west boundaries of the W-CPL have been cut and surveyed.

At Sand Hills, GINMIN has acquired a waterfront property where the wharf would be constructed. This property was acquired from private individuals.

GINMIN has also acquired Land Parcels at Sand Hills to accommodate the stockpiles, and the plant. The location of the Land Parcel and limits are provided in Figure 4.3.

Figure 4.3 – Composite Map of Sand Hill Complex, GINMIN's Property Holdings and Surrounding Land Uses



Source: Guyana Geology and Mines Commission, Guyana Lands and Surveys Commission and GINMIN Topographic Surveys

GINMIN has applied to the GGMC to alienate the areas as "State Mining Reserves" and to only authorize GINMIN to mine sand and loam in the area for its construction and road building activities and to store its slimes rejects from the wash plant in the area in sediment pond areas. This essentially freezes the area from application for mineral rights by any third party and requests that the Government engages GINMIN should it be desirous of granting any Mineral Rights over the areas to a third party. GINMIN has simultaneously applied to the Guyana Lands & Surveys Commission for a long term surface rights lease to the area. This right will give GINMIN the surface rights to the area for a period as long as the life of the project.

These two (2) applications, when granted essentially grant GINMIN the unencumbered rights the sediment ponds area.

4.3 Legal and Permitting

To satisfy the requirements of the W-CPL and to be able to conduct the mining and processing operations, First Bauxite must obtain an Environmental Authorisation from the Guyana EPA. The EPA was established by the Environmental Protection Act, No. 11 of 1996 and has the mandate to ensure Guyana's environment is protected and the natural resources are utilised in a sustainable manner. The Act outlines the requirements for environmental permitting and establishes the requirement for an EIA. Part IV of the Act requires all developers of any project listed in the fourth schedule or other projects that may significantly affect the environment to apply to the EPA for an Environmental Authorisation. The EPA will then determine the conditions and process for the issuance of the Authorisation.

GINMIN applied for an Environmental Permit ("**EP**") in 2001, to conduct bauxite mining at Bonasika between the Demerara and Essequibo rivers and silica sand mining at Sand Hills. The EPA decided that an EIA was required for the project. The EIA was conducted and an EP was issued.

The EP includes the mining of the Bonasika deposits within the Bonasika Mining Licence, the establishment of processing facilities at Sand Hills on the Demerara River, and the construction of a haul road linking the mining and processing areas.

During the preparation of this Study, the EPA renewed the EP on September 26, 2011. The permit is valid from September 2011 until August 2016.

GINMIN also has the W-CPL which covers an area of 9,791 acres (39.6 km^2). GINMIN has drilled two (2) deposits, Bonasika 6 and Bonasika 7, on the W-CPL and is completing this Study to reflect a decision to start its mining operations on Bonasika 7 deposit.

Due to the decision to start mining at Bonasika 7 deposit, GINMIN has applied for an EP to conduct bauxite mining on the W-CPL. Once this EP is obtained, GINMIN will submit the Permit and a mining plan to the GGMC to support its application to convert the W-CPL to the Waratilla-Cartwright Mining Licence ("**W-CML**").

Regarding the environmental approval process for the development of the deposits within the Waratilla-Cartwright concession (i.e. Bonasika 6 and 7), the EPA issued, on January 6, 2011, a Public Notice in the Guyana Chronicle confirming that it had determined that the GINMIN Waratilla-Cartwright mining project did not require the preparation of an EIA for the following reasons:

- The project will not significantly affect the environment once relevant mechanisms are implemented to mitigate possible impacts; and
- There are no fragile ecosystems and habitats or endangered species that will be affected by the project.

In accordance with the Environmental Protection Act, 1996, the Environmental Protection (Amendment) Act, 2005 and the Environmental Protection Regulations, 2000, the Notice indicated that any person who may be affected by the project may lodge an appeal with the Environmental Assessment Board ("**EAB**") within thirty (30) days of the date of publication of the Notice. No appeal was lodged.

The EPA has indicated in a correspondence to GINMIN, dated January 24th, 2011, that an EMP must be submitted to the Agency for approval before the EP of Bonasika 6 and 7 can be granted. An EMP was submitted to the EPA and feedback was provided by the GGMC and EPA and the document was revised. The EPA has informed GINMIN of its acceptance of the EMP in a letter dated July 12, 2011. It is expected that the Draft Environmental Permit will be prepared.

The authors are not aware of any significant factors or risks that may affect access, title or the right or ability to perform work on the property.

SECTION 5

ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

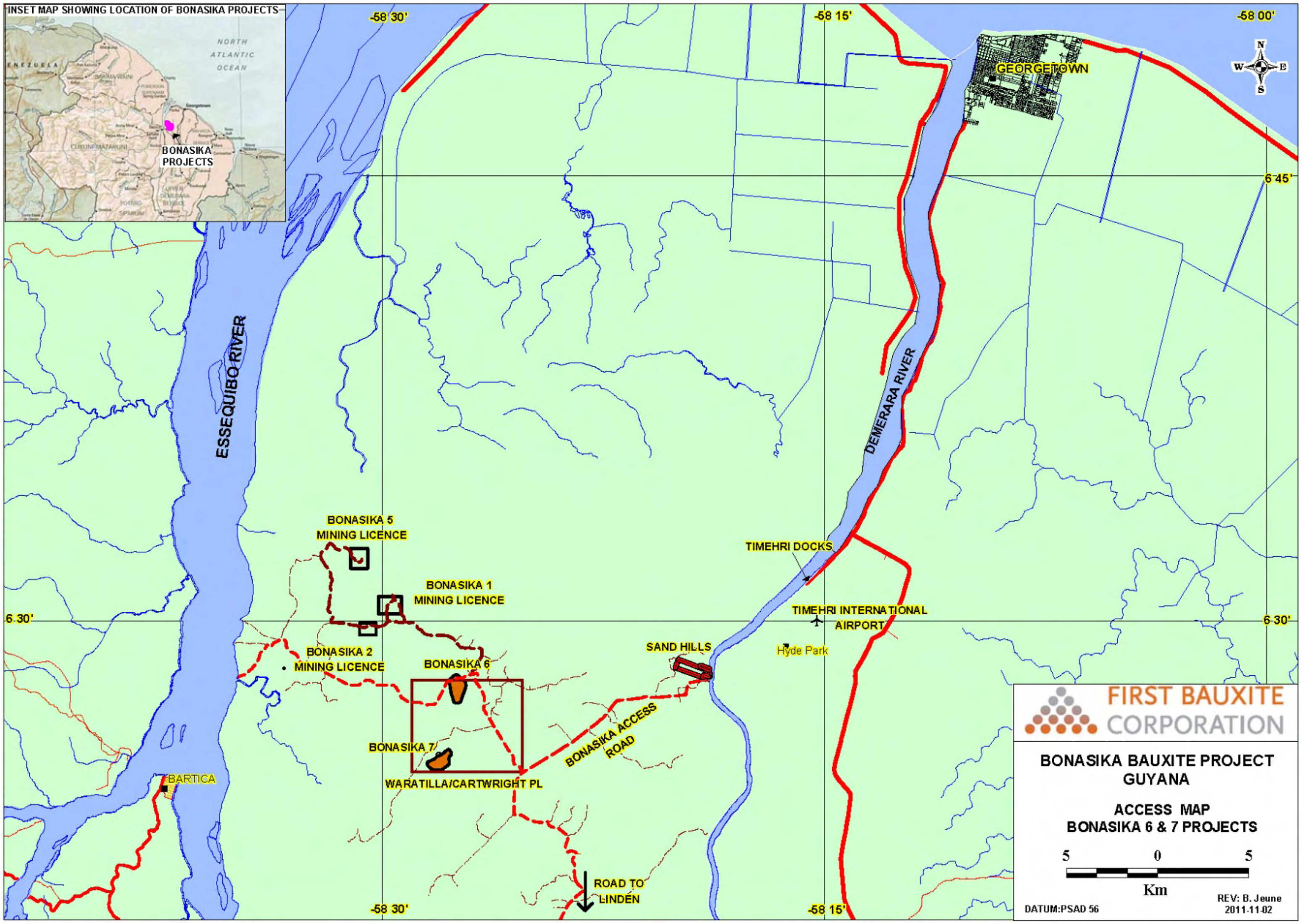
5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 Accessibility

The Project area is accessible from Georgetown by the paved road to the Timehri International airport and then a 15 minutes boat ride up and across to the opposite (west) bank of the Demerara River to Sand Hills. The Bonasika 7 deposit is accessed by an existing 21 km logging road from Sand Hills.

Figure 5.1 shows the access to the Project and relative location of the Bonasika 6 and Bonasika 7 deposits within the W-CPL.

Figure 5.1 – Project Access Map Bonasika 6 and Bonasika 7 Location



Source: Guyana Geology and Mines Commission (compiled by GINMIN).

5.2 Climate

The climate in the proposed project area is tropical and is typical for the near coastal region of Guyana.

The climate data for the project area came from both the Hydrometeorological Division and that collected at the GINMIN base camp. Weather data from the Timehri and Bartica weather stations were used since the area is located between the two (2) stations. Climate data for five (5) years (2005 – 2009) were reviewed and compared.

Rainfall data for the last 30 years (1979 – 2009) from the Timehri station was analyzed. The average annual rainfall is 2,614 mm, while pan evaporation data for 1997 to 2007 indicate that the annual evaporation rate is 1,353 mm. The rainfall occurs in two (2) distinct seasons: May to July and December through January. The driest period is between August and November.

Daily temperatures at the campsite range from an average minimum of 21.7 °C at night to an average maximum of 36.8 °C at mid-day. The average monthly mean temperature, which does not fluctuate much throughout the year, is 26.7 °C.

Relative humidity is generally high, averaging about 81%, but can vary significantly. Recent data collected at the GINMIN campsite indicate humidity levels as low as 30% and as high as 98%. The daily average maximum humidity from the data collected thus far is 94.2% while the average minimum humidity is 45.5%.

Wind speed is, on average, higher during the dry season than the wet season, but the highest instantaneous wind speeds tend to accompany severe thunderstorms, with maximum observed wind speed to date achieving 16.7 km/h at the campsite. The average wind speed recorded is 2.1 km/h. Winds flow predictably from the E/NE during the dry season. Winds during the wet season continue to move principally from E/NE to S/SW, but this is much more variable than in the dry season.

The prevailing weather conditions allow for the mine to operate throughout the year.

5.3 Vegetation

The main area of direct influence of the proposed project is characterized by vegetation which can be described as mixed tropical rainforest. This area has been logged for the commercial species in the past and it was observed that smaller trees of secondary growth are widely distributed over the study area. The canopy of the forest in the area is fairly open, reflecting the impact of logging, allowing light penetration to support understory growth.

5.3.1 Bonasika 1, 2 and 5

The vegetation of the proposed area of mining is characteristic of the Creek forest type of the white sands area. The white sands soil in the area has a gently rolling terrain, drilled by small creeks. The forest within this area is very open with a dense layer of herbs in the undergrowth.

No Convention on International Trade in Endangered Species (**"CITES"**), International Union for the Conservation of Nature (**"IUCN"**) or rare plants were observed during biodiversity surveys conducted for this proposed project.

5.3.2 Bonasika 6 and 7

Cover vegetation closely mirrors vegetation recorded within the BML (Bonasika 1, 2 and 5). Cover vegetation can be classified as mixed tropical forest, displaying little evidence of timber harvesting or human habitation, except for a few logging trails. The climax canopy layer is relatively open with gaps allowing moderate light to filter to the dense understory and shrub layer.

The relatively dense understory and shrub layer is mainly comprised of seedlings and saplings of canopy species.

No CITES and no IUCN or rare plants were observed during biodiversity surveys conducted for this proposed project.

5.3.3 Sand Hills Complex

This area is not a pristine forested area and it shows definite signs of human disturbance and clearing. There is no evidence of endemic natural vegetation. The bank of the Demerara River is showing signs of erosion. Beyond the bank for approximately 100 m the vegetation type is primarily that of cultivated types with a few secondary riverain types vegetation.

No CITES and no IUCN or rare plants were observed during biodiversity surveys conducted for this proposed project.

5.3.4 Proposed Haul Road

The dominant plant species observed throughout the central transect line included immature examples of several species including Soft Walaba Hard Walaba, Baromalli, Kereti Silverballi assorted lianas, firerope, Kufa, and epiphytes. This typical coastal white sand vegetation varies only slightly in terms of species composition within the area closer to Sand Hills. The understory vegetation comprises mainly of small shrubs.

No endangered, unique, rare or threatened floral species were encountered throughout this proposed haul road alignment. Similarly, no evidence of critical natural habitats as defined by the IFC's PS6 was observed during the seven (7) day surveying period.

5.3.5 Proposed Sediments Ponds A and B

Vegetation in both Sediment Ponds sites can be broadly classified as mixed tropical forest overlying a mixture of brown and white sandy soil. However, there are abrupt boundary lines between shorter scrubby white sand vegetation and taller denser vegetation overlying mixed brown sands in both survey sites.

No endangered, unique, rare or threatened floral species were encountered throughout this survey. Similarly no evidence of critical natural habitats as defined by the IFC's PS6 was observed during the four day surveying period.

5.4 Wildlife

5.4.1 Summary of Quarterly Monitoring – Faunal

Following is a brief summary of the three (3) quarters of faunal biodiversity monitoring completed to date throughout Bonasika 1, 2, 5, 6 and 7. The monitoring started during the last quarter of 2010. It should be noted that the geographical area within which all deposits are located is relatively small. As such, the physical characteristics are similar for all these sites. Since the physical characteristics of the area are homogenous and given the size, both the mining and control sites selected for the biodiversity monitoring are adequate to provide information on any impact the proposed mining activities will have on the fauna within the area.

5.4.2 Bonasika Deposits

a) Amphibians

Biogeographically, all amphibian species recorded during the monitoring program are widespread and abundant within Guyana. No endangered, rare of threatened (ERT) species of amphibians were recorded.

b) Reptiles

Biogeographically, most of the reptilian species recorded are widespread and abundant within Guyana. The Yellow Footed Turtle is IUCN listed as vulnerable within the region. In Guyana, this species is highly prized for its meat and shell and as such, is widely hunted. This high hunting pressure and low numbers encountered in the area flags it as a vulnerable or threatened species.

c) Mammals

Some of the mammals species recorded are included IUCN red-list species categorised as Critically Endangered –Brown-bearded Saki (*Chiroptes satanus*), and Vulnerable Tapir (*Tapirus terrestris*), Black Spider-Monkey (*Ateles paniscus*), the Giant Anteater (*Myrmecophaga tridactyla)*, and Near Threatened i.e. the Jaguar (*Pathera onca*). As well as one CITES Appendix I listed species - Ocelot (*Leopardus pardalis*), and several CITES Appendix II Listed species including Puma (*Puma concolor*), Red Howler Monkey (*Alouatta seniculus*), Wedge-capped Capuchin (*Cebus olivaceus*) and Golden-handed Tamarin (*Saguinus midas*).

d) Birds

The Red-and-Green Macaw was the only large species of macaw encountered on GINMIN's property. The large understorey birds such as Black Currasow (*Crax* *alector)* and Grey-winged Trumpeter *(Psophia crepitans)* are sensitive to an increase in hunting pressure that often arises when access roads are constructed to open up forest for logging and mining. Elsewhere in the Guianas and they have been decimated by unrestricted hunting (Ridgley and Agro 1998). All psittacines, toucans, cracids and trumpeters within the study area can be regarded as ERT species.

e) Fish

Biogeographically, all fish species recorded within this survey are widespread and abundant within Guyana. No ERT species of fish was recorded during these three quarterly survey exercises.

5.4.3 Proposed Haul Road

The mammals recorded along the proposed haul road alignment includes a high diversity of primates with five (5) of Guyana's eight (8) primate species recorded in one survey.

The rapid biodiversity survey completed for the haul road also confirmed an abundance of bird, reptile and amphibian species.

No ERT or notable vertebrate species were recorded as part of this survey.

5.4.4 Proposed Sediments Ponds A and B

a) Mammals

The forest in which the proposed Sediment Ponds will be constructed contains a diversity of habitats and supports a high diversity of game species. With the diversity of large herbivores within the area and relatively little evidence if hunting, it is unsurprising that large carnivores such as the Jaguar (*Panthera onca*) are present.

Regarding ERT species found within the area, the IUCN Red List of Threatened species lists the Jaguar as Near Threatened (*Naveda et al.* 2008*;* Mittermeier *et al.* 2008), while all primate species are CITES Appendix II listed.

b) Birds

All psitticines and toucans recorded in this study are listed as CITES Appendix II species. Notable observations included four (4) of the six (6) species of trogons occurring in Guyana.

c) Amphibians and Reptiles

All species recorded within this survey are widespread and abundant within Guyana. A notable species recorded was the tortoise *Chelonoidis denticulata*. The IUCN Red List of Threatened species lists *C. denticulata* as Vulnerable (Tortoise & Freshwater Turtle Specialist Group 1996).

No other ERT species of amphibians or reptiles were recorded.

d) Fish

No ERT species of fish was recorded during the survey exercise.

5.5 Local Resources

The four (4) communities surveyed had only small numbers of teenage/young adults. The lack of employment opportunities is a major reason for this situation. The proposed project would help to alleviate this situation by providing employment, and improving social services and infrastructure to nearby households. This will assist in retaining or attracting youths to the communities.

Workers within the area are generally unskilled with just a handful of graduates who serve as teachers in the local schools. At Makouria, the community members supply all the labour for the Guyana Police Force (**"GPF"**) and provide supporting services for the Guyana Defence Force (**"GDF"**). Some residents are employed outside of the area and spend long time periods away from their families.

The extended families are generally headed by single mothers with assistance from grandparents. A few of these mothers are employed by the public service in the cases of Makouria and Vreed-en-Rust. Poverty also exists with some residents who are unemployed and do not utilise their farmlands to maximum capacity either because of old age or limited market for the produce. The primary occupations are public service, logging, hunting, subsistence farming and recently employment by GINMIN.

The general living conditions in terms of housing and other social amenities are below acceptable national standards. These conditions are almost consistent throughout the villages excluding the newly constructed teacher's house. The houses are small for the family size and amenities are sub-standard. The 1996 Guyana Human Development Report in identifying what is referred to as "target groups and the alleviation of poverty" identified single parent households, particularly those headed by women, the youth, the Indigenous peoples and small farmers. The stakeholder families have displayed these characteristics.

A marked improvement in standard of living is anticipated for current residents of Sand Hills and Vreed-en-Rust who will benefit from GINMIN provided low cost supply of potable water and electricity. Peripheral communities such as Princess Carolina and Makouria will not benefit directly from these local amenities. Residents eagerly await the materialization of these benefits long promised to their communities.

Labour however, is available in the region, given the proximity of the Project to the capital, Georgetown, and Linden which is the centre of the bauxite mining industry in Guyana. Tradesmen such as mechanics, electricians, carpenters and heavy equipment operators have gained mining experience at the current Linden bauxite operations and at the former Omai Gold Mines Ltd. 100 km upstream in the Essequibo River.

The communities being close the Essequibo and the Demerara rivers, their main mean of transportation is by boat.

5.6 Local Infrastructure

The mine pits will be developed in an area between the Essequibo and Demerara rivers where there is essentially no existing infrastructure. Only 4 x 4 logging roads link a small dock at Sand Hills on the Demerara River with the Bonasika deposits. All infrastructure, including power requirements, for the mine and process plants will be developed to meet the specific needs of the Project. The Bonasika River drains the area and will provide and adequate source of water for a bauxite wash plant.

GINMIN will have sufficient surface rights over the BML and the W-CML for the mining operations, once the Mining Licences will be granted. The stockpiles and the plant will be accommodated at Sand Hills.

GINMIN has applied to the GGMC to alienate the areas as "State Mining Reserves" and to only authorize GINMIN to mine sand and loam in the area for its construction and road building activities and to store its slimes rejects from the wash plant in the area in sediment pond areas. This essentially freezes the area from application for mineral rights by any third party and requests that the Government engages GINMIN should it be desirous of granting any Mineral Rights over the areas to a third party. GINMIN has simultaneously applied to the Guyana Lands & Surveys Commission for a long term surface rights lease to the area. This right will give GINMIN the surface rights to the area for a period as long as the life of the project.

These two (2) applications, when granted essentially grant GINMIN the unencumbered rights the sediment ponds area.

5.7 Physiography

The region is one of low relief between the Essequibo and Demerara Rivers with broad hills and valleys whose maximum relief is but a few tens of meters above the tide line. The relief of the Bonasika 1 site is of the order of 25 m and the base camp is at an elevation of 30 m above mean sea level. The Waratilla Cartwright is higher with a plateau at some 50 m above sea level and creeks incised some 20 m below this level.

The physical environment at Sand Hills is relatively simple and uniform; it is dominated and determined by its geography and geomorphic locations and characteristics. In addition, the area has been disturbed by long term human habitation. The dominating feature is the white Sands Geomorphic Zone. The topography is typical for riverbanks of the White Sands Geomorphic zone. The slope from the top of the hills dominates it. The Wharf Complex site rises quickly from the riverbank to approximately 18 m (approximately 30 m above sea level) at the top of the flat-topped hills. The slope has a non-uniform, easterly pitch and reflects extended human occupation and related alteration. The distance from the riverbank to hill foot varies from 20 m to 100 m. The bank of the river is showing normal signs of erosion. There is evidence of low grade landslides and mass wasting originating from undercutting of slopes, surface runoff, and poor maintenance of paths and roads. The Demerara River is confined by the riverbanks and does not flood in the rainy season. Soil distribution is typically white and brown, fine to medium-grained sands. The riverbed between high and low tide has a gentle slope of less than 20 degrees and is typically sandy clay.

The entire road alignment is located within the White Sand Series Geomorphologic Zone of Guyana. The general alignment of the proposed haul road is along a topographic ridge with an average width of approximately 0.25 km. Most creeks and streams drain away from the ridge. The topography is of gentle rolling hills with small creeks, the entire alignment of the proposed road is underlain by the sand of the White Sands Series. The ridge alignment and the occurrence of the sands reduce the possibility of flooding and related erosion effects.

The Waratilla and the Bonasika rivers are dominant hydrological features of the Project area, receiving the flow from most of the smaller creeks and tributaries and are responsible for draining most of the area. The Bonasika River empties into the Essequibo River while the Waratilla River discharges into the Demerara River.

SECTION 6

HISTORY

6.0 HISTORY

6.1 Ownership History

The areas that are the subject of this Report have been owned only by DEMBA in the 1940's and 1960's and exploration has been exclusively for bauxite. There has been no bauxite production from either the Bonasika or Waratilla-Cartwright properties.

First Bauxite Corporation obtained the rights through application to the GGMC as described in Section 4.2.

6.2 Prior Exploration - Development

Bauxite was discovered in Guyana in an arcuate belt stretching across the country along the southern margin of the Coastal Plains, with large deposits identified in the Pomeroon, the Essequibo, Mackenzie (Linden), Ituni, Canje and Orealla.

The first published report of bauxite, by Sir John Harrison, appeared in the Official Gazette of Guyana on June 16, 1910. In 1914, the Demerara Bauxite Company Limited (**"DEMBA"**), owned at the time by Aluminum Company of America (**"ALCOA"**), secured leases around Mackenzie where bauxite deposits had been identified. In 1917 the company commenced the mining of bauxite in this area at the Three Friends Mine.

In 1929, the Aluminium Company of Canada (**"ALCAN"**) took control of DEMBA who conducted drilling in the Ituni area south of Mackenzie in the 1930's and between 1937 and 1943 in the Essequibo area, including the Bonasika deposits. In 1938, the company started the shipment of super-calcined refractory bauxite at Mackenzie and in 1943 also started mining at Ituni.

The Berbice Company Limited began exploration in the more southerly Berbice area in 1938. In 1942, the Berbice Bauxite Company, a subsidiary of American Cyanamid, started production of chemical grade bauxite at Kwakwani. In 1952, the same company, by now acquired by Reynolds Metal Company, started producing metallurgical grade bauxite at the mine.

The Second World War called for a secure source of bauxite to supply a burgeoning aluminum industry in North America. Guyana was foremost in meeting this need and the country became one of the world's top producers during the 1950's. During this boom period drilling was carried out by Harvey Aluminum Incorporated in the Groete Creek and Blue Mountains areas west of the Essequibo River and Barima Minerals Limited drilled selected targets in the Pomeroon area north of Bonasika. In the early 1960's DEMBA drilled the Waratilla-Cartwright area within the Essequibo group of deposits just south of Bonasika. In 1961, DEMBA completed construction of an alumina refinery at Mackenzie that operated until 1982.

Foreign companies controlled the Guyanese bauxite industry until the early 1970's when the Government nationalized the companies.

In 1998, the Government of Guyana announced privatization plans for the state-owned bauxite companies.

The Bauxite Company of Guyana Inc. (**"BCGI"**) was established in 2004 following an agreement between United Company RUSAL ("**RUSAL"**), the world's largest aluminium company, and the Government of Guyana for mine development in the Berbice region. In 2006, RUSAL finalised a transaction acquiring the assets of the state mining company Aroaima Mining Company (**"AMC"**). The largest volume of bauxite is produced at the Aroaima mine managed by BCGI. Metallurgical bauxite supplies the Nikolaev alumina refinery in the Ukraine with high-quality bauxite used for "sweetening" a lower grade Guinean source of bauxite.

In 2004, Cambior Inc. acquired a 70 % stake in Omai Bauxite Mining Inc., with the government of Guyana retaining 30 % as a part of the government's privatization of certain assets of Linden Mining Enterprises Ltd. After considerable investment to upgrade the Linden operations, Cambior's stake at that time held by IAMGOLD Corp. was sold in 2007 to Bosai Minerals Group Co. Ltd. of China, which now produces refractory bauxite, as well as chemical and cement grades. Annual production of bauxite products totals approximately 600,000 tons.

6.3 Bauxite Exploration in the Essequibo Region

The three (3) Bonasika bauxite occurrences contained in the Bonasika Mining Licence in the Essequibo region were part of a larger group of contiguous occurrences initially discovered and explored between 1937 and 1944 by the DEMBA, a subsidiary of ALCAN (formerly a subsidiary of ALCOA).

The Bonasika 1 Mining Licence (401 acres or 162 ha) was drilled by DEMBA using an Empire churn drill on a 600 ft (or 180 m) grid. A total of 33 holes were drilled in 1940 and 1941 down to depths of 100 ft, or 30 m and a bauxite resource was estimated. The average thickness of the bauxite horizon was estimated to be 4.5 m and the average overburden depth to be 5.6 m although the bauxite was found to be locally exposed at surface.

The Bonasika 2 Mining Licence (189 acres or 76 ha) was drilled by DEMBA using the same equipment and grid. A total of 14 holes were drilled in early 1941 down to depths of 118 ft, or 36 m. A bauxite resource was estimated.

The Bonasika 5 Mining Licence (338 acres or 137 ha) was drilled by DEMBA using the same equipment and grid. A total of 19 holes were drilled in late 1943 down to depths of 100 ft, or 30 m and a bauxite resource was estimated.

The bauxite was considered suitable for metallurgical use or for the production of refractory grade A, super calcined bauxite.

In 2005, GINMIN drilled five (5) HQ holes near five (5) DEMBA holes in the central mineralized area of Bonasika 1 to confirm the grades and thicknesses and to test the lateral extent of potential chemical grade bauxite in their vicinity.

The 4,000 hectare Waratilla Cartwright property was explored by DEMBA in 1963-1964 when 68 widely spaced holes totalling 6,817 m were drilled of which 31 holes intersected bauxite of Refractory or Metallurgical Grade under an average depth of 50 m of sediments.

The DEMBA drilling formed the basis for the First Bauxite 2008-2009 drilling program that was designed to improve knowledge of the mineralization, to extend the limits of the known Bonasika deposits, and the Waratilla-Cartwright deposits, in addition to estimating the resources compliant with NI 43-101 reporting standards.

There has been no bauxite production from the First Bauxite's Bonasika or Waratilla-Cartwright Property.

6.4 Historical Resource Estimates in the Essequibo Region

A bauxite resource was estimated by DEMBA in 1940-1943, after drilling on the Bonasika 1, 2 and 5 Mining Licences. The Waratilla-Cartwright property was explored in 1963-1964, and DEMBA estimated the resources of Refractory A Grade Super Calcined ("RASC") bauxite and of Metallurgical Grade ("MAZ") bauxite.

However, these estimates were not completed in accordance with the NI 43-101 Mineral Resources and Mineral Reserves standards and have been superseded by FBX exploration and resource estimates that are NI 43 101 compliant.

SECTION 7

GEOLOGICAL SETTING AND MINERALIZATION

7.0 GEOLOGICAL SETTING AND MINERALIZATION

This section has been compiled from report prepared by Met-Chem entitled NI 43-101 Technical Report Feasibility Study of the Bonasika Project, Guyana, (29050-2) dated September 2010 and report prepared by Aluminium Industry Professionals Inc. (Aluminpro) entitled NI 43-101 Technical Report Bonasika 7 Bauxite Deposit Waratilla-Cartwright Prospecting Licence authored by Mr. Dominique L. Butty, Eurogeol. and dated May 2011. This Report is attached in Appendix A. Descriptive aspects of the Bonasika 6 deposit are provided for comparative purposes.

7.1 Regional Geology

The bauxite deposits of Guyana, and their geological setting, are described by Bleackley in the Geological Survey of Guiana Bulletin No. 34 (1964). Most of the known deposits, and those which are exploited, occur as clusters along an axis, sub-parallel to the current Atlantic coast-line, over a north-south distance of some 250 km. The deposits are low-lying and typically buried beneath the Tertiary sediments; the bauxite is for the most part light coloured, high-grade, gibbsitic and low in iron.

Flanking the bauxite belt on the landward or westward side are a number of isolated laterised plateaus where sporadic bauxite occurs notably in the vicinity of the Blue Mountains some 20 km west of the Bonasika area. These bauxites are at higher elevations, are iron rich as well as being capped by Fe-laterite. Such isolated plateaus may have been once a part of a more extensive peneplain where bauxite was developed in-situ on a Pre-Cambrian terrain of alumina-rich gneisses or meta-sediments.

Thus, there are two types of bauxite occurring in Guyana. Firstly, typical high iron “plateau-type” bauxite developed in-situ by the weathering of a Pre-Cambrian basement and occurring today as isolated ranges of hills or inselbergs and capped by iron laterite. Secondly, low-iron bauxites, capped by sediments and occurring as residual pockets on the plateaus, on their flanks, or in proximal channels.

Spore dating by T. Van der Hammen and T. A. Wijmstra (1964) suggests a single period of bauxite development between the late Eocene and early Oligocene (approximately 40 My). This suggests a period of intense bauxitization on the plateaus through tropical weathering with simultaneous or subsequent erosion and development of iron depleted bauxite deposits in a reducing environment.

Relief is essential for bauxite development since an underlying drainage system is required to provide for the evacuation of vast volumes of water that remove all but the most insoluble elements, with the notable exception of alumina, which remains as aluminum hydroxide along with iron, titanium and silica. Within a broadly peneplain of plateaus, deeply incised valleys provide drawdown for the drainage network that underlies the laterite profile and contributes to the pre-requisite conditions for bauxite development both on the plateaus and flanks.

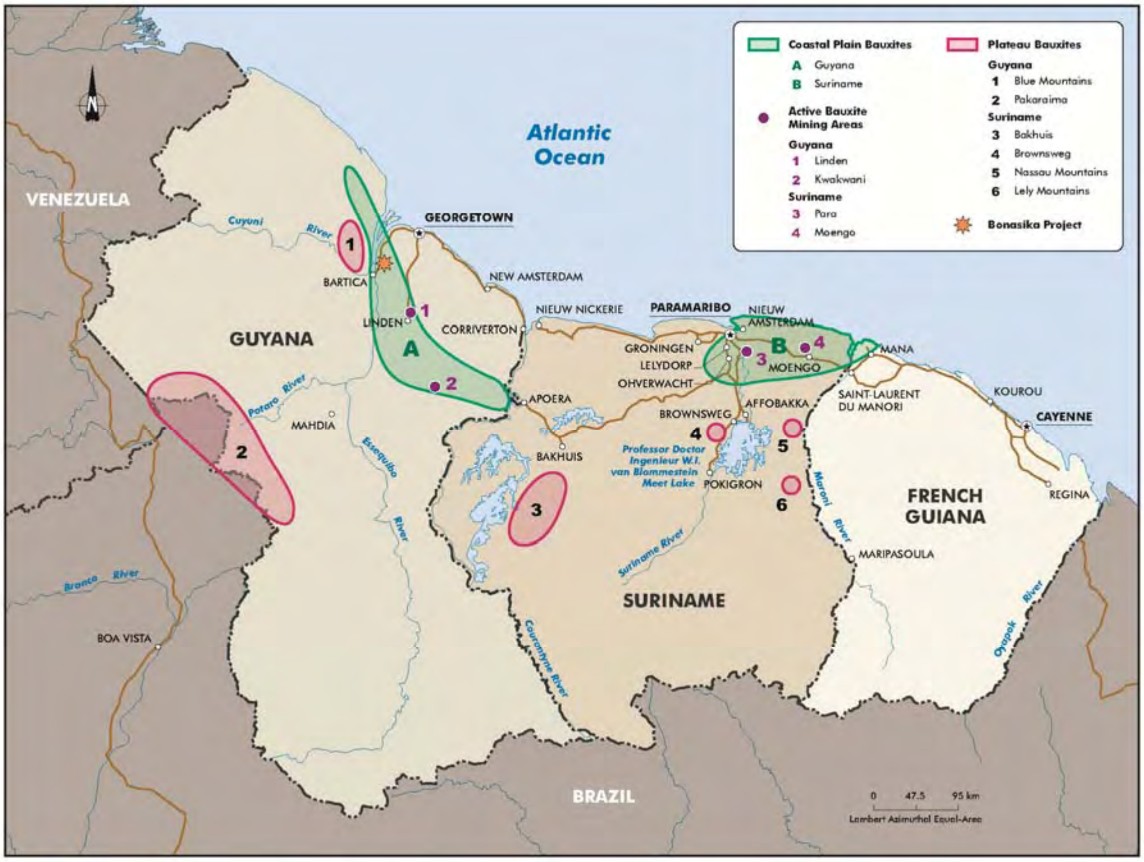
Observations also suggest however, that bauxitization may have continued after deposition of the residual alumina-enriched sediments flanking the plateaus. Certainly there has been extensive remobilisation of the alumina and iron rich minerals as witnessed by gibbsite re-cementation and iron depletion. Since the strata hosting the bauxite is close to horizontal, this implies slight tilting or faulting in order to uplift the pile and so create the conditions favourable to water flow and on-going bauxitization. Bleackley mentions post-Berbice faulting, along the course of the lower Essequibo, presumably N-S, as well as E-W faulting to the north of the Bonasika area. The present day topography also exhibits evidence of block faulting with discrete more-or-less orthogonal escarpments.

The bauxite Licences held by First Bauxite are located within a 25-30 km wide arcuate belt, on the northern flank of the Guiana Shield within a region commonly referred to as the Coastal Plains.

The Bonasika bauxite deposits form a cluster known as the Essequibo Group in the northerly part of the Coastal Plain Bauxite Belt between the Demerara and Essequibo rivers, to the east and west respectively. It is only in this region that the bauxites are exposed at surface; bauxite has however been intersected at depths of 60 m in the area by recent drilling.

The bauxite areas comprising the Linden and Kwakwani Groups are located to the south as shown on Figure 7.1. At the active East Montgomery Mine in the Linden-Mackenzie area, the bauxite horizon is covered by up to 70 m of overburden.

Figure 7.1 – The Bauxite Regions of Guyana and Suriname



Sources: D. Bleackely, The Bauxites & Laterites of British Guiana, Geol. Survey of British Guiana, Bulletin 64; Bauxites SME Special Volume 1984 edited by L. Jacob et al. Compiled by Bryan S. Osborne P. Geo. October, 2009

7.2 Local Geology

Given the extent of recent marine deposits, the tropical weathering and forest cover, the bedrock geology is not exposed and its role in the development of the overlying bauxites cannot therefore, be related to the local geology.

7.3 Property Geology Bonasika and Waratilla-Cartwright

Geological knowledge of the Waratilla Cartwright PL and Bonasika ML is essentially based on drilling and an area or outcrop at Bonasika 1, 2, 5 and 7. Similar lithological, chemical and morphological features are present in the two (2) areas and a detailed stratigraphic profile has been developed and is described under “Mineralization”.

The deposits rest on white kaolinitic clay whose depth has not been widely determined but likely exceeds several metres. No un-weathered bedrock has been encountered in the vicinity of either area. A deep hole at Bonasika 7 encountered decomposed gneisses at close to 40 m depth, beneath 27 m of increasingly saprolitic clays.

The deposits are low-lying and generally covered by poorly consolidated sediments that were deposited in a shallow sea that advanced onto the submerging Guiana Shield during the Tertiary. The Berbice White Sand Formation is a Pleistocene, continental-deltaic sequence that covers a wide extent of northern Guyana and largely conceals the principal areas of bauxite mineralization and their overlying Tertiary sediments. However, the deposits outcrop both on the BML and W-CPL (Bonasika 1, 2, 5, and 7).

7.4 Structure

The tectonic setting of the Essequibo region is poorly understood but block faulting was described and the current topography shows such evidence. Faulting or tilting likely played a key role in providing the relief necessary to promote the appropriate geomorphic and hydraulic conditions throughout a multi-phase history of bauxite development in the region.

7.5 Mineralization

7.5.1 Key Lithological and Morphological Features

Logging of the core has allowed for a detailed stratigraphic profile to be developed through the mineralization and the host rocks. A system of lithological coding was established at the outset of the program as shown in Table 7.1. Codes 1 to 9 show the principal lithologies in actual typical vertical profile; codes 10 to 11 are minor sub-unit and those numbers carrying a suffix allow for sub-division of the principal lithologies.

Table 7.1 – Coding of Lithologies and Sub-Units used for Core Logging

Code	Description
0	Unrecovered
1	Topsoil
2	Unconsolidated Berbice Sands
3	Sandstone
3a	Siltstone
4	Mudstone
4a	Carbonaceous Mudstone
5	Clay
5a	Flint Clay
6	Bauxitic Clay
7	Bauxite
7a	Clayey Bauxite
7b	Granular Bauxite
7c	Massive Bauxite
7d	Lateritic Bauxite
8	Laterite
8a	Lateritic Clay
8b	Bauxitic Laterite
8c	Clayey Laterite
9	Basal Clay
10	Lignite
11	Siderite
11a	Massive Siderite
11b	Granular Siderite

Mineralization is essentially confined to unit "7 – Bauxite" although lower off-grade mineralization occurs in the clays both above and below the bauxite horizon. Drilling on the W-CPL and BML has demonstrated similar lithological, chemical and morphological features as summarised below:

- Bauxite occurs in a sedimentary pile with a granulometry ranging from clays to fine gravels;
- The bauxite shows a core of higher grade mineralization encompassing inter-layered units of hard massive bauxite, coarse, porous granular bauxite and very fine gibbsite units that have the appearance of clay;
- This core is within an envelope of clayey bauxite capped by a blue-grey bauxitic clay;

- The bauxite is largely composed of gibbsite and minor boehmite with kaolinite, anatase, siderite and pyrite;
- Clasts of gibbsite and less frequent “flint clay” (indurated kaolinite) are common in the bauxite horizon;
- The bauxite is always underlain by a white kaolinitic clay, several metres thick;
- Mudstones, with increasing lignite, siderite and iron-sulphides towards the base, frequently cap the bauxitic sequence. Unconsolidated sandstones also commonly cap the bauxite horizon;
- Below the lignites, the mudstones commonly show interspersed kaolinite and gibbsite;
- No iron capping is seen on the bauxite profile, local areas of more lateritic bauxite are observed in the profile in certain sectors particularly on the BML;
- Water flow appears more horizontal than vertical, largely through the granular horizons;
- Gleys, lignite horizons, sulphides and siderite indicate a reducing environment;
- Of the five (5) deposits drilled all but the Bonasika 2 deposit strike SW to NE;
- The excavated walls at Bonasika 7 pit outcrops show an extensive system of fractures, probably collapse features in-filled by bauxites clasts in a clay matrix.

7.5.2 Principal Bauxite Lithologies of Bonasika 6 and 7

The following is a description of the different principal bauxite lithologies:

a) Granular Bauxite

Coarse, granular rock composed largely of bauxite clasts or fragments. Clay constitutes less than 10% of the rock mass. This unit is a vuggy, typically cream coloured bauxite with interstices, veins and vugs that may be in-filled with clay. Amorphous gibbsite (and likely boehmite) may re-cement the mass and also partially infill the vugs. Washing reveals nodules of coarse to fine cream to pink gibbsite.

Very locally, siderite may be associated with the lower part of the granular horizon.

b) Massive Bauxite

Cream coloured, very compact micro-crystalline to amorphous gibbsite with minor boehmite; contains less than 10% clay material, lacks the honeycomb texture and pinkish colouration so typical of this unit seen in surface exposure at BML.

c) Fine Bauxite

Soft cream coloured typically very fine gibbsite. The gibbsite grains can become very coarse or nodular, but are always supported with a very fine cream coloured gibbsitic matrix, making up more than 50% of the rock mass.

Tends to be associated with the high grade core zones and typically occurs at the base of the bauxite profile. However, it can also be observed at the top of the high grade core zone and sometimes intercalated within it.

Both the granular, massive and fine bauxite lithologies constitute the higher grade core zones of the Bonasika deposits.

d) Clayey Bauxite

Cream to light grey, with 10% to 50% clay, comprised of a high proportion of cream to pink grains or nodules of micro-crystalline gibbsite. Locally siderite-enriched pockets may be associated with this unit:

– At the base of the bauxite profile.
– Near the contact with carbonaceous mudstone at the top of the profile
– At the base of the clayey bauxite unit. Minor pyrite also occurs locally throughout.

The clayey bauxite tends to form an envelope around a higher grade core zone of massive, granular and fine bauxite. Thus the bauxite horizon is usually capped by clayey bauxite and merges into clayey bauxite on the margins of the deposit.

e) Bauxitic Clay

White to light grey compact, with patches of pinkish to whitish bauxite (gibbsite) supported within the matrix. The bauxite patches gradually increase downwards in the profile and may attain one cm in diameter. Bauxite makes up less than 50% of the lithology. A transition may sometimes be observed from mudstone into a bauxitic clay with increasing white patches of kaolinite (and pink gibbsite) developing downwards into the bauxite horizon.

The Bonasika deposits differ from the high plateau bauxites of the interior, such as those found in the Pakaraima Mountains in south-western Guyana and the Bakhuis Mountains in Western Suriname, in not having the iron cap and generally being much lower in iron, and higher in alumina throughout the profile.

7.5.3 Bonasika 7 Deposit

The mineralized horizon covers an area of some 1,600 m by 1,100 m and is essentially flat and largely continuous, with the exception of local clay seams that occur and likely result from sub-vertical fracturing and in-filling subsequent to bauxitization. The deposit has a thickness of 4.2 m and has an average overburden cover of 28.7 m. The deposit is similar in character to those developed in the Linden producing area, although not as thick and higher in silica. Bonasika 7 deposit outcrops at the south west corner of the deposit but the overburden thickens toward east to a maximum thickness of 42 m.

Massive, Granular Bauxite and Clayey Bauxite are the main contributors to Refractory Grade Bauxite. Clayey Bauxite shows a wide range of silica and alumina values since it is particularly difficult to discriminate this lithology from a frequent very fine grained gibbsite horizon that appears to be clay but is in fact very low in silica. The average chemistry of the Bonasika 7 bauxite units is shown in Table 7.2.

Table 7.2 – Chemistry of Lithologies Occurring in Bonasika 7

Code	Description	Tally (n)	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
4	Mudstone	161	22.345	60.918	3.311	1.068	11.563
5	Clay	95	35.196	44.981	2.259	1.544	15.228
6	Bauxitic Clay	334	45.484	29.290	1.563	1.944	20.784
7a	Clayey Bauxite	1,040	55.111	12.457	1.276	2.372	27.718
7b	Granular Bauxite	258	59.494	5.242	0.861	2.599	30.738
7c	Massive Bauxite	147	58.904	7.293	0.770	2.335	29.712
8	Laterite	7	41.485	1.370	26.243	1.963	28.288
9	Basal Clay	443	41.590	34.745	2.718	1.822	18.146

7.5.4 Bonasika 6 Deposit

The Bonasika 6 deposit extends some 1,600 m (N-S) by up to 700 m (E-W). The deposit is essentially flat although variable depths of overburden cover the deposit ranging from 20 m to 60 m. The average depth of overburden is some 40 m. The average thickness of the bauxite intercepts is 4.1 m with the maximum attaining 9.24 m.

The average chemistry of the Bonasika 6 bauxitic units is shown in Table 7.3.

Table 7.3 – Chemistry of Bonasika 6 Bauxitic Units

	Tally (n)	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
Mudstone	44	27.73	51.48	4.32	1.41	14.26
Clay	115	37.74	41.55	2.16	1.77	16.2
Bauxitic clay	204	44.47	31.48	1.66	1.88	19.97
Clayey bauxite	526	54.15	15.86	1.15	2.16	26.08
Granular bauxite	522	59.33	7.41	0.87	2.19	29.66
Massive bauxite	323	60.56	6.21	0.82	2.15	29.72
Lateritic Bauxite	9	58.72	4	3.54	2.25	30.45
Laterite	8	43.43	8.08	17.68	1.94	27.67
Basal clay	221	42.64	33.68	2.54	1.74	18.72

The iron levels throughout the Waratilla-Cartwright licence bauxites are significantly lower (approximately 1%) than at Bonasika 1, 2 and 5 (approximately 2%). There is also much less laterite in the profile.

7.5.5 Mineralogy

Bonasika 1, 2 and 5 mineralogy was described in the previous feasibility study report titled “Feasibility Study of the Bonasika Project” issued in August 2010. This section will describe in more details the mineralogy of Bonasika 7 and Bonasika 6.

a) Bonasika 7

The mineralogy of the Bonasika 7 deposit is based on macroscopic observation of drill core and a high definition mineralogy and XRD investigation carried out by SGS Lakefield on representative composite core samples.

In core samples, gibbsite is the most abundant mineral occurring as clasts, with a cream or pink colouration of the matrix that is indicative of gibbsite. The matrix material is quite clay-like in appearance and can be mistaken for kaolinite. The bauxite clasts also commonly display a cream coloured amorphous gibbsite and minor boehmite.

Kaolinite is the second most abundant mineral observed in the bauxite profile. Above the bauxite, the mudstones merge downwards into a kaolinite/gibbsite admixture that becomes progressively more gibbsite enriched both as clasts and matrix. Beneath the bauxite, kaolinite becomes the predominant mineral as white, compact basal clay.

Iron carbonate (siderite) and iron sulphide (pyrite) are also present. The content of iron minerals at Bonasika 7 is low compared to the other Bonasika deposits, with total Fe_2O_3 being less than 1% here as compared to over 2%. Most of the iron is in the form of pyrite.

XRD analysis by SGS Lakefield indicates major amounts of gibbsite and lesser kaolinite, titanium dioxide (anatase), trace amounts of quartz, boehmite, alunite, hematite, potassium feldspar and maghemite.

The SGS work confirms that the aluminum hydroxide phase gibbsite $Al(OH)_3$ is the primary aluminum phase in all samples investigated (72.0% to 88.8%). Minor amounts of boehmite ($\gamma AlO \cdot OH$) are also present (0.1% to 0.7%).

b) Bonasika 6

The Bonasika 6 deposit is composed of gibbsite, kaolinite, siderite and/or goethite and Ti-oxides. Minor free quartz and iron sulphides are also observed. On the basis of limited XRD work, the amount of boehmite is estimated to be up to 6% as reported by SGS.

The gibbsite varies from very fine to macroscopic crystals within cavities in the more massive bauxite. Pink disseminations or nodules of gibbsite are very common in the clayey bauxites; grains and nodules of gibbsite are the main component of the granular bauxites. Nodules of gibbsite up to several centimetres diameter are common and bands of pink massive gibbsite also occur.

Boehmite occurs in an amorphous state, as can gibbsite, and hence the recognition of these two (2) varieties is difficult, even by XRD methods.

Kaolinite is the second most important constituent of the Essequibo bauxites, acting as a clay matrix to the bauxite clasts. White clasts of a more massive kaolinite are also observed, (“flint clay”). The bluish-grey colouration of the matrix, particularly in the bauxitic clays may indicate the presence of montmorillonite rather than kaolinite in the upper part of the profile.

Siderite, pyrite and goethite occur only very locally but the overall iron content is invariably less than 1%.

The white basal clay is essentially of kaolinite with frequent thin inclusions of pale pink gibbsite. Quartz grains are also common in the basal clays.

SECTION 8

DEPOSIT TYPES

8.0 DEPOSIT TYPES

The Bonasika 7 and 6 deposits on the W-CPL are considered to be derived from plateau-type bauxites. The extent to which they are *in situ* or transported within pockets on the plateaus, flanking former plateaus or in-filling valleys as channel bauxites is unknown.

The iron-cap, typical of plateau bauxites underlain by a weathering profile dominated by downward percolation of solutions, is not seen in the Waratilla area.

The Bonasika deposits may be compared to those seen in the Linden region of Guyana both in terms of their morphology and chemistry. The bauxite deposits in the Linden region may exceed 10 Mt; for example the remaining reserves of bauxite at East Montgomery are in the order of 60 Mt. By comparison, to date some 12 Mt of bauxite resources have been drilled by First Bauxite on the W-CPL.

A close comparison may also be drawn with the bauxite deposits described in Arkansas, USA; they also show similarities with the Sangaredi deposit in Guinea which is a basin in-filled with bauxitic sediments derived from the surrounding plateaus. As at Bonasika, these deposits exhibit bauxite within a sedimentary, reducing environment that is depleted in iron oxides; the bauxites are typically white and high grade. The three areas all show the development of lignite that is indicative of sedimentary accumulation.

Exploration at W-CPL has been guided by the drill results of a program conducted by the Demerara Bauxite Company Ltd. in the 1960's.

Systematic, vertical drilling is the standard method of sampling bauxite deposits. On account of the high clay content of the upper part of the bauxite profile and the poorly consolidated nature of sections throughout the profile, conventional coring yields poor recovery. First Bauxite has implemented a sonic method of drilling that provides good recoveries without the need for water or drilling mud while coring. A wide core diameter is preferred to assist in sampling the chemical variations, particularly silica and iron.

Coring through the entire bauxite profile to the basal kaolinitic horizon at depth and then tracing the bauxite horizon laterally with additional holes, until the zone is diminished below one (1) metre thickness, ensures that the continuity of mineralization is determined for resource estimation.

SECTION 9

EXPLORATION

9.0 EXPLORATION

First Bauxite commenced exploration on the Bonasika 7 deposit in June 2010 and completed the program of exploration in November 2010. The exploration on the Bonasika 6 began on July 2008 and ended on May 2010.

Table 9.1 summarises the key exploration work conducted by First Bauxite on Bonasika 7 and 6 deposits for comparative purposes.

Exploration conducted on Bonasika 1, 2 and 5 is described in Met-Chem's Technical Report of 2010.

Table 9.1 summarizes the exploration work conducted on Bonasika 6 and 7.

Table 9.1 – Exploration Work Summary 2008-2010 – W-CPL

Exploration Activity	Bonasika 7	Bonasika 6
Drilling		
Number of Holes Drilled	192	150
Total (m)	7,017	6,981
Average Hole Depth (m)	36.54	46.50
Number of Cross Sections (E-W)	20	18
Mineralized Area Drilled (m)	1,600 x 1,100	1,600 x 700
Sampling		
Regulars + Controls (ACME)	2,489 + 179	1,907 + 125
Density Test Samples		
Pits	15	
Cores	3	45
Trench Channel Samples	21	
Bulk Process Samples	6	1

9.1 Sampling for Process Test Work

a) Bonasika 7

Three (3) pits have been excavated within the bauxite to provide typical bauxite bulk samples for process test work. In addition, large diameter drilling (6-inch) has been used to collect representative samples of different lithologies across the Bonasika 7 deposit.

Table 9.2 lists the sources of the samples collected, their weights and destinations for process test work.

The 6-inch diameter drilling was done in the vicinity of previously drilled regular 3-inch holes for which lithological logs and assays were available as a basis of selecting a composite representative sample. The grades of the major oxides displayed a good comparison, with the exception of silica. Histograms of the population distributions for silica are similar although the means are 7.79% (3-inch) versus 6.51% (6-inch). The distances between twin-holes are 5 m on average and, given the known lateral variability of silica, such a mean grade difference is not surprising.

Table 9.2 – Samples Collected for Process Test Work

Type of Test	Material Class	Sample Ref.	Samples	Weight (kg)	Primary Test Facility	Date
Granulometry	Core-6” and 3”	WCLS018-BS-1	2	62.7	Bonasika Site Lab/ACME	30.09.10
Wash test #1 to 4	Trench (High Grade Bx.)	LWC PT-1	4	120	Bonasika Site Lab/ACME	07.08.10
Wash Test # 5	Trench (Low Grade Bx.)	LWC PT-2	1	193.6	Bonasika Site Lab/ACME	25.09.10
Wash Test # 6 and 7	Trench (Low Grade Bx.)	LWC PT-3	2	80	Bonasika Site Lab/ACME	06.10.10
Wash Test # 8 and 9	Trench (Avg Grade Bx.)	LWC PT-5	2	80	Bonasika Site Lab/ACME	11.11.10
Wash Test # 10	Trench (Cl Bx)	LWC PT-6B	1	40	Bonasika Site Lab/ACME	22.11.10
Wash Test # 11	Trench (Ma/Gr Bx)	LWC PT-6A	1	40	Bonasika Site Lab/ACME	23.11.10
Wash Test # 12	Trench (Typical Grade - 6% blend)	LWC PT-6A/6B	1	40	Bonasika Site Lab/ACME	13.12.10
Wash Test # 13	Trench (Typical Grade - 8% blend)	LWC PT-6A/6B	1	40	Bonasika Site Lab/ACME	15.12.10
Tycan Pressure Washing	Trench (Cl Bx)	LWC PT-6B	1	1,260	Outotec, OK, USA	12.11.10
Tycan Pressure Washing	Trench (Ma/Gr Bx)	LWC PT-6A	1	1,260	Outotec, OK, USA	12.11.10
Particle size analysis	Trench, crushed	LWC PT-6A,B,C	6	240	Bonasika Site Lab/ACME	20.11.10
Tycan Pressure Washing Test # 14	Wide Dia. Core (RGB)	LWC CR-RS-1	1	521	Waratilla Site Lab	16.01.11
Tycan Pressure Washing Test # 14	Wide Dia. Core (DFB)	LWC CR-RS-1	1	124	Waratilla Site Lab	16.01.10
Tycan Pressure Washing Test # 14	Wide Dia. Core (DFB 3%)	LWC CR-RS-1	1	677	Waratilla Site Lab	16.01.10
Wash Test # 15	Wide Dia. Core WCLS170 (Cl Bx)	LWC CR-CLBx	1	80	Waratilla Site Lab	7.02.10
Wash Test # 16	Wide Dia. Core PW-11-01 (Cl Bx)	LWC CR-CLBx	1	80	Waratilla Site Lab	12.02.10

b) Bonasika 6

A composite sample from cores was prepared for the Bonasika 6 deposit in April 2010 for process test work. The sample details are shown in the Table 9.3.

Table 9.3 – Samples Collected for Process Test Work

Type of Test	Material	Samples	Weight (kg)	Destination	Date
Bonasika 2, Bonasika 5 and Bonasika 6 Comparative Analysis	Core	5	20.6	COREM, Quebec City, Qc.	25.11.09
Bonasika 6 Flotation et al.	Core	2	165 + 25	SGS, Lakefield, Ontario	16.04.10

9.2 *In situ* Density Measurements

Pits have provided 15 sites for the measuring of *in situ* bulk densities at Bonasika 7. Small pits of 30 cm x 30 cm x 30 cm have been carefully excavated on the deposit with the volume being measured by the amount of water required to fill the pit and the excavated material has been dried completely and weighed. This exercise was conducted on various lithologies in various locations. Table 9.4 provides the *in situ* dry densities and moisture contents of various Bonasika 7 bauxite lithologies.

Table 9.4 – Bonasika 7 *In Situ* Bulk Densities by Lithology

Location	Sample ID	Lithology	Wet Weight (g)	Dry Weight (g)	Pit Volume of Water (ml)	Moisture Content (%)	Dry Density (g/cm^3)
Pit 1 (WCLS013)	P1-62	Massive	55139	48,689	29,500	11.70	1.65
Pit 1 (WCLS013)	P1-63	Massive	51,292	44,569	29,000	13.11	1.54
Pit 1 (WCLS013)	P1-66	Massive	54,618	46,581	29,000	14.71	1.61
Pit 1 (WCLS013)	P1-67	Massive	52,438	46,164	26,500	11.96	1.74
Pit 1 (WCLS013)	P1-68	Massive	54,984	48,554	28,000	11.69	1.73
Pit 2 (WCLS014)	P1-75	Massive	53,411	47,092	28,500	11.83	1.65
Pit 2 (WCLS014)	P1-76	Massive	52,190	44,967	28,000	13.84	1.61
Average						**12.69**	**1.65**
Pit 2 (WCLS014)	P2-70	Granular	48,837	43,190	28,500	11.56	1.52
Pit 2 (WCLS014)	P1-73	Fine Granular	50,793	42,363	28,000	16.60	1.51
Pit 2 (WCLS014)	P1-74	Fine Granular	49,432	41,924	28,500	15.19	1.47
Average						**14.45**	**1.50**
Pit 2 (WCLS014)	P2-69	Clayey	49,700	41,900	29,500	15.69	1.42
Pit 1 (WCLS013)	P1-61	Clayey	48,625	41,065	26,500	15.55	1.55
Pit 1 (WCLS013)	P1-65	Clayey	52,979	42,813	28,000	19.19	1.53
Pit 2 (WCLS014)	P1-71	Clayey	50,685	41,876	28,500	17.38	1.47
Average						**16.95**	**1.49**

Calculated pit volume based on a 30 cm excavated cube is 27,000 cm^3.

At Bonasika 6, density measurements were based exclusively on cores selected from type lithologies across the deposit. A total of 45 core sections were cut and dried and subsequently sent for assay. In general, the rock is more compact at this deposit as compared to Bonasika 1, 2 and 5 and the boehmite content is higher. Both these factors contribute to higher densities. An adjustment has been made to allow for the fact that pit results yield lower densities than measured from core sections. As a result, the final average *in situ* density for Bonasika 6 bauxites was estimated to be 1.63 t/m^3.

The density test samples collected at Bonasika ML are described in Met-Chem's technical report dated September 2010. The samples were collected in trenches, pits and drill core in 2009.

SECTION 10

DRILLING

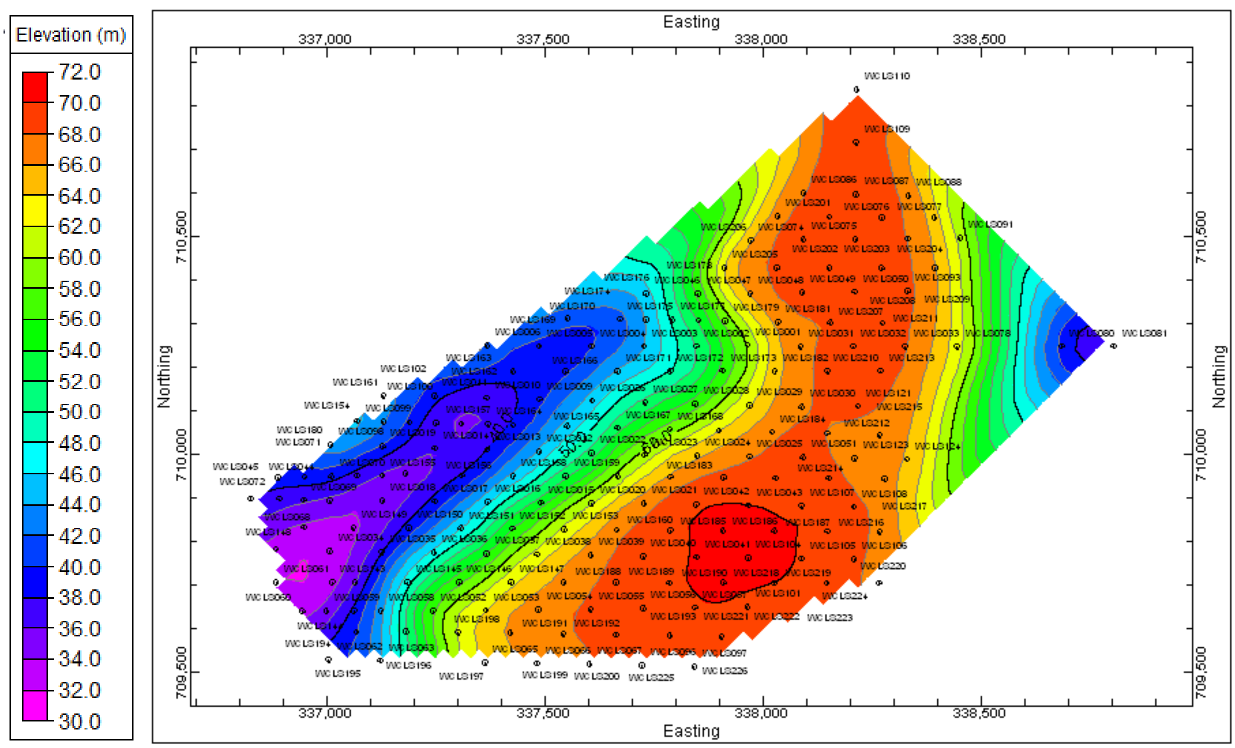
10.0 DRILLING

Systematic, vertical drilling is the standard method of sampling this type of deposit. On account of the high clay content of the upper part of the bauxite profile and the poorly consolidated nature of sections throughout the profile, conventional coring yields poor recovery. First Bauxite has implemented a sonic method of drilling that provides good recoveries without the need for water or drilling mud while coring. A wide core diameter is preferred to assist in sampling the chemical variations, particularly silica and iron.

Coring through the entire bauxite profile to the basal kaolinitic horizon at depth and then tracing the bauxite horizon laterally with additional holes, until the zone is diminished below one (1) metre thickness, ensures that the continuity of mineralization is determined for resource estimation.

A total of 192 exploration holes have been drilled for resource definition by First Bauxite on the Bonasika 7 deposit between June and November 2010. The drilling has been conducted on east – west lines spaced 60 m apart. The holes are spaced 120 m apart on these lines but the actual collars are displaced 60 m on alternating lines such that a diagonal pattern of holes is achieved with average drill spacing between holes of 85 m. Figure 10.1 shows the drill grid and surface topography of Bonasika 7 deposit.

Figure 10.1 – Drill Grid and Surface Topography of Bonasika 7 Deposit



First Bauxite was using a crawler-mounted SDC550-18 sonic drill machine (250 HP at 1,850 rpm). The rig was equipped with an automatic rod-handling system and a First Bauxite customised core extruder. The standard diameter of the core was 7.62 cm.

All cores were photographed on delivery to the core laboratory and the recoveries recorded prior to logging and splitting for sampling.

All boreholes are vertical since the bauxite horizon is close to horizontal.

The sonic drill may compact the bauxite to the extent that processing characteristics could be affected; as such, where possible samples for process testing have been collected from pits where the bauxite is undisturbed. The same phenomenon may also influence density tests hence; preference is given to pitting to establish *in situ* bulk densities.

To allow for proper observation of the bauxite lithologies and textures, the core is split into two (2) halves and one half is transferred to a split PVC tube where it is logged and subdivided by lithology for sampling.

The Qualified Person is satisfied that the type of drilling, recoveries and undisturbed cores provide for accurate and reliable sampling of the deposit allows for good definition of the various bauxite horizons.

No results from drilling on the Bonasika 7 property prior to 2010 were considered for use in the resource estimates.

10.1 Surveying

The collars of the sonic holes at Bonasika 7 were surveyed using a Topcon Total Field Station; they are tied into a primary benchmark defined by First Bauxite using a navigational GPS. In addition, lines have been cut and surveyed at 30 m or 60 m intervals across the two (2) W-CPL deposits for topographic control.

A verification of the survey results was carried at the close of the program, (See Section 12).

Figure 10.2 to Figure 10.6 show the cross sections of Bonasika 7.

Figure 10.2 – Axial Line Bonasika 7

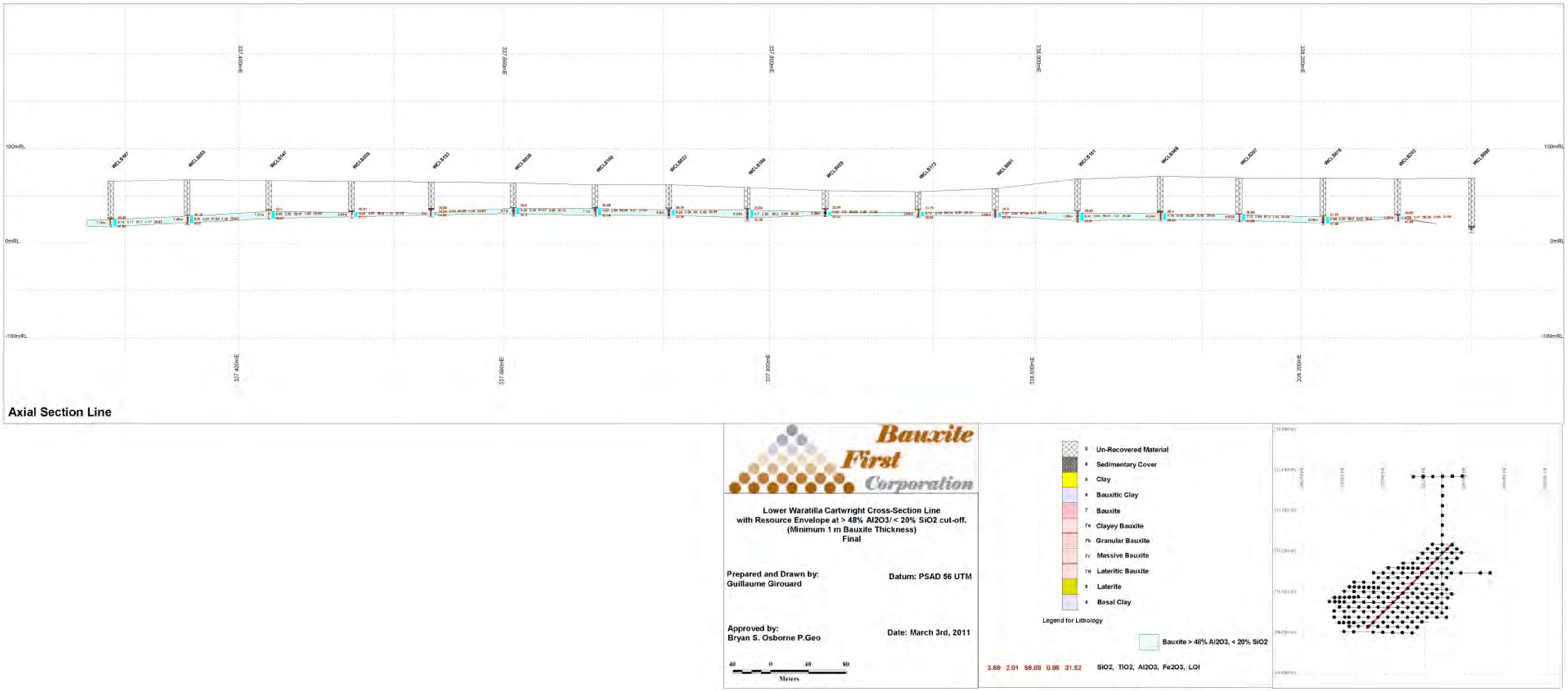


Figure 10.3 – Cross Section Line 200 Bonasika 7

Figure 10.4 – Cross Section Line 1400 Bonasika 7

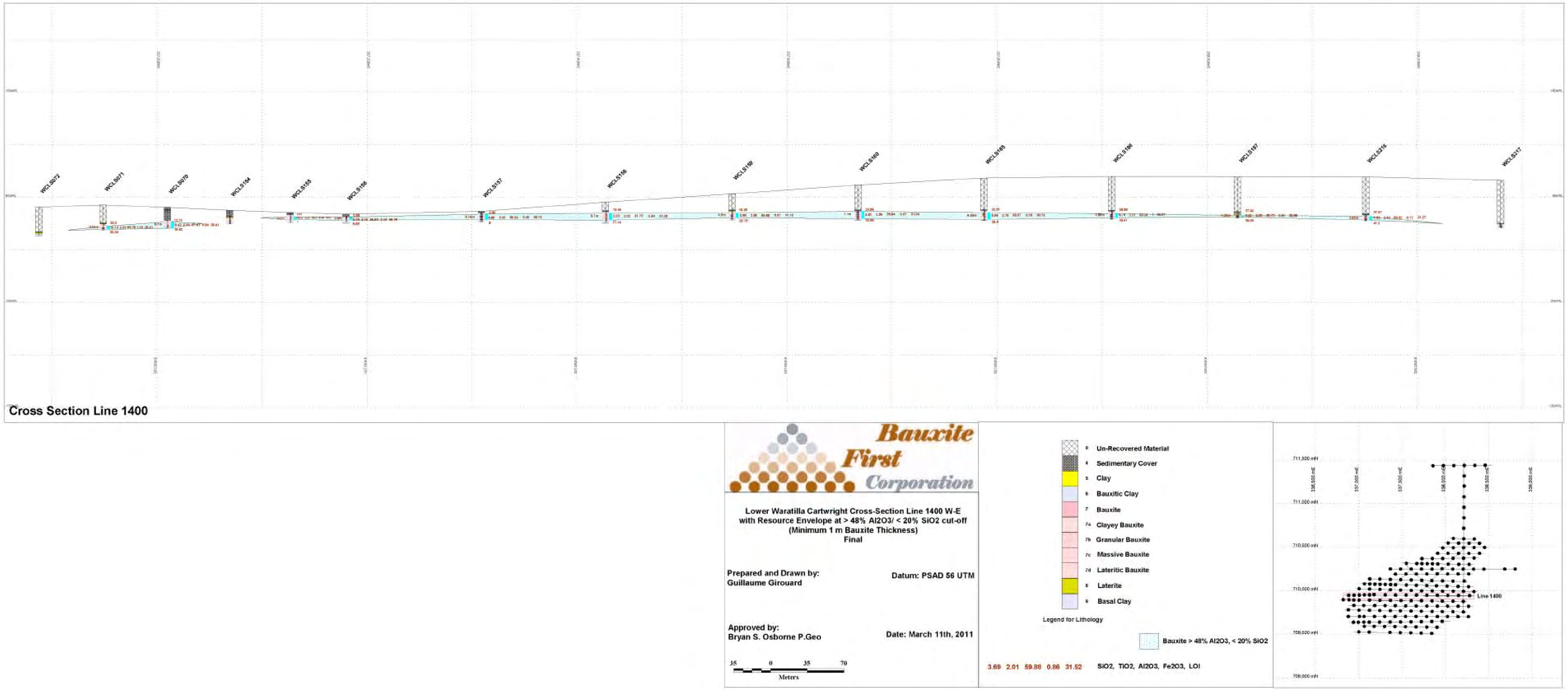


Figure 10.5 – Cross Section Line 1800 Bonasika 7

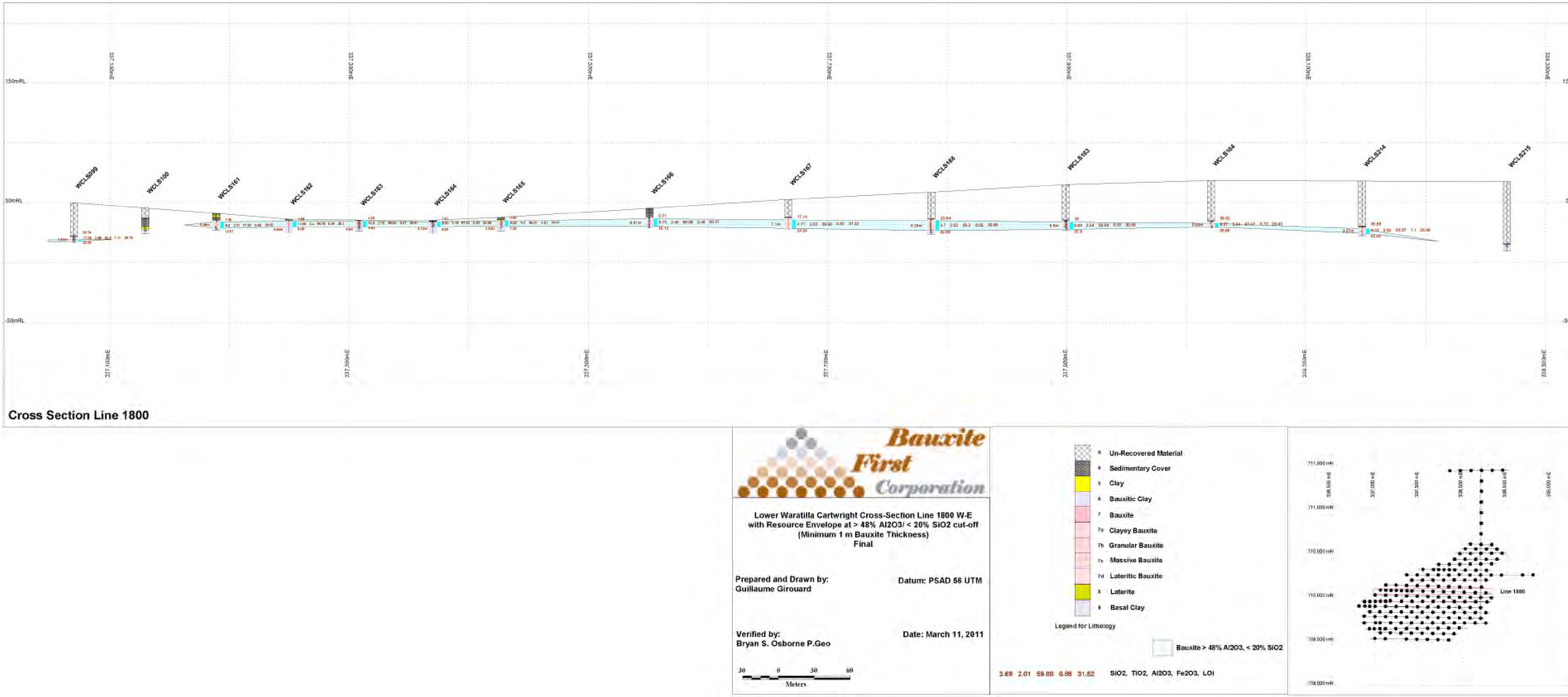
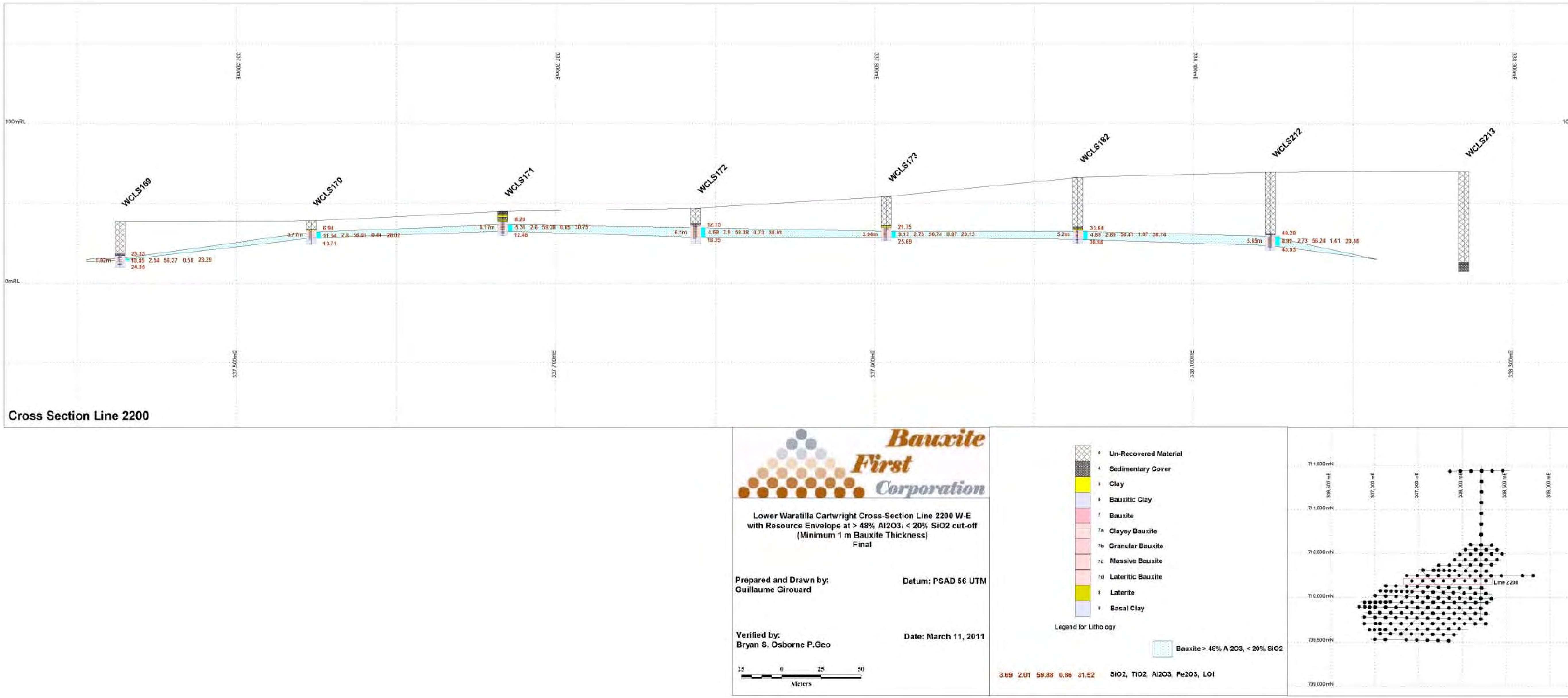


Figure 10.6 – Cross Section Line 2200 Bonasika 7



SECTION 11

SAMPLE PREPARATION, ANALYSES AND SECURITY

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Sample Preparation and Analyses

Sample preparation was carried out by ACME Analytical Laboratories Ltd. that has ISO certified facilities for such work in Georgetown as well as offering rapid expediting services to Vancouver. ACME handles the expediting of the pulped samples through the Guyanese authorities to their laboratory in Vancouver.

All systematic resource samples from the five (5) explored Bonasika deposits have been analysed at the ACME Laboratory in Vancouver, B.C. In 1996, ACME became the first commercial geochemical analysis and assaying laboratory in North America to be accredited under ISO 9001; the laboratory has maintained its registration in good standing since.

XRF analytical techniques are considered the most reliable for determining bauxite major oxides. LOI has been determined by thermo-gravimetric methods. Specific instructions were provided by Aluminpro with regard to the procedures required to achieve accurate and precise results.

A series of samples from Bonasika 1, 6 and 7 were also tested for a wider range of chemistry by ICP MS methods at ACME. This work was intended to identify potential deleterious constituents. XRF analysis has also been conducted on various composite and individual pulp samples at SGS providing a third party verification of the XRF results from ACME.

X-Ray Diffraction (XRD) analysis was used to determine the mineralogical composition of the bauxites at SGS in Lakefield, Ontario. XRD analyses were also conducted on Bonasika 1 and 6 samples at the COREM and SGS research facilities as a basis for mineralogical and process test work.

Details on the sample preparation and analytical procedures (LOI determination and XRF analysis are provided in the Technical Reports by Met-Chem (September 2010) and by Dominique L. Butty (May 2011).

The rejects of both the crushed core (approximately 1.5 kg) and pulps (approximately 200 g) were initially retained at the ACME laboratory in Georgetown and ultimately archived at the Bonasika site. Pulps are also retained at the ACME laboratory in Vancouver.

11.2 Security

Mr. Neville Clementson, First Bauxite Site Geologist has been responsible for sample custody at site since 2008. Samples, once bagged, are stored in a locked, secure place on site prior to shipment to the ACME Laboratory in Georgetown, approximately every week. Mr. Sulay Mendoza, First Bauxite Geological Technician, has been responsible for sample custody between the site and ACME Laboratories in Georgetown since 2008. The Qualified Person is satisfied that the sample handling, from collection at site to the analytical laboratory, provides adequate protection for the safe and un-tampered delivery of the samples for analysis.

11.3 Quality Assurance and Quality Control

Field duplicates were collected randomly by taking both halves of the core and bagging them with separate tags. The field duplicates were collected to monitor the reproducibility of the sample collection procedures. The duplicates were obtained by taking half of the split core and inserting them at approximately every 40th interval in the sample stream.

Random dummy samples were also inserted into the sample streams that were subsequently replaced by the ACME laboratory in Georgetown with reference material after crushing and grinding. For this purpose, a supply of bauxitic material was provided for insertion into the sample stream as clearly pre-marked in the sample tag book. The above control samples were introduced at intervals of approximately 40 samples; they remain blind, or unknown to the analytical laboratory.

During the sampling process, periodic slots were allocated for pulp samples to be taken at the sample preparation laboratory. An empty sample bag with the allocated number was inserted into the sample stream for reception of the pulp duplicate. These pulp duplicates were likewise inserted by the ACME laboratory in Georgetown at random intervals of approximately 40 samples.

At the ACME analytical laboratory in Vancouver, BC, Canada, two (2) internationally certified bauxite reference samples (SRM 600 and SRM 698) were inserted to assure instrumental fidelity at approximately every 10th to 20th sample interval. The laboratory also did a random repeat analysis at every 20th sample interval.

11.3.1 Results from the Quality Control Samples

Details on the analytical data validation completed by First Bauxite, using QC samples inserted into the field sample stream and composite core samples are provided in the Technical Reports by Met-Chem (September 2010) and by Dominique L. Butty (May 2011). The Fail/Pass criteria, specifications on the Reference Materials and analytical results from the Standards, Field and Pulp Duplicates are discussed. Further details are provided in Section 12 Data Validation.

The QA/QC program indicates a good performance by the ACME Analytical Laboratories Ltd. (Vancouver) in achieving reproducibility of precise and accurate results as indicated by the results of the reference samples, the certified samples and the laboratory repeats. The pulp duplicates also demonstrate acceptable results in terms of sample preparation at the Georgetown laboratory. The comparative analyses for the field duplicates and pulp duplicates are considered acceptable for the purposes of resource estimation.

The results of the field sample duplicates indicate that good reproducibility is more difficult to achieve with regards to the silica (and iron at Bonasika 6). Silica is always a problem in sampling bauxite deposits due to its highly variable distribution or "nugget effect". Only very large samples can fully overcome this sampling problem; although even twin holes tend to give disparate values. The comparative results for the field duplicates are, however, considered acceptable for the purpose of resource estimation. The interpolation by kriging also helps to smooth out variability in the resource model.

11.3.2 Composite Analyses at Third Party Laboratories

Numerous composites from half-core samples have been prepared to meet target grades based on ACME XRF and LOI analyses of the constituent intervals. These composites have then been sampled and head grades analysed either at ACME or other laboratories for a range of test work. The most recent Bonasika 7 comparisons are shown in Table 11.1.

The table indicates that, based on the sampling of one set of half cores analysed at ACME, reasonable predictions can be made of the head grades of the composites, made up of the corresponding half cores, and tested at either ACME or SGS. As always, silica is the major oxide which is least predictable.

Table 11.1 – Bonasika 6 (Sample 1) and Bonasika 7 (Samples 2 to 6) Predicted vs. Composite Head Grades (ACME vs. SGS)

	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)	Totox (%)
Predicted*	60.03	6.64	0.99	2.26	29.58	99.51
ACME analysis	60.44	5.92	0.96	2.26	29.50	99.08
SGS analysis	59.60	5.56	0.96	2.14	30.30	98.56
Predicted (High Grade)*	61.47	3.00	0.61	2.72	31.35	99.15
SGS analysis	59.60	3.95	0.57	2.65	33.50	100.27
Predicted (Low Grade)*	54.98	13.25	0.90	2.33	27.64	99.10
SGS analysis	56.00	12.00	0.75	2.29	29.00	100.04
RGB Predicted*	55.79	11.01	0.81	2.37	28.51	98.49
ACME analysis	56.56	10.48	0.82	2.41	28.78	99.05
DFB Predicted*	59.77	4.03	0.69	2.65	31.26	98.33
ACME analysis	60.82	3.72	0.75	2.65	31.35	99.29
DFB (3%) Predicted*	60.27	3.05	0.68	2.77	31.62	98.39
ACME analysis	61.18	3.03	0.73	2.58	31.73	99.25

* Predicted refers to the grades of a composite sample prepared on the basis of many ACME core assays

SECTION 12

DATA VERIFICATION

12.0 DATA VERIFICATION

Technical Report by Dominique L. Butty dated May 2011, see Appendix A, provides a comprehensive verification of various aspects of the project database and a summary is provided as follows:

12.1 Survey Verification

The Bonasika 7 survey work was validated in November 2010 by an Independent Certified Surveyor, Mr. Trotman SLS. This validation was carried out in parts; firstly, an examination of the data submitted by the First Bauxite surveyor and, secondly, a re-survey of selected drill collars and comparison of the results with the previously submitted data.

ARD and MPD statistics were applied to 64 observations to verify that the above survey deviations were within acceptance thresholds considering the size of the exploration grid (85 m), as shown in Table 12.1.

Table 12.1 – ARD and MPD Statistics – Survey Data

ARD*< 5%	MPD**
100.00%	0.20%
100.00%	0.55%
100.00%	0.00%

*ARD: absolute relative difference;
**MPD: Mean percentage difference

12.2 Sample Preparation and Analysis

12.2.1 Field Duplicates

The field duplicates were collected to monitor the reproducibility of the sample collection procedures. The duplicates were obtained by taking half of the split core and inserting them at approximately every 40th interval in the sample stream.

Except for SiO_2, the analysis of the paired data shows a good compliance with ARD criteria (90% of duplicate pairs should have ARD values of <15%) and regular MPD distributions around mean values nearing 0%, as demonstrated by the table and box plot overleaf. In general, the field duplicates show narrow and un-biased grade variations, as show in Table 12.2.

Table 12.2 – ARD and MPD Statistics – Survey Data

Assay	ARD < 15%	MPD
SiO_2	80.33%	-0.99%
TiO_2	100.00%	-0.07%
Al_2O_3	100.00%	0.05%
Fe_2O_3	90.16%	-0.15%
LOI	100.00%	0.14%

Half core samples generally show substantial grade differences due to the absence of sample homogenization and natural short scale variations. The above MPD scattering of paired data is generally low and indicates a remarkable homogeneity of core samples, but for SiO_2. Descriptive statistics confirm that field duplicates have consistent grades, with similar population distributions and similar means.

12.2.2 Pulp Duplicates

Pulp samples were taken to monitor the reproducibility of the sample preparation procedures. The samples were taken at the sample preparation laboratory at random intervals specified by First Bauxite, averaging an insertion at approximately every 40th interval.

The analysis of the paired data shows a satisfactory compliance with ARD criteria (90% of duplicate pairs should have ARD values of <5%) and regular MPD distributions around mean values nearing 0%, as demonstrated by the Table 12.3. Pulp duplicates show narrow and un-biased grade variations.

Table 12.3 – ARD and MPD Statistics – Duplicate Pulp Data

Assay	ARD <5%	MPD
SiO_2	87.93%	0.01%
TiO_2	98.28%	0.07%
Al_2O_3	100.00%	0.02%
Fe_2O_3	89.66%	0.07%
LOI	100.00%	0.00%

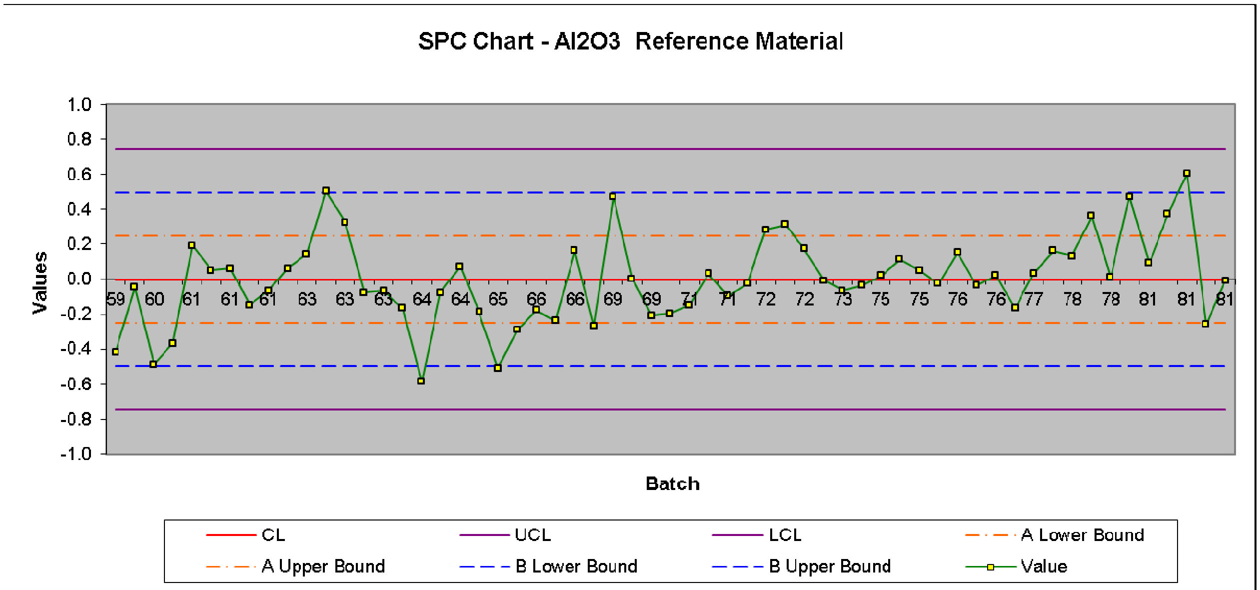
Descriptive statistics shown below confirm that grades of pulp sample duplicates have consistent grades, with similar population distributions and similar means.

12.2.3 Bonasika Standard Reference Material

Standard Reference Material was inserted in the sample flow to determine the precision of assay results and verify the consistency of instrumental calibration over time. For this purpose a reference sample made up from well homogenised Bonasika bauxite.

A statistical analysis of laboratory precision indicates the absence of statistically significant bias and the instrument calibration is confirmed and demonstrated by a Statistical Process Control Chart as shown in the following Figure 12.1 for alumina:

Figure 12.1 – Statistical Process Control Chart – Standard Reference Material



12.2.4 Certified Reference Material

Certified reference material from the US National Institute of Standards and Technology (SRM 600 and 698) was inserted in the sample flow by the Acme laboratory to determine the accuracy of assay results and verify the absence of bias and deviations of instrumental calibration over time.

Assay results are all within acceptable threshold limits, except for the silica of SRM 698 where accuracy should be ± 5% of certified value (it is 14%) and 95% assay results returned should be within ± 2 σ (it is 75%) and 99% ± 3 σ (it is 80%). These sub-optimal results are probably due to the very low silica content of the reference material. Such low silica values are generally not representative of bauxite in Bonasika 7 and therefore sub-optimal assay accuracy in this value range is not considered critical. Statistical Production Control (SPC) charts demonstrate no significant bias and/or deviations of calibration over the duration of the exploration campaign.

12.3 Resource Model Validation

Various techniques for validating the resource model, including a comparison of the statistical parameters of the basic sample grade data and the block grade data, demonstrate acceptability as a basis to resource estimation and are discussed under Section 14.11.

SECTION 13

MINERAL PROCESSING AND METALLURGICAL TESTING

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 Historical/Context

This section describes the beneficiation work conducted at site and at various US and German facilities on bauxite from the Bonasika 7 deposit.

First Bauxite identified the Bonasika 7 deposit in May 2010 in the SW section of the W-CPL which is of higher grade than Bonasika 1, 2 and 5 deposits and contains less of the iron contaminants considered deleterious in the production of high quality refractory products. To validate and optimize the process, a new testing program was commissioned. This program contained all the process steps envisaged for the operation such as washing, crushing and grinding, briquetting as well as sintering. Some additional tests were conducted to compare expected plant feed size distribution with feed conditions on the small scale sample obtained by sonic drilling.

Bonasika 6 deposit is similar to Bonasika 7 in grade and iron content. Bonasika 6 deposit contains similar Regular Grade Bauxite (**"RGB"**) and Direct Feed Bauxite ("**DFB**"). Since modelling of RGB and DFB was not performed on Bonasika 6 deposit, the bauxite is considered to be all RGB and the process plant, as designed for Bonasika 7, will perform the same for Bonasika 6 except that all the bauxite will be crushed and washed prior to the sintering plant. Table 13.1 shows comparison of Bonasika 6 and Bonasika 7 mineral resources.

Table 13.1 – Comparison of Bonasika 6 and Bonasika 7 Mineral Resources

Resources	**Al_2O_3 (%)**	**SiO_2 (%)**	**Fe_2O_3 (%)**	**TiO_2 (%)**	**LOI (%)**
Bonasika 6					
RGB Indicated (W-CPL)	58.9	7.9	1.0	2.3	29.3
RGB Indicated (PGGS)	58.9	7.0	0.9	2.4	30.1
Bonasika 7					
RGB Indicated	55.5	12.2	1.0	2.3	27.9
DFB Indicated	60.8	3.0	0.7	2.7	31.6

13.2 Test Work Program

At the beginning of the test program, the Bonasika 7 deposit geological model was reviewed with mining personnel to establish the optimal mining approach. The decision was taken to use selective mining to recover DFB on-grade bauxite that could be fed directly to grinding and sintering without beneficiation. The residual bauxite of lesser grade, RGB, would require beneficiation to meet acceptable sinter feed quality. It was determined that this approach was possible with allowance for mining dilution factors to maintain grade consistency. The DFB, with a cut off grade of 5% silica, would have an average grade of 3% silica while the RGB, accounting for losses and DFB dilution (which in fact enhances the grade of RGB because of its lower silica content) would have an average plant feed silica grade of 9.16% silica. It should be noted that silica does not refer to quartz or other free silica but instead refers to the silica content inherent in kaolin clay, which is the only significant silica-bearing mineral within the bauxite.

Based on the above mining approach, wash tests were done at site using a regular scrubber on trench samples crushed to -3” (-75 mm). Various feed grades were tested using some variations of the expected flow sheet to determine the wash plant weight recovery and silica reduction. A total of 13 wash tests were carried out with the regular scrubber equipment. The scrubber is destructive on the material and generates a high level of attrition fines that are lost to downstream. Since Bonasika 7 bauxite is harder than the previous tested bauxite of Bonasika 1, 2 and 5, it was decided to explore the potential of high pressure washing equipment manufactured by Haver & Boecker of Munster, Germany and distributed in the Americas by W.S. Tyler, to determine if superior cleaning and weight recovery could be achieved. All test results were analyzed and it was concluded that the high pressure unit offered a better performance than a traditional scrubber.

Some additional tests were conducted to complete the process plant flow sheet and technology selection. This included a crushing test at Stedman to compare the cage mill crushing to the impact crusher for size reduction in the wash plant as well as a feed size gradation comparison of trenched material versus sonic drill core samples used for the representative sample testing.

To finalize the testing program, a representative sample of the average Bonasika 7 deposit was processed to confirm the ability of the process to reach the required product grade and to confirm that the grinding, briquetting and sintering operations would perform as expected in production of the final targeted refractory product.

All samples were sent to an outside laboratory (ACME, Vancouver, B. C., Canada) for assays to give the chemistry of each step of the process. The laboratory uses standard industry practices to analyze the samples which include QA/QC verifications.

13.3 Wash Test Work Results

13.3.1 Scrubber Tests

The scrubber tests were done at site.

The basic observations revealed that the natural fines contain most of the high silica clays and are of lower grade. The + 4 Mesh stream after scrubbing is always superior and frequently meets grade specification without further work. The + 4 Mesh stream is crushed to -4 Mesh after washing. For both streams (natural - 4 Mesh and crushed - 4 Mesh), the silica content increases with the fineness of the particles. This demonstrates that bauxite containing higher clay values crushes more easily, with clay preferentially reporting to the finer fractions and thus available for elimination early in the washing process. This favours the early separation of natural occurring fines to eliminate them and prevent contamination of the downstream process. By following this practice, the weight and grade recovery will be maximized.

13.3.2 High Pressure Wash Tests

The high pressure wash tests were done at Owasso, Oklahoma, USA. The High Pressure washing device, a Ty-Can unit, is a Haver and Boecker High Pressure washing device. It was used to process the DFB and the RGB separately.

To provide the mass balance of the tests, the oversize and undersize discharges from the Ty-Can unit were simultaneously collected in five (5) gallon pails during a timed study. The products from the various wash tests were tagged and shipped to Outotec in Jacksonville, Florida, USA for further characterization and testing in a Floatex unit.

Visual inspection of the washed bauxite showed that all the surface clays and clays hidden in the surface voids were removed by the high pressure washing jets. Indications are that high pressure washing of the material is much less destructive than standard scrubbing and is able to remove the surface clays very efficiently. This contributes to a higher weight recovery since fine particle creation is minimized.

Comparing the high pressure results with the equivalent scrubbing tests on site, the silica reduction levels, although slightly lower, were similar with the high pressure washing. Pressure washing is less destructive on particles.

13.3.3 Electrostatic Separation Test

To determine if the titania (**"TiO_2"**) content could be lowered by electrostatic separation, a sample of Bonasika 7 master composite was shipped to Outotec. The sample was processed through the test unit and essentially no separation occurred. This leads to the conclusion that TiO_2 cannot be lowered by any practical means.

13.4 Wash Plant Recovery model

Since all the available tests were done on different feed grade materials, a common comparison basis was needed. The data of all tests was normalized based on the silica feed grade to obtain a relative product upgrading on the basis of relative weight recovery.

In order to determine the product grade of RGB after washing, a mass balance of the Run-of-Mine and sinter feed material is required. It is shown in Table 13.2.

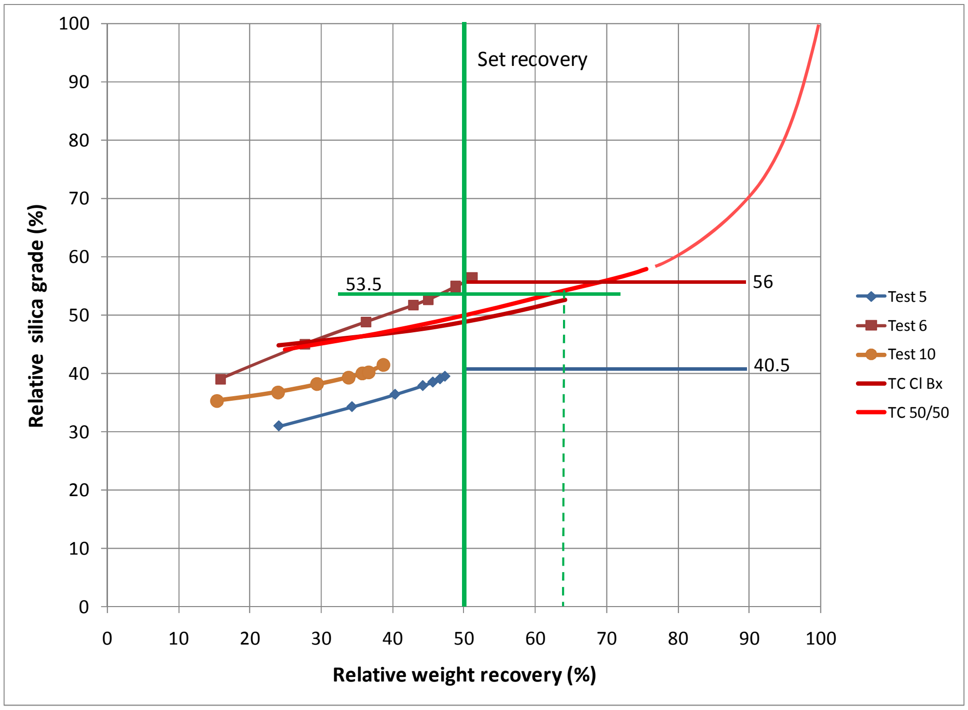
Table 13.2 – Run of Mine and Sinter Feed Mass Balance

Material	ROM Feed SiO_2 %	(Washed) Product SiO_2 %	Blending proportion %	Blended SiO_2 %	Relative SiO_2 %
DFB	3.0	3.0	58.5	1.8	100.0
RGB	9.16	4.9	41.5	2.0	53.5
Sinter Feed			100	3.8	

Based on the modelled resources, the DFB grade that will bypass the wash plant will carry 3.0% silica. Similarly, the RGB that will feed the plant has a calculated grade of 9.16% silica from mine planning considering losses and dilution with DFB. For the high quality product targeted, a blended product of DFB and washed RGB of 4% silica or less is needed. This can be obtained with a blend of 58.5% DFB and 41.5% washed RGB when the washed RGB has 4.9% silica. The 4.9% silica product grade corresponds to a 53.5% relative silica content compared to the average wash plant feed.

The above relative product grade was compared with normalized washing performance of the site tests and Ty-Can wash tests. Figure 13.1 shows simplified range of performances observed in the various tests available.

Figure 13.1 – Performance range of wash tests



For mine planning, the wash plant performance was estimated to be 50% relative silica grade in the product for a wash plant recovery of 50% weight with reference to the feed mass. This operation point is at the intersection of the green line (50% weight recovery) and the TC 50/50 product curve. However, the range of product grade varied between 56% relative silica (worst result – Test 6) and 40.5% relative silica (best result – Test 5) for the weight recovery selected. On average, the relative silica grade should be 48% which is better than the operation point selected and much better than the needed 53.5% relative product silica.

Using Figure 13.1 for recovery comparison, a relative product silica grade line of 53.5% was added to analyze the required performance of the plant. The following can be observed:

- This line is close to the worst performance observed (56% silica at 50% weight recovery for Test 6) which means that this product grade will be met most of the time at this weight recovery and this is therefore a conservative operating point.
- The pressure washing technology has a flatter upgrading curve and the weight recovery has good chances to be higher (64% weight recovery for TC Cl Bx) when compared with standard scrubber test (56% weight recovery for Test 10) for the same sample.

Based on the above analysis of washing performance, the weight recovery of 50% for RGB and the product grade of 50% relative upgrade used in mine planning are considered to be conservative.

The calculated combined product weight recovery based on the Run-of Mine feed is 70.7%.

13.5 Wash Plant Processing Factor

From the test work performed on the various grade samples and the analysis of the results, it is evident that the wash plant feed grade is the key factor influencing the product grade and the weight recovery. Since the wash plant product grade target is 4.9% silica because of a mixture at the sinter plant feed of washed product and DFB material, the product grade requirement was relaxed at the wash plant. The wash plant operation is considered very robust and flexible to provide the proper feed for the sintering plant.

Blending of the DFB and washed RGB product can be done in varying proportions depending on the available material grades to obtain the sinter plant feed grade desired.

13.6 Representative Sample Wash Test

A sample representative of the Bonasika 7 deposit was prepared by selecting the mineralization intercept cores from eleven 6” diameter sonic drill holes. The cores were separated into three (3) streams – two (2) streams of DFB (consisted of massive/granular and fine bauxites); one (1) stream containing 3% silica and the other stream 4% silica, and the third stream consisted of RGB (essentially Clayey Bauxite).

The sample is considered representative of all bauxite types since the drill holes were distributed over the entire deposit. The preparation of the sample was supervised at site by the same geologist that supervised all geology work included in this Report.

The assays made on the representative sample show that the chemistry is representative. But it demonstrated that size distribution was altered due to sonic drilling.

To determine the significance of sonic core drilling on generation of fines, a comparative wash test was conducted between a trench dug sample and two adjacent sonic drilled samples. The samples were crushed to - 1.5", coned and quartered, scrubbed with ½ gallon of water for 5 minutes and then screened using a 4 Mesh screen. The + 4 Mesh became Stream A and was jaw crushed and then wet screened to collect the various fractions. The - 4 Mesh stream was wet screened to collect the same fractions.

It was apparent that the screen split between A and B streams after scrubbing changed from a 1:1 ratio (which is typical for mine site scrubbing tests) to about a 1:2 ratio. Also within Stream B there is a significant increase in – 200 Mesh in the sample obtained from the same core: thus sonic drilling is shown to affect the sample particle size distribution and therefore could not be used as a totally representative sample for process design. Consequently, the wash plant recovery was modelled on the trenched samples that were used for both site wash tests and the Owasso Ty-Can tests. It should be noted that the concentrate from the sonically drilled sample is progressively reduced to micron size specification prior to briquetting and sintering and therefore the additional and earlier particle size reduction imparted by the sonic drill contributes no deleterious impact to the final stages of the agglomeration and sintering.

The wash plant design criteria were based on the trench sample testing and modelling which is undisturbed from sonic drill vibrations. These samples better represent the expected particle size distribution that will feed the wash plant and the wash plant mass balance. Since the final grade of the wash plant is mostly related to the feed grade, flexibility in recovering the coarse fractions of natural fines (-4 Mesh particles) has been included in the wash plant design. This will help maximizing the overall weight recovery and provide a better control of the product quality when the wash plant sees lower silica feed grade

13.7 Other Test Works

13.7.1 Cage Mill Crushing Tests at Stedman

The Cage mill was effective in crushing to the desired specification and better than the impact crusher.

13.7.2 Raymond Roller Mill Grinding at Alstom-Power

Samples from testing in Owasso and Outotec were shipped to Alstom for this trial.

The grinding tests are conclusive and the products of the tests were shipped to Scott Equipment as feed material for the briquetting tests. The roller mill size was selected to provide ample grinding capacity to reach the grind fineness required for briquetting.

13.7.3 Briquetting and Sintering Tests

A 50 kg batch was prepared by blending 62% milled DFB (3.08% silica) with 38% RGB (5.5% silica). The sample was split into equal lots, one (1) for Polysius and one (1) to be retained for briquetting at Scott Equipment Company.

a) Polysius Sintering Test in Germany

Polysius arranged for briquetting of their Representative Sample at Bepex in Germany. Their chemical analysis of the RS sample is shown in Table 13.3.

Table 13.3 – Chemical Analysis of Polysius Sintering Test

Chemical Analysis	"As Received" %	Results reported on a calcined basis %
SiO_2	4.54	6.67
Al_2O_3	60.22	88.47
Fe_2O_3	0.61	0.90
TiO_2	2.52	3.70
MgO	0.01	0.01
CaO	0.18	0.24
MnO	0.01	0.01
LOI	31.76	--

It was reported that some sticking occurred during the burn, and the sintered briquets' bulk specific gravity was 3.44 g/cc, which is a typical value for US sintered Guysin 90.

b) Briquetting Test at Scott Equipment

The briquets had an acceptable green density very near 2.0 g/cc they were shipped to Sunrock Ceramics for sintering. The briquets were screened over a 9/16" screen to remove the fines before shipping.

c) Sunrock Ceramic Sintering Test

After firing, representative samples of the briquets were tested to determine their density.

All Batches except Batch one (1) were acceptable.

SECTION 14

MINERAL RESOURCE ESTIMATES

14.0 MINERAL RESOURCE ESTIMATES

14.1 Introduction

The unwashed mineral resources for the BML deposits 1, 2, 5 and 6 (Upper Waratilla) were reported by First Bauxite in a Feasibility Study NI 43-101 Technical Report prepared by Met-Chem and dated September 2010. The resources for Bonasika 7 are discussed in the following sections.

Modelling was conducted by Dominique Butty Eurogeol. Much of this section on modelling and resources is summarised from a 43 101 Technical Report on the Bonasika 7 Bauxite Deposit, Waratilla Cartwright Prospecting License dated May, 2011 and attached in Appendix A.

Techbase version 2.9, from Techbase Int. Ltd., CO, USA, was used for resource modelling. Variography was carried out with Techbase and Stanford Geostatistical Modelling Software **("SGeMS")** version 2.1. All the Bonasika bauxite deposits were modelled in 3D by Ordinary Kriging **("OK")** using vertical drilling data obtained by sonic coring.

14.2 Database

The database used for modelling consists of the following information:

- UTM coordinates of each sonic drill hole collar, elevation, inclination, azimuth and end of hole (EOH) depth below surface elevation;
- Intercepts and lithology code for each hole;
- Assay data with Al_2O_3, SiO_2, Fe_2O_3, TiO_2 and LOI of bauxite and off-grade material above and below bauxite. Sample lengths range from 0.2 m to 0.8 m although generally a 0.5 m interval was targeted;
- *In situ* density measurements of the main bauxite.

A total of 192 vertical exploration holes have been drilled for resource definition by First Bauxite and are encompassed within the Bonasika 7 database. The holes are spaced on lines 120 m apart however, holes are displaced by 60 m on alternating lines and the resulting diagonal drill hole pattern is such that the holes are effectively 85 m apart. Samples were collected by lithology at reasonably constant intervals, averaging 0.47 m for bauxite intervals, and did not necessitate regularisation to a standard length prior to modelling (compositing). Samples were assayed for LOI by thermo-gravimetry and for Al_2O_3, SiO_2, Fe_2O_3 and TiO_2 by XRF. Density estimates are based on density measurements obtained by pitting within trenches to provide access to different bauxite levels on the Bonasika 7 deposit.

14.3 Main Geological Units

Key lithological units have short range continuity and occur as lenses rather than continuous layers. Lithofacies are based on the observation of physical characteristics and do not correspond to specific grades. Lithologies were found inappropriate for domaining and were replaced by larger units, called hereafter Main Geological Units, depicting the broader stratigraphic sequence and distribution of the sediments hosting the bauxite deposits.

The Main Geological Units are based on lithologic descriptions, with minor adjustments based on grades. The lithologic description of Clay is generic in a sense that it includes sedimentary clays and mudstones occurring within Upper Clays and/or Basal Clay, as well as clays within the bauxitic layer. Clay occurring within the bauxitic layer is allocated to the Upper/Lower Bauxitic Layer or rarely to Regular Grade Bauxite when grades are within specifications. Clay occurring below the bauxitic layer is allocated to the Lower Lateritic Clays or to Basal Clays depending on the proportion of Fe_2O_3 (generally > 20%).

At Bonasika 7, the Refractory Grade Bauxite was divided into a standard refractory grade bauxite or Regular Grade Bauxite unit ("**RGB**") and a Direct Feed Bauxite unit ("**DFB**") based on chemistry alone, which reflects product grade specifications. Grades of RGB and DFB stand within the limits defined on the basis of cut-off grade sensitivities and are shown on Table 14.1.

Table 14.1 – RGB and DFB Cut-off Grade

RGB	DFB
SiO_2 $\leq 20\%$	SiO_2 $\leq 5\%$
Al_2O_3 $\geq 48\%$	Al_2O_3 $\geq 48\%$
Fe_2O_3 $\leq 5\%$	Fe_2O_3 $\leq 5\%$

Table 14.2 shows the Bonasika 7 grade statistics of RGB and Table 14.3 those of the DFB samples respectively. Extreme values outside grade specifications are due to minor off-grade inclusions.

Table 14.2 – Descriptive Statistics of RGB – Bonasika 7

Statistic of Samples	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)	Totox
No. of observations	784	784	784	784	784	784
Minimum	40.120	1.330	0.250	1.090	17.640	94.530
Maximum	66.500	38.340	12.130	4.910	32.830	100.300
Median	55.710	11.550	0.900	2.280	28.130	98.890
Mean	**55.380**	**12.233**	**1.069**	**2.356**	**27.842**	**98.880**
Variance (n-1)	9.747	28.665	0.681	0.214	5.291	0.157
Standard deviation (n-1)	3.122	5.354	0.825	0.463	2.300	0.396
Variation coefficient	0.056	0.437	0.772	0.196	0.083	0.004
Skewness (Pearson)	-0.529	0.744	6.628	1.145	-0.702	-2.207
Standard error of mean	0.112	0.191	0.029	0.017	0.082	0.014

Very narrow grade ranges and low standard deviations are the characteristics of DFB as shown in Table 14.3. Of interest are also the grade contrasts between RGB and DFB.

Table 14.3 – Descriptive Statistics of DFB – Bonasika 7

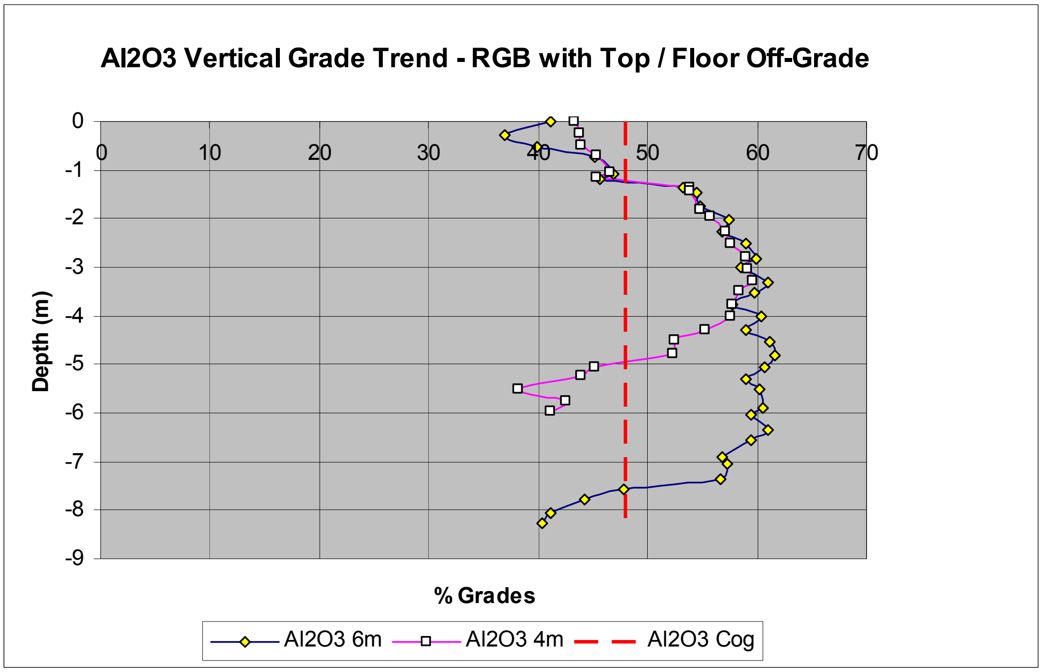
Statistic of Samples	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)	Totox
No. of observations	573	573	573	573	573	573
Minimum	53.080	0.460	0.300	1.560	26.600	97.240
Maximum	67.730	14.320	4.870	5.660	35.110	100.000
Median	60.890	2.850	0.700	2.630	31.650	98.930
Mean	**60.789**	**3.079**	**0.811**	**2.701**	**31.534**	**98.914**
Variance (n-1)	1.989	3.129	0.258	0.290	0.816	0.138
Standard deviation (n-1)	1.410	1.769	0.508	0.539	0.903	0.372
Variation coefficient	0.023	0.574	0.626	0.199	0.029	0.004
Skewness (Pearson)	-0.402	1.822	3.905	1.591	-1.438	-0.325
Standard error of mean	0.059	0.074	0.021	0.023	0.038	0.016

Vertical bauxite profiles generally display strong grade trends. Characteristically, grade profiles are similar irrespective of the bauxite thickness. In other words, the profile is compressed for thin bauxite layers and extended for thick bauxite layers, while keeping a similar shape. This is shown hereafter, for Bonasika 7, for bauxite averaging 3.6 and 6.3 m thickness with off-grade material above and below. The graphs represent the average of several holes.

The top and bottom of bauxite is marked by strong increases of SiO_2, corresponding to comparable decreases of Al_2O_3. The SiO_2 and Al_2O_3 cut-offs delimit approximately the same bauxite intercepts. In Bonasika 7, Fe_2O_3 increases towards the bauxite floor but most of the time is well below the cut-off grade.

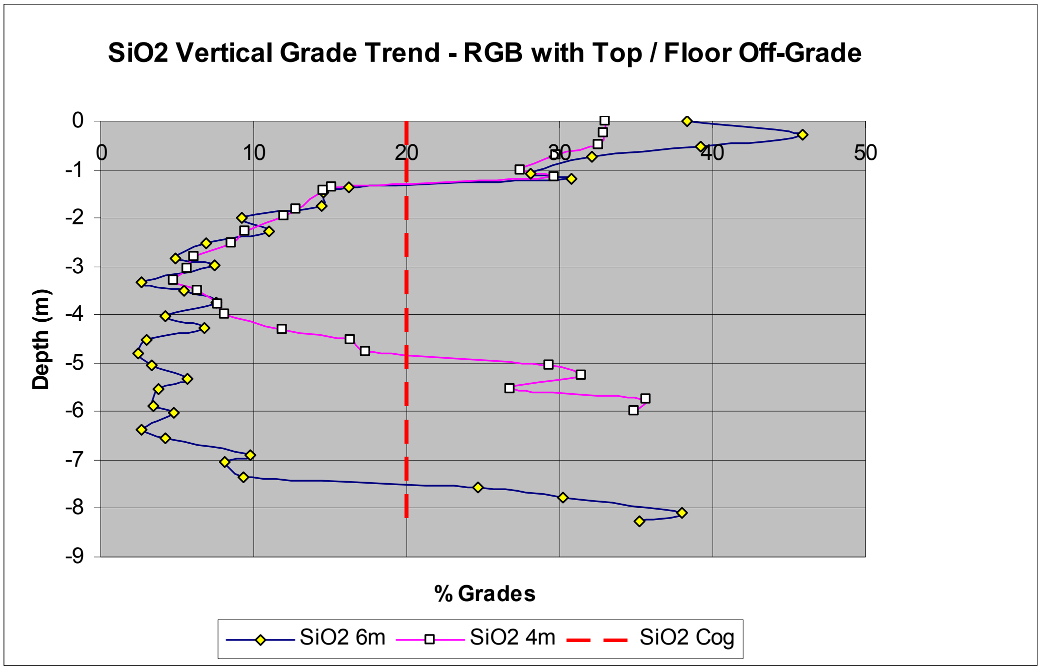
Examples are given for alumina and silica in Figure 14.1 and Figure 14.2. Graphical representations of vertical trends help identifying natural breaks in the grade profiles and, with due consideration to target grade specifications, support the selection of domain boundaries.

Figure 14.1 – Bonasika 7 Vertical Grade Trends for Al_2O_3



Note: 6 m, 4 m: average thickness; Cog: Cut-off grade.

Figure 14.2 – Bonasika 7 Vertical Grade Trends for SiO_2



Note: 6 m, 4 m: average thickness; Cog: Cut-off grade.

For Bonasika 7, the SiO_2 grade profile indicates a sudden change of bauxite composition between 15% and 20% SiO_2, while Al_2O_3 shows a similar change between 45% and 50%. Although the selection of grade cuts was heavily influenced by consideration of the run of mine grade specification, a 20% SiO_2 cut-off does correspond to a natural break in the bauxite profile. The RGB domain is then well defined by strong chemical contrasts in terms of both SiO_2 and Al_2O_3.

14.4 Stratigraphy

Table 14.4 shows the generalised stratigraphy of the Bonasika deposits as well as the consolidation of the various geological units required for the modelling of the bauxite mineralization, off-grade horizons, and host rocks. The codes associated with the key units are also provided.

Table 14.4 – Main Geological Units

Code	Description	Comment	Off-Grade Domain 3D Model	Bauxite Domain 3D Model	Short Description
0	Unrecovered	Same as lithology	**0**		
10	Top Soil	Same as lithology	**30**		**Top Soil and Sands**
30	Berbice Sand	Same as lithology			
35	Clay & Silt with Sand Intercalations	Mudstone/clays and siltstone interbedded with sands	**40**		**Upper Clays**
40	Upper Clays	Mudstone and clays, locally lateritic			
50	Upper Lateritic Clays	Lateritic clays and laterite.			
60	Upper Bauxitic Layer	Bauxitic clays and clayey bauxite, locally lateritic	**60**		**Upper Bauxitic Layer Off-Grade**
65	Regular Grade Bauxite	Commercial grade bauxite, mostly consisting of granular bauxite and clayey bauxite		**65**	**Regular Grade Bauxite**
66	Direct Feed Bauxite	Commercial grade bauxite, mostly consisting of massive, granular bauxite and clayey bauxite		**66**	**Direct Feed Bauxite**
65	Regular Grade Bauxite	Commercial grade bauxite, mostly consisting of granular bauxite and clayey bauxite		**65**	**Regular Grade Bauxite**
70	Lower Bauxitic Layer	Bauxitic clays and clayey bauxite, locally lateritic	**70**		**Lower Bauxitic Layer Off-Grade**
85	Lower Lateritic Clays	Lateritic clays and laterite	**90**		**Basal Clays**
90	Basal Clays	Clays, locally lateritic.			

14.5 Domain Definition

This section is identical for Bonasika 7 and 6 except that the Direct Feed Bauxite (3D Model Domain D66) is only differentiated at Bonasika 7. Therefore, everything reported on DFB is exclusively for the Bonasika 7 deposit.

The Bonasika 6 deposit was modelled in the same way as the Bonasika 1, 2 and 5 deposits. With the subsequent discovery of the larger and shallower Bonasika 7 deposit, the potential for a sizeable, readily mineable deposit of direct feed bauxite became apparent and it was considered appropriate at this point to model a separate DFB resource.

The bauxite domain is based on chemical boundaries that may not be visible at the mine faces. Hence, detailed mine face sampling and grade control will be required to ensure accurate ore lifting, particularly if RGB and DFB are to be mined separately. These are however, standard practices for refractory grade bauxite production.

The surfaces of the top and bottom of bauxite are based on the bauxite composites obtained for cut-off grades 48% Al_2O_3, 20% SiO_2 and 5% Fe_2O_3 for domain D65 (inclusive of DFB) and 48% Al_2O_3, 5% SiO_2 and 5% Fe_2O_3 for domain D66. The surfaces were applied on the 3D model using Triangulated Irregular Network (**"TIN"**).

The surfaces of other domains were derived from the stratigraphic sequence of the Main Geological Units. These domains are therefore called stratigraphic domains.

At Bonasika 7, three (3) grade models were considered, the RGB domain (D65), the DFB domain (D66) and off-grade including all other stratigraphic domains. In the latter grade model, the proportion of each stratigraphic domain – D30 to D60 and D70 to D90 – was captured to support material handling and mining studies as shown on Table 14.5.

In addition, a model was developed for RGB inclusive of DFB at Bonasika 7.

Table 14.5 – 3D Model Domains

Off-Grade Domain 3D Model	Bauxite Domain 3D Model	Short Description
30		Top Soil and Sands
40		Upper Clays
60		Upper Bauxitic Layer Off-Grade
	65	Regular Grade Bauxite
	66	Direct Feed Bauxite
	65	Regular Grade Bauxite
70		Lower Bauxitic Layer Off-Grade
90		Basal Clays

14.6 Cut Off Grade ("COG") Determination

a) Bonasika 7

COG selection was largely process driven, in that the produced bauxite had to be upgradeable to sinter plant feed or amenable to direct feed. After examining a wide range of silica and alumina cut offs, < 20% $Si0_2$ and > 48% Al_20_3 cut-offs were selected to define the outer limits of the deposit. Then the impact of an iron cut-off was examined as shown in Table 14.6. A cut-off on Fe_2O_3 proved necessary for the Bonasika 1, 2 and 5 deposits to obtain average grades compatible with process feed. For consistency, a similar Fe_2O_3 cut-off was applied to Bonasika 7 although this deposit contains but few Fe_2O_3 values in excess of 5%.

Table 14.6 – Cut-off Grade Sensitivity – Bonasika 7 Resource

Cut Off Grade			**Tonnage**	**Surface**	**OB**	**BX**	**Al_2O_3**	**SiO_2**	**Fe_2O_3**	**TiO_2**	**LOI**
Al_2O_3	**SiO_2**	**Fe_2O_3**	**('000 t)**	**(m^2)**	**m**	**m**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**
48	20	6	6,510	1,022,155	28.7	4.2	57.5	8.6	0.9	2.5	29.3
48	**20**	**5**	**6,495**	**1,022,155**	**28.7**	**4.2**	**57.5**	**8.6**	**0.9**	**2.5**	**29.3**
48	20	4	6,490	1,022,155	28.7	4.2	57.5	8.6	0.9	2.5	29.3

COG sensitivities were run using polygonal models, or 2D models based on composites, clipped by a polygon delimiting the surface area explored by drilling. No constraints were applied other than a minimum bauxite thickness of 1.0 m.

The following cut-offs shown in Table 14.7 were applied to define DFB material. A SiO_2 cut-off of 5% was selected to comply with process parameters, allowing for mine dilution.

Table 14.7 – Cut-off Grade Sensitivity to Select DFB – Bonasika 7 Resource

Cut Off Grade			Tonnage ('000 t)	Surface (m^2)	OB (m)	BX (m)	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
Al_2O_3	SiO_2	Fe_2O_3									
48	10	5	4,434	853,318	29.3	3.5	59.5	5.1	0.9	2.6	30.8
48	8	5	3,790	797,055	29.2	3.2	60.0	4.4	0.8	2.6	31.1
48	7	5	3,375	767,727	29.5	2.9	60.3	3.9	0.8	2.6	31.3
48	6	5	2,974	699,248	29.2	2.8	60.6	3.4	0.8	2.7	31.4
48	**5**	**5**	**2,520**	**601,597**	**28.5**	**2.8**	**60.8**	**3.0**	**0.7**	**2.7**	**31.6**
48	4	5	1,981	501,058	27.9	2.6	61.1	2.6	0.7	2.7	31.7

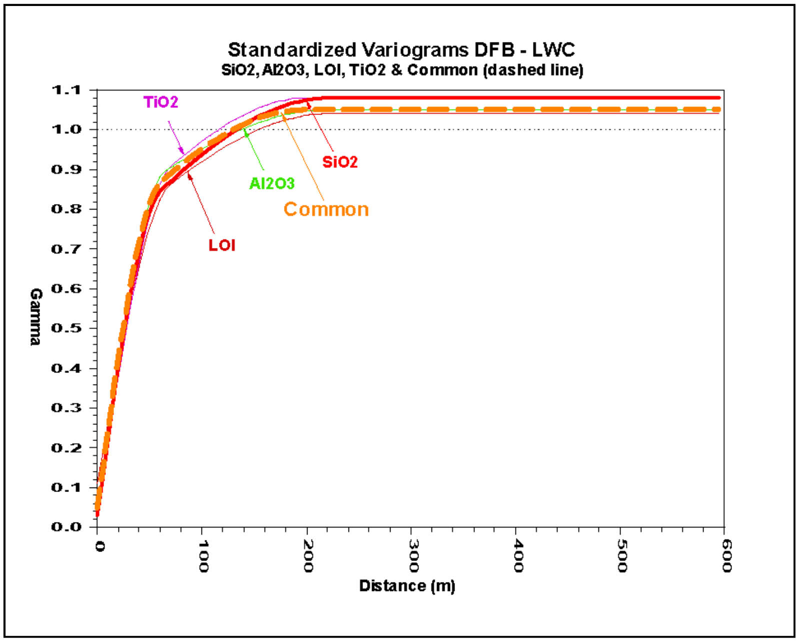
A cut-off on Fe_2O_3 proved necessary for the Bonasika deposits 1, 2, 5 and 6 to obtain average grades compatible with process feed. The combination of three (3) cut-offs was selected – including 48% Al_2O_3, 20% SiO_2 and 5% Fe_2O_3 – to better reflect process controls based on the actual level of Al_2O_3 and SiO_2 rather than the ratio of the two (2) grades.

14.7 Variography

Directional variograms of major oxides and LOI for azimuths 0°, 30°, 60°, 90°, 120° and 150° demonstrate that horizontal anisotropy is not an issue. However, there is a strong vertical anisotropy for all grades in the two (2) deposits.

An example of common variogram for Bonasika 7 is shown as Figure 14.3.

Figure 14.3 – Common Standardized Variogram DFB – Bonasika 7



For each grade model, a common variogram was used for Al_2O_3, SiO_2, TiO_2, Fe_2O_3 and LOI given the compatibility of the respective variograms and the necessity of maintaining the linear relationships between grades as well as the sum of major oxides and LOI. This constraint is strictly required to preserve the nature of bauxite, for each block, in terms of chemical and mineralogical compositions. The only exception was in Bonasika 7 where Fe_2O_3 had to be modelled with a specific variogram, given its markedly different spatial variability. It was verified that the linear relationships between grades as well as the sum of major oxides and LOI were maintained.

14.8 Block Model Parameters

Three Dimensional (3D) modelling of thin layers requires strict constraints on the vertical and horizontal search ranges in order to limit – as much as practicable within the constraint of the block dimensions – mixing grades belonging to the different positions in the grade profile. In particular, it is important to avoid mixing top and floor material with the central part of the profile, which in general supports the best grades. This is not achievable for layers less than twice the thickness of blocks, which in most cases is a serious limitation given that on average the bauxite deposits are 4-5 m thick.

With the above in mind, and to assist in maintaining the integrity of grades within the bauxite layer, Ordinary Kriging (“**OK**”) was applied in a flat space whereby samples and blocks were translated in space to transform the bauxite bed into a flat layer. This process, called Unfolding, facilitates sample selection by allowing a narrow search range in the vertical direction and reasonably long search ranges in the horizontal direction to select samples within specific positions in the grade profile. At the scale of the study, the bauxite layer is regular, therefore Unfolding with the top surface of bauxite was deemed adequate.

An analysis based on the optimisation of the Kriging Slope Regression ("**KSR**") and Kriging Efficiency ("**KE**") was performed to determine the optimum block size, search range and sample selection. In Bonasika 7 and 6, a block size of 60 m x 60 m x 2 m was found to be a good fit with the exploration grid size ensuring sound block estimates. The extent of the search range and the maximum number of samples selected within the search range were limited so as to ensure that negative kriging weights remained well below a critical level (< 3%). Keeping smoothing at reasonable level was also a consideration for selecting the search range. Table 14.8 shows the model description and the modelling parameters for Bonasika 7. In Bonasika 6, the relatively wide exploration grid required interpolation in two (2) stages, first using a search range of 90 m and then a search range of 100 m, to evaluate cells poorly informed in the first pass.

Table 14.8 – Model Description and Modelling Parameters

Parameters	Units	Bonasika 7
Block Model		
Xo, Lower Left	m	336,700
Yo, Lower Left	m	709,410
Zo, Top	m	80
Block Dimension in X	m	60
Block Dimension in Y	m	60
Block Dimension in Z	m	2
Number of Blocks in X		32
Number of Blocks in Y		24
Number of Blocks in Z		55
Baseline Azimuth	deg	90
Modelling		
Method		OK
Search Horizontal	m	90 and 100
Search Vertical	m	1.5
Maximum Samples		25
Minimum Samples		2
Horizontal Block Discretisation		9 x 9
Block Discretisation Vertical		3
Resource reporting		
Density		1.50
Minimum Bauxite Thickness	t/m^3	1
Maximum Overburden	m	Not Applied
Maximum Stripping Ratio	m	Not Applied
Categorisation	m/m	Section 14.9

14.9 Mineral Resources Classification

Resource classification based on KE and KSR has become widely accepted, bearing in mind however that resource classification is supported by a number of other factors not captured by these values depending only on the variogram, the geometry of the exploration data and block size. Other considerations include in particular the quality, robustness and completeness of the exploration database, as well as geological, mining and processing criteria.

A well informed block has a KE of ≈ 0.8 and KSR of ≈ 0.9. At exploration stage, block estimates should average KE values ≥ 0.50 and KSR values ≥ 0.60.

For resource categorisation, one expects Measured Resources to consist of continuous zones with KE > 0.7, Indicated Resources of continuous zones with KE > 0.5 and Inferred Resources of continuous zones with KE > 0.3. In terms of KSR values, typical ranges are > 0.9 for Measured, 0.7 to 0.9 for Indicated, and < 0.7 for Inferred Resources. Consequently, the resource categorisation criteria suggested in this Report stand as shown in Table 14.9.

Table 14.9 – Kriging Based Resource Categorisation Scheme

	Resource Category 1 Inferred	**Resource Category 2 Indicated**	**Resource Category 3 Measured**
KSR	< 0.7	0.7 to 0.9	> 0.9
KE	> 0.3	> 0.5	> 0.7

Given the lack of continuity of material attaining the KSR and KE thresholds of >0.9 and >0.7 respectively at Bonasika 7, it has been decided to allocate this tonnage to the Indicated Resource category.

The RGB bauxite will require washing whereas the DFB bauxite will either be direct feed to the sinter plant or blended with the washed product from processing the RGB. Hence, the two (2) tonnages and their respective grades are reported separately.

The present estimates of mineral resource only use the terms and definitions contained in the CIM Definition Standards adopted by CIM Council in November 2010 for the classification of the resource.

14.10 Model Validation

It is essential to demonstrate that the grade characteristics between actual samples and blocks have been maintained. On analysing the linear relationships between LOI and major oxides it may be demonstrated that grade correlations are well preserved. Similarly, multi-linear relationships between LOI and major oxides are well preserved.

A further means of validating the resource model is to compare the tonnages and grades of the block model compared to a polygonal model. In the case of the Bonasika 7, the grade characteristics are very close for LOI and major oxides, however the tonnage is 9% higher in the case of the polygonal model which is largely due to peripheral effects in defining the boundary of the two models. The average bauxite thickness is very close. The polygonal model provides a useful control, being simple to implement and unlikely to be affected by manipulation or interpretation errors. It validates the global grade estimates and sets the upper tonnage estimate.

14.11 Mineral Resource Estimate

The Bonasika 1, 2, 5 and 6 Unwashed Mineral Resources as of June 2010, based on categorisation using KE and KSR parameters and geological exploration considerations, are shown in Table 14.10 and Table 14.11. These same tables include the Bonasika 7 Unwashed Mineral Resources as of May 2011. The RGB and DFB resources are not added together as the RGB bauxite will be washed, significantly reducing the tonnage while improving the grades.

Table 14.10 – Unwashed Mineral Resource Statement for the Bonasika Deposits Measured and Indicated Categories

Resources	Tonnage ('000 t)	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
Bonasika 1						
Measured	1,443	55.8	11.5	2.0	1.9	28.4
Indicated	90	53.9	13.7	2.5	1.9	27.6
Sub-total	1,533	55.7	11.7	2.0	1.9	28.4
Bonasika 2						
Measured	342	54.7	13.5	1.7	1.9	27.6
Indicated	90	54.9	13.4	1.8	1.8	27.5
Sub-total	432	54.8	13.5	1.7	1.9	27.6
Bonasika 5						
Indicated	645	55.1	12.8	2.0	1.8	27.9
Bonasika 6						
Indicated (W-CPL)	4,596	58.9	7.9	1.0	2.3	29.3
Indicated (PGGS)	322	58.9	7.0	0.9	2.4	30.1
Bonasika 7						
RGB Indicated	3,174	55.5	12.2	1.0	2.3	27.9
DFB Indicated	2,387	60.8	3.0	0.7	2.7	31.6

Table 14.11 – Unwashed Mineral Resource Statement for the Bonasika Deposits
Inferred Category

Resources	Tonnage ('000 t)	Al_2O_3 (%)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)
Bonasika 1						
Inferred	8	52.1	11.2	5.6	1.8	28.3
Bonasika 2						
Inferred	35	53.6	14.1	2.5	1.9	27.1
Bonasika 5						
Inferred	12	55.8	13.0	1.0	1.6	28.1
Bonasika 6						
Inferred (W-CPL)	269	58.5	9.6	1.0	2.1	28.4
Inferred (PGGS)	34	58.0	9.0	0.7	2.3	29.2
Bonasika 7						
RGB Inferred	84	55.4	12.1	1.0	2.5	27.9
DFB Inferred	100	60.6	3.7	0.8	2.5	31.3

A small tonnage of bauxite at Bonasika 6 extends across the W-CPL northern boundary onto the PGGS that has now been relinquished by Rio Tinto and reverted to FBX. This tonnage is an integral part of the Bonasika 6 deposit, was explored and modelled as a part of the May 2010 resource estimate and is now included in the above resource statements.

14.12 Synthesis

The geometry and continuity of the Bonasika 7 bauxite deposit has been determined by extensive drilling and sampling. The mineralized horizon is essentially flat and largely continuous with the exception of local clay seams that occur and likely result from sub-vertical fracturing and in-filling subsequent to bauxitization. The deposit is similar in character to those developed in the Linden producing area, although not as thick and higher in silica. The deposit is also smaller, but it has the advantage of being exposed at surface and having a much reduced waste stripping ratio compared to the Linden deposits.

The variography, combined with systematic geological data that has been statistically analysed provides a sound basis to mineral resource categorisation. Mineral resource modelling has been conducted with specific block sizes appropriate to the drill spacing and bauxite continuity as expressed by the variography. Grades of the resource model are consistent with sample grades. The validity of the models has been checked by comparing the estimation results with those of polygonal estimates.

The Measured and Indicated Mineral Resources reported in Table 14.10 are sufficient in quantity and acceptable in quality to support feasibility related studies of developing the Bonasika deposits for a sintered bauxite production operation.

Bonasika 7 shows a higher degree of lateral continuity as compared to the other Bonasika deposits. The deposit nevertheless requires further drilling to allocate all resources to the Measured Resource category.

The Measured and Indicated Mineral Resources are inclusive of Mineral Reserves. Met-Chem advises that Mineral Resources that are not mineral reserves do not have demonstrated economic viability.

Met-Chem is unaware of any risk of environmental, permitting, legal, title, taxation, socio-economic, marketing, political nature, or other relevant factors that may materially affect the mineral resource estimates.

SECTION 15

MINERAL RESERVE ESTIMATES

15.0 MINERAL RESERVE ESTIMATES

Mineral Reserves were determined for the Bonasika 1, 2, 5, 6 and 7 deposits. This section of the report discusses only the mineral reserves for Bonasika 6 and 7. For details with respect to the mineral reserves for Bonasika 1, 2 and 5, refer to "NI 43-101 Technical Report Feasibility Study of the Bonasika Project, Guyana", September, 2010.

15.1 Bonasika 7

15.1.1 Block Model

The 3-Dimensional Geological Block Model for Bonasika 7 was supplied to Met-Chem by Aluminpro in the form of a Microsoft Excel Spreadsheet. Met-Chem imported this information into MineSight® Version 6.10, creating a 3-Dimensional mine planning block model. MineSight® is a third party commercial software that has been used by Met-Chem for the past 20 years.

Lithology surfaces supplied by Aluminpro were used to incorporate the overburden and waste horizons into the block model. Overburden is defined as top soil and Berbice sand. Waste is defined as mudstone, clay, siltstone, laterite and off-grade bauxite.

The bauxite horizon for Bonasika 7 was modelled as Regular Grade Bauxite ("**RGB**") and Direct Feed Bauxite ("**DFB**"). The definition of RGB and DFB is based on chemistry alone, which reflects product grade specifications. Grades of RGB and DFB stand within the following limits, defined on the basis of cut-off grade sensitivities.

RGB:

- SiO_2 $\leq$ 20%
- Al_2O_3 $\geq$ 48%
- Fe_2O_3 $\leq$ 5%

DFB:

- SiO_2 $\leq$ 5%
- Al_2O_3 $\geq$ 48%
- Fe_2O_3 $\leq$ 5%

The mine planning block model is composed of blocks that are 60 m x 60 m x 2 m high. Each block contains information on the percentage of RGB or DFB in the block, percentage of Al_2O_3, SiO_2, Fe_2O_3, TiO_2 and LOI as well as the resource classification.

The mineral resource for Bonasika 7 was verified using Met-Chem's mine planning block model. The results matched Aluminpro's resource estimate, thus validating the block model import.

15.1.2 Pit Optimization

Open pit optimization was conducted on the Bonasika 7 deposit to determine the economic pit limits. The optimization used determined cost, sales price as well as pit and plant operating parameters. This task was done using the EPIT optimizer module of MineSight®. The optimizer uses the 3D Lerch-Grossman algorithm to evaluate the economic viability of each block in the model.

In order to comply with the guidelines of the NI 43-101 on Standards of Disclosure for Mineral Projects, only blocks classified in the measured and indicated categories are allowed to drive the pit optimizer. Inferred Resource blocks were treated as waste, bearing no economic value.

a) Pit Optimization Parameters

The following section discusses the pit optimization parameters that were used to define the economic pit limits.

Mining Cost – The mining cost used in the analysis was $7.00/t for crusher feed and $1.16/t for waste. These costs represent the loading and hauling of material as well as road maintenance, dewatering and other services associated with the mining operation. The cost estimate is based on results from the Bonasika Project Feasibility Study. The higher cost for the mining of ore is a result of the 21 km haul to the processing facility at Sand Hills.

Crushing Cost – A cost of $1.00/t of crusher feed was used for crushing of the RGB and DFB. The cost estimate is based on the crushing cost from Met-Chem's cost database of similar crushing plants and material type.

Wash Plant Cost – A cost of $2.89/t of wash plant feed was used for washing of the RGB. The cost estimate is based on results from the Bonasika Project Feasibility Study.

Sintering Cost – A cost of $67.60/t of kiln feed was used for the sintering of the bauxite. This cost includes all aspects related to the kiln as well as rejects related costs and port charges. The cost estimate is based on results from the Bonasika Project Feasibility Study.

General, Administration and Infrastructure Cost – A cost of $30.00/t of sintered bauxite was used to represent general, administration and infrastructure costs. This cost is associated with support functions such as purchasing and warehousing, accounting, environmental management, health and safety, human resources, insurance and general management. The cost estimate is based on results from the Bonasika Project Feasibility Study.

Sales Price – A sales price of $475/t of sintered bauxite was used for this analysis. This price was used in the Bonasika Project Feasibility Study.

Wash Plant Recovery – A wash plant recovery of 50 % was used to convert dry run of mine RGB to kiln feed. It was also assumed that 100 % of the direct feed bauxite mined will be fed to the kiln. The wash plant recovery is based on recent testwork.

Kiln Recovery – A kiln recovery of 68.5 % was used to determine the quantity of sintered bauxite produced. The kiln recovery is based on recent testwork.

Pit Slope – An overall pit slope of 26.6° (2H:1V) was used in the pit optimization. The pit slope was recommended by Golder Associates.

Table 15.1 summarizes the economic parameters that were used in the pit optimization.

Table 15.1 – Pit Optimization Parameters

Item	Value	Units
Mining Cost – Crusher Feed	7.00	$/t (mined)
Mining Cost – Waste	1.16	$/t (mined)
Crushing Cost	1.00	$/t (mined)
Wash Plant Cost	2.89	$/t (mined)
Sintering Cost	67.60	$/t (kiln feed)
General Administration & Infrastructure Cost	30	$/t (product)
Sales Price	475	$/t (product)
Wash Plant Recovery	50	%
Kiln Recovery	68.5	%
In-Situ Dry Density – Overburden	1.4	t/m^3
In-Situ Dry Density – Bauxite / Waste	1.5	t/m^3
Overall Pit Slope	26.6	Deg

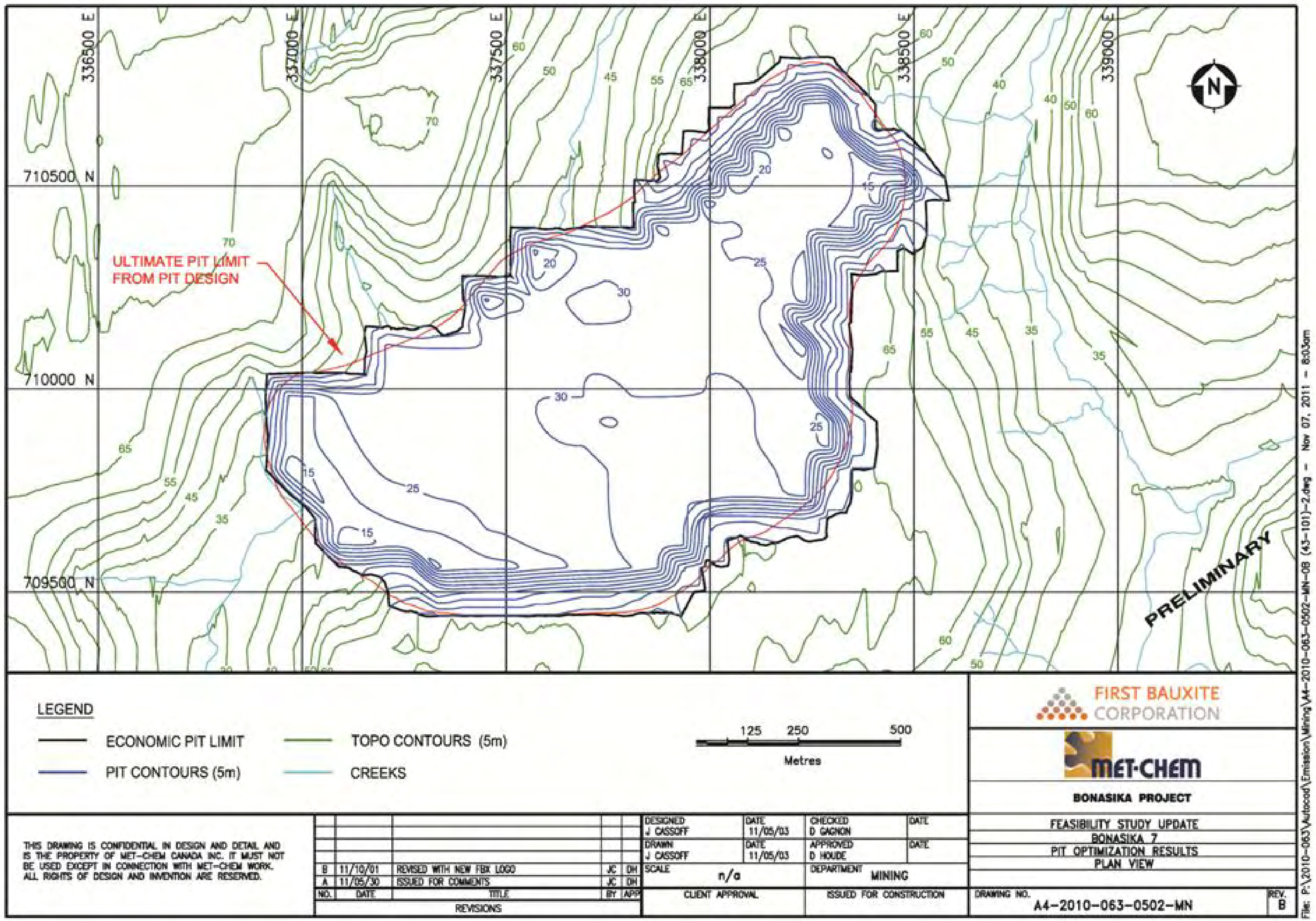
* The cost parameters are preliminary estimates for developing the economic pit and should not be confused with the operating costs subsequently developed for the Feasibility Study Update and given elsewhere in this Report.

b) Pit Optimization Results

A total of 35 Mt of waste has to be stripped to mine the 5.6 Mt of RGB and DFB. This results in a waste to bauxite stripping ratio of 6.3:1. The pit optimization does not account for mining dilution and loss and does not provide an access ramp into the pit. These issues are discussed in the Mine Design section of this report.

Figure 15.1 shows the economic pit limit that resulted from the pit optimization. Upon completion of the Feasibility Study Update, Met-Chem confirmed that the pit optimization exercise was still valid using the updated cost estimate developed in the study.

Figure 15.1 – Pit Optimization Results (Bonasika 7) – Plan View



Source: Met-Chem Canada, 2011.

15.1.3 Pit Design

The Bonasika 7 pit design was completed using the following parameters:

- Pit Slope – 26.6° (2H:1V);
- Overburden Density – 1.40 t/m^3 (In-situ dry);
- Bauxite Density – 1.50 t/m^3 (In-situ dry);
- Mining losses – Top 0.3 m sent as overburden, bottom 0.3 m remains in the pit floor.

15.1.4 Mineral Reserves

Mineral Reserves at Bonasika 7 are estimated at 4.6 Mt of probable category grading (Al_2O_3, 58.3%, SiO_2, 7.4%, Fe_2O_3, 0.86%, TiO_2, 2.5% and LOI, 29.8%). In order to access these reserves, 47.5 Mt of waste must be removed, resulting in a waste to ore stripping ratio of 10.4:1.

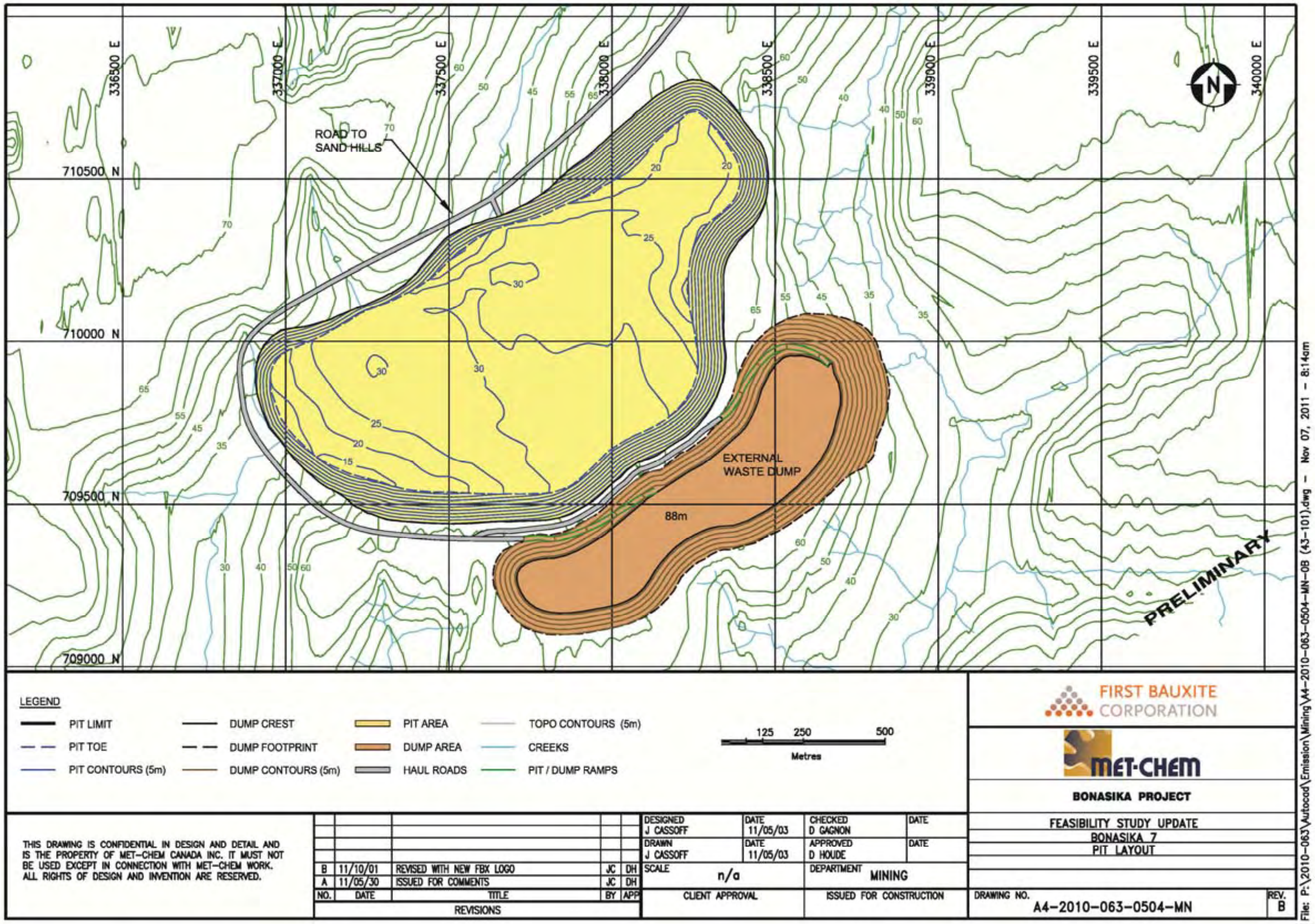
Table 15.2 shows the mineral reserves. These mineral reserves include dilution and ore loss and form the basis of the mine plan. The probable reserves are based on indicated category resources only.

Table 15.2 –Mineral Reserves (Bonasika 7)

	Ore (‘000 t)	**Al_2O_3 (%)**	**SiO_2 (%)**	**Fe_2O_3 (%)**	**TiO_2 (%)**	**LOI (%)**	**Waste (‘000 t)**	**S/R**
Regular Grade Bauxite								
Probable	2,748	56.6	10.3	0.96	2.4	28.6		
Direct Feed Bauxite								
Probable	1,835	60.9	3.0	0.70	2.7	31.6		
Total Bauxite								
Total Probable Reserves	**4,584**	**58.3**	**7.4**	**0.86**	**2.5**	**29.8**	**47,505**	**10.4**

The pit layout is shown in Figure 15.2.

Figure 15.2 – Pit Layout (Bonasika 7)



Source: Met-Chem Canada, 2011.

15.2 Bonasika 6

The following section discusses the mineral reserve estimate for the Bonasika 6 deposit.

Bonasika 6 will be mined after Bonasika 7, and as such, mine plans, methodology and equipment operation follow closely that of Bonasika 7.

15.2.1 Block Model

The 3-Dimensional Geological Block Model for Bonasika 6 was supplied to Met-Chem by Aluminpro in the form of a Microsoft Excel Spreadsheet. Met-Chem imported this information into MineSight® Version 6.10, creating a 3-Dimensional mine planning block model.

Unlike the Bonasika 7 deposit, the Bonasika 6 was not modelled as RGB and DFB only one (1) type (RGB) was modelled.

The mine planning block model is also composed of blocks that are 60 m x 60 m x 2 m high. Each block contains information on the percentage of bauxite in the block, percentage of Al_2O_3, SiO_2, Fe_2O_3, TiO_2 and LOI as well as the resource classification.

The mineral resource for Bonasika 6 was verified using Met-Chem's mine planning block model. The results matched Aluminpro's resource estimate, thus validating the block model import.

15.2.2 Pit Optimization

Open pit optimization was conducted on the Bonasika 6 deposit to determine the economic pit limits. The optimization used determined cost, sales price as well as pit and plant operating parameters. This task was done using the EPIT optimizer module of MineSight®. The optimizer uses the 3D Lerch-Grossman algorithm to evaluate the economic viability of each block in the model.

In order to comply with the guidelines of the NI 43-101 on Standards of Disclosure for Mineral Projects, only blocks classified in the measured and indicated categories were allowed to drive the pit optimizer. Inferred Resource blocks were treated as waste, bearing no economic value.

Using the economic parameters from the Feasibility Study for Bonasika 1, 2 and 5, the pit optimization identified that the entire Bonasika 6 resource is economic.

15.2.3 Pit Design

A pit was designed for the Bonasika 6 deposit using the following parameters;

- Pit Slope – 26.6° (2H:1V);
- Overburden Density – 1.40 t/m^3 (*In-situ* dry);
- Bauxite Density – 1.63 t/m^3 (*In-situ* dry);

- Mining losses – Top 0.3 m sent as overburden, bottom 0.3 m remains in the pit floor.

15.2.4 Mineral Reserves

Mineral reserves at Bonasika 6 are estimated at 4.0 Mt of probable category grading (Al_2O_3, 59.0%, SiO_2, 7.8%, Fe_2O_3, 1.0%, TiO_2, 2.3% and LOI, 29.4%). In order to access these reserves, 67.1 Mt of waste must be removed, resulting in a waste to ore stripping ratio of 16.7:1.

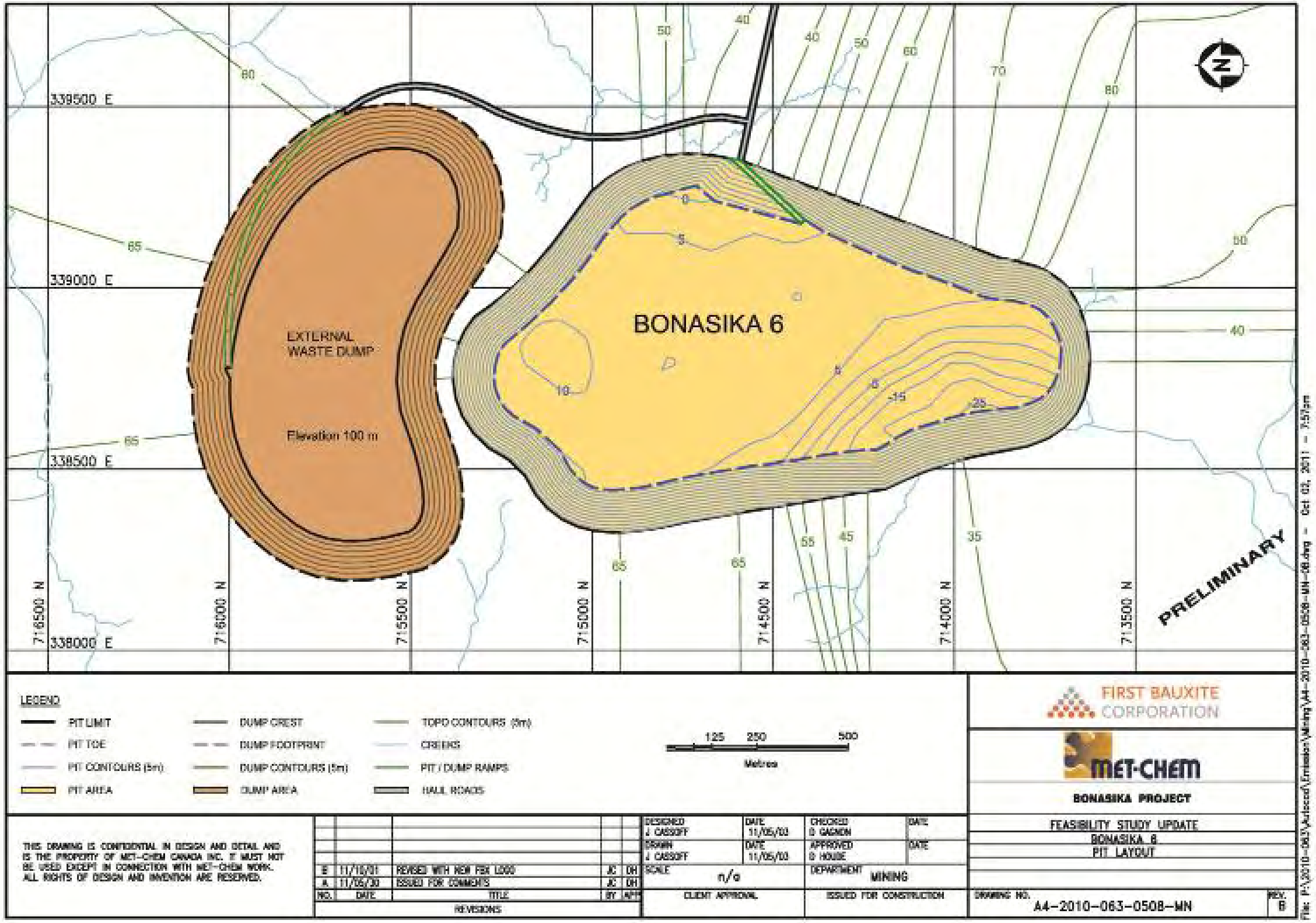
Table 15.3 shows the mineral reserves. These mineral reserves include dilution and ore loss and form the basis of the mine plan. The probable reserves are based on indicated category resources only.

Table 15.3 – Probable Mineral Reserves (Bonasika 6)

Description	Ore ('000 t)	Al_2O_3 (kt)	SiO_2 (%)	Fe_2O_3 (%)	TiO_2 (%)	LOI (%)	Waste ('000 t)	S/R
Probable	4,010	59.0	7.8	1.00	2.3	29.4		
Total Reserves	**4,010**	**59.0**	**7.8**	**1.00**	**2.3**	**29.4**	**67,063**	**16.7**

The pit layout is shown in Figure 15.3.

Figure 15.3 – Pit Layout (Bonasika 6)



Source: Met-Chem Canada, 2011.

15.3 Bonasika Reserves Summary

Table 15.4 summarizes the proven and probable mineral reserves for the five (5) Bonasika deposits.

Table 15.4 – Bonasika Mineral Reserves

	Ore ('000 t)	**Al_2O_3 (%)**	**SiO_2 (%)**	**Fe_2O_3 (%)**	**TiO_2 (%)**	**LOI (%)**
Bonasika 1						
Proven	1,398	54.6	12.6	2.15	1.9	27.8
Probable	63	52.7	14.6	2.93	1.9	27.0
Sub-Total	**1,461**	**54.5**	**12.7**	**2.18**	**1.9**	**27.7**
Bonasika 2						
Proven	330	53.9	14.8	1.77	1.9	27.0
Probable	76	54.0	14.6	1.93	1.8	27.0
Sub-Total	**406**	**53.9**	**14.8**	**1.80**	**1.9**	**27.0**
Bonasika 5						
Proven	0	0.0	0.0	0.00	0.0	0.0
Probable	637	54.2	13.9	2.08	1.7	27.1
Sub-Total	**637**	**54.2**	**13.9**	**2.08**	**1.7**	**27.1**
Bonasika 6						
Proven	0	0.0	0.0	0.00	0.0	0.0
Probable	4,010	59.0	7.8	1.00	2.3	29.4
Sub-Total	**4,010**	**59.0**	**7.8**	**1.00**	**2.3**	**29.4**
Bonasika 7						
Proven	0	0.0	0.0	0.00	0.0	0.0
Probable	4,584	58.3	7.4	0.86	2.5	29.8
Sub-Total	**4,584**	**58.3**	**7.4**	**0.86**	**2.5**	**29.8**
Bonasika Total						
Proven	1,728	54.5	13.0	2.08	1.9	27.6
Probable	9,370	58.3	8.1	1.02	2.4	29.4
Total Reserves	**11,098**	**57.7**	**8.9**	**1.19**	**2.3**	**29.1**

SECTION 16

MINING METHODS

16.0 MINING METHODS

16.1 General

The mining method selected for the Project is conventional truck and shovel for both overburden stripping and ore mining. The shallow pit depth, relatively low production levels and soft ground conditions favour a fleet of backhoe oriented hydraulic excavators and small rigid frame mining haul trucks, as no rock blasting is required.

Vegetation and topsoil will be cleared by dozers ahead of the mining operation. Suitable organic material will be stockpiled for future reclamation use. Overburden and off-grade clays will be stripped with excavators exposing the bauxite ore zone. No drilling and blasting is required, however dozers may be required to rip the ore to assist the excavators. As a result of the soft ground conditions, trucks will be loaded above the material being excavated. Bench heights range from a minimum of 2 m to a maximum of 5 m.

Bauxite will be hauled approximately 21 km to the Sand Hills plant site using the same mine truck fleet.

To properly manage water infiltration into the pit, a sump will be established at the lowest point on the pit floor. Water collected in this sump will be pumped to a collection point at surface.

16.2 Bonasika 7

16.2.1 Annual Production Requirements

The production target for the Project is 100,000 tonnes of final product (sintered bauxite) annually. In order to meet this demand, the mining operation at Bonasika 7 is required to supply an average of 208,500 tonnes of dry run of mine ore annually.

16.2.2 Mine Design

The economic pit limits derived from the pit optimization were used as a guideline for the detailed pit design. The pit design process includes smoothing the pit wall, adding ramps to access the pit bottom and ensuring that the pit can be mined using the initially selected equipment. The following sections provide the parameters that were used for the detailed pit design.

a) Material Properties

Table 16.1 defines the material properties that were used for mine design and mine planning purposes. These properties are important for determining the mine equipment fleet requirements.

Table 16.1 – Material Properties (Bonasika 7)

	In-Situ Dry Density (t/m^3)	Moisture Content (%)	Swell Factor (%)
Overburden	1.40[1]	20.0[1]	12[2]
Waste	1.50[3]	16.0[3]	12[2]
Regular Grade Bauxite	1.50[3]	17.5[4]	12[2]
Direct Feed Bauxite	1.50[3]	14.0[4]	12[2]

1. Estimated by Met-Chem from regional geology.
2. Estimated by Met-Chem from comparable material.
3. Supplied by Aluminpro.
4. Supplied by George Bennett Consulting.

b) Geotechnical Pit Slope Parameters

The pit design for Bonasika 7 incorporates a final pit wall with an overall slope of 26.6° (2H:1V). This slope was recommended by Golder Associates in the report, “Stability Assessment for Bonasika 7 Pit Design”, March 2011. The final pit slope was determined with the understanding that the mined out pit will be backfilled with waste shortly after the wall and floor are exposed. The final pit wall does not include any catch benches.

c) Haul Road Design

The ramps and haul roads were designed with an operating width of 15 m. For double lane traffic, industry practice indicates the road width to be a minimum of 3 times the width of the largest truck. The overall width of a Komatsu HD325 (36.5 t) haul truck is 4.8 m. A maximum ramp grade of 8% was used. Initially, the pit will be mined where the ore is exposed at surface, thus no ramp is required to access the pit. As mining progresses to the eastern half of the pit and the wall increases in height, several ramps will be added to access the ore. These ramps will be constructed from waste material.

d) Mine Dilution and Ore Loss

During the mining operation, material at the ore waste contacts will not be separated perfectly. This effect is accounted for as either dilution, ore loss or a combination of both. In order to protect the ore zone from waste contamination, it was decided that some material at the top of the ore zone will be sent to the waste dump and a portion of the bottom of the ore zone will remain in the pit floor. This results in an ore loss and slightly reduces the mineral reserves.

In order to protect the quality of the DFB, it was decided that at the RGB / DFB contacts, a portion of the DFB will be sent to the wash plant as RGB. This results in a small reduction of DFB, with a similar increase in RGB.

Based on the size of loading equipment, operator experience and practices at other bauxite mines in the region, it was estimated that the thicknesses affected by dilution and ore loss at the contacts will be in the 20 – 30 cm range.

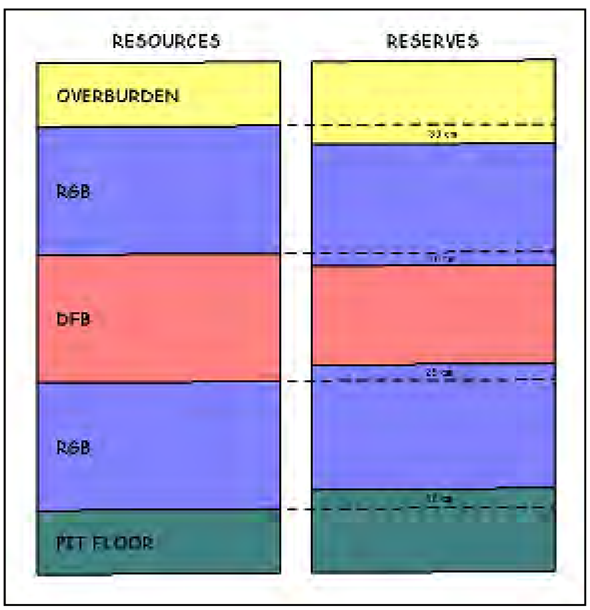
In order to achieve these conditions and minimize dilution and ore loss, it is important that the excavators be equipped with a high precision GPS or laser system. In addition, detailed mine face sampling and grade control will be required to ensure accurate separation of the RGB and DFB.

Figure 16.1 illustrates a typical cross-section illustrating how dilution and ore loss was estimated.

The following two (2) conditions were included in the dilution and ore loss estimation.

– If the DFB < 1.0 m thick, it is completely diluted and sent to the wash plant as RGB. This area is referred on Figure 16.2 as Zone A.
– If the lower zone of the RGB < 0.3 m thick, it is considered unrecoverable and left in the floor. This area is referred on Figure 16.2 as Zone C.

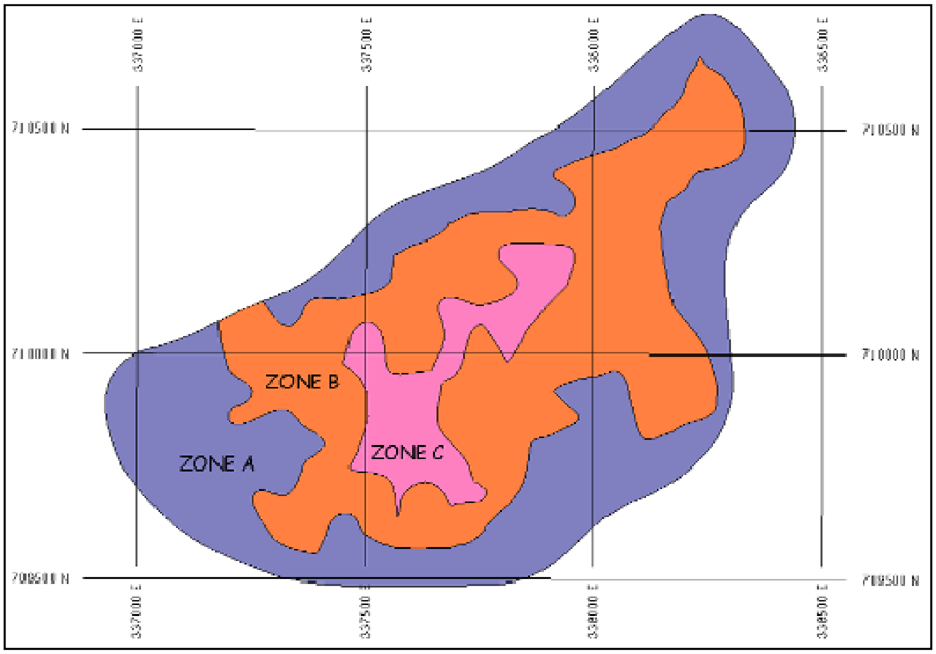
Figure 16.1 – Dilution and Ore Loss



Source: Met-Chem Canada, 2011.

Figure 16.2 illustrates the areas of the pit where these conditions apply. Zone B represents the area where regular dilution and ore loss apply.

Figure 16.2 – Dilution and Ore Loss Zones



Source: Met-Chem Canada, 2011.

16.2.3 Dump Design

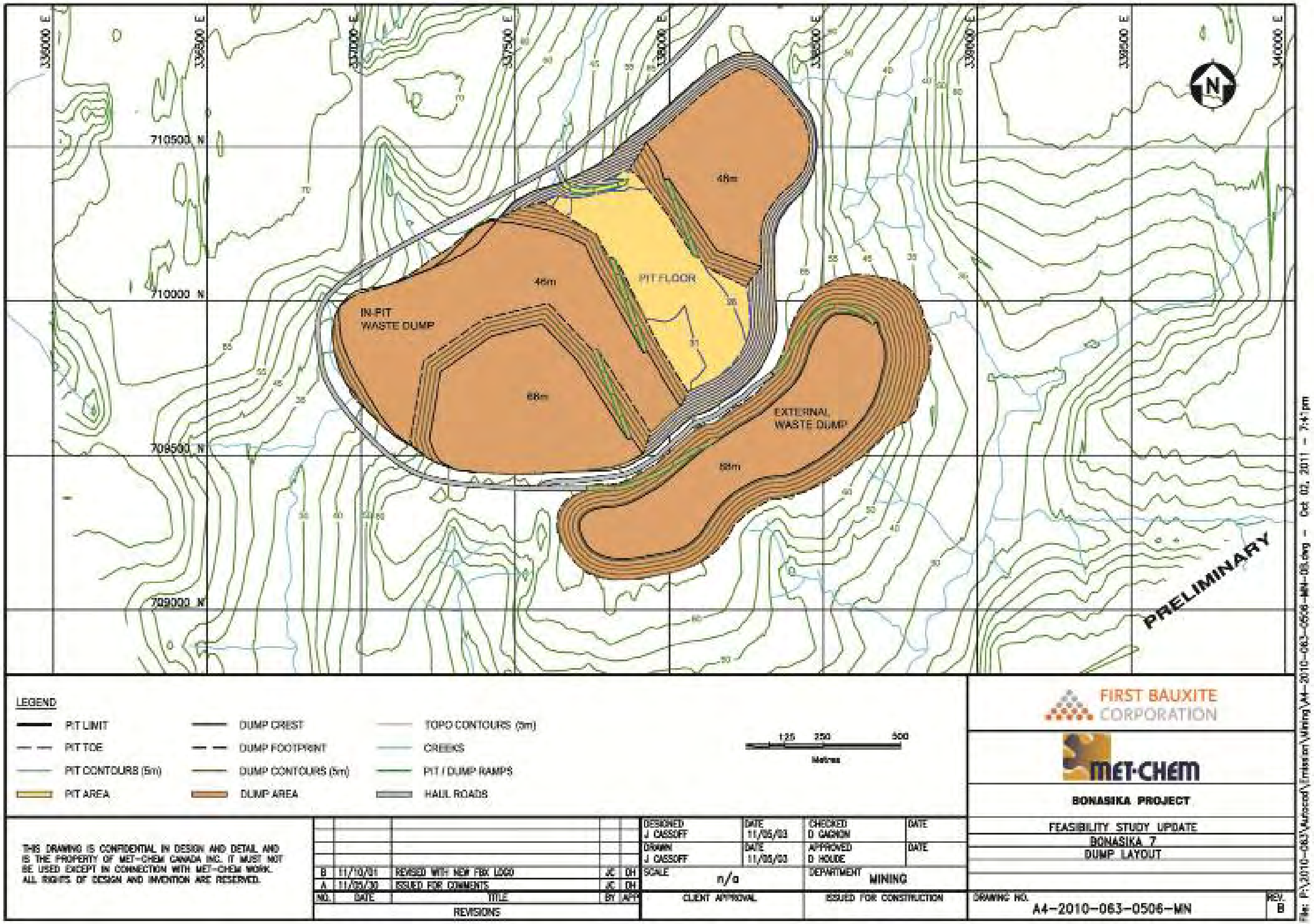
Waste material will be hauled to an out-of-pit waste dump until sufficient pit floor space is developed to allow for in-pit backfilling. In-pit dumping minimizes the overall environmental footprint and reduces the truck hours required to haul the waste. Met-Chem used Golder Associate's report, "Stability Assessment for Bonasika 7 Pit Design", March 2011 as a guide for the dump design parameters. The parameters are highlighted below:

- Overall Slope 18.4° (3H:1V);
- Maximum Dump Height 50 m;
- Setback from Pit Crest 40 m;
- Setback from Major Creeks 100 m.

The in-pit waste dump has been designed using the same 18.4° (3H:1V) overall slope as the out-of-pit waste dump. To ensure the safety of the operation, all mining activity will remain at a minimum distance of 50 m from the in-pit waste dump.

Both the out-of-pit and in-pit waste dumps will be constructed in thin lifts, compacted by a bulldozer. The out-of-pit waste dump was designed for a capacity of 9.1 Mm^3. The maximum elevation is 88 m and the footprint covers an area of approximately 51 ha. The in-pit waste dump was designed for a capacity of 21.2 Mm^3. The maximum elevation is 66 m and the footprint covers an area of approximately 0.93 km^2. The dump layouts are shown in Figure 16.3.

Figure 16.3 – Final Dump Layout (Bonasika 7)



Source: Met-Chem Canada, 2011.

16.2.4 Mine Planning

a) Annual Production Requirements

In order to meet the production target of 100,000 tonnes of sintered bauxite annually, the kiln must be fed with a combination of washed bauxite and DFB totalling 146,000 tonnes annually. This accounts for the kiln recovery of 68.5% after loss-on-ignition ("**LOI**"). In order to meet the sintered bauxite quality specifications, the kiln feed is targeted to contain a maximum SiO_2 content of 4.1%. The mine plan attempts to supply a constant ratio of RGB and DFB throughout the life of the mine.

b) Work Schedule

Mining operations for the Project will be five (5) days per week, operating around the clock on three (3), eight (8) hour shifts. Ore will only be mined on dayshifts in order to maximize recovery in the pit.

c) Pre-Production

A pre-production phase of one (1) year has been planned to achieve the following objectives:

– Supply road construction material;
– Stockpile RGB and DFB at Sand Hills, totalling two (2) months of kiln feed (25,000 tonnes);
– Strip enough waste to uncover one year's worth of bauxite ore. This exposed in-pit inventory of ore will be carried throughout the life of the mine.

d) Blending and Grade Control

Ore grade quality is essential in order to distinguish between RGB and DFB and to achieve the targeted characteristics for the sintered bauxite. The following criteria have been included in the mine plan to ensure an acceptable feed source to the wash plant and kiln:

– Once overburden material is stripped, a sonic drill will be used to sample the bauxite zone. The purpose of this drilling and sampling is to determine the RGB and DFB contacts and to evaluate the quality of the ore. The sample spacing will be determined once operations begin and will be modified throughout the life of the deposit depending on the performance of the blending control. This drilling will also be used to better define locally the different bauxite grade horizon, waste zone and floor elevations.
– The bauxite hauled to Sand Hills will be dumped in a series of six (6) stockpiles for RGB and three (3) stockpiles for DFB. The stockpiles will be based on varying SiO_2 contents. The SiO_2 content of the RGB stockpiles

will range from < 8%, 8 – 9%, 9 – 10%, 10 – 11%, 11 – 12% and > 12%. The SiO_2 content of the direct feed stockpiles will range from < 2.5%, 2.5 – 3.5%, and > 3.5%. The concept is to have a total of one (1) month of RGB and one (1) month of DFB available in the stockpiles. Bauxite will be transported from the stockpiles to the crusher using a CAT 950 wheel loader with a 3.5 m^3 bucket. In order to avoid contamination, a 0.3 m thick stockpile pad will be constructed from off grade bauxite during the pre-production phase. Approximately 9,000 tonnes of material is required to construct this pad.

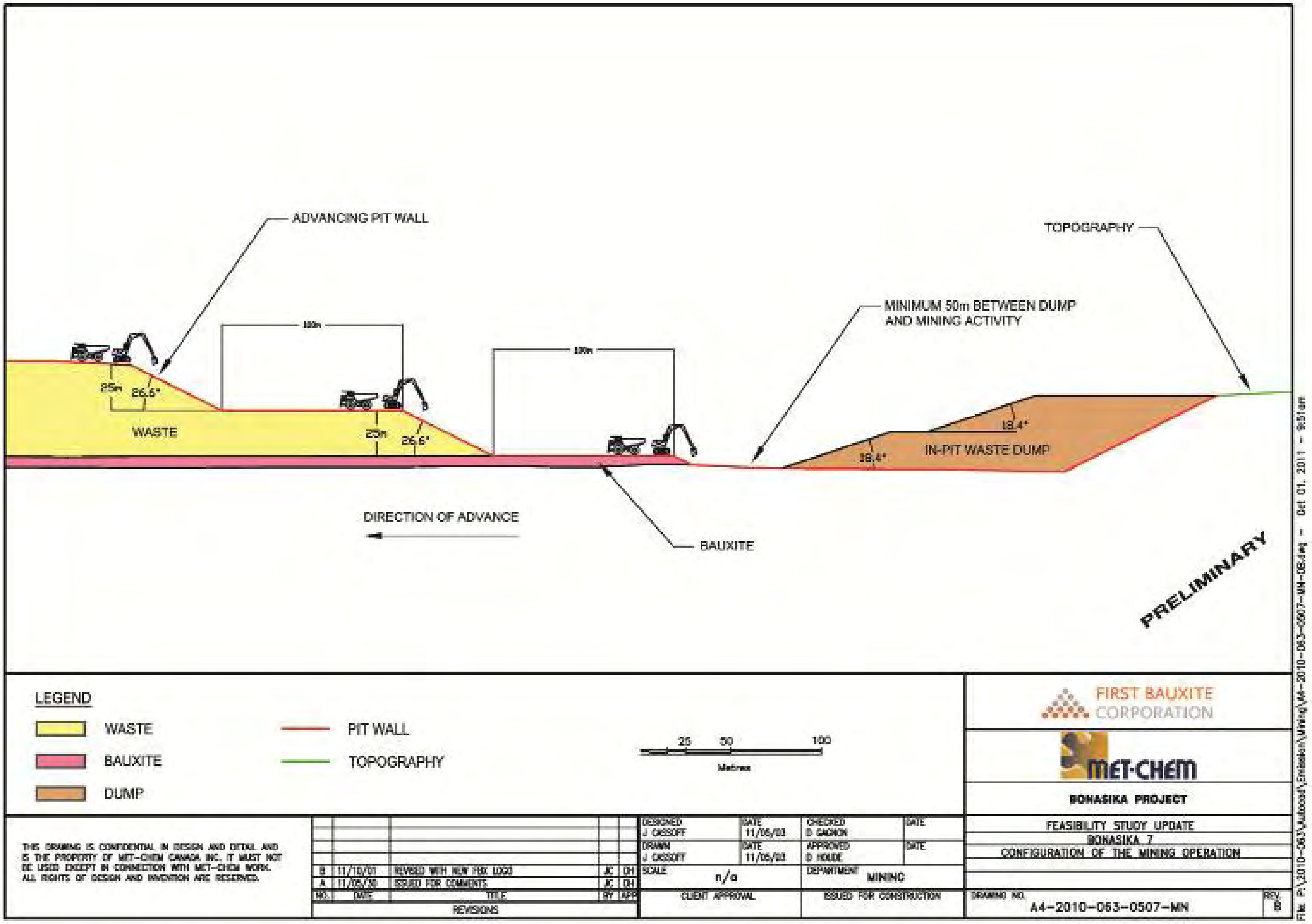
e) Production Schedule (Mine Plan)

A production schedule was developed for the life of the Bonasika 7 deposit. The schedule realizes the pre-production requirements and meets the annual production target.

The pre-production phase of mining will begin in the northwest corner of Bonasika 7 where the stripping ratio is very low. A total of 1.2 Mt of material will be excavated during pre-production and includes 33,000 tonnes of bauxite. Suitable off grade bauxite mined during pre-production will be used for capping of the road to Sand Hills and to build the stockpile pad at Sand Hills. All other waste will be hauled approximately 2.5 km to the out-of-pit waste dump.

During the first five (5) years of production, mining will progress in the western half of the pit, establishing the northern and western portion of the final pit wall. Sufficient waste will be stripped each year in order to expose the bauxite for the following year's production. The stripping operation is carried out in approximately 100 m wide panels that run the 700 m length of the western half of the pit. To reduce the slope of the advancing face, the stripping will be carried out in two (2), 25 m high blocks. This configuration is illustrated in Figure 16.4.

Figure 16.4 – Configuration of the Mining Operation



Source: Met-Chem Canada, 2011.

In general, the top 25 m thick waste block will be hauled to the out-of-pit waste dump while the lower 25 m thick waste block will be hauled to the in-pit waste dump.

An access ramp will be built on the North side of the pit which will remain in place until Year 9. As the pit wall advances, temporary ramps will be established to access the stripping benches. The waste to ore stripping ratio will gradually increase during the first five (5) years of production from 4.8:1 in Year 1 to 12.6:1 in Year 5. Waste material will begin to be placed in-pit in Year 3, buttressing the final pit wall in the northwest corner. The in-pit dump will be built to an elevation of 46 m during this five (5) year period.

During Year’s 6 to 10 of production, the pit will advance towards the East. The stripping ratio will hover around the 14:1 range during these five (5) year period. Approximately 60 % of the waste will be hauled to the in-pit waste dump and the remaining 40 % to the out-of-pit waste dump. The out-of-pit waste dump will be complete at the end of Year 10.

During Year’s 11 to 22 (end Bonasika 7 life), mining will be focused on the East side of the pit. The stripping ratio will gradually decrease from 11.8:1 in Year 11 to 4.3:1 in Year 22. A second lift will be placed on the in-pit waste dump, bringing its elevation to 66 m. A second in-pit waste dump will be built in the northeast corner of the pit during these last five (5) years of production. This dump will be built to an elevation of 46 m.

When mining operations are completed at Bonasika 7, surface, rainfall and percolation water will fill the void where no in-pit dumping was done and create an in-pit lake. The crest of the lake is estimated to be at the 38 m elevation.

A summarized production schedule for Bonasika 7 is shown in Table 16.2.

Table 16.2 – Mine Production Schedule (Bonasika 7)

Description		Year Q (-4)	Year Q (-3)	Year Q (-2)	Year Q (-1)	Year 01	Year 02	Year 03	Year 04	Year 05	Year 06	Year 07	Year 08	Year 09	Year 10	Year 11 - 13	Year 14 - 16	Year 17 - 19	Year 20 - 22	Total
Sintered Bauxite	**'000 t**	**0**	**0**	**0**	**5**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**300**	**300**	**300**	**294**	**2,198**
Kiln Feed	**'000 t**	**0**	**0**	**0**	**25**	**146**	**146**	**145**	**146**	**146**	**146**	**146**	**146**	**146**	**145**	**439**	**438**	**438**	**411**	**3,209**
SiO_2	%	0.0	0.0	0.0	3.0	3.6	3.6	3.7	4.0	4.1	4.0	4.1	4.0	4.0	4.0	4.0	3.8	4.0	4.1	3.9
Wash Plant Feed		**0**	**0**	**0**	**16**	**130**	**142**	**141**	**137**	**111**	**141**	**130**	**116**	**153**	**116**	**328**	**395**	**321**	**373**	**2,748**
Al_2O_3	%	0.0	0.0	0.0	58.4	57.6	57.0	57.3	56.3	56.5	56.8	56.5	56.1	56.4	56.1	56.7	56.7	55.8	56.8	56.6
SiO_2	%	0.0	0.0	0.0	7.2	9.2	10.3	10.0	11.2	10.7	10.1	10.3	11.0	10.2	10.7	9.9	10.2	10.8	10.2	10.3
Fe_2O_3	%	0.0	0.0	0.0	0.5	0.5	0.9	0.8	1.0	1.2	1.1	1.1	1.1	1.1	0.9	1.0	0.9	1.1	1.0	1.0
TiO_2	%	0.0	0.0	0.0	2.9	2.6	2.4	2.4	2.4	2.4	2.2	2.3	2.2	2.5	2.6	2.4	2.4	2.5	2.4	2.4
LOI	%	0.0	0.0	0.0	29.8	29.1	28.4	28.4	27.9	28.1	28.6	28.7	28.4	28.7	28.5	28.9	28.8	28.5	28.6	28.6
Direct Feed Bauxite	**'000 t**	**0**	**0**	**0**	**17**	**81**	**75**	**75**	**77**	**90**	**76**	**81**	**88**	**69**	**88**	**275**	**241**	**277**	**225**	**1,835**
Al_2O_3	%	0.0	0.0	0.0	60.9	61.5	62.0	61.8	61.7	61.0	61.0	60.7	60.5	60.9	60.7	60.6	60.9	60.4	60.3	60.9
SiO_2	%	0.0	0.0	0.0	2.7	2.9	2.2	2.5	2.7	3.4	3.0	3.2	3.0	2.7	3.1	3.4	2.7	3.2	3.3	3.0
Fe_2O_3	%	0.0	0.0	0.0	0.5	0.5	0.5	0.6	0.7	0.9	0.9	0.8	0.9	0.7	0.5	0.7	0.7	0.8	0.8	0.7
TiO_2	%	0.0	0.0	0.0	3.2	2.9	3.0	2.9	2.9	2.6	2.6	2.7	2.6	2.7	2.6	2.7	2.8	2.7	2.5	2.7
LOI	%	0.0	0.0	0.0	31.6	31.4	31.5	31.3	31.2	31.1	31.4	31.6	31.7	31.9	31.7	31.5	31.8	31.7	31.8	31.6
Total Ore	**'000 t**	**0**	**0**	**0**	**33**	**211**	**216**	**216**	**214**	**202**	**216**	**211**	**204**	**222**	**203**	**603**	**636**	**598**	**598**	**4,584**
Al_2O_3	%	0.0	0.0	0.0	59.7	59.1	58.8	58.9	58.2	58.5	58.3	58.1	58.0	57.8	58.1	58.5	58.3	57.9	58.2	58.3
SiO_2	%	0.0	0.0	0.0	4.9	6.7	7.5	7.4	8.1	7.4	7.6	7.6	7.6	7.9	7.4	6.9	7.3	7.3	7.6	7.4
Fe_2O_3	%	0.0	0.0	0.0	0.5	0.5	0.7	0.7	0.9	1.1	1.1	1.0	1.0	1.0	0.8	0.8	0.8	1.0	0.9	0.9
TiO_2	%	0.0	0.0	0.0	3.0	2.7	2.6	2.6	2.6	2.5	2.4	2.4	2.4	2.6	2.6	2.5	2.5	2.6	2.4	2.5
LOI	%	0.0	0.0	0.0	30.7	30.0	29.5	29.4	29.1	29.5	29.5	29.8	29.8	29.7	29.9	30.1	30.0	30.0	29.8	29.8
Total Waste	**'000 t**	**169**	**225**	**357**	**373**	**1,009**	**1,864**	**2,147**	**2,675**	**2,547**	**3,050**	**3,066**	**2,981**	**3,106**	**2,941**	**7,121**	**6,663**	**4,661**	**2,550**	**47,505**
Stripping Ratio		**n/a**	**n/a**	**n/a**	**n/a**	**4.8**	**8.6**	**9.9**	**12.5**	**12.6**	**14.1**	**14.5**	**14.6**	**14.0**	**14.5**	**11.8**	**10.5**	**7.8**	**4.3**	**10.4**
Dump Construction																				
Total Waste	**'000 m^3**	**106**	**142**	**226**	**236**	**644**	**1,191**	**1,372**	**1,710**	**1,628**	**1,951**	**1,959**	**1,904**	**1,985**	**1,879**	**4,551**	**4,257**	**2,977**	**1,627**	**30,345**
External Dump	'000 m^3	106	142	226	236	644	1,191	960	800	800	800	800	800	800	800					**9,104**
In-Pit Dump	'000 m^3							412	910	828	1,151	1,159	1,104	1,185	1,079	4,551	4,257	2,977	1,627	**21,241**

16.2.5 Mine Equipment Fleet

The following section discusses equipment selection as well as fleet requirements in order to carry out the mine plan discussed in the previous section. The make and model of the equipment presented in this report were selected by GMining and Met-Chem based on the analysis of cost and operating parameters supplied by Met-Chem and by experience in operating such equipment in similar working conditions.

a) Haul Trucks

The haul truck selected for the Project is the Komatsu HD325. This rigid frame mining truck will be robust enough to manage the soft ground conditions expected in the pit and be able to satisfy the 21 km ore haul. The nominal payload of the Komatsu HD325 is 36.5 tonnes, which results in a manageable fleet size for the Project. The haul truck fleet will be equipped with Duratray dump boxes. These modified boxes which are constructed with a rubber floor, supported above a steel frame by elastomeric ropes, are ideal to reduce carry back of sticky material. The following parameters were used to calculate the number of trucks required to carry out the mine plan.

- Weather Delays – 24 shifts per year;
- Mechanical Availability – 85%;
- Utilization – 90%;
- Nominal Payload – 36.5 tonnes (24 m^3 heaped);
- Shift Schedule – Three (3), eight (8) hour shifts per day, five (5) days per week;
- Operational Delays – 65 min/shift (this includes 15 minutes for shift change, 15 minutes for equipment inspection, 30 minutes for lunch and coffee breaks and five (5) minutes for fuelling). Fuelling will be carried out once every three (3) shifts for 15 minutes;
- Job Efficiency – 90% (54 min/h; this represents lost time due to queuing at the excavator and dump as well as interference along the haul route);
- Rolling Resistance – 4%.

Haul routes were generated for ore and waste for each period to calculate the truck requirements. These haul routes were imported in Talpac©, a commercially available truck simulation software package that Met-Chem has validated with mining operations. The trucks will be limited to a maximum speed of 55 km/h on the ore haul to Sand Hills. This is required to preserve the tire life. Talpac© calculated the travel time required for a Komatsu HD325 to complete each route.

Table 16.3 shows the cycle time and productivity for the three (3) haul routes in Year 10 as an example.

Table 16.3 – Truck Productivities (Year 10)

Destination	Cycle Times (min)					Productivity	
	Travel	Spot	Load	Dump	Total	Loads/h	t/h
Sand Hills Stockpiles	48.86	0.75	2.50	1.00	53.11	1.13	41
In-pit Dump	4.75	0.75	2.50	1.00	9.00	6.67	243
Out-of-pit Dump	5.97	0.75	2.50	1.00	10.22	5.87	214

A fleet of four (4) trucks is required during pre-production. This number increases to five (5) in Year 2 and six (6) in Year 6 before being reduced to four (4) in Year 17.

b) Excavators

The loading machine selected for the Project is the CAT 374 hydraulic excavator. The CAT 374 is a good size excavator that will be able to handle production requirements as well as the face heights expected. This machine offers enough breakout force to mine the bauxite without the need for blasting.

The following parameters were used to calculate the number of excavators required to carry out the mine plan.

- Weather Delays – 24 shifts per year;
- Mechanical Availability – 85%;
- Utilization – 90%;
- Bucket Capacity – 4.3 m^3;
- Bucket Fill Factor – 95%;
- Shift Schedule – Three (3), eight (8) hour shifts per day, five (5) days per week;
- Operational Delays – 65 min/shift (this includes 15 minutes for shift change, 15 minutes for equipment inspection, 30 minutes for lunch and coffee breaks and five (5) minutes for fuelling). Fuelling will be carried out once every three (3) shifts for 15 minutes;
- Job Efficiency – 90% (54 min/h; this represents lost time due to waiting for trucks, cleaning up the loading area and relocating).

The CAT 374 excavator can load the Komatsu HD325 haul truck in six (6), 30 second passes for a total load time two and a half (2.5) minutes.

In order to mine the tonnages presented in the mine plan, one (1) excavator is required during pre-production, followed by two (2) for the remainder of the life of the mine. The second excavator is beneficial for the operation since it offers flexibility when maintenance is required and allows for blending opportunities.

c) Auxiliary Equipment

A fleet of support and service equipment was included to carry out the mine plan. Table 16.4 shows a summary of the auxiliary equipment.

Table 16.4 – Auxiliary Equipment

Support Equipment			**# Units**
Track Dozer	Komatsu	D155X	2
Utility Excavator	Caterpillar	320	1
Wheel Loader	Caterpillar	950	2
Road Grader	Komatsu	GD675	2
Water Truck	Caterpillar	730 / Mega Mac 6	1
Sonic Drill	SDC	550-18	1
Light Tower		10.5 hp	4
Service Equipment			**# Units**
Fuel / Lube Truck	International	7600 SBA (6x4)	1
Mechanic Truck	International	7400 SBA (4x2)	1
Tire Handler	IMT	1449-A	1
Boom Truck	International	7400 SBA (4x2), 17 t	1
Tow Trailer	Schmitz	100 t Cargobull	1
Truck to Pull Tow Trailer	International	5900 SBA (6x4)	1
Transport Bus	Mitsubishi	Rosa, 25 passenger	1
Pick-up Truck	Mitsubishi	L200, double cab	4

16.2.6 Mine Dewatering

During the mining operation, all water that infiltrates into the pit will be controlled and removed following the mine dewatering plan. The mine dewatering plan was developed by GMining and is based on Golder Associates Preliminary Hydrological Assessment.

Golder Associates estimated the volume of water that will be pumped from the Bonasika 7 pit during each year of the operation. The estimate considers ground water, rain fall and incoming surface water from the surrounding area. The wettest month identified is June, in which approximately 825,000 m^3 of water will be required to be pumped out of the pit. This equates to 1,150 m^3/h.

A sump will be established on the pit floor at the lowest elevation. Water collected in this sump will be pumped out of the pit and discharged into a settling pond. The pumping station located at the sump will consist of three (3) submersible pumps each with 75 kW of power. Each pump will provide 600 m^3/h of flow. Two (2) pumps will operate in parallel, while the third one will be used as a back-up. The electric pumps will be powered by diesel fuelled generators.

The pipeline to the settling pond will be made of 12" HDPE piping. The length of pipe has been estimated at 250 m.

A perimeter ditch will be established around the footprint of the external waste dump. This ditch will capture run-off water and direct it to a settling pond.

16.2.7 Manpower Requirements

The total mine workforce at Bonasika 7 ranges from 65 employees during pre-production to 76 in Year 1, increases to 79 in Year 2 and reaches a peak of 83 from Year's 6 to 16. This workforce is comprised of staff as well as hourly employees. The eight (8) staff employees include the mine superintendent, the maintenance superintendent, the general foreman, a mining engineer, a senior geologist a grade control technician and two (2) surveyors. These employees will work on the day shift, 5 days per week. Both superintendents will be expatriates. The maintenance superintendent will only be required for pre-production and the first five (5) years of the operation. Table 16.5 shows the total mine manpower requirements for Year 10.

Table 16.5 – Mine Manpower Requirements (Year 10)

Description	# Employees
Mine Superintendent (Ex-pat)	1
Maintenance Superintendent (Ex-pat)	1
General Foreman	1
Pit Foreman	3
Maintenance Foreman	2
Mining Engineer	1
Senior Geologist	1
Grade Control Technician	2
Surveyor	2
Truck Operator	21
Excavator Operator	6
Dozer Operator	6
Grader Operator	6
Loader Operator[1]	6
Water Truck Operator	3
Equipment Mechanic	10
Fuel / Lube Truck Driver	3
Labourer	6
Utility Operator	6
Total Bonasika 7 Mine Site	**83**

1 - The loader operators are at Sand Hills.

16.3 Bonasika 6

16.3.1 Mine Planning

Met-Chem completed a 14 year mine plan for Bonasika 6 that achieves an annual production target of 100,000 tonnes of sintered bauxite. Since the deposit was not modelled with DFB, it was assumed that 100 % of the bauxite will be fed to the wash plant. The wash plant and kiln recoveries assumed for Bonasika 7 were applied for Bonasika 6. The mine plan includes two (2) years of pre-production (Year 21 and Year 22) in order to strip waste and expose the bauxite. Half of the waste from Bonasika 6 will be hauled to an out-of-pit waste dump and half will be hauled to an in-pit waste dump.

Table 16.6 shows a summarized production schedule for Bonasika 6.

16.3.2 Equipment Fleet

Using the same equipment parameters as Bonasika 7, Met-Chem estimated a fleet of ten (10) Komatsu HD325's and two (2) CAT 374 excavators for Bonasika 6.

Table 16.6 – Mine Production Schedule (Bonasika 6)

Description		Year 21*	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30	Year 31	Year 32	Year 33	Year 34	Year 35	Year 36	Total
Sintered Bauxite	**'000 t**	**0**	**9**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**66**	**1,373**
Kiln Feed	**'000 t**	**0**	**13**	**145**	**146**	**146**	**145**	**146**	**146**	**146**	**146**	**146**	**146**	**146**	**146**	**146**	**97**	**2,005**
SiO_2	%	0.0	3.1	3.1	3.8	4.1	4.3	4.0	3.6	3.6	3.6	4.3	4.3	4.3	3.9	3.9	3.9	**3.9**
Wash Plant Feed	**'000 t**		**26**	**291**	**292**	**293**	**291**	**293**	**292**	**292**	**292**	**291**	**291**	**291**	**291**	**291**	**194**	**4,010**
Al_2O_3	%	0.0	60	60.0	59.1	58.7	58.4	58.9	59.2	59.2	59.2	58.6	58.6	58.6	59.0	59.0	59.0	**59.0**
SiO_2	%	0.0	6.3	6.3	7.5	8.1	8.7	8.1	7.3	7.3	7.3	8.6	8.6	8.6	7.8	7.8	7.8	**7.8**
Fe_2O_3	%	0.0	1.1	1.1	1.2	0.9	0.8	0.8	0.9	0.9	0.9	1.2	1.2	1.2	1.2	1.2	1.2	**1.0**
TiO_2	%	0.0	2.3	2.3	2.5	2.4	2.5	2.3	2.3	2.3	2.3	2.1	2.1	2.1	2.3	2.3	2.3	**2.3**
LOI	%	0.0	29.7	29.7	29.3	29.4	29.1	29.3	29.7	29.7	29.7	28.9	28.9	28.9	29.5	29.5	29.5	**29.4**
Total Waste	**'000 t**	**3,000**	**3,000**	**2,825**	**2,857**	**4,196**	**4,764**	**4,709**	**5,220**	**5,220**	**5,220**	**4,830**	**4,830**	**4,830**	**4,954**	**4,954**	**1,654**	**67,063**
Stripping Ratio		**n/a**	**n/a**	**9.7**	**9.8**	**14.3**	**16.4**	**16.1**	**17.9**	**17.9**	**17.9**	**16.6**	**16.6**	**16.6**	**17.0**	**17.0**	**8.5**	**16.7**

Note: * The Bonasika 6 follows Bonasika 7 mine plan in time.

SECTION 17

RECOVERY METHODS

17.0 RECOVERY METHODS

Based on test works and results discussed at Section 13, the process design criteria, flow sheets and layouts for Bonasika 7 deposit were prepared. The processing area is divided in two (2) bauxite processing plants, the wash plant and the sintering plant.

Both the wash plant and the sintering plant will be located near the Demerara River at Sand Hills. The wash plant is designed to perform size reduction and reduction of silica content, which includes clay removal to produce a washed bauxite concentrate at target grade. The sintering plant will perform drying, fine grinding, briquetting, sintering, crushing of the sintered bauxite and material handling, including loading sintered bauxite on ocean going vessels. The output of these plants is set to produce 100,000 tonnes of crushed sintered refractory bauxite briquets per year.

17.1 Design Criteria

The wash plant will process two (2) different types of bauxite alternately: DFB and RGB. DFB will be crushed only and stockpiled. The RGB will be crushed and washed prior to be stockpiled.

The sintering plant will operate at a rate to produce 100,000 t/y sintered bauxite briquets. The wash plant and sintering plant have been sized to meet the parameters in Table 17.1.

Table 17.1 –Plant Design Criteria – Bonasika 7

Plant Capacity	
Parameter	**Value**
Total Bauxite Processing Rate (t/y)	208,500
DFB Processing Rate (t/y)	83,480
RGB Processing Rate (t/h)	125,020
DFB Crushing Rate (tph)	48.3
RGB Processing Rate (tph)	35.1
Crushing Operating Days per Year	245
Crushing Availability (%)	95.3
Crushing Operating Percentage (%)	60.4
Wash Plant Availability (%)	95.3
Wash Plant Operating Percentage (%)	40.7
Sintered Bauxite Production (t/y)	100,000
Sintering Plant Processing Rate (t/y)	145,985
Green Briquet Production (tph)	17.7
Sintered Briquet Production (tph)	12.1
Sintering Plant Availability (%)	94.2
Sintering Plant Operating Percentage (%)	94.2

17.2 Flow Sheets and Process Description

A simplified flow sheet is presented in Figure 17.1.

The bauxite is hauled from the open pit mine and dumped onto nine (9) separate stockpiles sorted by bauxite type and bauxite grade. A loader delivers a preset blended bauxite mix through the hopper to two (2) stages of crushing by roll crushers. The crushed DFB is sent to the concentrate storage shed. The crushed RGB is sent to the wash plant.

The crushed RGB is scrubbed in a high pressure washer which dislodges fine sticky clays from the bauxite ore. The high pressure washer discharge is screened. The screen oversize is transferred into the cage mill surge bin waiting further liberation crushing.

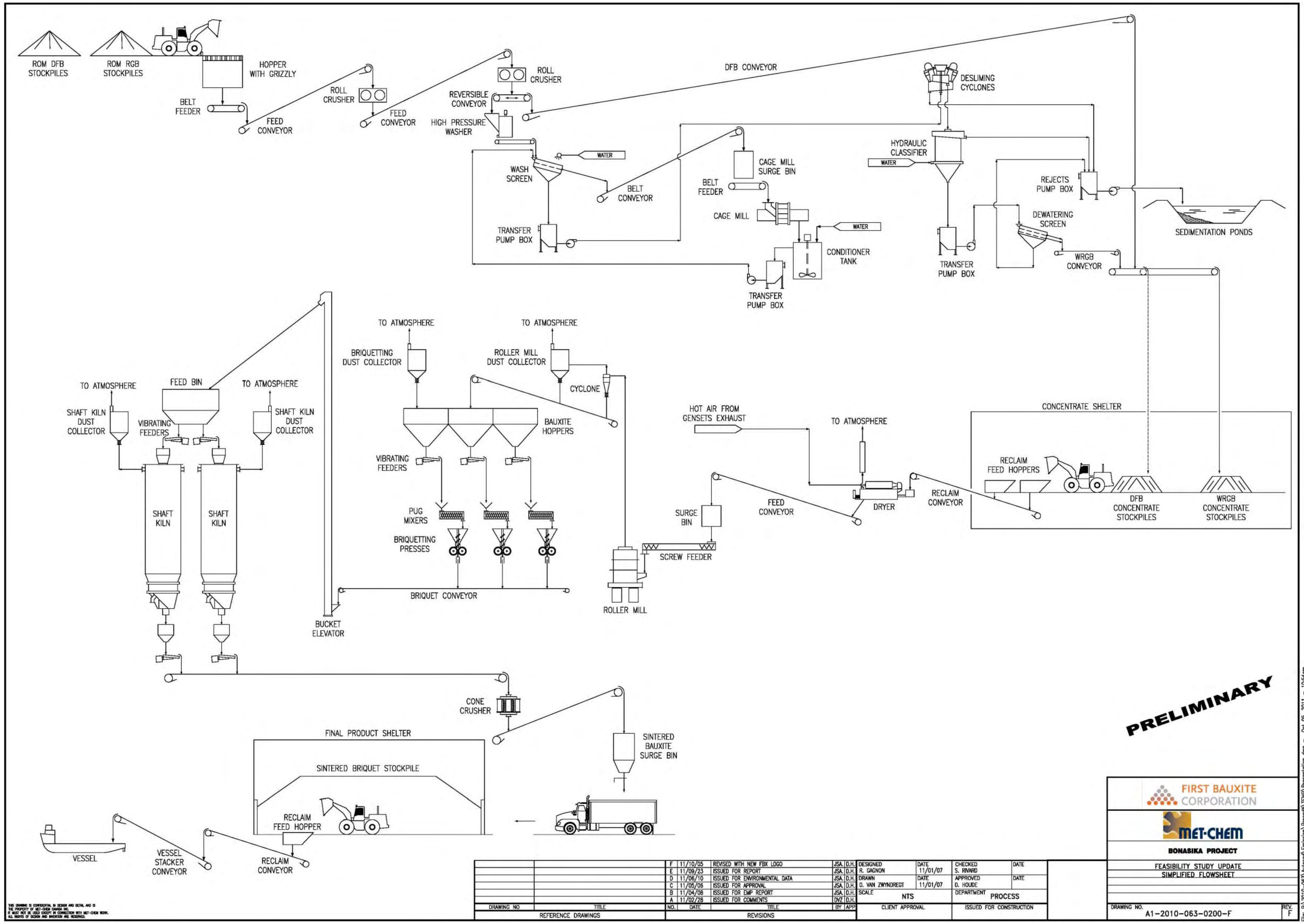
The undersize of the primary wash screen is pumped to the secondary wash screen (not shown on the simplified flow sheet) with three (3) different sizing sections. The oversize of the third section can selectively be sent to the cage mill surge bin or the cement grade bauxite stockpile. The same selectivity option also applies to the undersize of the second section and the third section.

The secondary screen undersize from the first section is pumped to cement grade bauxite screen (not shown on the simplified flow sheet). The screen oversize is cement grade bauxite, while the screen undersize is directed to the rejects pump box.

From the cage mill surge bin, the bauxite is fed into the cage mill that will further crush the bauxite. The cage mill discharge is re-pulped in a conditioning tank and is pumped back to the cage mill sizing screen. The cage mill screen oversize is directed back into the cage mill surge bin. The screen middle size fraction is transported to the concentrate storage shed. The screen undersize flows into the desliming cyclone pump box, where it is pumped to the cyclone cluster.

Desliming is done with the use of five (5) desliming cyclones. The cyclone overflow consists mainly of fine slimes and will be sent to the rejects pump box. The cyclone underflow will be processed through one (1) hydraulic classifier. The hydraulic classifier overflow reports to the rejects pump box. The hydraulic classifier underflow, which is now bauxite concentrate, is pumped to a dewatering screen to remove excess water. The screen oversize is transported to the bauxite concentrate storage shed, while the screen undersize is pumped to the dewatering cyclone cluster. This cluster removes water by sending the overflow to the rejects pump box, while re-circulating captured bauxite concentrate fines in the cyclone underflow.

Figure 17.1 – Simplified Flow Sheet



Source : Met-Chem Canada, 2011

The concentrate storage shelter has a storage capacity of 6,000 t (dry). There will be six (6) stockpiles (3 for DFB and 3 for RGB) to facilitate grade control for the sintering phase. A skid steer loader (Bobcat) takes bauxite concentrate from stockpiles and dumps it into one (1) of two (2) dump hoppers depending if the concentrate is DFB or Washed Regular Grade Bauxite **("WRGB")**. From the hoppers, the feed is metered by variable speed belt feeders controlled by belt scale to ensure the proper ratios are maintained. The material is then fed to the dryer.

The dryer uses hot gas to drive off the water from the bauxite particles. This is done by taking in power generation equipment exhaust gas as pre-heated air and the combustion of heavy fuel oil and using large induction air fans to pull the hot air through the moist bauxite concentrate in the dryer. As the hot air contacts the bauxite water droplets evaporate almost instantaneously. A two-stage dust collection system recovers the finer bauxite particles, which were carried off with the air flow. The dryer will reduce the moisture content from 15% to 2%, while the dried concentrate is at 100 °C. The dried concentrate is transferred to the fine grinding section.

The dried concentrate will be ground in a Raymond Roller Mill. This system is an efficient method to produce a consistent fine product by selective removal of the fines from the roller mill. This mill has its own classification system and is a cost effective fine milling alternative for softer ores. The roller mill peripheral equipment consists of a vibrating feeder, a turbine for classification, a cyclone and a dust collector system. This mill operates under negative pressure and requires air locked feeding and discharge systems and also removes some of the remaining moisture. The expected moisture after fine grinding is 0.5%.

To produce green briquets for sintering, the roller mill discharge is mixed with water as binder in a series of Pugmills and squeezed under pressure in K. R. Komarek briquetting presses. Three (3) units (Pugmill and briquetting press) are used in parallel.

The final stage in the production of sintered bauxite requires that the kiln feed produced and handled in briquetting area be treated by the application of very high temperatures for a period of time. This results not only in removing any residual active and/or LOI water, but also alters the crystal structure and chemical composition to yield a product of high specific gravity. This process step is carried out in the pressurized vertical shaft kilns.

The required production of 100,000 tpy requires the plant to be divided in two (2) lines of 50,000 tpy each. Each kiln consists of a vertical cylindrical main section, a feed hopper at the top and a discharge system at the base. In effect, the kiln is a large packed bed, counter-current reactor with hot combustion gases contacting the bauxite briquets as they descend through the cylinder. The sintered product is withdrawn from the base of the bed by a discharge mechanism and fresh feed material falls by gravity into the furnace as space is made by the withdrawn material.

The cylindrical section of the shaft kiln consists of a high temperature structural steel shell, which is lined with high quality refractory bricks. In the firing zone of the kiln, the fuel and primary air are introduced into the kiln by burner lances. A continuous flow of cold water surrounds each burner to protect them from the high temperatures being generated inside the kiln.

After combustion, the gas stream flows upwards through the mass of fresh material giving up calories to pre-heat the kiln charge. By this means the gases are cooled as the kiln feed is heated.

In normal operation, product discharged from the kiln is transported by bucket elevator via diverter chutes and diverter box to the so called recycle bin which has a maximum capacity of approximately 200 t. Only the top, approximately 70 t of this bin are effectively “live” representing the production of approximately 10 hours. The rest of the bin’s capacity provides an emergency stock to recycle back to the kiln so that the kiln can be kept operating if there is a disruption to the supply of fresh feed.

After the sintering plant, the sintered product is conveyed to be crushed by a cone crusher and discharged into a surge bin. Trucks will transport the crushed briquets to the sintered bauxite storage building near the wharf. Total storage capacity is 14,200 t. The stockpile is formed with the aid of a hopper, bucket elevator and a tripper conveyor. The crushed briquets reclaim is done by a loader via a hopper feeding the conveyor system that can fill the sintered bauxite vessel.

17.2.1 Description of Processing Facilities

The Process Plant is located near the Demerara River. The Sand Hills site layout is shown on Figure 17.2.

17.2.2 Plant Production Schedule

The wash plant will operate for 245 days per year, five (5) days per week and 24 hours per day, while the sintering plant will operate for 344 days per year, seven (7) days per week and 24 hours per day.

17.2.3 Project Requirements

The peak power requirement is estimated at 6.2 MW. To achieve this six (6) HFO power generation units (capacity of 1.6 MW each) will be installed at Sand Hills. The extra capacity is required for maintenance of generators.

The process water requirement for the Project is based on sinter plant operating day average water consumption. Demerara River water will be the main water source of all raw water. Total water consumption is estimated at 6,950 m^3/d. The main use of raw water is for cooling water of the kiln burners 4,320 m^3/d. The next large water consumer is process water for the wash plant at 2,425 m^3/d. Water will be re-used in the plant to minimize water consumption.

No significant quantities of reagent are planned for this process.

Figure 17.2 – Sand Hills Site Layout

Source: Met-Chem Canada, 2011

SECTION 18

PROJECT INFRASTRUCTURE

18.0 PROJECT INFRASTRUCTURE

18.1 Rejects Sedimentation Ponds

A preliminary geotechnical assessment has been carried out by Golder for the development of a sedimentation pond system to manage the rejects stream from the wash plant. The preliminary geotechnical assessment was conducted to provide sufficient information for the preliminary design of the sedimentation pond(s) and “reject” storage.

Based on current available information, the project data and information shown in Table 18.1 formed the basis for the sedimentation pond system design.

Table 18.1 – Summary of Design Criteria

Item	Unit	Value*
Approximate Life of Mine	years	22
Rejects	tpy	62,535
Cement Grade Bauxite from Rejects	tpy	12,705
Net rejects	tpy	49,830
Assumed Deposited Density	t/m^3	1.5
Total Solids to Sedimentation Ponds	m^3	730,840
Average Annual Precipitation**	mm	2,614
Average Annual Pan Evaporation**	mm	1,353

*Values are rounded.
**Timerhi Weather Station.

It is important to note that the process waste by-products or “rejects” will generally consist of inert gravels, sands, silts and clays. No chemical processes are used in the bauxite production, which is simply a washing and screening operation using river water.

The results of the preliminary geotechnical assessment carried out in conjunction with the sedimentation pond feasibility component, were presented in Golder’s report No. 10-1221-0100-5000-R01 v.3 issued in September 2011.

Sixteen test pits, numbered TS-SP-1 to TS-SP-16, were excavated. All of the test pits excavated at the site encountered and were terminated in layers of sand at depths of 3.6 m to 6.0 m below ground surface. The sands generally had a fine to medium gradation and contained varying amounts of silt with trace to some clay. Occasional layers of sand and gravel were encountered within the sand strata.

18.1.1 Site Selection

Site selection has been based on the site soil and groundwater conditions.

Preliminary siting studies have identified four (4) areas at the site for potential sedimentation pond locations.

Only Ponds A and B are currently being considered for the purposes of the preliminary geotechnical assessment. These latter two (2) ponds sites have overall areas of about 177 and 175 hectares for A and B, respectively.

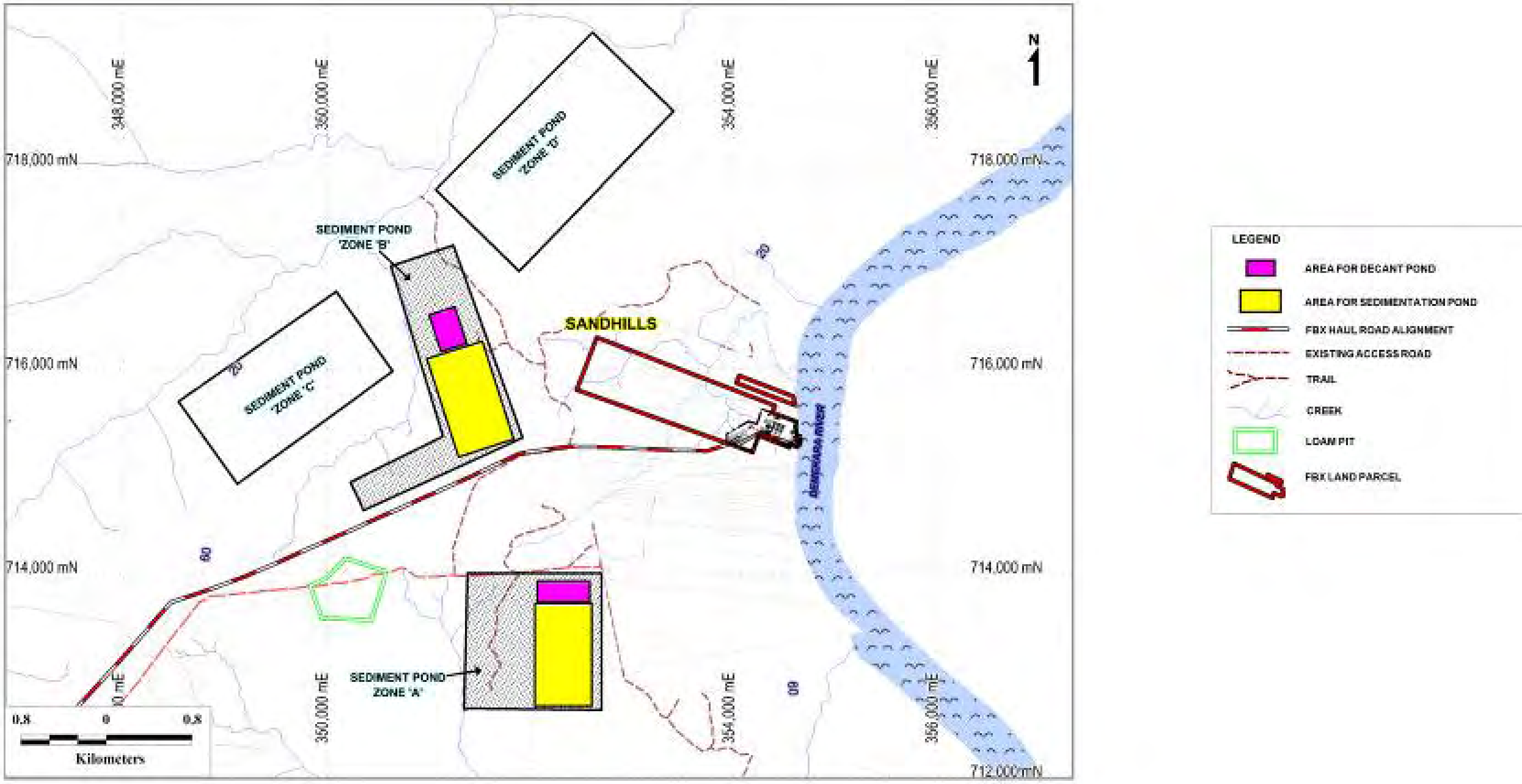
The proposed ponds location is shown on Figure 18.1.

Based on the results of the preliminary assessment, handling of the finer grained waste-stream rejects (fine sands, silts and clays) and slurry water can be achieved with a waste facilities system consisting of a sedimentation pond(s) and decant pond(s) discharging to natural drainage features and, eventually, to the Demerara River as shown conceptually on Figure 18.2.

It is considered geotechnically preferable to develop the sedimentation pond(s) on relatively high ground for the following reasons:

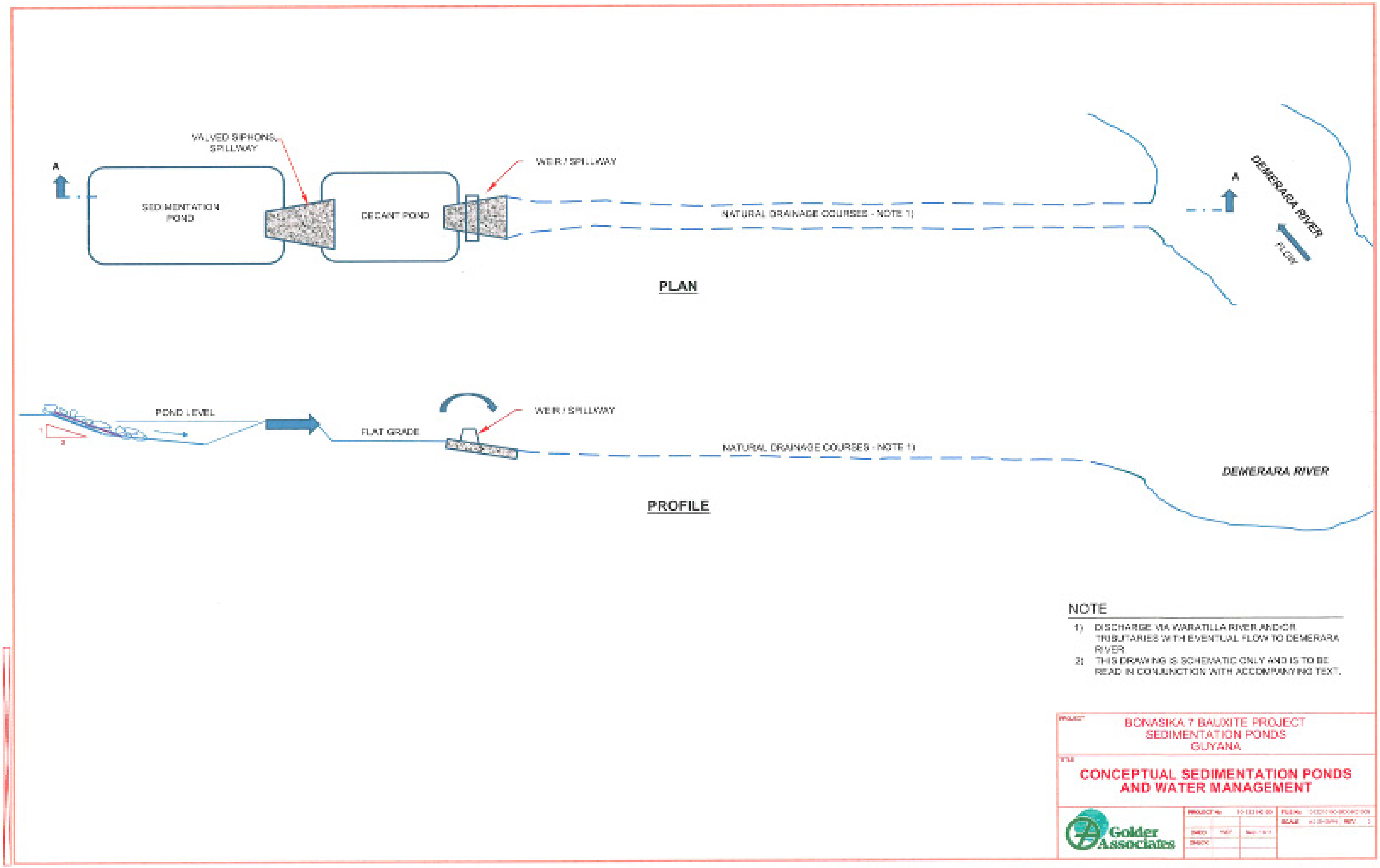
- Reduce impact of surface water flows (not capturing watershed run-off including rainwater and sediments);
- Only direct rainfall is captured by providing berms or surface drainage grading away from the perimeter of the pond(s);
- Increase availability of free draining sandy subgrade soils;
- Maintain maximum separation above the groundwater table;
- Encourage infiltration of ponded water into the sandy subgrade soils;
- Use gravity for clearwater discharge.

Figure 18.1 – Ponds Location Plan



Source: Golder Associates, 2011

Figure 18.2 – Conceptual Natural Drainage



Source: Golder Associates, 2011

18.2 Infrastructure

18.2.1 Soesdyke

As mentioned the site is accessed by the Demerara River. At Soesdyke, the infrastructure will consists of a roll-on/roll-off ramp in a fenced compound on the east bank of the Demerara River with paved road access to Georgetown.

18.2.2 Mine Site - Infrastructure

- A 21 km haul road (15 m wide) between Sand Hills and Bonasika 7 mine site;
- A mine office building complete with lunch room and washrooms;
- Diesel power generation plant (500 kW) for office and pit dewatering;
- Pipelines from pit to mine water sedimentation pond(s);
- Fuel storage and distribution.

18.2.3 Sand Hills Infrastructure

- Gate houses (2)
- HFO power generation plant, six (6) 1.6 MW units for an installed capacity of 9.6 MW;
- Permanent camp accommodation (capacity of 72) complete with kitchen;
- Mine equipment maintenance facilities complete with warehouse;
- An office building complete with lunch room, conference room, first aid and washrooms;
- Assay laboratory;
- Fuel storage and distribution (pipelines);
- Water service systems (raw water, fire water, domestic water, potable water, waste water etc.);
- Concentrate Stockpile Shelter;
- Sintered Bauxite Storage and Ship Loading Facilities.

18.2.4 Wharf

The wharf will be located southeast of the plant on the Demerara River. It will be designed to accommodate ocean vessels delivering fuel and ocean vessels for the transport of sintered bauxite to clients.

The wharf will be a T-shape, reinforced deck concrete slab founded on precast, prestressed concrete piles. Four (4) mooring points are provided on both the upstream and the downstream ends of the wharf. Timber fenders will be provided to protect the wharf from impact with the vessels. The wharf will be fenced for protection and security of the area. Lighting will also be provided. The wharf will be fenced to prevent unauthorized personnel to access the ship loading area. This will prevent the local population to have access to the loading facilities. Security will be reinforced in this sector to conform to maritime laws and international shipping.

A roll-on/roll-off ramp will be built south of the wharf, to allow barges to off-load personnel, equipment and material. The ramp section that will be submerged at high tides and exposed at low tide will be made of concrete with sheeting pile on both side of the ramp to protect it from erosion. The ramp will be built with an 8 degrees slope and will be 12.5 m wide, with a concrete section of 20.7 m long. This ramp will not be fenced. A security gate house will be built near-by to control the movement of personnel and material entering and leaving the property.

SECTION 19

MARKET STUDIES AND CONTRACTS

19.0 MARKET STUDIES AND CONTRACTS

A market study has been conducted by CRU Strategies (**"CRU"**) on behalf of First Bauxite. The study has been undertaken to provide an independent, detailed analysis of the market for refractory grade bauxite, including assessment of the long term outlook for refractory bauxite. In undertaking the study, CRU has drawn on assistance from expert consultants in the key markets of North America, China and Europe. The study has gathered information from an extensive program of contact with the industry, interviewing key people in the refractory industry to make assessments of their uses of bauxite, the trends in that usage, and their outlook for future consumption. CRU has also used its understanding of metal markets to project demand forecasts for the key consuming industries, both in terms of metal demand, and the unit consumption of refractories. This has enabled a demand forecast for refractory bauxite to be compiled to 2035 and a price forecast to 2030.

19.1 Chinese Refractory Bauxite Supply

The supply of refractory bauxite is dominated by Chinese producers. All supply currently comes from China, with the exception of a single producer in Guyana, also Chinese owned. The reason for this concentration of supply is that to be effective as a refractory raw material, the bauxite needs to be of a high Al_2O_3 content with low levels of impurities. The grade specification rules out bauxite from virtually all other producing regions. Lower grade material however finds huge market application in the production of alumina – primarily for aluminium production, as well as a range of other smaller applications including chemicals and abrasives.

The supply of refractory bauxite was once largely dominated by Guyanese production, but the decline of that country's output in the 1970's and 1980's saw it replaced by China. This coincided with the start of the rapid development of steel production in China, providing a domestic market that was growing rapidly.

CRU, through consultants based in China, has undertaken a detailed assessment of the current state of the Chinese bauxite industry and its outlook. The findings reached paint a picture of an industry under pressure. China's bauxite resources are declining, particularly its high grade refractory bauxite. Efforts by the Chinese government to boost resources through exploration will add new resources, but the quantity of refractory grade material is not expected to grow significantly. This resource depletion is coming at a time when the demand for alumina for aluminium production is growing rapidly in China, and is expected to continue to grow strongly. China has become a major importer of bauxite for alumina production, but there is also strong pressure on domestic producers of bauxite to direct ore to alumina production, in preference to refractory production. Some traditionally refractory bauxite producing regions are no longer able to produce the required grades, while others appear to have passed their peak and can be expected to decline. To retain business and employment, local authorities are imposing taxes on bauxite moved to other provinces for processing, adding to raw material costs for calciners.

Bauxite used in refractory applications is calcined. In China, many of those calcining operations are different businesses with different owners to the producers of the raw bauxite. Calciners therefore will purchase raw bauxite from a range of sources to feed their calcining operations.

Calciners are facing other cost pressures in the current market. The government has passed regulations requiring improved environmental outcomes across a range of industries. For bauxite calciners, this has resulted in some kiln types being shut down, and coal as an energy source being replaced by coal gas, and now, increasingly coal gas is being replaced by natural gas. Fuel costs have been rising very considerably as a result.

It is estimated that in USD terms, typical cost of sales in China for an 85% grade are in the range of $366 to $430 per tonne, with the range reflecting the type of fuel used in calcining. As more and more calciners are required to use natural gas, they will move to the higher end of that range.

For producers looking to export, the export licence system has imposed another cost into their operations. As a result, despite the rapid increase in bauxite prices in recent years, Chinese producers are operating on slim margins. In 2011, many of the smaller operations have shut down or are producing only intermittently. Bauxite prices have remained relatively strong despite slightly weaker demand in China on the basis of reduction in capacity. Producers have shut-down capacity rather than make losses, indicating that those still producing are doing so on low margins. Conversely, CRU does not see supply responding strongly to an upsurge in demand, and stronger prices, because of the ore availability issues. Clearly Chinese production can expand in the short term, but is constrained by access to ore.

19.2 Guyana Production

Bosai secured control of the Linden operations in Guyana in 2006 and took over an operation that has been in production for many years. Some capital had been spent by previous owners, and Bosai has also invested more to modernise the operation. Bosai operates two rotary kilns with nominal capacity of 300,000 tonnes, but in recent years output has been at levels of less than $2/3^{rd}$'s capacity. However, the RASC grade produced from this operation is well known, and well liked by refractory companies.

The operation has a number of factors that keep its costs relatively high. The deposit has a high stripping ratio of 7:1 that means a lot of mining costs are incurred to access the ore. It also operates oil fired rotary kilns that consume approximately 1 barrel of oil per tonne of product, and much of its equipment is old, meaning that maintenance costs are high, or capital is required to replace it.

19.3 New Entrants

CRU has reviewed the potential for new producers to enter the industry. Bauxite resources are generally plentiful and many areas of the world are developing new bauxite projects. However, in almost all cases, those projects will be focused on metallurgical applications. Some bauxite is produced in India for refractory applications, but is of a grade that makes it unlikely to be used elsewhere. Rusal has announced its intention to develop a refractory bauxite operation from deposits in the Komi area of Russia. Again, the grade being mentioned for this project would make it unlikely to be acceptable as a refractory raw material elsewhere. The CIS is one of the few remaining regions in the world with open hearth furnaces, which would provide a larger market for lower grade bauxite refractories.

While not dismissing the potential for new entrants from other regions such as Vietnam, Brazil or even Australia, the probability is that these regions will focus on bauxite for alumina, abrasives and perhaps proppants.

19.4 Refractory Applications

One of the challenges in understanding the refractory industry is that practices vary in different parts of the world, the formulations based on a range of raw materials varies between refractory producers and regions, and the refractory market is relatively unnoticed by industry at large. The key criterion is the performance of the linings in service. Over time, the requirements of the end-user have changed, particularly in steel production. Steel making technology and operating techniques have changed, and as a result refractory requirements and the raw materials used, have changed. In addition, refractory makers have improved their products. The net result has been declining consumption of refractories per tonne of steel produced. Similar trends have been seen for other refractory consuming metals as well.

19.5 Refractory Markets

During the course of this study, consultants have spoken to a very large percentage of refractory producers in North American and Europe, and have canvassed refractory usage in other regions, Japan in particular. Companies were asked about their raw material requirements, sources of supply, prices and trends. CRU asked companies about concerns they had about raw materials, and any problems they were experiencing or foresaw. The details of those discussions are contained in the CRU report.

The market feedback was that currently supply of bauxite from China was adequate and quality as reasonable, although the Japanese reported declining quality from Chinese supply. This is in marked contrast to the experiences in 2007 and particularly 2008 when supply was difficult to get, quality was poor and prices had escalated dramatically. The experience of many purchasing managers in that period has influenced their current attitudes and plans. Many refractory companies have supported

Bosai's Guyana operation for two reasons – there has been a widespread preference for the RASC material for high grade bauxite applications, and it is the only possible supply diversification. Most purchasing managers however regard supply security as a significant concern, and see Bosai as an imperfect solution. Most refractory companies identified the price of raw materials as a concern, and noted that bauxite prices had risen significantly over the last 5 years, and had not retreated much since 2008.

There was strong interest among the companies spoken to about a new producer entering the market, particularly with a proposed product that would be a consistent, briquetted, high density, high grade material. The interest is based on the availability of a new material that may offer performance benefits, a new company that would inject more competition into this sector, and a new supplier that would provide greater supply diversification.

19.6 Alternative Refractory Materials

The study asked respondents about their use of alternative raw materials, and the potential of those materials to replace refractory bauxite. At both ends of the quality spectrum there are other materials in use. Refractory companies are always assessing the performance delivered by different materials, against the cost of those materials. As a generalisation, refractory companies are reluctant to change materials, and are relatively slow to change. While price is a driver for such change, it is availability that appears to be the strongest motivator. Prices of materials tend to all move when the industry is buoyant so that while bauxite has increased in price, so have the competing materials. The risk of not being able to get a material is a far greater threat, and it was disruptions in 2008 to supply that resulted in many companies looking at andalucite, mulcoa, brown fused alumina and other materials as substitutes. With supply of bauxite becoming more reliable from 2009/10 the interest in substitution has waned.

19.7 Demand Outlook

The study developed a forecast methodology based on the underlying drivers of demand. In the context of a long term economic outlook, CRU examined the likely demand for refractories based on the production outlook for steel, cement, aluminium, glass and other refractory consuming industries.

Despite considerable uncertainties within the global economy at present, the base case outlook is for a relatively benign long term outlook, with the developing countries strong growth leading demand and keeping the developed world on a path of low growth. China, as the main growth driver, is expected to slow as its economy matures, but other countries – Brazil, India - are expected to sustain long term growth.

This outlook drives a favourable forecast for steel production, which consumes roughly 70% of the world's refractories. The steel forecasts were based on country by country estimates, and on corresponding analysis of the unit consumption of refractories.

The picture that emerges for refractories is for compound annual average growth of 3.2% for the period to 2020, but very little growth thereafter. With Chinese steel production the main driver in this period, refractory demand will be strongest in China, but will be growing at a slower rate as marked improvements in refractory consumption are realised. By the mid 2020's CRU expects refractory demand to peak, and to decline slowly thereafter.

Bauxite demand will be a function of refractory demand, although CRU expects that further inroads will be made into bauxite usage by high grade, synthetic alumina materials, and by some further moves to more use of basic refractories in some steel production applications, for example in ladles. Between 2010 and 2025 CRU expects the demand for bauxite to increase by over 50%, adding just over 1 million tonnes of additional supply requirement. Much of that demand growth will come from China.

The ability of the Chinese bauxite industry to meet that demand will become increasingly in question. CRU expects that there will be further restriction of Chinese exports of bauxite, to conserve available supply for domestic use, the grades of bauxite used within the Chinese industry will decline, and other materials will be used in China to augment bauxite supply.

Supply security is therefore likely to become a more pressing concern for refractory producers in all other parts of the world. CRU's expectation is that the Chinese bauxite industry will be unable to meet the demand for an additional 1 million tonnes, and that this supply will need to come largely from other regions – particularly Guyana.

19.8 Price Outlook

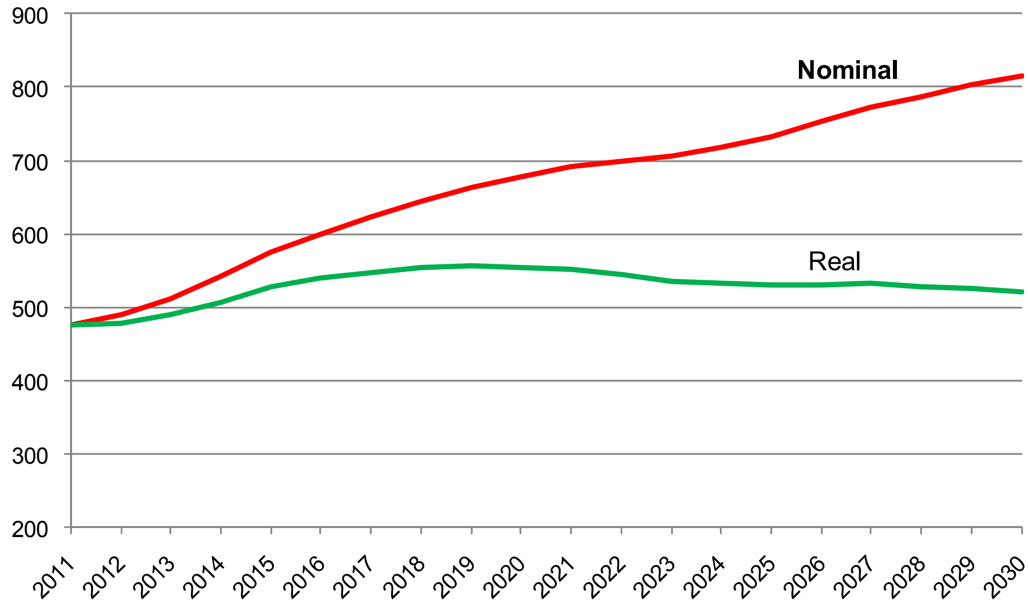
Based on CRU's demand profile, CRU has generated a price forecast that reflects the supply pressures over the next 10 to 15 years, with growth in prices in both nominal and real terms.

CRU's price outlook has been framed by the impact of the following influences:

- Chinese supply will become constrained by resource availability.
- Chinese production costs will rise as ore and energy costs continue to rise.
- Chinese producer costs will be the main impact on price trends.
- The rising demand outlook for refractories generally, and for bauxite, will maintain price pressure that will be responsible to rising production costs.
- The underlying marginal cost is expected to be rising, but prices will exceed the estimated long run marginal cost for most of the next decade. Real prices are expected to peak around 2020 and will decline slightly thereafter, and
- The very strong demand for raw bauxite for Bayer applications will provide an alternative market outlet. As underlying demand slows in the 2020's CRU expects prices to also moderate and by the late 2020's to decline in real terms.

The refractory bauxite prices forecast is shown in Figure 19.1.

Figure 19.1 – Forecast Refractory Bauxite Prices 2011 to 2030 – FOB Guyana



Source: CRU Strategies, 2011

19.9 Logistics

The report provides details of current freight costs and some indicative freight costs based on the CRU freight forecasting model. Chinese producers have a freight cost advantage over Guyanese producers of $10-15/tonne into the USA, $15-20/tonne in Europe. Freight to Japanese and South Korean ports is significantly more difficult in terms of the cost and availability of shipping. Chinese producers have a freight advantage currently of at least $40/tonne into main Japanese ports. This assumes individual holds can be chartered from Guyana.

Supply to the major markets will require First Bauxite to devise a detailed marketing strategy that addresses how material will be delivered to those markets, where it will be stored and whether sizing options will be offered to customers. In some markets, the engagement of a company to provide agency services will be required, both to gain market access and to support customers.

19.10 Market Entry

First Bauxite could enter the market with a considerable level of support from the market. It is apparent that refractory companies would welcome this project and are likely to support it to develop market share. Strong competition can be expected to come from Bosai which will see a new Guyanese project as a direct threat to its market share. While CRU forecasts indicates that there will be room in this market for both operations, Bosai is likely to seek to hinder a new project by seeking to lock in customers ahead of the start-up of a new project with long term contracts, minimum contract quantity demands, and price.

The addition of substantial new capacity is likely to put downward pressure on prices, but this impact may be minimised if the market itself is growing, as is expected by 2012, 2013. In fact the market should be supported by quite robust growth in demand for refractories at least until 2020 which will make any entry impacts relatively minor and short term in nature.

The specification for the Guysin product is likely to be regarded as superior to RASC in the market, but it may take some time for that superiority to be reflected in a price advantage. Once customers have gained experience in the use of the material, preferences will be expressed through the level of orders, which will then allow the company to negotiate for premium prices. It will be critical that the project supports the product with a reliable and effective marketing strategy.

19.11 By-Product Outlook

There are a number of markets for by-products that may be produced by the First Bauxite project. The intention is to recycle calcined product that fails to meet specification, so that by-products will be raw bauxite unable to be upgraded or blended to meet refractory grade requirements.

There are several market outlets for lower grade raw bauxite, including metallurgical, chemical and cement applications. One other market has been identified as having substantial growth potential is the proppants market. Proppants are used in the oil and gas industry. There has been a rapid expansion in the recovery of gas from shales, where the hydraulic fracturing techniques have been used. Proppants are used to hold open the fractures made in the shale, to release and allow the flow of gas from the shale. At present silica sand is widely used as a proppant, but ceramic proppants, including those manufactured from calcined bauxite are used when pressures are higher. The total ceramic proppants demand is estimated to be approximately 1.4 million tonnes, although the bauxite based market is only a portion of the total. However, demand has been growing strongly and is expected to continue to grow on the basis of the development of the gas recovered from oil shale and coal seams.

19.12 Synthesis

The market will welcome a new producer of refractory grade bauxite. Refractory companies have experienced supply disruptions over many years, firstly with RASC grade, and more recently with Chinese grades. Refractory companies are concerned generally about security of supply, and several have already implemented strategies to gain greater control over raw materials. There may be some expectation that a new producer will introduce greater price competition, to their benefit, but more generally, producers feel exposed by the extent of their reliance on Chinese sourced or Chinese owned supply.

Concerns over security of supply will provide a very powerful tool for First Bauxite to use when seeking to gain an initial foothold in the market, and to grow its market share. Most refractory producers spoken to expressed at least strong interest in a new refractory bauxite grade, and most are open to testing and evaluating the material (if they have not done so already).

The global demand for bauxite is likely to grow steadily over the next 10 to 15 years, supported by strong steel growth in developing countries, particularly China, but also in other parts of Asia, India and Brazil. The growth in aluminium will also be positive for bauxite refractory demand, as will expected growth in other refractory consuming industries – cement, other non-ferrous metals, and glass. Thereafter, CRU expects the rate of growth in steel to slow, and demand for refractories to slow even more.

Refractory demand will mirror the growth in their consuming industries, but at a slower rate. This is due to declining unit consumption of refractories, as the refractory quality improves, and production methods increase the life of the refractories. In the developing regions, specific consumption can reduce significantly as rates approach those of the developed world. New plants replace old technology in a rapidly growing environment. Therefore, growth in refractory demand in the developing regions will be tempered by falling unit consumption, while in the developed regions, metal production will be weaker, and growth more modest.

Bauxite demand will follow the demand for refractories, although bauxite is also expected to lose some share of its refractory market over time, as higher performance materials are used in refractories to provide higher quality product and longer lining life.

The supply of bauxite is likely to undergo some significant changes over the forecast period to 2035. Currently the market is dominated by Chinese supply. However, there are a number of major pressures on Chinese refractory bauxite production. Reserve life has declined and while the Chinese government is striving to increase reserves through exploration, it is unlikely that substantial additional reserves will be found, and directed, to refractory applications.

Cost pressures are increasing on the major input costs – ore and energy – to the extent that producers are currently struggling to make profits. Government policies that dictate the use of natural gas over coal, and eliminate some furnace types have also impacted costs.

In CRU's view, given the very strong demand outlook for metallurgical alumina, and the very strong growth outlook in China for alumina, any growth in bauxite resources are likely to be directed towards alumina production and refractory bauxite production is likely to stall. As this happens, the government may further restrict exports.

While these pressures are evident in China at present, their impact on the global refractory industry is not. Refractory bauxite demand in China is currently weaker than had been expected, and surplus product is looking to find a home overseas. As a result, refractory companies report adequate availability of Chinese bauxite even if demand is not yet back to pre-financial crisis levels. In fact Chinese bauxite prices have weakened during this year (2011) in most regions.

CRU expects the Chinese refractory bauxite industry to continue to struggle, as the availability of high grade bauxite declines, becomes more expensive, and is directed into metallurgical use. As a result, there will be a growing requirement for new production to fill a gap that is likely to grow to 1 million tonnes by 2020. First Bauxite can fill a part of that gap, and Bosai may make good previously announced plans to expand its Guyanese operations.

Refractory producers will also need to look for other materials to meet their requirements. CRU has not identified other regions likely to host new refractory bauxite producers. While bauxite resources are available and will be developed in other regions, most will be developing lower grade resources, better suited to production of alumina. India and Russia may well develop bauxite projects for refractory application, but the grades are not regarded as of refractory bauxite quality and would be unlikely to find markets outside of their domestic market. However, if CRU's expectation of a decline in the Chinese supply is correct, producers in many regions will look at these lower grade alternatives, while in other regions, higher grade, synthetic alumina will be preferred. Relative price and performance will dictate the choices.

CRU's price forecast reflects the outlook of declining Chinese supply. CRU believes that prices will be supported by the rising cost of production in China, and there is unlikely to be any relief on costs for Chinese producers. CRU expects both nominal and real prices to rise over the next ten years, before slowing. Real prices will decline in the mid to late 2020's and 2030's as refractory demand slows.

19.13 Contracts

The following is a preliminary list of contracts required to develop the property:

- Detailed Engineering contract;
- Construction Management contract;
- Purchase Orders to supply process and mining equipment and material;
- Installation contracts for the process plant and infrastructure;
- Supply contracts for consumables (HFO, LFO, etc.);
- Sintered Bauxite transportation contract to Clients; and
- Sales contracts with Clients.

No contracts are in place, negotiations with end user of sintered bauxite are just starting.

SECTION 20

ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

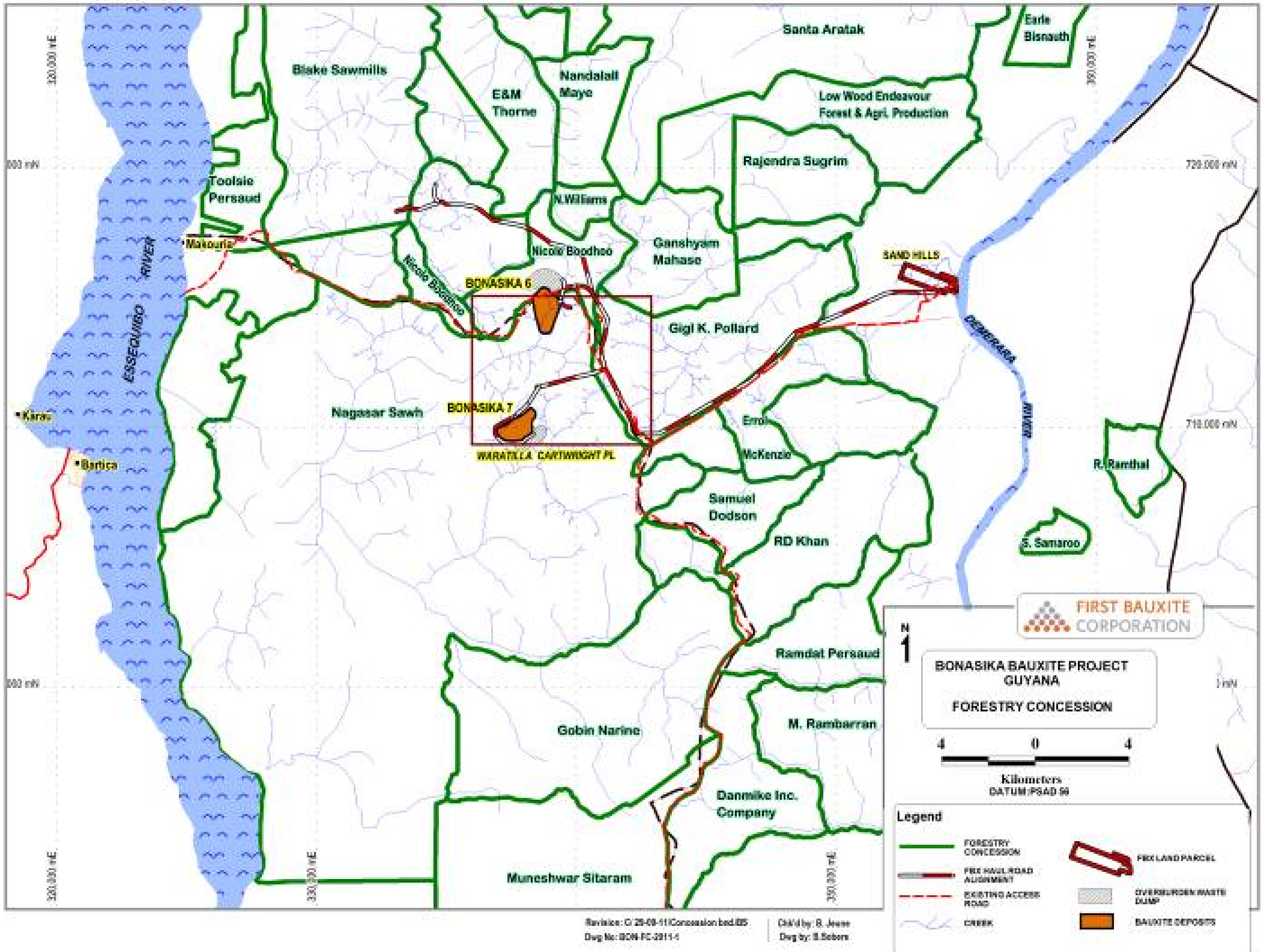
20.1 Existing Environmental Conditions

The following sections summarize the existing environmental conditions in the proposed project study area. A more detailed discussion of the existing environment is provided in the Environmental and Social Impact Assessment – Bonasika Mining Project (SENES, 2011) and in biodiversity monitoring reports prepared by EMC in 2010 and 2011.

20.1.1 Land Use

The primary land use within the proposed Bonasika and Waratilla-Cartwright mining areas is logging. Timber leases in the form of State Forest Permissions (**"SFPs"**) surround the entire properties. The land tenure system in Guyana for State Lands allows for multiple land uses. As such, both mining and logging can occur on the same parcel of land. However, mining has precedence over forestry and can occur on lands allocated for logging. In this regard, an agreement has to be worked out with the forestry operation giving the concessionaire an opportunity to remove the merchantable timber. Some minor activities such as hunting are sometimes done in the areas. Current exploratory activities being conducted by Guyana Industrial Minerals Inc. (**"GINMIN"**) dominates these areas. At Waratilla-Cartwright SFP, the GINMIN base camp is the only residential area within the property. Figure 20.1 shows the forest concessions within the proposed project area is a composite map of the proposed Sand Hills Complex, GINMIN's property holdings and surrounding land uses.

Figure 20.1 – Forestry Concessions within and around the Proposed Project Area



Source: Guyana Geology and Mines Commission and Guyana Forestry Commission

20.1.2 Public Consultation Program

As part of the environmental assessment process for the proposed Project, GINMIN has undertaken a community engagement program. This program includes consultations with communities that could be potentially affected by the proposed project, disclosure of relevant project information, including the public release of the 2010 EIA/EMP document, and a grievance mechanism to respond to community concerns relating to the proposed project.

a) Stakeholders

The involvement of stakeholders is a vital component of social impact assessment. To this end, primary, secondary and tertiary stakeholders were consulted. The primary stakeholders of a project are always the local people (individuals) and communities (for example, villages) likely to be directly affected by a project. As was previously indicated, the primary stakeholders for the proposed Project are the communities of Makouria, Vreed-en Rust, Sand Hills and Princess Carolina. The secondary level stakeholder communities include Bartica, Goshen, Bonasika and Timehri. The mining operations will be closest to the community of Makouria located within 6 km. The shipping and processing operations will be located at Sand Hills thereby resulting in social and environmental impacts to that and other nearby communities.

The communities of Bonasika, Goshen, Bartica and Timehri are seen as secondary stakeholders being outside of the core impact of mining and processing and handling of bauxite. These communities are in relatively close proximity to the operations and could be either positively or negatively affected by the proposed project. Mitigation plans must consider impacts on the communities.

Tertiary stakeholders are the key agencies/institutions whose mandate includes environmental protection and natural resource conservation. The tertiary stakeholders for this proposed project and who participated in the scoping meeting and subsequent consultations are:

- EPA;
- GGMC;
- Ministry of Trade and Tourism; and
- Natural Resources Management Project of the Guyana Natural Resources Agency.

The recently conducted Social Impact Assessment (**“SIA”**) consulted with Guyana Forest Commission (**“GFC”**), EPA, Regional Democratic Council (**“RDC”**) Region 3 and GGMC.

b) Stakeholders Involvement

The following types of involvement were conducted during the initial EIA process and subsequently during the biodiversity survey for the proposed new haul road and sediment ponds:

– Dissemination of information in summary form of the proposed project by GINMIN.
– Public Consultations, which were conducted by both the EPA and consultants working on behalf of GINMIN. These consultations comprised:
    – Meetings with principal agencies/institutions whose management responsibilities relate to various aspects of the project;
    – A social survey that covered available households in Sand Hills, Vreed-en-Rust and Princess Carolina. The family members were not available for interviews at all of the houses;
    – Interviews with residents in the aforementioned communities to determine the traditional and current use of lands along the proposed haul road for hunting, fishing, forestry, etc.; and
    – Interviews with residents in the same communities to determine the use of lands near the proposed sediment pond locations for hunting, fishing and forestry.

The basic aims of the involvement of the defined stakeholders were to:

– Define the scope of the proposed project;
– Discuss the potential impacts of the proposed project;
– Identify possible alternatives (if any) and mitigation measures;
– Identify contentious issues and a possible forum to resolve them;
– Gather baseline data on the primary stakeholder communities; and
– Create accountability and a greater sense of local ownership during the proposed project implementation.

20.2 Potential Impacts and Mitigation Measures

The following information is a summary of the detailed information contained in the report titled "*Environmental and Social Impact Assessment – Bonasika Bauxite Mining Project*" (SENES, 2011). Additional details are provided in separate supporting documentation on noise and air quality, as prepared by SENES, and on biodiversity, as prepared by EMC.

The following sections identify the potential impact of the proposed project on the environment and the measures that will be implemented to mitigate any potential adverse effects of the project. The activities to be managed include those relating to the mining of the deposits processing, haulage, waste disposal, etc. A Monitoring Plan, an

Emergency Response Plan and a Closure Plan Concept were also developed to ensure the measures are implemented and are efficient in preventing and minimizing any adverse effects of the proposed project.

GINMIN will be responsible for the implementation of an EMP and other environmental requirements, such as, those outlined in the existing Environmental Permit. GINMIN will employ an environmental officer who will report to the general manager. This person will have the direct responsibility of ensuring environmental compliance. A health and safety officer will also be employed who will have the responsibility of ensuring a safe and healthy working environment.

20.2.1 Geology, Geomorphology and Landscape

Construction and mining activities will disturb the soil and alter the landform within the proposed project area which could lead to erosion and sedimentation. The use of heavy duty machinery can also result in soil compaction.

Removal of vegetation to facilitate construction of the mine camp will expose the soil. The exposed soil can easily lose moisture and become dry, thus, increasing its susceptibility to erosion. Heavy rainfall, which is common to the area, can lead to significant erosion, especially when the soil is loose. However, the area identified for the mine camp is relatively flat and given the geomorphology of the area, most of the rainfall percolates into the soil. This can be observed at the existing exploratory campsite which has been cleared in excess of one year and there is little or no sign of erosion. Additionally, implementing mitigation measures, as discussed below, will minimize erosion. Therefore, overall, erosion is not expected to be a major problem for the mine site.

Mining activities will further expose the soil. Vegetation will be removed from the pit area and the areas to be used for bauxite stockpiling and overburden dump. In order to reach the bauxite layer, clearing of the plant debris, removal of topsoil and subsequent stripping of the overburden is necessary. Stripping will be done by bulldozers, excavators and dump trucks. The material removed will initially be located in an overburden dump. However, as mining progresses, in-pit disposal will be done whereby the material will be placed in a mined out section of the pit.

The overburden material dump and the bauxite stockpiles will also be susceptible to erosion and can lead to sedimentation of waterways. Holding/settlement pond(s) will be constructed to collect pit water and runoff drainage to ensure the receiving environment water quality is met prior to discharge.

Heavy equipment such as bulldozers, excavators and trucks will be utilised during the mine's operation. The constant movement of equipment over bare ground can result in soil compaction beyond permeability which can lead to ponding after periods of heavy rainfall. Compaction will also make it difficult for the regeneration of vegetation. To mitigate this problem, designated routes will be utilised for the movement of the equipment/machinery and transportation of materials.

With the implementation of mitigation measures, erosion, sedimentation and compaction are not expected to be a significant concern for the proposed project. In addition, over time, some of the exposed areas that are not utilized will be reclaimed by vegetation, thus reducing the soil susceptibility to erosion. While vegetation is being established in rehabilitated areas, it may be necessary to employ other erosion prevention techniques. Existing drainage channels will be maintained to the greatest extent possible, during the initial re-vegetation phase. Deep ripping may improve water infiltration, again reducing flow of surface water that causes soil erosion.

A detailed mine plan will be developed that will include measures to prevent erosion within the pit, on the waste dumps and bauxite stockpile areas. This will include measures such as benching and stacking of overburden in a lifting pattern. A progressive reclamation plan will also be developed to address the mined out areas.

20.2.2 Water Resources

a) Surface Water

Potential Impacts

Activities and processes associated with the proposed project, as well as actions by employees could potentially adversely impact surface water quality. These include:

– Clearing land for mining could leave large tracts of land without protective vegetation cover and therefore susceptible to erosion. Eroded materials can be transported into waterways via surface runoff and can increase the turbidity of surface water bodies and at the same time result in sedimentation.
– Runoff from the mine areas including the overburden dumps and the bauxite stockpile area can enter the drainage system and potentially local streams resulting in contamination and siltation.
– Mine dewatering can contribute to siltation of water bodies.
– Spillage/leakage of fuel and waste oil, if not properly managed, can result in water contamination of nearby water bodies.
– Direct dumping of solid wastes in water bodies can result in contamination and blockage.
– Runoff from solid waste disposal areas may contain contaminants that can affect water quality.
– Discharge of waste water from washing of dishes, bathing and washing of vehicles into water courses.
– Improper disposal of sewage from the camp site.

Acid Rock Drainage (**"ARD"**) from overburden stockpiles and open pits may occur and would potentially contaminate surface water. The occurrence of ARD is variable across the historical bauxite mining areas of Guyana. A single suite of overburden materials from Bonasika drill core has been examined for ARD potential as shown in Table 20.1. Since the overburden layer thicknesses are variable, zone thicknesses have not been given. Zones listed in Table 20.1 are from top to bottom. It is important to note that the lignite zones are generally very thin, in the order of a few centimetres in thickness. As seen in the table, most of the overburden layers may be potentially acid generating (**"PAG"**) as indicated by a negative Net Neutralising Potential (**"NNP"**). However most of the zones tests exhibit minimal negative NNP, except for the thin lignite zone which is indicated to be strongly acid generating. The bauxite zones are indicated to be so low in sulphide sulphur content, and with an NNP close to zero, that the bauxite can be considered to be non acid generating.

Table 20.1 – ARD Test Results - Bauxite Overburden and Bauxite

#	Description	Paste pH	Sulphide S %	NNP[1]
1	mudstone	5	0.08	-1.9
2	mudstone	3.9	0.52	-17.3
3	C - mudstone[2]	3.0	0.55	-26.3
4	C - mudstone	3.6	0.16	-5.8
5	lignite	1.9	7.7	-288.5
6	lignite	1.6	22.1	-732.5
7	clay	3.6	0.78	-28.3
8	clay	3.8	0.27	-10.7
9	siltstone	3.4	1.52	-57.1
10	siltstone	5.4	0.13	-3.6
11	coarse clayed bauxite	5.4	0.09	-2.1
12	Intermediate bauxite	5.8	0.07	-0.2
13	fine clayey bauxite	6.0	0.05	0.2
14	Massive bauxite	5.4	0.04	-0.6

[1] Net Neutralisation Potential kg $CaCO_3$/tonne
[2] Carbonaceous mudstone (C rich)

The potential exists to effectively manage ARD potential by placing (or retaining) the most potential ARD producers in reducing conditions similar to pre-existing conditions. This can be readily achieved by placing these materials in anoxic, fully saturated conditions in the mined-out areas or at the bottom of the surface overburden waste pile.

Should ARD appear in the mine water as mining progresses, the acidity levels are expected to be relatively low, indicating that neutralisation of the acidity would be effective by the addition of a small amount of hydrated lime. In addition, the small amount of dissolved aluminum in the mine water would work as an effective coagulation agent (aluminum sulphate – alum analogy) in the mine water planned sedimentation basin.

Mitigation Measures

To avoid, reduce and/or eliminate the potential adverse impact on surface water quality, the following mitigation measures are proposed:

- Fuel, lubricants and waste oil will be stored either in double wall tanks or in concrete containment.
- Top soil, overburden dumps and bauxite piles will be located at a minimal distance of 100 m from water courses.
- Mine water will be collected in a sump and channelled to mine water pond(s) for decantation, (and treatment with lime, if necessary), before release of final discharge into the environment.
- The necessity of treatment will be determined by measuring pH, suspended solids and metal (principally zinc and aluminium) content. Although the natural receiving waters are generally acidic (pH of 4.5 approximately) the pH of discharged water will be at least 5 to comply with Guyana GNBS Industrial Effluent Standards and to ensure non toxicity in the local environment.
- As possible, stormwater will be separated from process water to remove settleable and floatable materials prior to discharge into the environment. Silt fences will be installed at discharge points to aid this process.
- Rainfall and fresh water will be managed separately as far as is practical. Efforts will be made to ensure maximum fresh and storm water diversion away from the mine areas.
- Ditches will be dug around the perimeter of the external waste dumps to collect runoff/stormwater which will be channelled to the mine water basin for decantation.
- The bauxite stockpile areas will be profiled to allow for the flow of storm water into the drainage basin.
- The unnamed streams flowing through the deposits will be diverted where possible to ensure the flow is maintained.

b) Groundwater

Potential Impact

The following activities and processes associated with the proposed project, as well as actions by employees could potentially adversely impact groundwater quality.

– Mining to depths below the water table;
– Spillage/leakage of fuel and waste oil, if not properly managed, can result in water contamination of groundwater;
– Spillage of fuel during the refueling of heavy equipment such as bulldozers, working within the pit, especially since mining will occur below the water table;
– Leachate from solid waste disposal areas;
– The improper management of liquid waste.

Although mining is proposed at depths below the water table and because of the impermeability of materials below the bauxite horizons, there appears to be little potential for downward infiltration of mine waters and thus little if any potential for contamination of the lower aquifers.

Even if the groundwater is impacted, it is not considered to present a significant risk because of the quality of the water and because the groundwater is not used for water supply. Based on observations associated with historical operations at Linden, the changes in groundwater quality and quantity on the local creeks and the Demerara River are not believed to be significant (SENES, 2003).

Mitigation Measures

Further to the above, to avoid, reduce and/or eliminate the potential adverse impacts on groundwater quality, the following mitigation measures are proposed:

– Management and mitigation measures will be incorporated into the project design and mining activities to ensure the groundwater regime is not adversely affected.
– Fuel, lubricants and waste oil will be stored either in double wall tanks or in concrete containment.
– Refueling in the pits will be done in accordance with measures outlined for onsite refueling.
– The provision of spill kits onsite to assist in any clean up as a result of accidents.
– Employees will be trained in the proper handling of fuel and the containment and management of fuel spills.

20.2.3 Air Quality

Air quality data in Guyana is extremely limited given the constraints relating to the unavailability of equipment and cost associated with data collection. As such, there are no background air quality data for the project area. However, the air quality can be considered good, since there are no industrial or dust generating activities in the vicinity of the project area.

There are several potential sources of air emissions from the proposed project, the key ones being power generation, road transportation, bauxite processing, vehicle tailpipes and fugitive emissions from bauxite stockpiles and material handling.

Air dispersion modelling was conducted for the air emissions from the proposed mining and processing operation, using AERMOD for the 1-hour, 24-hour and annual averaging periods. The results summarized in Table 20.2 represent the highest of concentrations predicted at either of the two (2) nearest receptors (house and school) for each contaminant. The predicted concentrations were then compared to selected air quality criteria.

Table 20.2 – Maximum Concentrations Predicted at Nearest Receptors

Contaminant	CAS#	Total Facility Maximum Emission Rate (g/s)	Maximum Concentration (µg/m^3) at Nearest Receptor	Averaging Period	Chosen Criteria (µg/m^3)	% of Chosen Criteria
NO_2	10102-44-0	5.6	53.7	1-hour	200	27%
			1.7	Annual	40	4%
CO	630-08-0	14.3	109.0	1-hour	40000	0.3%
			50.2	8-hour	10000	0.5%
SO_2	7446-09-5	16.7	301.8	10-min	500	60%
			182.9	1-hour	200	91%
			22.2	24-hour	20	111%
			4.0	Annual	80	5%
PM_{10}	N/A	9.0	12.0	24-hour	50	24%
			4.9	Annual	20	24%
$PM_{2.5}$	N/A	1.9	3.5	24-hour	25	14%
			1.1	Annual	10	11%

All the predicted concentrations for nitrogen dioxide, carbon monoxide and fine particulate matter are well below their corresponding criterion for all averaging periods at the two (2) closest receptors.

The 24-hour SO_2 concentration is predicted to exceed the WHO guideline of 20 (µg/m^3) by 11% at the nearest receptor. However, this concentration is well below the WHO 24-hour Interim Targets 1 and 2 of 125 µg/ m^3 and 50 µg/ m^3, respectively. All of the WHO criteria are very stringent in comparison to North American criteria. This 24-hour SO_2 guideline is considered very stringent in comparison to North American jurisdictions such as U.S. EPA (140 ppb or 370 µg/ m^3) and Environment Canada (100 ppb or 290 µg/ m^3).

The next highest concentration is 1-hour SO_2 at 91% of its chosen criterion (U.S. EPA NAAQS). High concentrations of sulphur dioxide occur due to high sulphur content of the HFO (2.8%) that is used for the kilns and the power generators.

The maximum 24-hour concentration locations for PM_{10} and $PM_{2.5}$ occur around the stockpiles and closer to the Drop Point No. 3 on the river. For all contaminants, the concentrations at the two closest receptors are well below these maximum concentration points.

It is proposed that once the design is complete and the specific process equipment and the HFO supplier are chosen, the Air Dispersion Modelling and Air Quality Assessment be revised to reflect more accurate estimate of air emissions.

To further reduce SO_2 impact, it is also recommended to increase the exit velocity of exhaust from the dryer stack by coning the exit, or increasing the exhaust temperature, in order to improve the dispersion of emissions, which would lower the concentrations at the nearest receptors.

General measures to mitigate dust will include:

- GINMIN will employ all practical measures along roads, at material stock piles, and other necessary areas to control and prevent fugitive dust impacts during the construction and operation phases. Utilize dust suppression methods such as watering on a regular basis.
- Non-chemical dust suppression will be applied on the haul road and on-site routes at the mine sites and Sand Hill Complex, especially during dry/windy conditions.
- Non-chemical dust suppression will be applied to all stockpiles and stored dry material.
- The project is designed such that most of the processing at the Sand Hills Complex will occur within an enclosed building.
- Conveyor systems at Sand Hills and at the mine site will be largely enclosed.
- Employees likely to be exposed to high level of dust will be equipped with personal protective equipment (**"PPE"**), including dust masks and respirators, as necessary.

20.2.4 Noise

a) Baseline Noise Conditions

The existing noise environment in the vicinity of the mining areas (i.e. Bonasika 7) is characterized by sounds of nature. The mining areas are in undeveloped lands with no nearby roads or communities. The existing sound environment in the vicinity of the proposed Sand Hills Complex is characterized by sounds of nature, community noises, and very limited traffic. There is a silica sand mining operation located approximately 800 m south of the proposed Sand Hills Complex, along the Demerara River. A marked reduction in site activities has been observed recently, and no active mining is presently occurring, however, the conveyor system for the operation was recently repaired, but the facility is presently still unoccupied. If operating, this operation may contribute intermittently to local ambient noise levels.

To establish background noise levels at Sand Hills and Bonasika 7, SENES undertook continuous background noise monitoring at one (1) location in Sand Hills and at one (1) location at Bonasika 7, commencing October 21, and ending October 25, 2011.

The noise monitoring results indicate overall low sound levels at both locations, however, hourly LAeq sound levels in excess of 50 dBA were regularly recorded during daytime and nighttime at both monitoring locations. Minimum hourly LAeq of 33.8 and 38.5 dBA were recorded at Sand Hills and Bonasika 7, respectively. In general, lower sound levels were recorded during daytime hours rather than at nighttime. This was expected, because of the rural nature of both sites and the likelihood for nocturnal creatures/insects to be the dominant source of continuous noise. Similarly, the noise levels at the Bonasika 7 monitoring location was higher than at Sand Hills because of the heavier tree coyer harbouring a larger quantity of nocturnal creatures/insects at that location.

However, overall, the noise environment in both areas is similar, indicative of their rural setting.

b) Potential Impacts

The proposed project is a potential source of occupational as well as environmental noise. Most of the noise at the mine sites will originate from the operation of mobile mining equipment such as excavators, bulldozers, forklifts, mine trucks, etc. Stationary equipment, such as dewatering pumps, is also potential sources of mine site noise.

The Sand Hills Complex will also contain mobile and stationary sources of noise. Mobile noise sources will include frontend loaders, forklifts and trucks used for handling materials and product at the site. Potential sources of stationary noise at the Sand Hills Complex will include the power plant, the wash plant, concentrate storage facility, the dryer building, the grinding building, the briquetting building, the sintering kilns building, etc.

Heavy truck movement along the proposed haul road is another potential source of noise. However, the hourly truck volume along the haul road is expected to be quite low, less than five vehicles per hour. Furthermore, there are little to no residential receptors along the proposed haul route, except in the Sand Hills area.

Noise assessment criteria relevant to the proposed project are shown in Table 20.3.

Table 20.3 – Noise Assessment Criteria

Environmental Component	Effect Type	Receptor Type	Criteria/Guideline	Period of Applicability	Reference
Noise	Health	Residential	50 dBA (16-hr L_{eq})	07:00 – 19:00	WHO
			45 dBA (8-hr L_{eq})	19:00 – 07:00	
			55 dBA (1-hr L_{eq})	07:00 – 22:00	IFC
			45 dBA (1-hr L_{eq})	22:00 – 07:00	
		Educational - building	50 dBA	During class hours	WHO
		Educational - yard	55 dBA	During play hours	WHO
	Nuisance	All	>3 dB increase over ambient	All times	IFC

Bonasika 7 Deposit

Noise impacts were modelled within a 3 km radius from the centre of the source cluster. It was found that noise levels return to background levels (estimated to be 35 dBA) at approximately 1.3 km from the centre of mining activities during the daytime, and 1.7 km at night.

Sand Hills Complex

Modelling runs were initially completed with no consideration of any mitigation, in order to determine whether the planned operations were compliant with the criteria shown in Table 20.3.

Modelling was completed on a maximum one-hour basis during both daytime and night-time hours, for comparison to IFC standards, and on 24-hour basis for comparison with WHO limits. With no mitigation considered, these criteria are predicted to be exceeded at all points of reception (i.e. closest residence, school and church).

Haul Road

Hauling of material from the Bonasika 7 deposit is anticipated to occur during daytime hours only. Met-Chem estimates that there will be 4.5 truck trips per hour along the proposed haul road. Predictive modelling was completed for this one-hour period and indicated that the sound levels from the hauling activity will decrease to background at a distance of approximately 315 m. Daytime background sound levels along the proposed haul road are anticipated to be in the range of approximately 40 dBA. There are no receptors in the vicinity of the proposed haul road.

c) Mitigation Measures

Since the predictive modelling indicated that there are exceedances of the health based criteria during daytime and night-time hours at the closest points of reception around the proposed Sand Hills Complex, mitigation measures were considered in order to reduce the predicted impacts.

Additional modelling was completed to assess the extent of mitigation required. Iterations of the Sand Hills noise model were completed by determining the source with the highest off-site contribution, reducing the source sound level as required and re-running the model. These iterations were completed until the health-based criteria were satisfied. The following mitigation was found to be required:

- Silencers on the following stacks, such that sound levels meet an objective level of 85 dBA at 1 m:
  - East Kiln Dust Collector Stack;
  - West Kiln Dust Collector Stack;
  - Dryer Dust Collector Stack; and
  - Briquetting Dust Collector Stack.
- Dryer dust collector (including fan to stack) to meet 85 dBA at 1 m;
- AST Dryer to meet manufacturer sound power level of 97 dBA;
- Improved structure for Bauxite Storage Shed (current plan is for canvas tent – this is not sufficient to attenuate sound from front-end loader operating within);
- Improved structure for Concentrate Storage Shed (current plan is for canvas tent – this is not sufficient to attenuate sound from skid steer operating within);
- The kiln must be enclosed within a building that meets a Sound Transmission Class (STC) rating of STC35;

– The roll crusher and cone crusher must each be enclosed within a building that meets an STC rating of STC35;
– The wash plant area containing the high pressure washer and secondary crusher must be enclosed within a building that meets an STC rating of STC30;
– The grader should not be operated near the Sand Hills Complex during the night-time hours; and
– Area around dorms to be acoustically absorbent (i.e., grassed/vegetated – not paved/packed).

The additional requirement (annoyance-based) by the IFC that sound levels not increase above existing conditions by more than 3 dBA is not met through these mitigation measures. Based on the current design of the facility and sound level estimates for the equipment, the predicted sound levels due to the proposed Sand Hills Complex are anticipated to be noticeable at the receptor locations given the existing low background.

It should be stressed, however, that the noise modelling results are based on noise data for preliminary equipment selection. As the project proceeds into the detailed design phase, the selection of equipment would be more definitive and the need for, and extent of mitigation would have to be reassessed at that time. In any case, GINMIN is committed to selecting “low-noise” models of on-site equipment, where these options exist, and other measures such as berms, walls, etc. to ensure compliance with the IFC requirements.

d) Construction Noise Impacts

The GNBS outlines noise limits that must be achieved during construction activities. These limits are 90 dBA during the daytime and 75 dBA during the night-time. These limits are applied at 15 m from the noise emission source or at the nearest receptor location – whichever location is closer.

These limits are achievable provided that well-maintained construction equipment is used with effective muffling systems. While these limits indicate that construction equipment may be operated at night, given the close proximity to residential receptor locations it is advisable to avoid night-time construction where possible. This will reduce the likelihood of complaints during the construction phase.

Where possible, construction operations would be sequenced in order to minimize the simultaneous operation of multiple pieces of equipment. Staging of construction operations would allow for temporary barriers to shield residences from construction activities, where possible. Furthermore, construction staging areas would be located as far from the sensitive receptor locations as possible.

GINMIN will ensure that construction contractors are aware of these construction noise limits and contractually obligate them to ensure sound levels are within these limits, as well as to have a response plan in place if the limits are exceeded or complaints are received.

20.2.5 Terrestrial Ecology

a) Flora

Flora will be affected by land clearing and vegetation removal to facilitate the proposed project. Land clearing would be necessary at the mine site, the mine pit, overburden dump and bauxite stockpile areas.

While the clearing of vegetation to facilitate the proposed project is unavoidable, mitigative measures can be implemented to minimize or prevent potential adverse effects. These measures include:

- The GFC will be informed of all areas to be cleared. Merchantable timber will be salvaged. GINMIN, through the GGMC and GFC, will work with the concessionaires to remove merchantable timber prior to de-bushing the mining area. The removal of the vegetation should not have a tremendous effect on the floral population since the type of vegetation is homogenous throughout the area. In addition, upon completion of mining, these areas will be reclaimed and re-vegetated.
- SFPs holders will be informed in advance of intention to clear and clearing schedule.
- Clearing would be limited to areas where it is absolutely necessary.
- Also the clearing of vegetation during road construction will be minimized by restricting the width of road corridors as much as possible.
- An adequate vegetative buffer will be between the mines, roads and residences.
- Cleared areas not in use will be re-vegetated as part of the proposed project rehabilitation plan. Based on observations within the area, it is determined that natural re-vegetation will provide good cover within one year once there is some amount of top-soil present. No special measures are likely to be needed to promote the establishment of vegetation although some local amelioration may be required to promote rapid growth where low permeable material are on the surface.
- Re-vegetation will be accomplished primarily through the use of native plants to avoid the introduction or colonization of non-native flora.
- Strict measures will be implemented and enforced to prevent forest fires including a ban on the burning of waste in forested areas.

- All equipment and machinery would be adequately maintained to ensure peak performance and to reduce the risk of accidental fires resulting from electrical short circuits and sparks.
- Fire extinguishers will be installed at highly visible key locations at each proposed mine site and at the proposed Sand Hills Complex. All mobile machines would be equipped with chemical fire extinguishers.
- GINMIN will comply with the requirements of the Guyana Fire Service guidelines.

b) Fauna

The proposed project could potentially cause the following effects on faunal species:

- The direct loss of vegetative cover could result in habitat loss and degradation for tree and ground dwelling avifauna, mammals, herpetofauna and insects.
- Decrease in faunal species frequency observed along access trails and the proposed haul road with increased human presence and traffic moving through the main camp site and within the mining areas.
- Alteration in the movement of faunal species within the project mining areas due to increases in the noise levels generated from forest clearing, day to day activities within camps and from mining equipment. This may also result in fragmentation of habitats.
- Loss of certain wildlife as a result of hunting and trapping by project employees, other species may also be accidently killed by coming in contact with humans and equipment. Only one (1) CITES annex 1 species (*felis concolor*) was observed within the boundaries of the Waratilla-Cartwright site; as such all other faunal species observed during surveys are not protected from hunting and trapping; and
- Loss and destruction of wildlife and wildlife habitat in the event of forest fires.

As the proposed project areas have already been disturbed by logging and hunting for many years, some species may have already moved to undisturbed areas or extirpated. However, to mitigate the potential effects on the remaining faunal species, the following measures are proposed by GINMIN:

- GINMIN employees will be prohibited from hunting, trapping, killing, harming or capturing any wildlife.
- Warning signs prohibiting the hunting/capturing of wildlife will be prominently displayed at strategic areas.
- GINMIN will report all occurrences of wildlife trapping and trading to the EPA and Wildlife Management Authority.

– Where habitats are fragmented and disturbed, restoration techniques will be implemented to re-establish natural ecosystems. Adjacent sites will be restored wherever possible to increase habitat for the remaining wild fauna and to maintain the areas integrity.

– GINMIN has commenced a Fauna Monitoring Program. This program is intended to determine the presence of fauna within the project area and is being conducted for two wet seasons and two dry seasons. Areas close to the proposed mining sites as well a site further away serving as a control site are being monitored. Monitoring will be conducted when mining commences to determine any change which may occur. Currently, GINMIN is also maintaining a register on wildlife sightings within the proposed project areas, including the haul road.

c) Protection of Endangered, Rare or Threatened (**"ERT"**) Species

ERT species of certain mammals, reptiles and birds have been identified during the baseline biodiversity monitoring completed on GINMIN's properties and within the study area.

The initial stages of construction of the proposed haul road and mining operations could potentially disturb animal habitats and movements/migration. This, however, is not expected to be permanent and will be localized. Vegetation removal will be limited to the greatest extent possible. Following mining, the vegetation at mining concessions will be restored to as close as possible to its natural state and allowed to recover and regenerate. It is anticipated that many of the species would eventually re-colonise these formerly disturbed areas.

To further protect such species, GINMIN will implement the following measures, among others:

– Restrict hunting within its concessions, including enforcing a ban on the use of firearms for hunting.

– Seek a 200 m reserve of "buffer zone" as part of the proposed haul road alignment to ensure control of the area and to limit access. The haul road and mining areas will only be accessible by GINMIN staff or with the company's permission.

– Initiate an education and awareness program to train its staff and local communities in the identification and protection of ERT species.

– Limit vegetation clearing, especially for the proposed haul road to avoid forest fragmentation such that canopy species like the black spider monkey are still able to move easily throughout the forest.

– Rehabilitate all disturbed ecosystem/habitats as close as possible, in terms of structure, function and dynamics, to pre-project conditions. Progressive reclamation is a key component of GINMIN's mining and decommissioning plan.

– Undertake monitoring of the occurrence of ERT and key indicator species to provide indications of any long-term trends caused by mining and haulage road construction and operation. Current fauna survey sites established by EMC and biodiversity data collected prior to mining operations by EMC could act as baseline to compare against monitoring data collected post-mining and control (un-mined) sites.

20.2.6 Impacts to the Socio-Economic Environment

a) Economic

The establishment of the proposed mine and processing facility is expected to result in a number of economic benefits as are outlined below:

– The project will inject new life into the ailing bauxite industry in Guyana.
– Increased employment opportunities for skilled individuals previously employed in the bauxite industry.
– Increased employment opportunities for communities in close proximity to the proposed project sites, where employment opportunities are currently quite limited. Individuals within these communities will be given preference for employment and would most likely enjoy an improvement in their standard of living.
– Individuals employed by the proposed project will experience a significant increase in income, as daily wages for working on the proposed project could be two to three times higher than for other available jobs in these communities. This would help to retain the youth population within the local communities and reverse the trend of youth out-migration.
– Additional income for the Government of Guyana through royalties and taxes.
– Opportunity for employees to be exposed to widened knowledge base and experience through technology transfer in using modern state of the art equipment.
– The project can serve as a model within Guyana, as well as, a global model, demonstrating good environmental practices, social sensitivity, and economic viability.
– Given the quality of the bauxite, niche markets in the global market place can be targeted.
– The project can serve as a model in Guyana where a small local company is promoting the development of a bauxite mining operation.

20.2.7 Community Values

As with any large-scale project within a small community, there is a potential for adverse impacts on the local community, including:

- Population conflicts due to the influx of "outsiders" into the community.
- Disturbance/annoyance to local residents associated with rowdy, unruly or criminal behaviour. There is the likelihood that certain individuals having more spending power may spend more money on alcohol, drugs and on illicit activities, such as gambling.
- Communities such as Sand Hills are small and are generally close-knit. Conflicts could potentially arise should employees from outside of the local community demonstrate different moral values, while living temporarily within the community, for example, attitudes towards sex, swearing, etc.

On the other hand, a highly motivated and skilled work force can help to motivate the local community to lift their own standards and expectations for long-term growth and development. In addition, GINMIN will strictly enforce its prohibition on drug use on its premises. Employees found in contravention of this prohibition will be subject to disciplinary action, or even dismissal.

20.2.8 Local Services

As was discussed earlier, the communities closest to the proposed project are small and possess very limited services to no services, in terms of health care, schools, public transportation, water supply, electricity and communications. An influx of new individuals could potentially place additional pressures on such limited services.

Overall, the proposed GINMIN project is expected to cause limited to no adverse effects on local services and is more likely to improve at least some local services for the following reasons:

- The Bonasika and Waratilla-Cartwright mining sites are remote and well removed from residents. Only the Sand Hills Complex is in close proximity to existing residents. However, the Sand Hills area residents are accustomed to previous commercial activities including logging and sand mining.
- The GINMIN employees to be housed at the proposed Sand Hills Complex will be accommodated in a fully serviced compound, with its own electricity and water supply.
- As a significant portion of the required work force will be comprised of residents from communities in close proximity to the proposed project areas, there is little potential for increased pressures on local services.
- GINMIN has committed to providing potable water and electricity to the members of the communities in close proximity to the proposed project.

Transmission lines and water mains will be installed to the various dwellings to provide the services. The school and church will also benefit in this regard.

- GINMIN is committed to providing improved infrastructure including an improved boat landing at the Sand Hills docks and the access road in Sand Hills. However, the access road will be constructed to serve as the haul road for the mine and would be used primarily by GINMIN. In this regard, the construction of this road will not contribute to an increase in access to the areas beyond Sand Hills.
- GINMIN is committed to promoting recreational activities among its employees housed in Sand Hills and will provide the necessary infrastructure to support these activities; and
- Employees commuting to the work at the mine sites will do so by bus from Sand Hills along the dedicated GINMIN haul road. The existing logging trail will remain available for use by logging vehicles. It should be noted that traffic volume on this but trail is very low. Apart for the portions of the logging trail in the immediate Sand Hills area, for the most part the logging trail is hardly used by local residents. Workers at the Sand Hills Complex will travel to and from work by boat. Therefore, there is little to no additional risks to local residents from road traffic associated with the proposed project.

20.2.9 Archaeological Resources

Artefacts present within the project areas can potentially be damaged or destroyed as a result of the project activities. Cultural artefacts were previously found on the opposite bank of the Demerara River at Timehri and at the entrance of Kamuni Creek down river of Sand Hills. The proximity of the Sand Hills Complex to the known findings means that there is a potential for artefacts to be located on other nearby areas.

As was noted earlier, the communities in closest proximity to the proposed project area are primarily of Afro- and Indo-Guyanese and mixed race. None of the proposed project sites are traditional Amerindian villages or settlements. Amerindians located in the area are migratory workers whose permanent homes are located outside of the region. However, earlier Amerindian populations might have traversed the areas for fishing, hunting, etc.

To avoid loss of damage to local archaeological heritage, GINMIN will notify the National Trust of Guyana, the Water Roth Museum and the Ministry of Culture on the discovery of any artefacts prior to proceeding with work at the location where the artefact was discovered.

20.2.10 Loss of Timber Resources

The project activities will result in the clearing and removal of vegetation in several areas resulting in the loss of valuable timber species.

For the areas to be cleared, GINMIN has identified the SFP holders and will be working on establishing arrangements to ensure that the commercial timber is utilized. The arrangements will be worked out through the GGMC and GFC. Concessionaires will be given adequate notice prior to mining to remove all the merchantable timber. Some of the timber may be bought by GINMIN to be used for construction purposes.

20.2.11 Waste Management

The proposed project will generate waste including solid, liquid and hazardous waste, which, if not managed properly, can result in soil and water contamination, contribute to ill health, and affect the aesthetics of the project areas.

Solid waste associated with the proposed project will include domestic garbage which usually consists of a mix of bottles, bags, cans, boxes, styrofoam, plant residues, excess food and kitchen scraps and old clothing and paper. The improper disposal of waste, especially kitchen and food waste can result in odour concerns and the attraction of flies and vermin. In addition solid waste piles are most aesthetically unpleasant and can portray a negative image of a community.

Sources of liquid wastes will include sewage and waste water from cooking, bathing and washing.

Hazardous wastes include used batteries, waste oil, filters and oil containers.

Table 20.4 outlines the various types of wastes that are expected to be generated by the proposed project and their proposed disposal methods.

Table 20.4 – Types of Waste and Recommended Disposal Methods

Waste Category	Waste Type	Disposal Method
Solid Waste	Kitchen Waste	Kitchen waste will be buried in pits. Pits will be covered on a regular basis to avoid mal-odour and attraction to animals/vermin. Wastes will not be buried within 100 m of water courses.
	Cardboard/Paper	Since the volume is anticipated to be small, these materials will be collected and stored over time then will be sold to Caribbean Containers Inc. (CCI) for recycling.
	Plastic Bottles	Plastic bottles will be sorted and stored. There are a few initiatives which are currently being pursued between the Government and the Private Sector. This should result in either the bottles being chipped and compressed to be exported for recycling, or small recycling facilities within the country.
	Scrap Metals	Scrap metal will be stockpiled and once a significant quantity has accumulated, it will be sold to scrap metal dealers. Some materials will also be reused.
Liquid Waste	Waste Water from Kitchen/ Bathing Facilities	Wastewater from these facilities will be channelled through a trap to capture the solid particles and fats. The water would then be drained into a soak away system. The traps will be cleaned regularly and the materials recovered will be buried. Where possible and practical, organic matter will be composted and reused as fertilizer for re-vegetation of reclaimed areas.
	Sewage	Sewage will be disposed of in a septic system. The septic tank will be constructed and maintained in accordance with the GNBS Code of Practice for the Design and Construction of Septic Tanks and Associated Secondary Treatment and Disposal Systems.
Hazardous Waste	Waste Oil	Waste oil will be collected and stored in bermed containers. Currently in Guyana, there is no facility to recycle waste oil. Given the nature of the operation, consideration is being given to utilizing the waste oil as a supplementary source of fuel for the drying kiln at Sand Hills. If this is not possible, waste oil can be transported to GPL or Bosai to be blended in with HFO and used to fire boilers/kilns.
	Used Tires	Used tires will also be stored until an appropriate disposal method can be found. IF no disposal or recycling is found, they will be buried with the waste in the mines.
	Used Batteries	Used batteries will be stockpiled and once a significant quantity is accumulated they will be sold for recycling. Currently, there are businesses that purchase used batteries for shipment overseas for recycling. Some distributors of batteries are also in the business of collecting the used batteries for recycling.
	Oily Rags/Filters	By the time the proposed project is implemented, it is expected that the Hazardous Waste Cell would be operational within the new Sanitary Landfill currently being constructed at Haag Bosch on the East Bank Demerara. It is expected that all hazardous materials that require disposal will be taken to this facility.

GINMIN has commenced monitoring the flow rates and continuity of flow of the larger water streams along the proposed haul road alignment. This monitoring commenced in March 2011.

a) Groundwater

Groundwater level data was collected from January of 2010 to present for both the Bonasika (Bonasika 1, 2 and 5) and Sand Hills areas. Well water elevation is monitored using a probe on a weekly basis. The data indicates that, at Bonasika, the level to the water table ranges from 1.2 m - 8.5 m. For most of the areas sampled, the range is between 5.5 m and 6.5 m. At Sand Hills the level of the water table ranges from 6.1 m - 11.1 m. Within the W-CPL area a total of eight (8) wells were sampled with ten samples collected since, for two (2) of the wells, samples were collect from two (2) different aquifers, i.e. at two (2) levels. These samples were collected on February 2 and 3, 2011.

20.2.12 Water Quality

a) Surface Water

Surface water samples were collected and analysed in the proposed Bonasika mining areas, the Waratilla River at the proposed road intersection, and Hiburu Creek and the Demerara River in the vicinity of Sand Hills. These locations were selected because changes to water quality at these locations would be a good indicator of the water quality effects on the proposed project. As such, it was important to confirm the background quality of water in these areas. Most of the locations are downstream of the proposed project activities for Bonasika 1, 2 and 5 Bonasika Mining Licence (BML) and all are downstream of the Bonasika 6 and 7 deposits (W-CPL) and included all the significant streams flow off the property. These locations are sufficient to confirm the water quality since from observation there were no major activities in the area, the water quality is typical of undisturbed natural water bodies within Guyana. Most of these locations will become regular monitoring sites during the proposed project implementation.

One (1) sample was collected for each location since the analysis was done only to confirm the water quality. As was mentioned before, there were no ongoing activities that were likely to severely affect the water quality in these areas. As well as, from observations, the water exhibited characteristics of natural waterways. The samples collected were analysed for several water quality parameters such as pH, turbidity, total metals, conductivity, total suspended solids, dissolved oxygen, total dissolved solids and oil and grease. In the absence of a national standard on background water quality, comparison was made with the Guyana National Bureau of Standards (GNBS), GYS 262:2004 Specification for Drinking Water and internationally acceptable limits from the United States Environmental Protection Agency, 1985 and the World Bank, 1984.

i) Results for BML and Sand Hills

Table 20.5 outlines the water quality in the proposed project environment (BML and Sand Hills areas). The analysis of the results indicated that the existing water quality of the BML area is typical of the water quality for similar type of areas within Guyana. The results indicated low level of contamination. Present activities by GINMIN, such as establishment at the base camp, have resulted in no significant disturbance/effects on the water quality. As such, it was determined that the samples collected and analysed as part of the previous Environmental Impact Assessment (EIA) for Bonasika 1, 2 and 5 were adequate to provide a baseline of the water quality. Once development activities commences, more sample locations would be added as part of GINMIN's monitoring program.

ii) Results for W-CPL

No nitrates, total suspended solids or oil and grease were detected. All the other parameters were within the acceptable range, except for pH and aluminium. The low pH level detected is common for water quality within forested areas in Guyana and is influenced by the natural processes occurring within the forest. However, this higher level was expected given that the area falls within the bauxite zone and bauxite deposits are close to the surface. The results of the analysis indicate that the existing water quality of the area is typical of the water quality for similar type of areas within Guyana. The results confirm very low levels of contamination. Present activities by GINMIN, including the establishment of the base camp and drilling activities, have not resulted in any measurable disturbance/effects on the water quality.

Table 20.5 – Results of the Surface Water Quality Analysis – BML and Sand Hills

Sample ID	Location Description	Date Sampled	Parameters											
			Turbidity (NTU)	pH	ECw (ms/cm)	DO (mg/l)	TDS (mg/l)	TSS (mg/l)	SO_{42} (mg/l)	Cu (mg/l)	Fe (mg/l)	Zn (mg/l)	Al (mg/l)	O&G (mg/l)
SW1	Bonasika River Downstream Bonasika 1	Oct 29, 2009	2.88	4.06	0.05	7.35	90	Nd	1.82	Nd	0.42	Nd	0.48	Nd
SW2	Creek 1	Oct 29, 2009	4.26	3.97	0.05	7.25	90	Nd	1.73	Nd	0.51	Nd	0.66	Nd
SW3	Creek 2	Oct 29, 2009	1.02	3.96	0.05	7.38	60	Nd	3.81	Nd	0.33	Nd	0.56	Nd
SW4	Bonasika River Downstream Bonasika 5	Oct 29, 2009	3.84	3.98	0.04	7.42	80	Nd	9.44	Nd	0.49	Nd	0.74	0.15
SW5	Bonasika River Upstream Bonasika 2	Oct 29, 2009	2.14	3.91	0.05	7.32	70	Nd	1.98	Nd	0.40	Nd	0.63	0.16
SW6	Waratilla River at Proposed Bridge Site	Oct 30, 2009	0.97	4.16	0.06	7.47	50	Nd	2.11	Nd	0.44	Nd	0.66	0.42
SW7*	Hibiru Creek Mouth	Oct 30, 2009	29.2	4.54	0.02	7.36	30	Nd	2.58	Nd	0.34	Nd	0.63	2.06
SW8*	Demerara River Upstream of Sand Hills	Oct 30, 2009	30.02	4.61	0.02	7.24	30	Nd	2.14	0.01	0.67	Nd	1.24	0.22
SW9*	Demerara River Downstream of Sand Hills	Oct 30, 2009	88.7	4.62	0.03	7.22	25	Nd	2.74	0.01	0.80	Nd	1.36	0.87

* Sample was collected just after a period of heavy rainfall

Key

DO – Dissolved Oxygen
Cu – Copper
SO_{42} – Sulphates
Nd – Not Detected
TDS – Total Dissolved Solids
TSS – Total Suspended Solids
Fe – Iron
Zn – Zinc
Al – Aluminum
O&G – Oil & Grease
ECW – Conductivity

iii) Proposed Haul Road

Surface water quality data is available for several of the streams around the proposed haul road alignment area. Detailed surface water sampling and analysis were conducted in two areas relevant to the alignment. Surface water quality data is available for the areas around the W-CPL property at one end of the proposed road, and around Sand Hills at the other end. These results are discussed in i) and ii) above.

Samples were collected by Environmental Management Consultants (**"EMC"**) and analysis conducted by Guyana Sugar Company Laboratory. The results of these samples are already discussed above.

In addition to the surface water analysis conducted by EMC, GINMIN is conducting monitoring of pH and turbidity in the same locations where the flow rate is being monitored.

b) Groundwater

Groundwater wells were installed at both the Sand Hills area and the BML in early 2010. A total of 15 wells were established, seven (7) in and around the Bonasika area, and four (4) at Sand Hills. Four (4) of the sites in Bonasika have two (2) wells each (to monitor two aquifers i.e. at two (2) levels). These sites are located within the vicinity of the proposed project activities and if for any reason the groundwater quality is compromised as a result of the project, an analysis of the water from these wells can serve as an indicator. The wells will be monitored on an ongoing basis as part of the Company's monitoring protocol.

The groundwater samples were collected from all of the wells and analysis was conducted by an independent laboratory. These samples were collected on July 16, 2010.

The results indicate that the pH level was generally within the acceptable range as per U.S. EPA and GNBS drinking water requirements. Nitrates and sulphates were well within the acceptable levels. For the dissolved metals, zinc and copper were also well within the permissible limits. However, iron and aluminum values were above the permissible limits, as was expected, based on the characteristics of groundwater from the aquifers in Guyana. The World Health Organisation (**"WHO"**) does not list iron as a contaminant of concern in potable water. No guideline limits are provided for iron in the WHO Standard for Drinking Water which considers it as a secondary contaminant. Aluminum is the most abundant metal in the earth's crust it is therefore likely to be present at some level in the groundwater where the pH is depressed. However, given the richness of the area in bauxite deposits, the high level of aluminum detected from the analysis was expected. The results of this first sampling exercise presented a good indication of the baseline groundwater quality within the BML and Sand Hills areas.

Further groundwater analysis will be completed as part of GINMIN's ongoing monitoring program to provide additional data on water quality.

i) Waratilla-Cartwright Prospecting Licence

Within the W-CPL, groundwater sampling was done only around the Bonasika 7 deposits since, at the moment, groundwater wells are only located in this area. The wells were purged two days before the sampling exercise and provide a good indication of the groundwater quality within the area. With the commencement of mining the wells within the deposit will no longer exist. However, the surrounding wells will be monitored on an ongoing basis as part of the Company's monitoring protocol to determine both water levels and water quality. Wells were drilled only within the Bonasika 7 deposit so far since this is the priority deposit for mining. Wells will be drilled within the Bonasika 6 area at a later stage. Once this is done, groundwater within that area will be tested.

The groundwater samples were collected from all of the wells and analysis were conducted by an independent laboratory. The results were compared to international permissible limits for drinking water and the GNBS Standard for Drinking Water (GYS 262:2004). The results indicate that the pH level was generally within the acceptable range. Nitrate was not detected and sulphates were well within the acceptable levels. For the dissolved metals, cadmium was not detected in any of the wells. Zinc, manganese and copper were only detected in some of the wells and the levels were well within the limits. However, for some of the wells, iron, aluminum and chromium levels were above the permissible limits. This was expected, based on the characteristics of groundwater from the aquifers in Guyana, and especially the project area. As was noted above, the WHO does not list iron as a contaminant of concern in potable water. No guideline limits are provided for iron in the WHO Standard for Drinking Water which considers it as a secondary contaminant. Given the richness of the area in bauxite deposits, the high level of aluminum detected from the analysis was expected. Levels slightly higher than the drinking water permissible limits for chromium were detected in four of the wells. However, according to Health Canada (HC), trivalent chromium, the most common naturally occurring state of chromium, is not considered to be toxic. However, if present in raw water to be treated for domestic use, it may be oxidized to hexavalent chromium during chlorination. Toxic effects of chromium in humans are attributed primarily to this hexavalent form.

With the exception of iron and aluminum, the levels were also within the GNBS Standard for Drinking Water (GYS 262:2004). Further groundwater analysis would be undertaken as part of GINMIN's ongoing water quality monitoring program to provide additional water quality data.

ii) Proposed Haul Road

Ground water quality data are available for the start and end of the proposed haul road. No data is available for the other areas along the alignment. Ground water samples were collected from Sand Hills where the road will commence and within the Waratilla – Cartwright property, around the Bonasika 7 deposit, where the road will end. The available data presents a good indication of the ground water quality in the general area. From the analysis conducted, no significant difference in the ground water quality between the two areas was observed. As such, the data can be used as a representation of the ground water quality along the proposed road alignment.

20.3 Health & Safety

20.3.1 Introduction and Background

First Bauxite is committed to the health and safety of its employees and for all who are involved in the project and operations. Protection of employees from injury or occupational disease is a major continuing objective to First Bauxite. To achieve this, mechanisms will be put in place to maintain a safe and healthy workplace environment in accordance with industry standards and legislative requirements.

20.3.2 Health and Safety

Programs will be developed and updated during each phase of the Project (construction, operation and closure) to ensure that the occupational health and safety objectives for all employees and contractors of First Bauxite are met.

These programs will address the following elements:

- Workplace inspection to ensure a healthy and safe work environment;
- Hazard recognition, evaluation and control;
- Investigation of accidents and other incidents to take action for prevention of similar incidents;
- Development of safe work procedures executed through worker awareness programs, effective training and availability of adequate instruction;
- Implement health and safety to maintain employee and contractor interest (safety meetings, job task observations, tool box meetings, etc.);
- Provide visible safety leadership from line supervisory and management teams;
- Implement new hire orientation and continual training programs;
- Develop appropriate emergency response plans and a field response team;

- Strive for continuous improvement by setting challenging goals for loss control, monitoring health and safety performances and celebrate successes.

Appropriate resources will be dedicated to health and safety to coordinate programs and provide ongoing instruction. These resources will support the joint health and safety committee with the objective to promote accident prevention and ensure a full commitment and participation of all employees and contractors.

20.4 Local & Community relations

The key objectives of public involvement in the Environment Impact Assessment **("EIA")** process are to:

- Give the public a voice in project planning;
- Obtain local knowledge, information and ideas;
- Provide information to the people on planned activities to stimulate local interest and involvement in the project;
- Ensure early detection of environmental and social impacts arising from the project, and
- Initiate and establish mechanisms and procedures to enable local people to participate in all phases of the project.

From the Environmental Assessment Board **("EAB")** review report of the 2001 EIA, it is noted that public consultation sessions were held on July 2001 in Sand Hills and Georgetown, to discuss the findings contained in the EIA, and to allow residents in the community and others to participate in the final decision regarding environmental management of the project.

A public scoping meeting was held at Sand Hills Primary School, Sand Hills on Sunday, February 25, 2001. This is the location of the Wharf Complex and the community that will be directly affected by the Project. The audience (46 persons) comprised primary stakeholders from the community. The specific objective of this consultation, as outlined by the EPA, was "to incorporate the concerns of all stakeholders, and more importantly those of the community into the EIA study." The EPA, the consultant team, and the proponent provided introductions and project overview, prior to questions and discussions with the community. Key issues raised by the community were:

- Backfilling after mining occurred;
- Preventive measures to arrest dust problems;
- Possible relocation/resettlement and its effect on the affected household(s);
- Benefits of project to be accrued by the community;
- Water quality particularly the smaller creeks;
- Increased traffic on access roads and effect on existing loggers;

- Possible job opportunities;
- Availability of jobs for women.

These issues helped to determine the full scope of the EIA study, as well as provided ideas for the design of the questionnaire for the social survey.

Given the changes to the project and the project environment since 2001, some of the issues raised at the Public Scoping Meeting and identified above are no longer relevant. As such, the communities of Sand Hills, Vreed-en-Rust, Makouria and Princess Carolina were again consulted in 2009. Interviews with residents and other stakeholders were conducted. The villages of Vreed-en-Rust, Sand Hills and Princess Carolina were revisited and additional information gathered in June 2010. Data was collected to update the socio-economic profile of the study area and also to provide an opportunity for the households to identify issues of interest / concern. The survey also afforded the community an opportunity to offer possible recommendations. The concerns raised by residents along with their recommendations are detailed in the EMP (EMC July 2010). Following is a list of recommendations from these consultations by members of the community for alleviating the possible negative effects of the Project and enhancing the positive ones:

- Employ people from the stakeholder communities;
- Buy the available locally produced foods and chicken;
- Fence the school compound neighbouring the process plant access road;
- Build safe pass for road users crossing the process plant access road;
- Link the Makouria community to Sand Hills by the proposed road;
- Ensure that dust and noise are kept to a minimum level;
- Environment must not be polluted beyond acceptable standards;
- Ensure safety of school children on road and in the river by reasonable safety measures with vessels having a sharp lookout for children commuting the river;
- There must be adequate consultation and communication between stakeholders and community must be involved in decision-making process, and
- Ensure adequate compensation for the relocation of properties/residents.

In addition to the communities, other stakeholders, including Governmental Institutions, were consulted to determine their concerns / recommendations regarding the implementation of the Project. Institutions consulted include:

- Environmental Protection Agency;
- Guyana Geology and Mines Commission;
- Guyana Forestry Commission, and
- Regional Democratic Council – Region # 3.

It is important for First Bauxite to maintain a good relationship with the communities to ensure conflicts and disputes do not arise and to have a smooth working relationship. Some measures to be implemented to allow for a good relationship with the communities include:

- Keep the community abreast of the development plans of the Project;
- Present the Project plans to the community before Project implementation;
- Once construction commences identify someone from First Bauxite to serve as the community liaison. This person will meet with the community often to inform them about the progress of activities and to address any grievances which may arise;
- Establish a community development group comprising of members of the community and First Bauxite. This group will identify and work on projects to improve the community, and
- Assist the community as much as possible by providing utilities such as electricity and water and basic infrastructure.

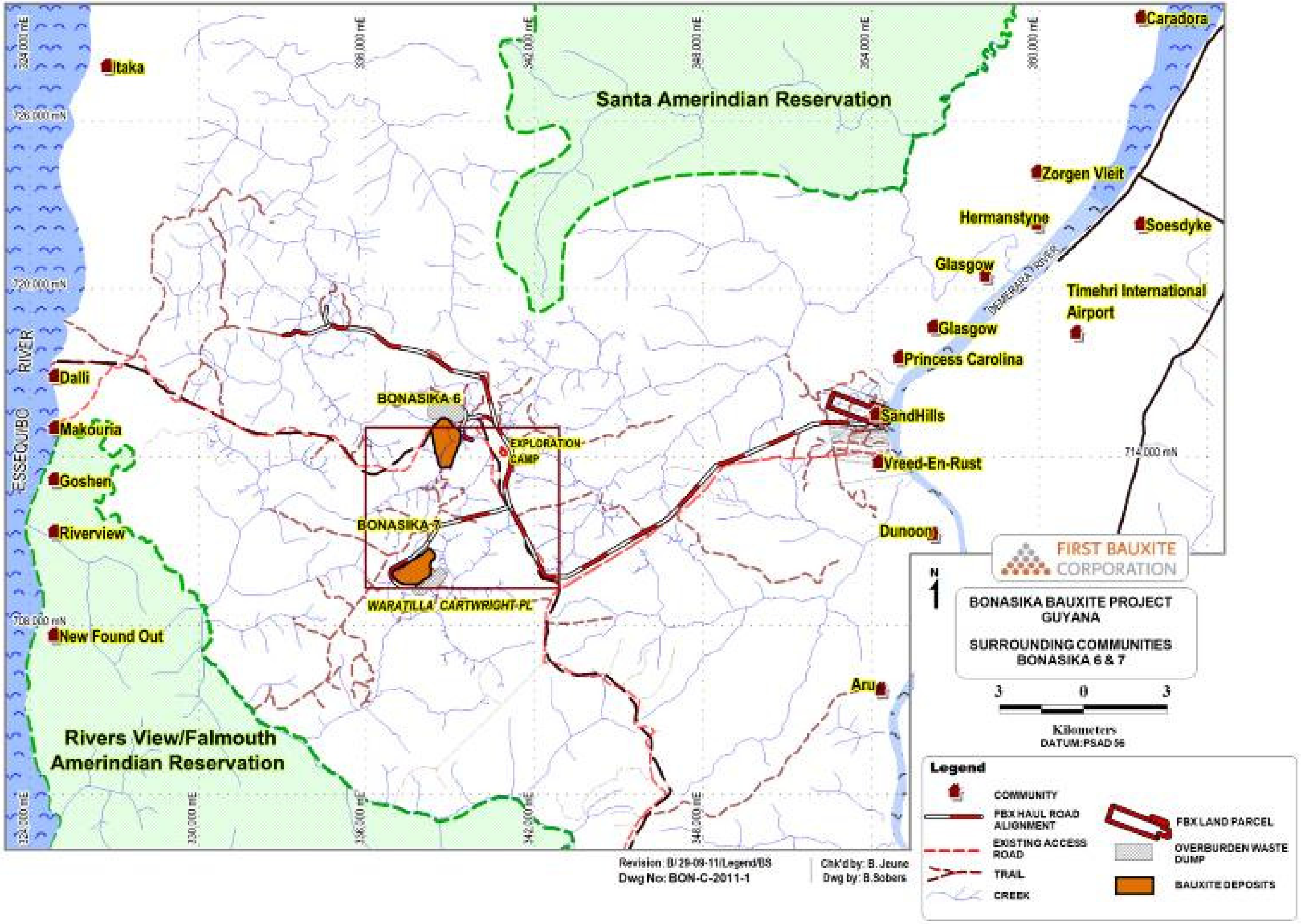
20.5 Baseline Socio-Economic Environment

20.5.1 Population and Demographic

There are no settlements in close proximity to the proposed mine sites at Bonasika and Waratilla-Cartwright.

There are eight (8) communities within a 40 km (25 mile) radius of the proposed project locations. These are Bartica, Goshen, Makouria, Vreed-en-Rust, Sand Hills, Princess Carolina, Bonasika and Timehri. It is important to note that these communities are not contiguous and connected by road, but are instead small riverine communities primarily accessible by boat. The mining town of Linden is approximately 55 km from the Waratilla-Cartwright property. The mining operations will be closest to the community of Vreed-en-Rust located within 12 km. However, no direct impact is anticipated to this community from the mining operation due to its distant location. Figure 20.2 shows the location of communities in relation to the project area.

Figure 20.2 – Communities around the Wider Project Area



Source: Guyana Geology and Mines Commission, Guyana Lands and Surveys Commission, SRTM Topo Dataset

Baseline social statistics show that the four (4) communities of Princess Carolina, Sand Hills, Vreed-en-Rust and Makouria consisting of 47 families and has a total population of about 196 persons as shown on Table 20.6. The families are generally extended families with many households being headed by single parents (mainly mothers) assisted by grandparents.

Table 20.6 – Demographic Information (2009)

Stakeholder Community	Total Individuals	Male (Adults)	Female (Adults)	Youths (13-20)	Childs (4-12)	Childs (0-4)	Registered (GECOM)	Families
Vreed-en-Rust	92	17	19	3	33	20	34	18
Sand Hills	6	1	2	-	2	1	1	1
Princess Carolina	34	10	13	4	5	2	32	16
Makouria	60	7	15	1	32	5	-	12
Total	**192**	**35**	**49**	**8**	**72**	**28**	**67**	**47**

GEOCOM - Guyana Elections Commission

The baseline study showed that many of the families are living below the poverty line particularly because they are headed by single mothers. These mothers are employed with the public service in the case of Makouria and Vreed-en-Rust. Poverty also exists among some residents who are unemployed and do not utilise their farmlands to maximum capacity either because of old age or poor market access and prices. The primary occupations are employment in the public service, logging, hunting and subsistence farming.

Of a total of 91 children and young adults who reside at their parents homes, 18 were below the age of four years old; 77 were between four and 13 years old; and six were between 14 to 20 years old. The main reason for the low number of young adults in the areas was identified as the lack of education and employment opportunities.

Sand Hills is a very small community compared to its neighbours. Sand Hills is largely unpopulated as many of its former residents have migrated. One permanent resident can be found in Sand Hills occupying a single house on the Church’s property. The house is temporarily shared by the occupant’s daughter. GINMIN funded the construction of the teacher’s house on the Church’s property which houses the primary school teacher and her three children. The only other private property at Sand Hills is a farm and a holiday house occupied by employees who are responsible for the farm’s operations. All other residents of Sand Hills have migrated from the community as land ownership and tenure arrangement changed.

Vreed-en-Rust and Princess Carolina, with approximately 104 and 34 residents each, occupy stretches of land upriver and downriver of the proposed processing and shipping facility. This gives a total of approximately 137 residents within these stakeholder communities.

The peoples of the communities are from different races, with a majority of the people belonging to the Afro-Guyanese group, followed by the East Indian group and the mixed-race group. Some Amerindians are found in the area but they are more migratory workers whose permanent homes are located outside of the region. A two-member Amerindian family currently occupies a small parcel of land in Vreed-en-Rust. This area is outside of the traditional Amerindian community which is located approximately a 45-minute boat-ride away. There is no report or evidence of any other Amerindian family settled within close proximity to the proposed project area.

20.5.2 Socio-Economic Conditions

The four (4) communities surveyed had only small numbers of teenage/young adults. As was noted earlier, the lack of employment opportunities is a major reason for this situation. The proposed project would help to alleviate this situation by providing employment, and improving social services and infrastructure to nearby households. This will assist in retaining or attracting youths to the communities. Household incomes are minimal ranging between $30,000 GYD – $150,000 GYD monthly with the cash crop farmers earning the higher incomes. Skilled workers with GINMIN can earn as much as $ 120,000 GYD per month. Four (4) households (a family member employed by the company) have double incomes thereby earning significantly more in contrast with their poorer single parent or single source income neighbours. Fortunately, many of these residents have small kitchen gardens in which they grow some vegetables and thus supplement their food budget. In addition, some residents are quite skilled in fishing and many also keep chickens and thus have a ready source of meat.

Workers within the area are generally unskilled with just a handful of graduates who serve as teachers in the local schools. At Makouria, the community members supply all the labour for the Guyana Police Force **("GPF")** and provide supporting services for the Guyana Defence Force **("GDF")**. Some residents are employed outside of the area and spend long time periods away from their families.

The extended families are generally headed by single mothers with assistance from grandparents. A few of these mothers are employed by the public service in the cases of Makouria and Vreed-en-Rust. Poverty also exists with some residents who are unemployed and do not utilise their farmlands to maximum capacity either because of old age or limited market for the produce. The primary occupations are public service, logging, hunting, subsistence farming and recently employment by GINMIN.

The general living conditions in terms of housing and other social amenities are below acceptable national standards. These conditions are almost consistent throughout the villages excluding the newly constructed teacher's house. The houses are small for the family size and amenities are sub-standard. The 1996 Guyana Human Development

Report in identifying what is referred to as “target groups and the alleviation of poverty” identified single parent households, particularly those headed by women, the youth, the Indigenous peoples and small farmers. The stakeholder families have displayed these characteristics.

A marked improvement in standard of living is anticipated for current residents of Sand Hills and Vreed-en-Rust who will benefit from GINMIN provided low cost supply of potable water and electricity. Peripheral communities such as Princess Carolina and Makouria will not benefit directly from these local amenities. Residents eagerly await the materialization of these benefits long promised to their communities.

SECTION 21

CAPITAL AND OPERATING COSTS

21.0 CAPITAL AND OPERATING COSTS

21.1 Capital Costs for Bonasika 7

The Capital Costs estimate covers all areas of the Project and includes estimated capital costs for the pre-production period (Initial Capital) and Sustaining Capital Costs during the life of the operation. For the purpose of this Report, the pre-production period extends over a period of 21 months including pre-detailed engineering, detailed engineering, construction and mine pre-development, while the Sustaining Capital period covers the life of the operation plus the mine closure and rehabilitation period.

The estimate was prepared with Feasibility Study level engineering design based on available information.

The estimate is presented in US Dollars unless noted otherwise.

The overall capital costs accuracy level is estimated to be ± 15%.

The estimate was based on budgetary prices obtained from respective suppliers for large equipment and in-house database for minor equipment.

The effective date of the estimate is the end of the second quarter of 2011.

The initial capital costs estimate includes the materials, equipment, freight and labour required to develop the open pit mine, construct the bauxite and concentrate processing plants, sintered refractory bauxite processing plant, hauling, storage and ship loading, the rejects management area and all the infrastructure and services necessary to support the operation.

Sustaining Capital Costs essentially include costs for mine equipment additions and replacement, additional site roads and expansions to rejects management facilities. Mine closure costs are also part of Sustaining Capital Costs.

The summary capital costs estimate for the total project over the life of Bonasika 7 exploitation is shown in Table 21.1.

Table 21.1 – Summary of Capital Costs Estimate Bonasika 7

Area	Initial Capital ('000 $)	Sustaining Capital ('000 $)	Total ('000$)
Direct Costs			
Off Site Infrastructure (including Main Haul Road)	2,244		2,244
Mining	11,326	8,156	19,482
Ore Processing			
Crushing	1,925		1,925
Wash Plant	5,378		5,378
Drying and Fine Grinding	9,352		9,352
Briquetting and Sintering	27,127		27,127
Rejects and Water Management	1,458	1,240	2,698
Infrastructure and Power	14,613		14,613
Sintered Bauxite Storage	2,995		2,995
Wharf	1,634		1,634
Auxiliary Services	4,680		4,680
Sub-total Direct Costs	**82,732**	**9,396**	**92,128**
Indirect Costs			
Project Development	733		733
EPCM	10,049		10,049
Spares and Consumables	1,415		1,415
Commissioning	1,796		1,796
Owner's Costs	10,321		10,321
Owner's Project Team	1,362		1,362
Room and Board Transportation	2,398		2,398
Sub-total Indirect Costs	**28,074**		**28,074**
Contingency	**13,119**	**597**	**13,716**
TOTAL COSTS	**123,925**[1]	**9,993**	**133,918**
Closure Costs		3,000	3,000
Contingency		450	450

[1] Difference in total with financial analysis is due to rounding.

21.2 Basis for Estimate of Direct Capital Cost

a) Currencies

Quotations received in other currencies then US dollars were converted into USD with the following exchange rates: $1.00 USD/$1.00 CAD, $1.30 USD/€1.00 EUR and $1.00 USD/$200 Guyanese Dollar (**"GYD"**).

b) Construction Labour

The national workers labour rate was established from data of similar construction projects in Guyana. The rates also include the supervision of expatriate trainers. The ratio of expatriate to national is 1:5 for the skilled trades and 1:10 for the general trades. Earthwork crews consist of one (1) expatriate supervisor for every 30 national workers. The resulting rates are:

– Skilled trades: $17.26/hr.
– General trades: $9.18/hr.
– Earthwork: $5.84/hr.

Tools, health and safety equipment, travelling, room and board are not included in the rates but are included in owner's costs under Indirects.

The construction working calendar was defined as one shift per day, eight (8) hours per day, and seven (7) days per week. Considering the working calendar, the type of project and also local constraints, the productivity loss factor was established at 1.75 compared with North American reference.

c) Freight, Duties and Taxes

The freight costs were included as indicated by the suppliers when it was provided with their proposal. Otherwise, a factor of 10.5% on the value of the goods was established to account for freight to a local port, based on recent surveys and studies as well as on available literature. All duties and taxes are excluded from the capital costs estimate.

d) Civil and Buildings

Civil and buildings include mainly industrial site earthwork, process buildings and ancillary buildings and facilities.

– Unit Rates

Budget unit prices were obtained from a local contractor and benchmarked with available data from construction estimation literature.

– Civil Work, Concrete and Buildings Quantities

For the process and ancillary buildings quantities for concrete, structural and secondary steel, building exterior roofing and cladding were calculated from building layouts.

e) Process Equipment

The process equipment list was derived from the flow sheets. Based on datasheets, data tables or technical descriptions, budget prices were obtained from qualified suppliers for more than 85% of the value of the Project's process equipment. The remaining equipment costs were estimated from in-house database for similar projects.

Process equipment installation man-hours were estimated from in-house database for similar projects. The hourly labour rate and productivity loss factor were used to estimate the installation costs. Mobile equipment costs for installation are included in indirect costs under owner's costs.

f) Piping and Pipelines

Process and services piping costs were estimated using specific factors for each area based on similar studies for which a detailed take-off for large diameter piping, unit costs for material as well as installation hours for installation was used. The factors were adjusted to account for the local labour rate and productivity loss.

Costs for mine dewatering pipelines, sewage pipelines, rejects pipeline, process reclaim water and fresh water pipelines were calculated with a piping estimation table. Quantities were calculated from layouts.

g) Electrical

The electrical equipment and material list were derived from the single line diagrams. Budget prices for equipment and material were obtained from qualified suppliers or in-house database for recent similar projects. Installation man-hours were established from this in-house database and the hourly labour rate and productivity loss factor were used to estimate the installation costs.

h) Instrumentation and Automation

The instrument list and programmable logic controller input/output count per area were developed using the process flow sheets and typical P&ID drawings from in-house database and also with technical information provided by potential suppliers.

Budget prices for automation equipment, instrumentation and materials were obtained from qualified suppliers or a recent database for similar projects. Installation man-hours were estimated from this in-house database and the hourly labour rate and productivity loss factor were used to estimate the installation costs.

i) Auxiliary, Services and Equipment

Fire protection requirements for the process buildings were determined based on preliminary design layout and the cost was estimated based on a budget proposal from a qualified supplier.

Fire protection requirements and cost estimation for the ancillary buildings are included in the estimate of each area and estimations are based on site layout and price lists of similar projects.

Process ventilation and dust collection requirements and costs were estimated based on process layouts and in-house

database for similar projects. VAC requirements and cost estimation for the ancillary buildings are included in the estimate. Estimations are based on price lists of similar installations.

Requirements and cost estimation for offices, rooms and living areas, interior finishing, furniture and equipment such as work desk and chairs, cabinets and bookshelves, as well as computers and office supplies are included in the estimate and based on similar installations.

21.3 Basis of Estimate for Indirect Costs Bonasika 7

a) Project Development Costs

The Project Development includes costs for: Environmental Studies, Metallurgical Test Work, Work Trials and Pre-Production Operation Group.

b) Engineering, Procurement and Construction Management ("**EPCM**")

The EPCM costs were based on an international consulting engineering firm working on the detailed engineering from their head office located in North America. The procurement and expediting would also be done from this head office and visiting suppliers. The construction management would be done on site by a certain number of expatriates and local employees.

The EPCM costs were estimated based on a detailed list of personnel resources and recent in-house database for similar projects. The costs for the local resources for the Construction Management were based on rates derived from the local labour rates obtained for the construction.

c) Spares and Consumables

The costs for the capital spare parts are included in the working capital.

Allowances were included based on recent similar projects for first fills of HFO, diesel, oil and lubricants.

d) Commissioning

The commissioning costs include mainly Vendor's Representatives and Pre-Production Operation Group costs.

e) Owner's Costs

The owner's costs include: temporary facilities (complete with temporary power), concrete batch plant, construction tools and equipment, construction mobile equipment, crane operation, construction equipment maintenance, consumables, site office expenses, site communication, site security, QA/QC (survey, soil, concrete, X-Ray, etc.), barge operation, transportation to and from site during construction.

The estimate for the above costs was based on similar projects and on labour rates used on same projects.

f) Owner's Project Team

The owner's project team costs include: site management personnel, main office overhead, health and safety during the construction and training and manuals.

g) Room & Board / Transportation

Camp costs for lodging and food preparation are included in this estimate. The expected quantity of man-days has been estimated from the man-hours. Not all workers will be lodged at the camp. Most of the work force will be transported daily to and from surrounding communities by buses. The estimate also includes the purchase and rental of buses, as well as transportation costs during the construction period.

Transportation includes all costs for air fare and expense accounts for the expatriates and vendors representatives required throughout the construction period.

21.4 Contingency Bonasika 7

Separate contingency factors were applied on each area or facilities of direct costs and on each line item of indirect costs, with consideration to advancement of design, level of details, estimation methods, identified risks and possible unknowns.

21.5 Working Capital Bonasika 7

The cost for the capital spare parts and consumables for the process equipment and the mining equipment are included in the working capital.

21.6 Closure Costs Bonasika 7

An allowance is included for the closure costs or final restoration. The closure costs could include the following:

- The covering of the waste piles with top soil and vegetation seeding to consolidate and revegetate the piles;
- The covering of the reject ponds with top soil and vegetation;
- The removal of site road culverts to restore the surface runoff;
- The decontamination of contaminated soils mainly at the fuel depot and fuelling facilities;
- The removal of the process plant;
- The infrastructure, the main haul road and the wharf could be transferred to the Government of Guyana, and
- The mined out open pits will be left as is and will eventually fill with water and form artificial lakes.

21.7 Operating Costs Bonasika 7

The overall operating costs of the operation covers: mining, ore processing, rejects and water management, infrastructure and services as well as general and administration.

Table 21.2 shows the summary of Operating Costs for a typical year of operation using the average mining cost and average waste/ore stripping ratio over the life of the operation for Bonasika 7.

Table 21.2 – Summary Operating Cost Estimate – Bonasika 7

Area	Unit Cost ($/t final product)[1]
Mining (Average over life)	38.44
Ore Processing	130.07
Infrastructure & Services	5.89
General & Administration	25.87
Total	**200.27**[2]

1 Considering an annual nominal final product tonnage of 100,000 tonnes
2 Rejects and water management operating costs are included in mining and ore processing

21.8 Capital Costs Bonasika 6 and 7

Bonasika 6 production will follow Bonasika 7.

Bonasika 6 will benefit from the infrastructure, buildings and equipment already in place for the Bonasika 7 operation. Additions to the mining fleet will be necessary in Years 21, 23 and 25. Increased sedimentation capacity will be required and additional ponds will be needed in Year 22 and 29. A total of $20.9 million will be required as initial expenditures to prepare Bonasika 6 for production and an additional $6.0 million will be required during the production period for a total of $26.9 million.

Closure costs were adjusted accordingly.

The total capital costs for Bonasika 6 and 7 are:

- Initial Direct Capital Costs of Bonasika 7 = $82.7 million
- Initial Indirect Capital Costs of Bonasika 7 = $41.2 million
- Sustaining Capital during Bonasika 7 Production = $10.0 million
- Sustaining Capital during Bonasika 6 pre-production = $20.9 million
- Sustaining Capital during Bonasika 6 production = $6.0 million
- Total Project Capital Costs for Bonasika 6 and 7 are = $168.0 million.

21.9 Operating costs Bonasika 6 and 7

Adjustments to operating costs were made for Bonasika 6 to allow for increased tonnage, travelling distances, increasing crushing and washing (all the bauxite will be washed) and increased power consumption.

The average operating costs of the combined plans are at $211.04/tonne of sintered bauxite produced. Bonasika 6 operating costs are averaging $228.21/tonne of sintered bauxite produced.

Table 21.3 shows the summary of Operating Costs for a typical year of operation using the average mining cost and average waste/ore stripping ratio over the life of the operation for Bonasika 6 and 7.

Table 21.3 – Summary Operating Cost Estimate – Bonasika 6 and 7

Area	Unit Cost ($/t final product)[1]
Mining (Average over life)	46.30
Ore Processing	132.99
Infrastructure & Services	5.88
General & Administration	25.87
Total	**211.04**[2]

1 Considering an annual nominal final product tonnage of 100,000 tonnes

2 Rejects and water management operating costs are included in mining and ore processing

SECTION 22

ECONOMIC ANALYSIS

22.0 ECONOMIC ANALYSIS

The financial evaluation of Bonasika 7 has been undertaken using conventional discounted cash flow techniques, from which net present value (NPV), internal rate of return (IRR), payback and other measures of project viability can be determined. The valuation date on which these financial metrics are based is at the commencement of construction. Additionally, all financial analyses presented are based on unlevered cash flow projections, with no provision made for debt financing. Discounted cash flow analysis requires forecasting cash flows associated with the development and on-going operation of the Project using reasonable estimates.

22.1 Macroeconomic Assumptions

22.1.1 Exchange Rate and Inflation

All results are expressed in United States dollars (**"USD"**). Revenue and expenditure projections associated with the initial development and ongoing operation of the Project have been prepared using constant, second-quarter 2011 money terms (i.e. without provision for inflation).

22.1.2 Taxation Regime

A waiver of taxes on equipment, material including heavy fuel and light fuel has been granted for the project implantation and pre-production.

State corporate income tax holiday has been allowed for the first five (5) years of production. Afterwards, the rate of 30% on profits after allowances for all cash operating expenses, royalties, and capital depreciation is applied. The computation of income tax assumes that prior-period losses as of June 30th, 2011, associated with cumulated capital and deferred exploration costs, are available to off-set pre-tax income. Capital is depreciated at an annual rate of 20% using the straight line method starting at Year 6 after the corporate income tax holiday has expired. Additionally, a waiver of all taxes on the purchase of heavy and light fuels oils for the use of the operations for the life of the Project has been granted.

22.1.3 Royalty

Production from the Project is subject to a royalty of 1.5% of gross revenue payable to the Government of Guyana. This royalty has been provided for in the cash flow model. The royalty is payable during the corporate income tax holiday.

22.2 Financial Assumptions Bonasika 7

The financial assumptions are shown in Table 22.1.

Table 22.1 – Financial Assumptions

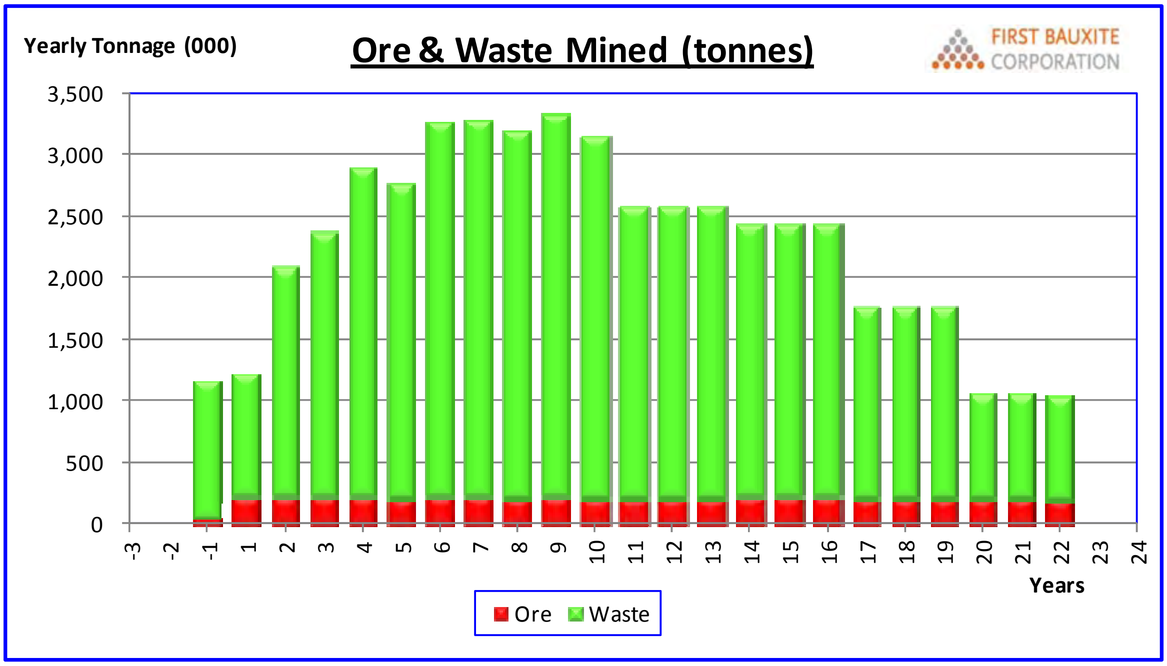
Refractory Bauxite Price	$475 per tonne
Allowance for Off-Spec Material	5%
Discount for Off-Spec Material	20%
Royalty	1.5% of gross revenue
Corporate Tax Rate First Five (5) years	0%
Corporate Tax Rate After Five (5) years	30%
Capital Depreciation (After Five (5) years)	20% per year
Accounts Receivable	90% paid on shipping
Accounts Receivable	10% paid after 60 days

22.2.1 Production

Annual open pit mine production averages 208,500 t/y over Bonasika 7's life of mine (**"LOM"**) period of approximately 22 years, for a total of 4.6 million tonnes. Sixty percent (60%) of the production is made of regular grade bauxite (**"RGB"**) averaging 28.6% LOI, 10.3% SiO_2 and 56.6% Al_2O_3 while the remaining forty percent (40%) is composed of direct feed bauxite (DFB) averaging 31.6% LOI, 3.0% SiO_2 and 60.8% Al_2O_3. At the same time, approximately 47.5 million tonnes of overburden and waste rock will be mined, resulting in an average waste/ore ratio of 10.4:1. Annual ore and waste production is shown in Figure 22.1.

Regular grade bauxite will go through the wash plant where recoveries are estimated at 50%. Total Sinter plant feed will be 3.2 million tonnes averaging 31.5% LOI, 3.8% SiO_2 and 60.4% Al_2O_3 and recoveries are estimated at 68.5%. The project will produce 100,000 tonnes of sintered bauxite per year for a total of 2.2 million tonnes averaging 0% LOI, 5.6% SiO_2 and 88.1% Al_2O_3.

Figure 22.1 – Bonasika 7 Ore and Waste Mined (Tonnes)



22.2.2 Revenues

Project revenues for the base case are forecast assuming selling price of $475/t sintered bauxite for on-specification material. Allowance is also made for 5% off-specification material at a 20% discount on the selling price, resulting in an average realized price of $470/t throughout the life of the Project.

Annual sales are thus forecast to be $47.0 million, and LOM (22 years) gross sales are forecast to total $1,033.8 million for Bonasika 7.

A royalty of 1.5% and an average marketing cost of $1.22/tonne of bauxite are deducted from gross sales, resulting in LOM net revenue totalling $1,015.7 million for Bonasika 7.

22.2.3 Operating costs

The operating costs will total $439.2 million over the mine life and average $96.51/tonne of ore or $200.27/tonne of sintered bauxite. The costs are based on No.6 HFO US Gulf Coast price of $0.525/l and No.2 Diesel price of $0.659/l both derived from Crude oil price (WTI) Guyana of $85/barrel.

22.2.4 Capital Expenditure

The pre-production capital expenditures are estimated at $123.9 million of which $11.3 million are required to prepare Bonasika 7 for mining and purchase mine equipment, $7.3 million for the wash plant, $14.6 million for infrastructure and power generation, $9.4 million for dryer and fine grinding, $27.1 million for the sintering plant and $4.6 million for auxiliary services. Indirect costs of $28.1million will include EPCM, owner's costs, project team costs, transportation, first fill and commissioning. Contingencies are included in the estimate and total $13.1 million.

Sustaining capital of approximately $10.0 million during operation will be required to replace part of the mining fleet and for additional basins.

Project revenues complete with operating expenditures and capital expenditures are shown in Figure 22.2.

22.2.5 Taxation

Corporate income taxes are estimated at a total of $87.93 million over the LOM, representing 30% of pre-tax profits starting at Year 6. LOM royalties of 1.5% of gross revenues are estimated at $15.5 million.

22.2.6 Annual Cash Flow

Figure 22.3 summarizes Bonasika 7's annual undiscounted cash flows.

Details of the annual cash flows for Bonasika 7 are shown in Table 22.2.

Figure 22.2 – Bonasika 7 Revenues, OPEX and CAPEX

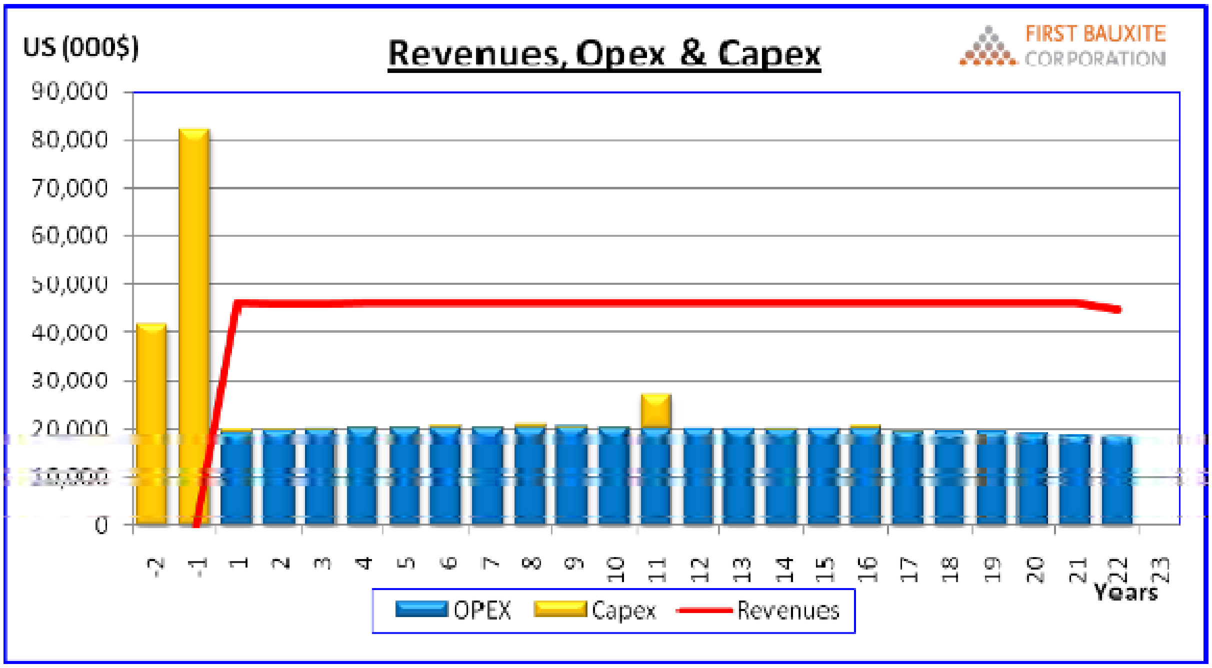


Figure 22.3 – Bonasika 7 Cash Flow 0%

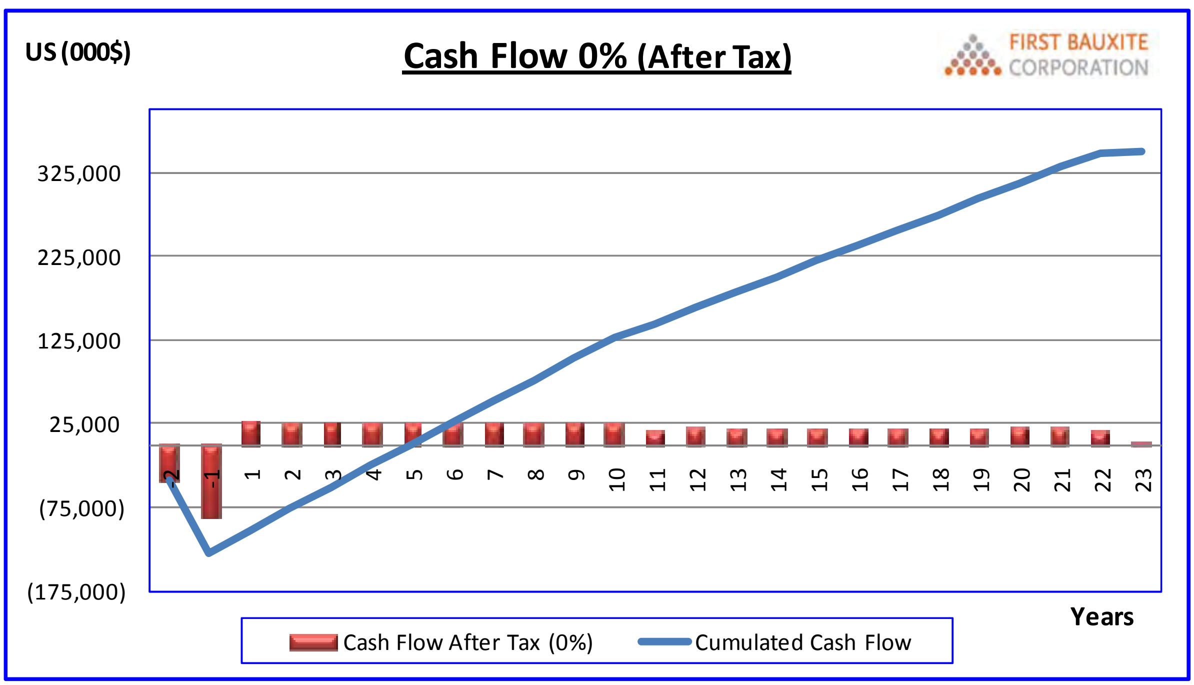


Table 22.2 – Cash Flow Forecast

FIRST BAUXITE CORPORATION

CASHFLOW FORECAST
Page 1/2

BONASIKA 7			-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
FINANCIAL PARAMETERS																													
SINTERED BAUXITE PRICE - Base	(US $/t)			**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	**$475**	
Off spec material/Discount	5%	20%																											
Net Price	(US $/t)			$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470	$470
Crude Oil price (WTI) - Guyana (Sand Hills)				**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	**$85.00**	$85
No.6 HFO US Gulf Coast (Heavy Fuel Oil)	$/l			$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.525	$0.000	
No.2 Diesel Oil Gulf Coast (Diesel)	$/l			$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.659	$0.000	
PRODUCTION																													
Sintered Bauxite Production	(000t)			5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	99	98	97	-	-	2,198
Sintered Bauxite Sales	(000t)			-	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	-	-	2,198
REVENUES	(000$)																												
Gross Revenue from sales				-	47,101	47,025	47,025	47,025	47,025	47,092	47,082	47,025	47,025	47,025	47,100	47,100	47,100	47,055	47,055	47,055	47,025	47,025	47,025	47,025	47,025	45,799	-	-	1,033,840
Marketing					225	225	225	150	150	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	-		2,674
Royalty	1.5%			-	707	705	705	705	705	706	706	705	705	705	706	706	706	706	706	706	705	705	705	705	705	687	-	-	15,508
Net Revenues				**-**	**46,169**	**46,095**	**46,095**	**46,170**	**46,170**	**46,285**	**46,275**	**46,220**	**46,220**	**46,220**	**46,293**	**46,293**	**46,293**	**46,250**	**46,250**	**46,250**	**46,220**	**46,220**	**46,220**	**46,220**	**46,220**	**45,015**	**-**	**-**	**1,015,659**
Revenues/tonne Sintered Bauxite					$460.95	$460.95	$460.95	$461.70	$461.70	$462.20	$462.20	$462.20	$462.20	$462.20	$462.20	$462.20	$462.20	$462.20	$462.20	$462.20	$462.20	$462.20	$462.20	$462.20	$462.20	$462.20			$462.08
OPERATING COSTS																													
	$/t ore mined	$/t Bauxite																											
Mining	$18.52	$38.44	-	-	3,165	3,694	3,982	4,247	4,173	4,293	4,309	4,308	4,352	4,299	4,041	4,041	4,041	4,012	4,012	4,012	3,449	3,449	3,449	2,989	2,989	2,989	-	-	84,297
Processing	$62.68	$130.07	-	-	13,029	12,987	12,982	12,997	12,995	13,036	13,025	12,997	13,015	12,951	13,011	13,011	13,011	13,020	13,020	13,020	12,992	12,992	12,992	12,859	12,733	12,577	-	-	285,253
Services	$2.84	$5.89	-	-	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	589	587	582	557	-	-	12,922
G&A	$12.47	$25.87	-	-	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,587	2,532	2,472	-	-	56,741
TOTAL	**$96.51**	**$200.27**	**-**	**-**	**19,370**	**19,857**	**20,140**	**20,421**	**20,344**	**20,506**	**20,510**	**20,481**	**20,543**	**20,426**	**20,229**	**20,229**	**20,229**	**20,208**	**20,208**	**20,208**	**19,617**	**19,617**	**19,617**	**19,022**	**18,836**	**18,595**	**-**	**-**	**439,213**
$/tonne Ore					$91.72	$91.79	$93.33	$95.35	$100.96	$94.73	$97.14	$100.39	$92.35	$100.56	$100.69	$100.69	$100.69	$95.37	$95.37	$95.37	$98.34	$98.34	$98.34	$90.92	$90.90	$102.61			$96.51
$/tonne Sintered Bauxite					$193.39	$199.21	$202.13	$204.60	$203.45	$204.76	$204.85	$204.87	$205.75	$205.18	$201.96	$201.96	$201.96	$201.95	$201.95	$201.95	$196.17	$196.17	$196.17	$192.05	$192.16	$192.03			$200.27
Operating Cash Flow			-	-	26,799	26,237	25,954	25,749	25,825	25,780	25,765	25,738	25,677	25,794	26,065	26,065	26,065	26,041	26,041	26,041	26,603	26,603	26,603	27,198	27,384	26,419	-	-	576,446
CAPITAL EXPENDITURES																													
MINE & PLANT																													
INFRASTRUCTURE & POWER			733	1,511	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,244
MINE			8,359	2,967	796	335	5	5	146	330	5	5	5	5	6,509	-	-	5	-	-	5	-	-	-	-	-	-	-	19,483
ORE PROCESS			1,104	6,199	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7,303
REJECTS & WATER MNGM			-	1,458	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	620	-	-	-	-	-	-	-	-	2,698
AUXILIARY SERVICES			-	93	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	93
SAND HILLS SITE			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
INFRASTRUCTURE & POWER			6,384	8,229	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14,613
DRYER & FINE GRINDING			1,588	7,764	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,353
BRIQUETTING & SINTERING			8,565	18,562	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27,127
SINTERED BAUXITE STORAGE			175	2,820	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,995
WARF			1,144	490	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,634
AUXILIARY SERVICES			616	3,971	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,587
			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Indirects			9,114	18,960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28,074
Contingencies			4,034	9,085	42	17	0	0	7	17	0	93	0	0	325	-	-	0	-	93	0	-	-	-	-	-	-	-	13,715
TOTAL			**41,816**	**82,109**	**839**	**352**	**5**	**5**	**153**	**347**	**5**	**718**	**5**	**5**	**6,835**	**-**	**-**	**5**	**-**	**713**	**5**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**133,918**
CLOSURE COSTS																													
Closure																										3,450			3,450
Accrued Costs			-	-	165	156	156	157	157	157	157	157	157	156	157	157	157	157	157	157	157	157	157	155	154	151	-	-	3,450

FIRST BAUXITE CORPORATION

CASHFLOW ESTIMATE

Page 2/2

BONASIKA 7			-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	TOTAL
DEPRECIATION																													
Opening Balance			-	41,816	123,926	124,764	125,116	125,122	125,127	125,280	100,501	75,380	50,828	25,562	295	5,617	4,104	2,735	1,371	3	572	433	288	145	1	(0)	(0)	(0)	
Added			41,816	82,109	839	352	5	5	153	347	5	718	5	5	6,835	-	-	5	-	713	5	-	-	-	-	-	-	-	133,918
TOTAL Depreciation			-	-	-	-	-	-	-	**25,125**	**25,126**	**25,270**	**25,271**	**25,272**	**1,514**	**1,513**	**1,369**	**1,369**	**1,368**	**144**	**145**	**145**	**144**	**144**	**1**	-	-	-	133,918
Closing Balance			41,816	123,926	124,764	125,116	125,122	125,127	125,280	100,501	75,380	50,828	25,562	295	5,617	4,104	2,735	1,371	3	572	433	288	145	1	(0)	(0)	(0)	(0)	
WORKING CAPITAL																													
Cash				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Accounts Receivable	0.17	10%		-	785	784	784	784	784	785	785	784	784	784	785	785	785	784	784	784	784	784	784	784	784	763	-	-	
Production Inventory				1,336	1,336	1,349	1,321	1,323	1,337	1,323	1,336	1,346	1,283	1,223	1,189	1,189	1,189	1,162	1,162	1,162	1,105	1,105	1,105	841	464	-	-	-	
Supplies Inventory	0.500			2,988	1,262	1,399	1,472	1,540	1,517	1,600	1,601	1,593	1,608	1,583	1,545	1,545	1,545	1,539	1,539	1,539	1,407	1,407	1,407	1,291	1,280	1,273	-	-	
Fuel inventory				1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116	1,116			
Accounts payable	0.083			(396)	(303)	(326)	(338)	(350)	(346)	(360)	(360)	(358)	(361)	(357)	(351)	(351)	(351)	(350)	(350)	(350)	(327)	(327)	(327)	(308)	(306)	(305)	-	-	
TOTAL Working Capital		-	-	**5,044**	**4,196**	**4,321**	**4,354**	**4,413**	**4,408**	**4,464**	**4,478**	**4,481**	**4,429**	**4,349**	**4,284**	**4,284**	**4,284**	**4,252**	**4,252**	**4,252**	**4,084**	**4,084**	**4,084**	**3,724**	**3,337**	**2,847**	-	-	
BEFORE TAX CASH FLOW																													
Revenues			-	-	46,169	46,095	46,095	46,170	46,170	46,285	46,275	46,220	46,220	46,220	46,293	46,293	46,293	46,250	46,250	46,250	46,220	46,220	46,220	46,220	46,220	45,015	-	-	1,015,659
Total Cash Costs			-	-	(19,370)	(19,857)	(20,140)	(20,421)	(20,344)	(20,506)	(20,510)	(20,481)	(20,543)	(20,426)	(20,229)	(20,229)	(20,229)	(20,208)	(20,208)	(20,208)	(19,617)	(19,617)	(19,617)	(19,022)	(18,836)	(18,595)	-	-	(439,213)
Depreciation			-	-	-	-	-	-	-	(25,125)	(25,126)	(25,270)	(25,271)	(25,272)	(1,514)	(1,513)	(1,369)	(1,369)	(1,368)	(144)	(145)	(145)	(144)	(144)	(1)	-	-	-	(133,918)
Accrued Closure Costs			-	-	(165)	(156)	(156)	(157)	(157)	(157)	(157)	(157)	(157)	(156)	(157)	(157)	(157)	(157)	(157)	(157)	(157)	(157)	(157)	(155)	(154)	(151)	-	-	(3,450)
EBIT			-	-	**26,634**	**26,081**	**25,798**	**25,592**	**25,668**	**497**	**482**	**312**	**249**	**366**	**24,394**	**24,395**	**24,538**	**24,515**	**24,516**	**25,740**	**26,301**	**26,301**	**26,302**	**26,898**	**27,229**	**26,268**	-	-	**439,078**
Add Depreciation			-	-	-	-	-	-	-	25,125	25,126	25,270	25,271	25,272	1,514	1,513	1,369	1,369	1,368	144	145	145	144	144	1	-	-	-	133,918
Less Closure Costs			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(3,450)	-	-	(3,450)
Add Accrued Closure Costs			-	-	165	156	156	157	157	157	157	157	157	156	157	157	157	157	157	157	157	157	157	155	154	151	-	-	3,450
Less Capital Expenditures			(41,816)	(82,109)	(839)	(352)	(5)	(5)	(153)	(347)	(5)	(718)	(5)	(5)	(6,835)	-	-	(5)	-	(713)	(5)	-	-	-	-	-	-	-	(133,918)
Add Salvage Value			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Less Changes in Working Capital			-	(5,044)	848	(125)	(33)	(60)	5	(56)	(14)	(3)	52	80	65	-	-	32	-	-	168	-	-	361	386	490	2,847	-	-
Before Tax Cash Flow	0.0%	439,078	**(41,816)**	**(87,153)**	**26,808**	**25,760**	**25,916**	**25,684**	**25,677**	**25,377**	**25,747**	**25,018**	**25,723**	**25,869**	**19,294**	**26,065**	**26,065**	**26,068**	**26,041**	**25,328**	**26,765**	**26,603**	**26,603**	**27,558**	**27,770**	**23,460**	**2,847**	-	**439,078**
		Cumulative=>	(41,816)	(128,969)	(102,162)	(76,401)	(50,485)	(24,801)	876	26,253	52,000	77,018	102,741	128,610	147,905	173,969	200,034	226,102	252,143	277,472	304,237	330,840	357,442	385,001	412,771	436,231	439,078	439,078	
PV - Before tax	7.5%	126,225																											
IRR	18.4%																												
AFTER TAX CASH FLOW																													
Before Tax Cash Flow			(41,816)	(87,153)	26,808	25,760	25,916	25,684	25,677	25,377	25,747	25,018	25,723	25,869	19,294	26,065	26,065	26,068	26,041	25,328	26,765	26,603	26,603	27,558	27,770	23,460	2,847	-	439,078
Tax Holiday (5 yrs)		5 yrs																											
Capital Assets & Deferred Explor.		(16,188)	(16,188)	(16,188)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Capital Assets & Deferred Explor. Used										(249)	(241)	(156)	(125)	(183)	(12,197)	(3,038)	-	-	-	-	-	-	-	-	-	-	-	-	
Capital Assets & Deferred Explor. Remaining										(15,939)	(15,698)	(15,543)	(15,418)	(15,235)	(3,038)	-	-	-	-	-	-	-	-	-	-	-	-	-	
Taxable Income										249	241	156	125	183	12,197	21,357	24,538	24,515	24,516	25,740	26,301	26,301	26,302	26,898	27,229	26,268	-	-	
CORPORATE TAX	30%		-	-	-	-	-	-	-	**75**	**72**	**47**	**37**	**55**	**3,659**	**6,407**	**7,362**	**7,355**	**7,355**	**7,722**	**7,890**	**7,890**	**7,891**	**8,070**	**8,169**	**7,880**	-	-	**87,935**
After Tax Cash Flow	0.0%	351,143	**(41,816)**	**(87,153)**	**26,808**	**25,760**	**25,916**	**25,684**	**25,677**	**25,303**	**25,674**	**24,971**	**25,686**	**25,814**	**15,635**	**19,658**	**18,703**	**18,714**	**18,686**	**17,606**	**18,875**	**18,712**	**18,712**	**19,489**	**19,601**	**15,579**	**2,847**	-	**351,143**
		Cumulative=>	(41,816)	(128,969)	(102,162)	(76,401)	(50,485)	(24,801)	876	26,179	51,853	76,824	102,510	128,324	143,960	163,617	182,321	201,034	219,721	237,327	256,202	274,914	293,626	313,115	332,716	348,296	351,143	351,143	
PV - After tax	7.5%	102,281																											
IRR	17.5%																												

22.3 Financial Results Bonasika 7

The forecast, including production, revenue, capital costs, operating costs and taxes are summarized in Table 22.3.

Over Bonasika 7's LOM period, the undiscounted cash flow is $439.1 million before tax and $351.1 million after tax. The before- and after-tax cash flows evaluate internal rates of return ("**IRR**") of 18.4% and 17.5% respectively. The project cash flow shows a payback period of 5 years.

The cash flow results in a net present value at a discount rate of 7.5% ($NPV_{7.5\%}$) of $126.2 million before tax and $102.3 million after tax.

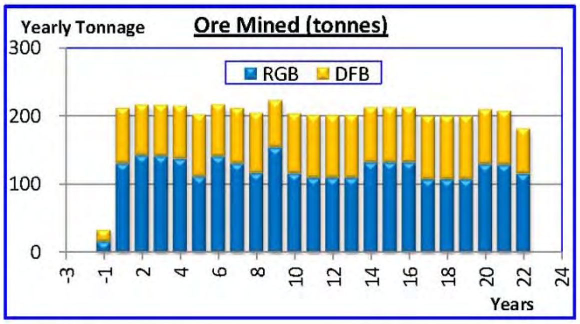
Table 22.3 – Summary - Financial Model Bonasika 7 – Final

FIRST BAUXITE CORPORATION

BONASIKA 7 - FINAL

Market Price Assumptions	
- Sintered Bauxite (US$/t)	$475
- Off spec Material	5%
- Discount	20%
- Net Price	$470
- Crude oil WTI - (US$/bbl)	$85.00

Mine Production



- Strip Ratio	10.4:1
- Waste tonnes (Mt)	47,505
- Mine life (yrs)	22

Operating Costs	US$/t ore	US$/t Bauxite
- Mining	$18.52	$38.44
- Processing	$62.68	$130.07
- Services	$2.84	$5.89
- G&A	$12.47	$25.87
- Total	**$96.51**	**$200.27**
- Royalties 1.5%NSR	$3.38	$7.06
- Marketing costs	$0.58	$1.22

Capital Expenditures (000 US$)	Initial	Sustaining
- Bonasika Mine & Plant	22,424	9,396
- Sand Hills site	60,309	0
- Indirects	28,074	0
- Contingencies	13,119	596
- Total	**123,926**	**9,993**

Project Valuation (000 US$)	Before Tax	After Tax
NPV 0%	439,078	351,143
NPV 7.5%	126,225	102,281
IRR	**18.4%**	**17.5%**

Proven & Probable Reserves	
- Ore tonnes (Mt) RGB	**2,748**
- % LOI	28.6%
- % SiO2	10.3%
- % Al2O3	56.5%
- Ore tonnes (Mt) DFB	**1,835**
- % LOI	31.6%
- % SiO2	3.0%
- % Al2O3	60.8%
- Ore tonnes (Mt) Total	**4,583**
- % LOI	29.8%
- % SiO2	7.4%
- % Al2O3	58.3%

Recoveries	
- Wash Plant recovery	50.0%
- Sinter Plant recovery	68.5%

Concentrate production	
- Tonnes (Mt)	**1,374**
- % LOI	31.5%
- % SiO2	4.9%
- % Al2O3	59.7%

Sinter Plant Feed	
- Tonnes (Mt)	**3,209**
- % LOI	31.5%
- % SiO2	3.8%
- % Al2O3	60.4%
- RGB ratio	42.8%
- DFB ratio	57.2%
- Relative SiO2	54.7%

Recoverable product - Sintered Bauxite	
- Tonnes (Mt)	**2,198**
- Tonnes/year	100,000
- % LOI	0.0%
- % SiO2	5.6%
- % Al2O3	88.1%

22.4 Sensitivity Analysis Bonasika 7

The sensitivity of Bonasika 7's NPV and IRR in relation to changes in the price of sintered bauxite; the price of crude oil; total operating costs, and total capital expenditures (including sustaining capital expenditures), has been examined, with the results shown in Table 22.4 and Figure 22.4.

The Project is most sensitive to changes in the price of sintered bauxite, and moderately sensitive to operating costs.

Table 22.4 – Bonasika 7 Cash Flow Sensitivities

BONASIKA 7

Cash Flow Sensitivities
(000$)

Before Financing

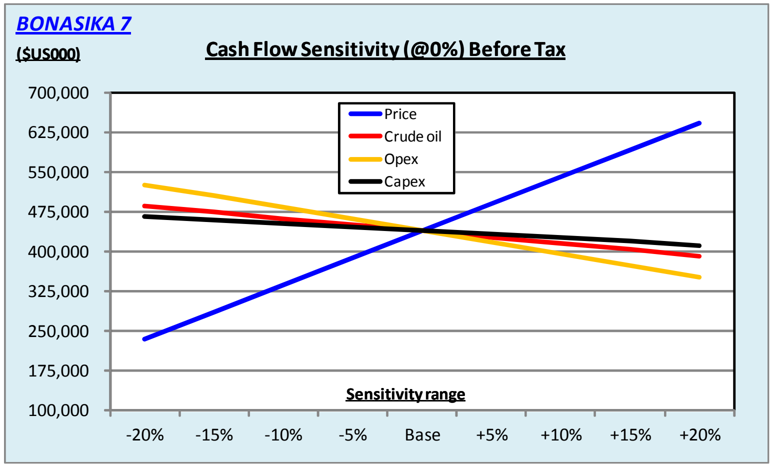
BEFORE TAX

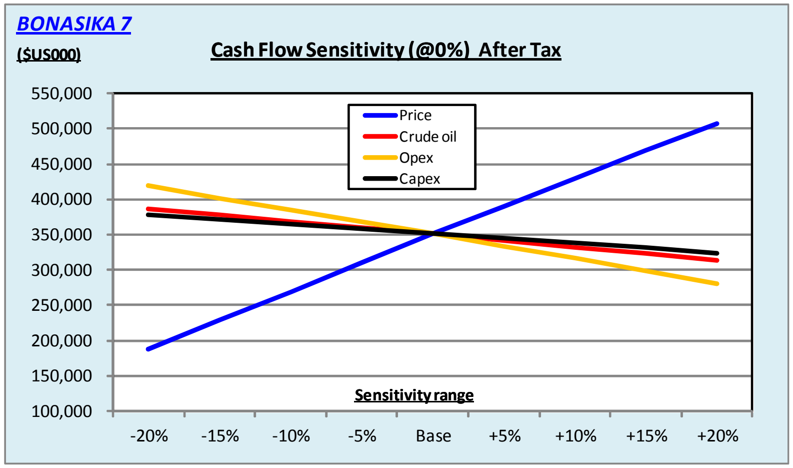
Sensitivity	-20%	-15%	-10%	-5%	Base	+5%	+10%	+15%	+20%
Sintered Bauxite Price	$380	$404	$428	$451	$475	$499	$523	$546	$570
NCF 0%	235,411	286,328	337,244	388,161	439,078	489,994	540,911	591,828	642,744
NCF 7.5%	38,124	60,149	82,174	104,200	126,225	148,250	170,276	192,301	214,326
IRR	11.1%	13.0%	14.9%	16.6%	18.4%	20.1%	21.7%	23.4%	25.0%
Crude Oil Price	$68	$72	$77	$81	$85	$89	$94	$98	$102
NCF 0%	485,866	474,359	462,093	450,585	439,078	426,728	415,304	403,797	391,447
NCF 7.5%	146,787	141,729	136,341	131,283	126,225	120,800	115,779	110,721	105,297
IRR	20.0%	19.6%	19.2%	18.8%	18.4%	18.0%	17.6%	17.1%	16.7%
Operating Costs	351,370	373,331	395,292	417,252	439,213	461,174	483,134	505,095	527,056
NCF 0%	526,920	504,960	482,999	461,038	439,078	417,117	395,156	373,196	351,235
NCF 7.5%	164,562	154,977	145,393	135,809	126,225	116,641	107,057	97,472	87,888
IRR	21.3%	20.6%	19.9%	19.1%	18.4%	17.6%	16.9%	16.1%	15.3%
Capital Expenditures	107,135	113,831	120,527	127,222	133,918	140,614	147,310	154,006	160,702
NCF 0%	465,861	459,165	452,470	445,774	439,078	432,382	425,686	418,990	412,294
NCF 7.5%	149,946	144,016	138,085	132,155	126,225	120,295	114,364	108,434	102,504
IRR	22.9%	21.6%	20.4%	19.4%	18.4%	17.5%	16.7%	15.9%	15.2%

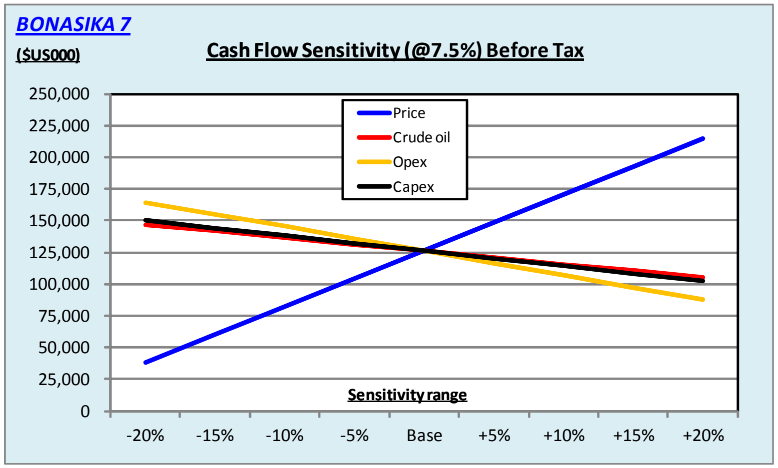
AFTER TAX

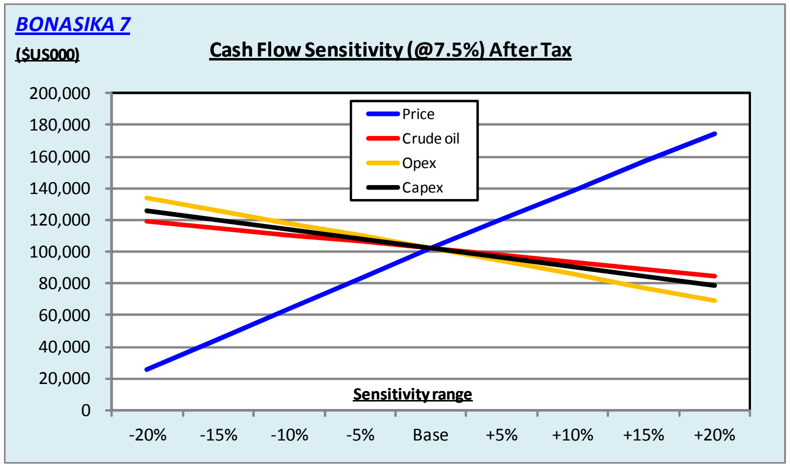
Sensitivity	-20%	-15%	-10%	-5%	Base	+5%	+10%	+15%	+20%
Sintered Bauxite Price	$380	$404	$428	$451	$475	$499	$523	$546	$570
NCF 0%	188,010	228,865	269,719	310,574	351,143	390,259	429,376	468,493	507,610
NCF 7.5%	25,892	45,126	64,282	83,383	102,281	120,414	138,522	156,610	174,634
IRR	10.2%	12.1%	14.0%	15.7%	17.5%	19.1%	20.7%	22.3%	23.9%
Crude Oil Price	$68	$72	$77	$81	$85	$89	$94	$98	$102
NCF 0%	387,055	378,222	368,807	359,975	351,143	341,513	332,341	323,101	313,186
NCF 7.5%	119,223	115,062	110,629	106,456	102,281	97,730	93,381	89,000	84,301
IRR	19.0%	18.7%	18.3%	17.9%	17.5%	17.1%	16.7%	16.3%	15.8%
Operating Costs	351,370	373,331	395,292	417,252	439,213	461,174	483,134	505,095	527,056
NCF 0%	418,640	401,766	384,892	368,017	351,143	333,786	316,143	298,500	280,857
NCF 7.5%	133,839	125,956	118,073	110,190	102,281	94,130	85,832	77,522	69,197
IRR	20.3%	19.6%	18.9%	18.2%	17.5%	16.7%	16.0%	15.2%	14.4%
Capital Expenditures	107,135	113,831	120,527	127,222	133,918	140,614	147,310	154,006	160,702
NCF 0%	377,926	371,230	364,535	357,839	351,143	344,447	337,751	331,055	324,359
NCF 7.5%	126,001	120,071	114,141	108,211	102,281	96,350	90,420	84,490	78,560
IRR	22.2%	20.8%	19.6%	18.5%	17.5%	16.5%	15.7%	14.9%	14.1%

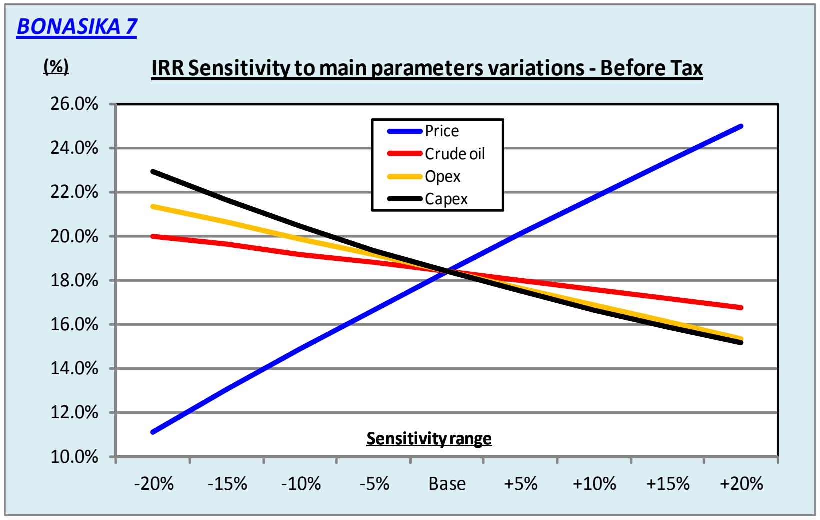
Figure 22.4 – Bonasika 7 Sensitivity Analysis

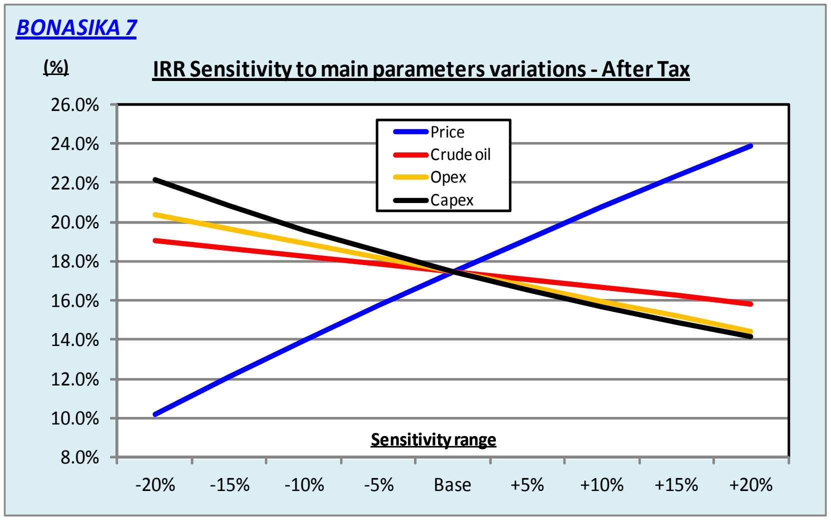









BONASIKA 7
(%)
IRR Sensitivity to main parameters variations - Before Tax
26.0%
24.0%
22.0%
20.0%
18.0%
16.0%
14.0%
12.0%
10.0%
Price
Crude oil
Opex
Capex
Sensitivity range
-20%
-15%
-10%
-5%
Base
+5%
+10%
+15%
+20%


BONASIKA 7
(%)
IRR Sensitivity to main parameters variations - After Tax
26.0%
24.0%
22.0%
20.0%
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
Price
Crude oil
Opex
Capex
Sensitivity range
-20%
-15%
-10%
-5%
Base
+5%
+10%
+15%
+20%

22.5 Bonasika 6 & 7

22.5.1 Production

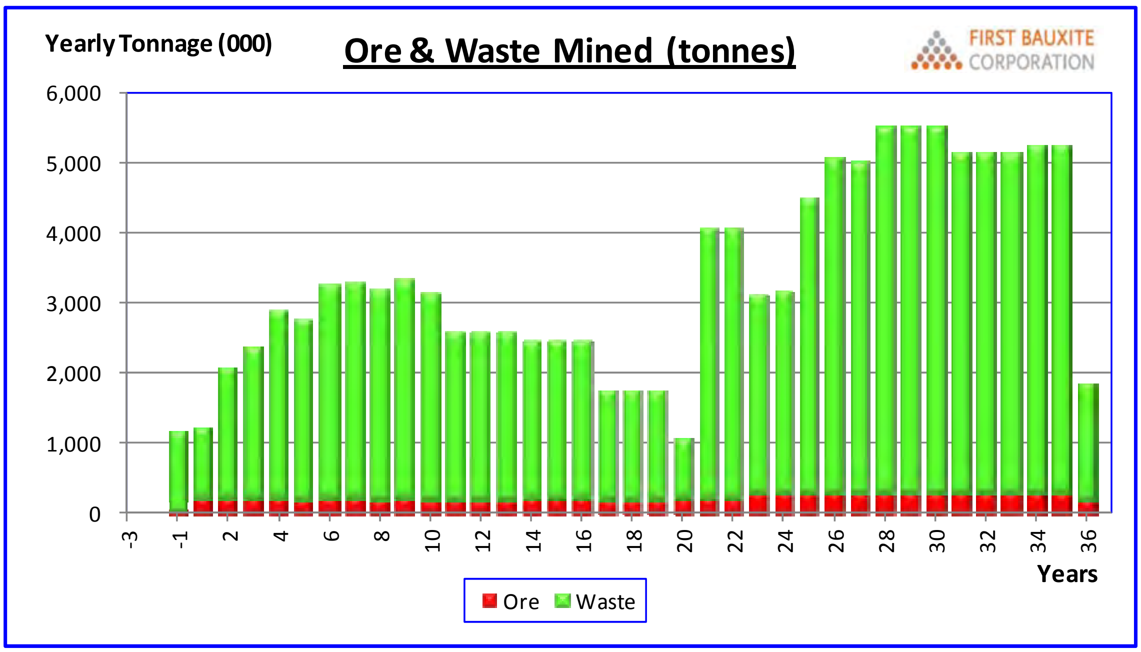
Bonasika 6 production will follow Bonasika 7 current plan. It will add 4.0 million tonnes over a period of approximately 14 years. During the same period, approximately 67 million tonnes of overburden and waste rock will be mined, resulting in an average waste/ore ratio of 16.7:1. Annual open pit mine production will average 286,000 tonnes. Annual ore and waste production is shown in Figure 22.5.

The entire production of Bonasika 6 is regular grade bauxite and will be crushed and washed before entering the Sintering Plant.

The total production of the combined plan (B7 & B6) is 8.6 million tonnes of ore averaging 29.6% LOI, 7.6% SiO_2 and 58.6% Al_2O_3 for a project life of 36 years. The combined waste/ore ratio is 13.3:1.

The wash plant recovery is planned at 50%. The sintering plant feed will be 5.2 million tonnes at 31.8% LOI, 3.8% SiO_2 and 61.1% Al_2O_3 and the recovery is 68.5%. Sintered bauxite production is maintained at 100,000 tonnes per year and the specifications of the final product will average 0% LOI, 5.5% SiO_2 and 89.2% Al_2O_3.

Figure 22.5 – Bonasika 6 & 7 Ore and Waste Mined (Tonnes)



22.5.2 Revenues

The same revenue parameters as Bonasika 7 base case were used. LOM gross sales for the combined plan are forecasted to total $1,679.7 million of which $645.8 million are associated to Bonasika 6. The LOM combined net revenues are at $1,650.4 million of which $634.8 million are attributed to Bonasika 6.

22.5.3 Operating costs

Adjustments to operating costs were made for Bonasika 6 to allow for increased tonnage, travelling distances, increasing crushing and washing and increased power consumption.

The average operating costs of the combined plans are at $211.04/tonne of sintered bauxite produced. Bonasika 6 operating costs are averaging $228.21/tonne of sintered bauxite produced.

22.5.4 Capital Expenditures

Bonasika 6 will benefit from the infrastructure, buildings and equipment already in place for the Bonasika 7 operation. Additions to the mining fleet will be necessary in Years 21, 23 and 25. Increased sedimentation capacity will be required and additional ponds will be needed in Year 22 and 29. A total of $20.9 million will be required as initial expenditures to prepare Bonasika 6 for production and an additional $6.0 million will be required during the production period for a total of $26.9 million.

Closure costs were adjusted accordingly.

The Project Revenues complete with operating expenditures and capital expenditures are shown in Figure 22.6.

22.5.5 Taxation

The same taxation parameters as in Bonasika 7 base case model were applied. Total Corporate income tax is estimated at $175.9 million over the mine life of 36 years of which $87.9 million are associated to Bonasika 6.

22.5.6 Annual Cash Flow

Figure 22.7 summarizes the annual undiscounted cash flows.

Figure 22.6 – Bonasika 6 & 7 Revenues, Operating costs and Capital Expenditures

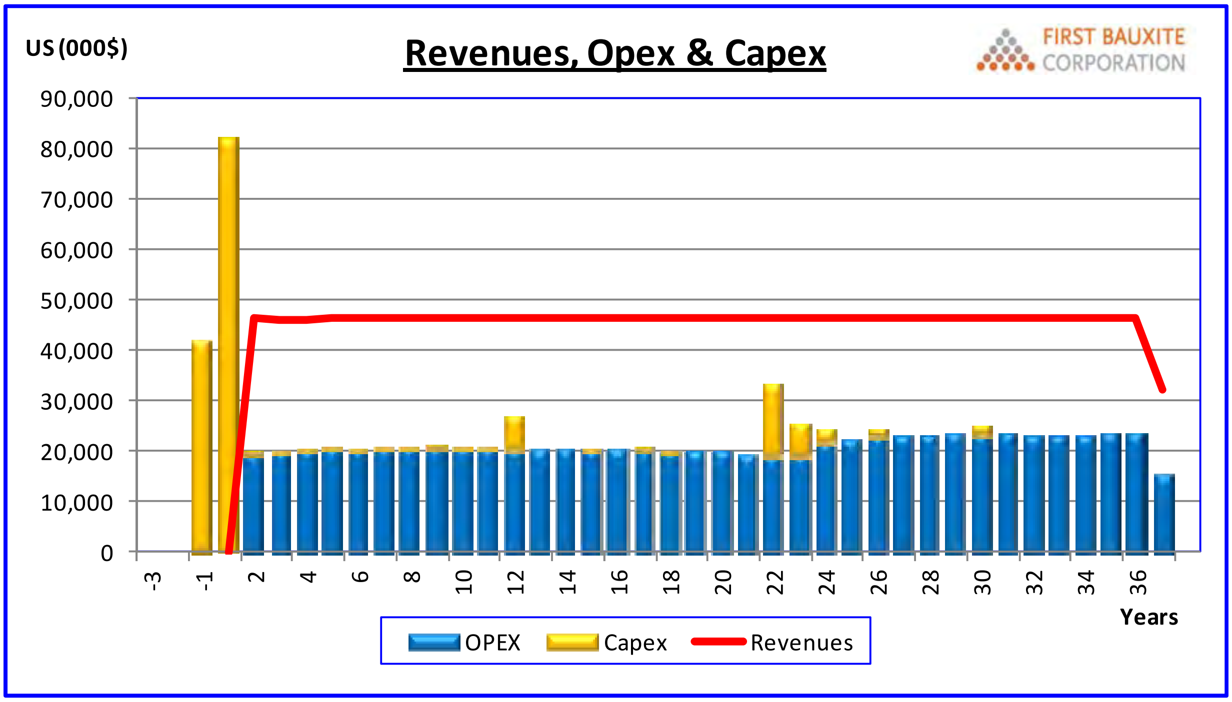
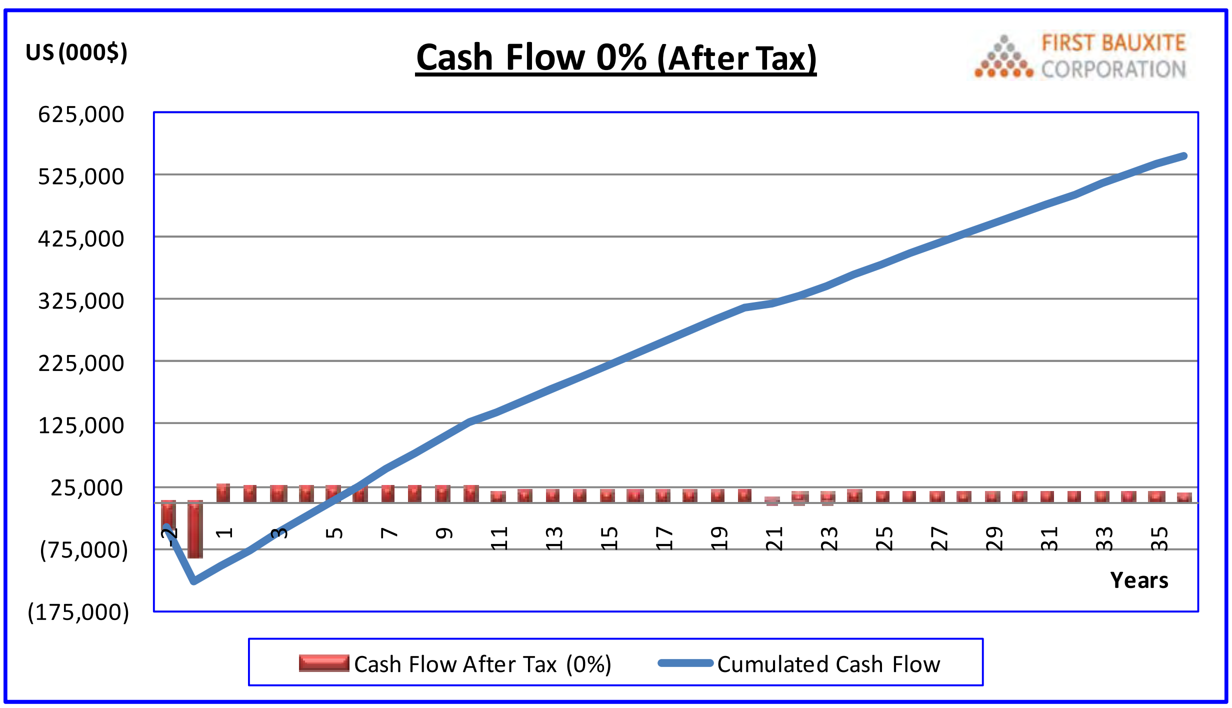


Figure 22.7 – Bonasika 6 & 7 Cash Flow 0%



22.6 Financial Results Bonasika 6 and 7

Over Bonasika 6 and 7's LOM period, the undiscounted cash flow is $732.5 million before tax and $556.6 million after tax.

Internal rates of return are evaluated at 18.7% and 17.7% respectively. The small differences in IRR comparing to the Bonasika 7 evaluation are time related as Bonasika 6 is mined late in the project life.

The cash flow results in a net present value at a discount rate of 7.5% ($NPV_{7.5\%}$) of $157.1 million before tax and $123.6 million after tax.

22.7 Sensitivity Analysis Bonasika 6 and 7

The sensitivity of Bonasika 6 & 7's NPV and IRR in relation to changes in the price of sintered bauxite; the price of crude oil; operating costs, and capital expenditure, has been modelled, with the results as shown in Table 22.6 and Figure 22.8.

The Project is most sensitive to changes in the price of sintered bauxite, and moderately sensitive to operating costs.

The forecast, including production, revenue, capital costs, operating costs and taxes are summarized in Table 22.5.

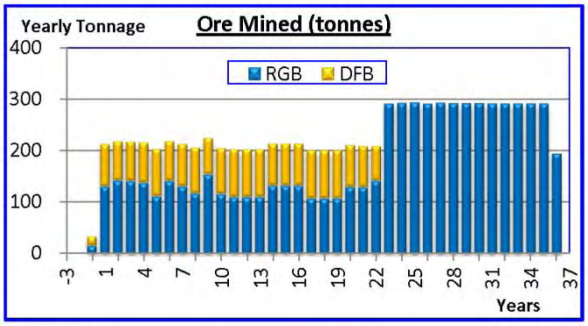
Table 22.5 – Summary - Financial Model Bonasika 6 and 7 – Final

FIRST BAUXITE CORPORATION

BONASIKA 6 & 7 - FINAL

Market Price Assumptions	
- Sintered Bauxite (US$/t)	$475
- Off spec Material	5%
- Discount	20%
- Net Price	$470
- Crude oil WTI - (US$/bbl)	$85.00

Mine Production



- Strip Ratio	13.3:1
- Waste tonnes (Mt)	114,568
- Mine life (yrs)	36

Operating Costs	US$/t ore	US$/t Bauxite
- Mining	$19.29	$46.30
- Processing	$55.41	$132.99
- Services	$2.45	$5.88
- G&A	$10.78	$25.87
- Total	**$87.93**	**$211.04**
- Royalties 1.5%NSR	$2.93	$7.05
- Marketing costs	$0.47	$1.13

Capital Expenditures (000 US$)	Initial	Sustaining
- Bonasika Mine & Plant	22,424	33,903
- Sand Hills site	60,309	0
- Indirects	28,074	0
- Contingencies	13,119	2,979
- Total	**123,926**	**36,882**

Project Valuation (000 US$)	Before Tax	After Tax
NPV 0%	732,488	556,582
NPV 7.5%	157,113	123,643
IRR	**18.7%**	**17.7%**

Proven & Probable Reserves	
- Ore tonnes (Mt) RGB	**6,758**
- % LOI	29.1%
- % SiO2	8.8%
- % Al2O3	58.0%
- Ore tonnes (Mt) DFB	**1,835**
- % LOI	31.6%
- % SiO2	3.0%
- % Al2O3	60.8%
- Ore tonnes (Mt) Total	**8,594**
- % LOI	29.6%
- % SiO2	7.6%
- % Al2O3	58.6%

Recoveries	
- Wash Plant recovery	50.0%
- Sinter Plant recovery	68.5%

Concentrate production	
- Tonnes (Mt)	**3,379**
- % LOI	32.0%
- % SiO2	4.2%
- % Al2O3	61.2%

Sinter Plant Feed	
- Tonnes (Mt)	**5,214**
- % LOI	31.8%
- % SiO2	3.8%
- % Al2O3	61.1%
- RGB ratio	
- DFB ratio	
- Relative SiO2	

Recoverable product - Sintered Bauxite	
- Tonnes (Mt)	**3,572**
- Tonnes/year	100,000
- % LOI	0.0%
- % SiO2	5.5%
- % Al2O3	89.2%

Table 22.6 – Bonasika 6 & 7 Cash Flow Sensitivities

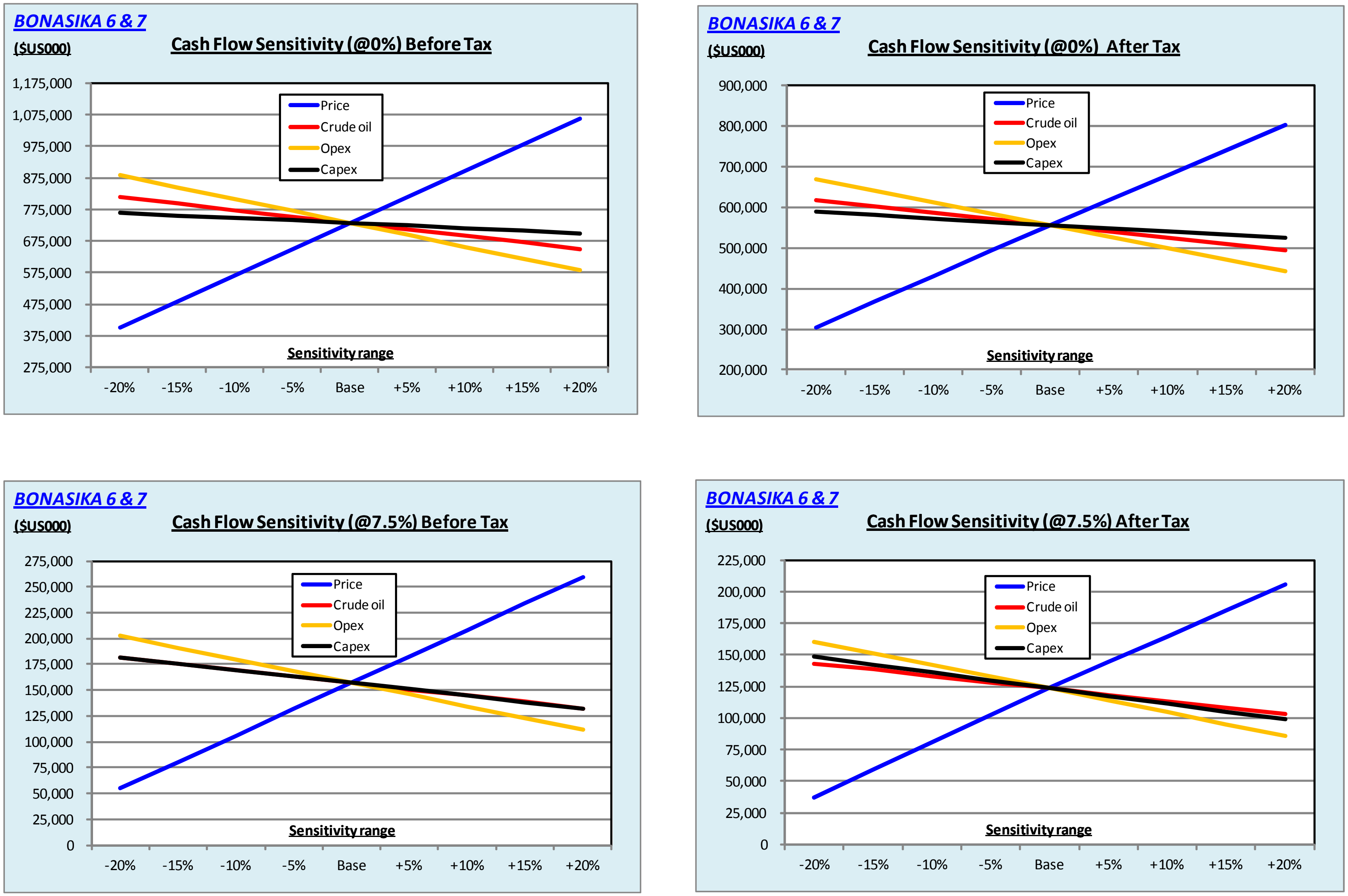
BONASIKA 6 & 7

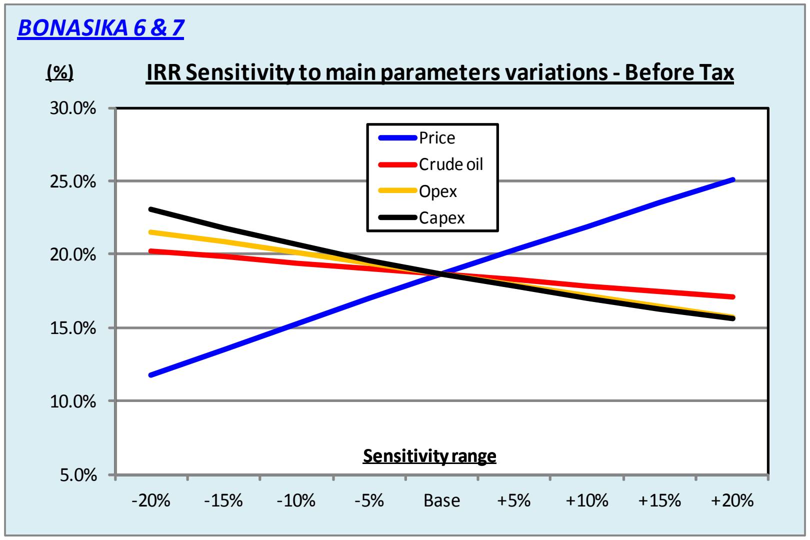
Cash Flow Sensitivities

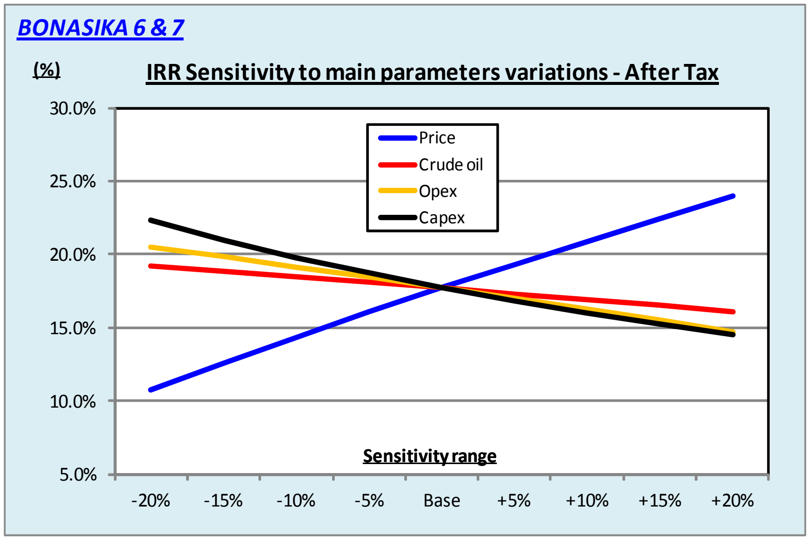
(000$)

	BEFORE TAX									Before Financing	AFTER TAX									
	-20%	-15%	-10%	-5%	Base	+5%	+10%	+15%	+20%		-20%	-15%	-10%	-5%	Base	+5%	+10%	+15%	+20%	
	$380	$404	$428	$451	$475	$499	$523	$546	$570		$380	$404	$428	$451	$475	$499	$523	$546	$570	
NCF 0%	401,589	484,314	567,038	649,763	732,488	815,212	897,937	980,661	1,063,386		304,413	367,533	430,653	493,774	556,582	617,964	679,347	740,729	802,111	NCF 0%
NCF 7.5%	54,803	80,381	105,958	131,535	157,113	182,690	208,267	233,844	259,422	Sintered Bauxite Price	37,331	59,048	80,688	102,273	123,643	144,261	164,853	185,426	205,934	NCF 7.5%
IRR	11.7%	13.5%	15.3%	17.0%	18.7%	20.3%	21.9%	23.5%	25.1%		10.8%	12.6%	14.3%	16.1%	17.7%	19.3%	20.9%	22.5%	24.0%	IRR
	$68	$72	$77	$81	$85	$89	$94	$98	$102		$68	$72	$77	$81	$85	$89	$94	$98	$102	
NCF 0%	813,776	793,763	772,513	752,500	732,488	711,066	691,225	671,212	649,790		616,644	601,858	586,154	571,368	556,582	540,628	525,563	510,370	494,104	NCF 0%
NCF 7.5%	181,549	175,536	169,139	163,126	157,113	150,669	144,703	138,689	132,246	Crude Oil Price	143,306	138,473	133,332	128,489	123,643	118,390	113,377	108,325	102,911	NCF 7.5%
IRR	20.2%	19.8%	19.4%	19.0%	18.7%	18.2%	17.9%	17.5%	17.0%		19.2%	18.9%	18.5%	18.1%	17.7%	17.3%	16.9%	16.5%	16.1%	IRR
	602,224	639,863	677,502	715,141	752,780	790,419	828,058	865,697	903,336		602,224	639,863	677,502	715,141	752,780	790,419	828,058	865,697	903,336	
NCF 0%	883,044	845,405	807,766	770,127	732,488	694,849	657,210	619,571	581,932		667,979	640,130	612,281	584,431	556,582	528,276	499,658	471,040	442,423	NCF 0%
NCF 7.5%	202,455	191,119	179,784	168,448	157,113	145,777	134,442	123,106	111,770	Operating Costs	160,108	150,998	141,888	132,778	123,643	114,279	104,754	95,219	85,666	NCF 7.5%
IRR	21.5%	20.8%	20.1%	19.4%	18.7%	17.9%	17.2%	16.5%	15.7%		20.5%	19.8%	19.1%	18.4%	17.7%	17.0%	16.3%	15.5%	14.8%	IRR
	128,646	136,687	144,727	152,768	160,808	168,848	176,889	184,929	192,970		128,646	136,687	144,727	152,768	160,808	168,848	176,889	184,929	192,970	
NCF 0%	764,649	756,609	748,568	740,528	732,488	724,447	716,407	708,366	700,326		588,744	580,703	572,663	564,622	556,582	548,542	540,501	532,461	524,420	NCF 0%
NCF 7.5%	181,811	175,637	169,462	163,287	157,113	150,938	144,763	138,588	132,414	Capital Expenditures	148,342	142,167	135,992	129,818	123,643	117,468	111,294	105,119	98,944	NCF 7.5%
IRR	23.1%	21.8%	20.6%	19.6%	18.7%	17.8%	17.0%	16.3%	15.6%		22.3%	21.0%	19.8%	18.7%	17.7%	16.8%	16.0%	15.2%	14.5%	IRR

Figure 22.8 – Bonasika 6 & 7 Sensitivity Analysis




BONASIKA 6 & 7
(%)
IRR Sensitivity to main parameters variations - Before Tax
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
Price
Crude oil
Opex
Capex
Sensitivity range
-20%
-15%
-10%
-5%
Base
+5%
+10%
+15%
+20%


BONASIKA 6 & 7
(%)
IRR Sensitivity to main parameters variations - After Tax
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
Price
Crude oil
Opex
Capex
Sensitivity range
-20%
-15%
-10%
-5%
Base
+5%
+10%
+15%
+20%

SECTION 23

ADJACENT PROPERTIES

23.0 ADJACENT PROPERTIES

The area surrounding the BML and the W-CPL is encompassed by a Permit for Geological and Geophysical Survey ("**PGGS**") covering 609,344.7 ha, referred to as the Essequibo-Demerara PGGS, that is also held by First Bauxite. This very extensive PGGS, granted in August 2007, was recently under option to Rio Tinto Alcan and who carried out exploration for bauxite on plateaus between the Essequibo River and Demerara Rivers; the option was terminated in May 2011. No mining operations or deposits with known resources occur in the area of the PGGS.

The Bonasika 6 deposit extends into this PGGS, as demonstrated by drilling conducted by First Bauxite. With the reversion of the PGGS to FBX, this tonnage is now included in Table 14.10 and Table 14.11.

SECTION 24

OTHER RELEVANT DATA AND INFORMATION

24.0 OTHER RELEVANT DATA AND INFORMATION

24.1 Project Schedule

The project implementation schedule includes, detailed engineering, procurement, construction and commissioning of the facilities including the main access road, the ore processing installations, the rejects ponds, the power plant installations, the wharf and the infrastructure required for the Project.

The project implementation schedule is presented in Figure 24.1.

To achieve the proposed dates on the schedule, the procurement of long lead equipment such as: vertical kilns, dryer, roller mill, briquetting presses and power generation equipment must be done early during the detailed engineering stage. A three (3) month pre-detailed engineering activity is included, ahead of month zero (0), to accelerate the purchase of mining equipment and sintering process equipment.

The critical path of the Project is the engineering, procurement, installation and the commissioning of the sintering plant.

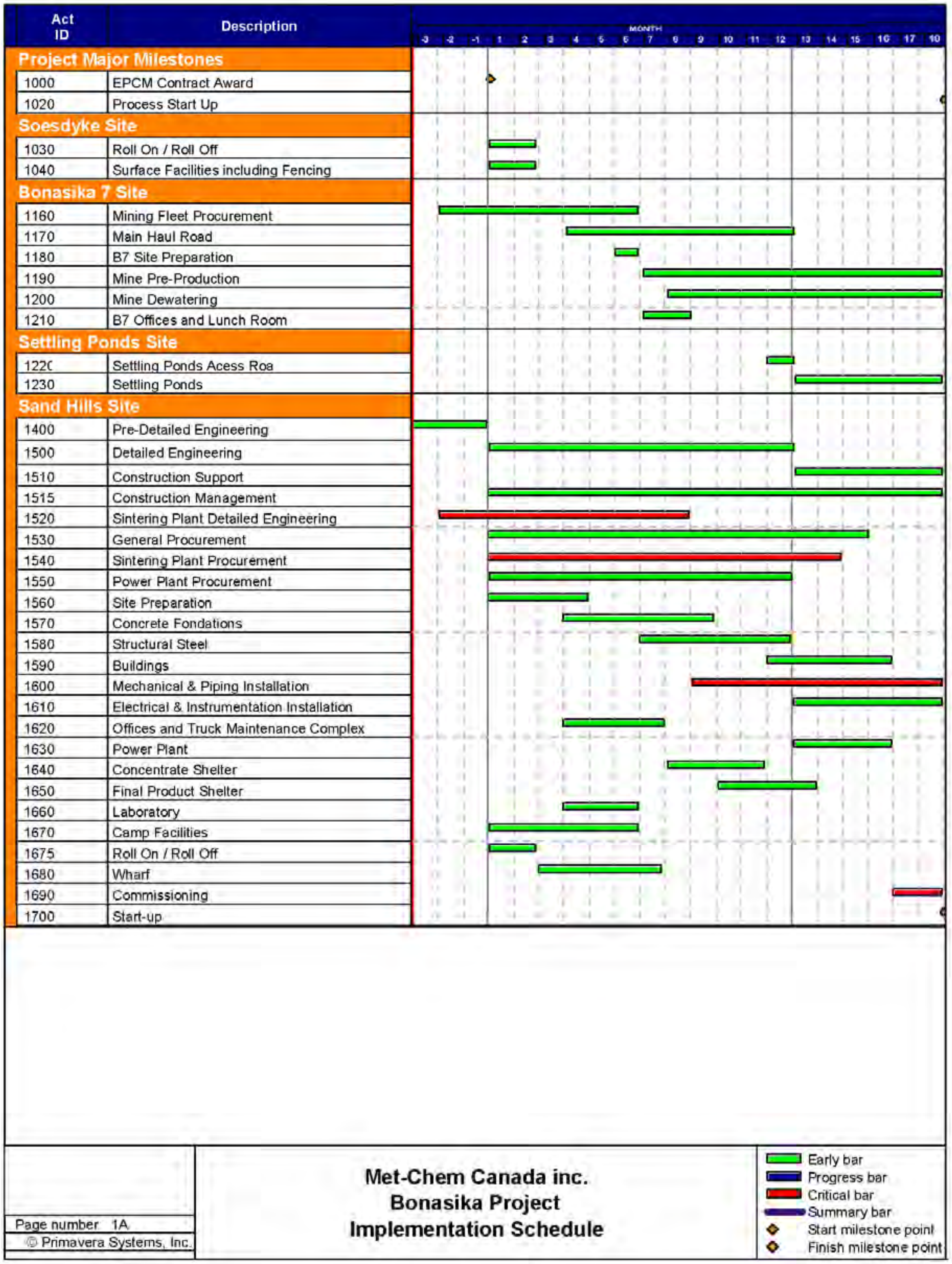
The milestones are the EPCM contract award at the start of month zero (0), the end of detailed engineering of the sintering plant by the Supplier at month 8, the delivery of the sintering plant completed by month 14 and the dry commissioning completed by the end of month 18.

The wash plant is not on the critical path but must be completed ahead of the sintering plant in order to have enough concentrate to ensure the operation of the kilns in a continuous mode. The wash plant start up must be no later than end of month 16.

The schedule shows a pre-detailed engineering period of three (3) months, a detailed engineering period of 12 months followed by an engineering site support period of six (6) months for a total construction period of 18 months including a two (2) month commissioning period.

The schedule is based on the assumption that all required permits such as environmental, construction, etc are received prior to on-site construction activities.

Figure 24.1 – Project Implementation Schedule



SECTION 25

INTERPRETATION AND CONCLUSIONS

25.0 INTERPRETATION AND CONCLUSIONS

The Exploration supervised by Aluminpro on the five (5) Bonasika deposits has shown the existence of approximately 13.1 million tonnes of Measured and Indicated Mineral Resources. Of this total volume of estimated Resources, 2.6 million tonnes in the Bonasika 1, 2 and 5 deposits, 4.9 million tonnes in Bonasika 6 (shown in the 2010 Feasibility Study) and 5.6 million tonnes in Bonasika 7 (added during this Update Study).

The mine planning of these Resources, including allowances for mining losses and dilution have demonstrated a total Mineral Reserves for the five (5) Bonasika deposits of 11.1 million tonnes of which 1.7 million tonnes were proven and 9.4 million tonnes were probable. Of this total volume, 2.5 million tonnes has been estimated for the Bonasika 1, 2 and 5 deposits (shown in the 2010 Feasibility Study), 4.0 million tonnes for Bonasika 6 and 4.6 million tonnes for Bonasika 7 (added during this Update Study).

The Sand Hills processing plant, to be located on the west bank of the Demerara River will be designed to produce 100,000 tonnes of sintered refractory bauxite briquets annually for a total Project life of 22 years (Bonasika 7 Reserves) and an additional 14 years (Bonasika 6 Reserves). The Bonasika 6 and 7 deposits are located approximately 21 km east of Sand Hills.

Metallurgical testing and mine planning have illustrated that the Bonasika 7 deposit bauxite can be selectively mined to produce two (2) separate concentrates that can be blended under controlled conditions to achieve a chemically consistent sinter feed namely:

- DFB material that can be directly fed to the blend point after proper crushing and thus bypassing the wash plant, and
- RGB material that can be upgraded by crushing, high pressure washing and screening to liberate and remove the kaolin-rich fines before it is sent to the blend point for recombining with DFB material, ahead of sintering.

Testing of a sample blended from the DFB and RGB, milled to a D_{90} of 27 microns and considered representative of the Bonasika 7 deposit was briquetted and sintered. The results showed that it had acceptable physical and chemical properties.

The bauxite in the Bonasika 6 deposit was modelled the same as Bonasika 1, 2 and 5. No distinction for DFB and RGB is included, the bauxite is all considered to be RGB and therefore will all go through the wash plant. This is conservative as it is most probable that similar DFB and RGB are present in the Bonasika 6 deposit.

The total Capital Costs for the Project based on Bonasika 7 deposit only, are estimated at $123.9 million. The Sustaining Capital Costs for the 22 year life of the Project are estimated at $10.0 million. The average Operating Costs for the Project are estimated at $200.27/tonne of sintered refractory bauxite.

Assuming the same process beneficiation and washing of the total volume of RGB for the Bonasika 6 Mineral Reserves for the additional 14 years Project, an additional $26.9 million will be required as Sustaining Capital Costs capital costs while the average Operating Costs will increase to $228.21/tonne of sintered refractory bauxite. The combined average Operating Costs will be $211.04/tonne of sintered refractory bauxite for the 36 year Life of Mine.

The financial analysis of the project has demonstrated that at an estimated sale price of sintered refractory bauxite briquets of $475/tonne, the IRR is 18.4% (before taxes) and 17.5% after taxes. The payback period is estimated at five (5) years (undiscounted) for the 22 years Life of Mine. For the 36 years Life of Mine, the IRR are 18.7 % and 17.7 % respectively.

The market study concluded that:

- First Bauxite production will provide consumers a new supply source of premium product;
- The global demand for bauxite is likely to grow steadily over the next 10 to 15 years; and
- The nominal and real refractory grade bauxite prices are expected to rise over the next ten (10) years.

SECTION 26

RECOMMENDATIONS

26.0 RECOMMENDATIONS

Drilling of the Bonasika 7 deposit on a regular 60 m x 60 m would allow for the categorization of the mineral resources as measured. This would call for approximately 168 additional holes and would allow for detailed mine planning. The budget for this work is estimated at $385,000.

Once the decision to proceed with the Project has been made, it is recommended to drill the initial pit area covering the first year and a half of the mine plan. The drill spacing should be 30 m. This would assist in scheduling bauxite grades and aid grade control, which will be critical in the early stages of development. Some short range continuity drilling would also help in developing an appropriate grade control program. The budget for this work is estimated at $20,000.

Similarly, additional drilling of the Bonasika 6 deposit would allow for the categorization of the mineral resources as measured. Also, modelling of the Bonasika 6 deposit for DFB and RGB would allow for a selective mining, similar to Bonasika 7, and a reduction of the bauxite going through the wash plant thus reducing operating costs pass Year 22. This work will be reviewed and realized during operation and will be sustaining capital.

It is recommended to index the sintered bauxite selling price to the fuel price variations. No cost is associated to this recommendation.

SECTION 27

REFERENCES

27.0 REFERENCES

Aluminium Industry Professionals Inc. (Aluminpro). *NI 43-101 Technical Report - Bonasika 7 Bauxite Deposit Waratilla Cartwright Prospecting license*. Prepared for First Bauxite Corporation. May 2011.

Aluminium Industry Professionals Inc. (Aluminpro). *Resource Modelling of Waratilla, Bonasika 1, 2 and 5*. Prepared for First Bauxite Corporation. June 2010.

CRU Strategies (CRU). *Refractory Products Market Study*. Prepared for First Bauxite Corporation. September 2011.

Golder Associates (Golder). *Geotechnical Field Investigation Stability Assessment for Bonasika 7 Pit Design Draft Report.* November 2011.

Golder Associates (Golder). *Hydrogeological Field Investigation Confidential, Pumping Test – Bonasika 7 Pit Area Report.* September 2011.

Golder Associates (Golder). *Preliminary Geotechnical Assessment, Sedimentation Pond, Feasibility Study, Bonasika Bauxite Project, Guyana, South America.* September 2011.

Golder Associates (Golder). *Bonasika Bauxite Project, Guyana – Preliminary Hydrological Assessment Technical Memorandum.* June 2011.

Golder Associates (Golder). *Geotechnical Investigation at the new wash plant location at Sand Hill, Bonasika Bauxite Project Report – Guyana.* February 2011.

Marcel Gaskin & Associates Ltd. *Design Review Report Sandhills Wharf Project for Guyana Industrial Minerals.* May 2011.

Met-Chem Canada Inc. (Met-Chem). *Bankable Feasibility Study Update Report of the Bonasika Project, Guyana.* Prepared for First Bauxite Corporation. November 2011.

Met-Chem Canada Inc. (Met-Chem). *NI 43-101 Technical Report - Feasibility Study of the Bonasika Project, Guyana.* Prepared for First Bauxite Corporation. September 2010.

Met-Chem Canada Inc. (Met-Chem). *Feasibility Study Report of the Bonasika Project, Guyana.* Prepared for First Bauxite Corporation. August 2010.

SENES Consultant Limited (SENES). *Environmental and Social Impact Assessment ESIA – Bonasika Bauxite Project.* Prepared for First Bauxite Corporation. October 2011.

Appendix A

NI 43-101 Technical Report – Bonasika 7 Bauxite Deposit W-CPL (Aluminpro May 2011)

Appendix A – NI 43-101 Technical Report – Bonasika 7 Bauxite Deposit W-CPL (Aluminpro May 2011)

NI 43-101 Technical Report

Bonasika 7 Bauxite Deposit
Waratilla Cartwright Prospecting License

Prepared for

First Bauxite Corporation

May 9, 2011

Prepared by

Dominique L. Butty, Eurogeol

ALUMINPRO

Aluminium Industry Professionals Inc.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

3.0 SUMMARY

The Waratilla Cartwright Prospecting Licence (WC PL) that hosts the Bonasika 6 and 7 deposits is located east of the Essequibo River, some 12 km east of Bartica, and 70 km southwest of the capital city of Georgetown, Guyana. The Bonasika Mining Licence adjoins the WC PL along its northern boundary. The WC PL was granted to GINMIN, the Licensee and a wholly owned subsidiary of First Bauxite (FBX), in March, 2006 for the purposes of bauxite prospection. It covers an area of 9,884 acres, or approximately 40 km^2 and is currently in good standing until April 7, 2014.

The WC PL was explored by an Alcan subsidiary, DEMBA in 1963-1964 when 68 holes totalling 6,817 m were drilled; 31 holes intersected significant bauxite. The DEMBA drilling formed the basis to the 2009 - 2010 drilling program conducted by FBX that was designed to improve knowledge of the mineralization, to extend the limits to the deposits and to estimate the resources compliant with NI 43-101 reporting standards.

The Bonasika bauxite deposits form a cluster that is a part of the Essequibo Group in the northerly part of the Coastal Plain Bauxite Belt between the Demerara and Essequibo Rivers, to the east and west respectively. The bauxites are generally covered by poorly consolidated sediments that were deposited in a shallow sea that advanced onto the submerging Guyana Shield. It is only in this region that the bauxites are exposed at surface.

The Bonasika deposits are low- iron bauxites, likely derived from the denuded plateaus occurring as residual pockets on the plateaus, on their flanks, or in proximal channels. They developed in a reducing environment and the bauxites are typically white with high alumina grades. The average thickness of the deposits is 4m; they comprise a higher grade core surrounded by an envelope of higher silica bauxite.

The bauxites rest on white kaolinitic clay whose depth exceeds several metres. No un-weathered bedrock has been encountered in the area although a single deep hole drilled by FBX intersected decomposed gneisses at some 40m depth, some 25m below the bauxite.

The typical bauxite mineralogy comprises gibbsite (80%), kaolinite (15%), anatase (2.5%), boehmite (1.2%), minor quartz, pyrite, hematite and maghematite. Most iron is within pyrite.

The Bonasika 7 drilling started in June 2010 using a crawler-mounted SDC550-18 sonic drill machine. A total of 192 sonic drilling holes have been drilled by First Bauxite on the Bonasika 7 deposit. The drilling has been conducted on east – west lines spaced 60m apart. The holes are spaced 120m apart on these lines but the actual collars are displaced 60m on alternating lines such that a diagonal pattern of holes is achieved with average drill hole spacing of 85m.

Recoveries are generally close to 100%. Where holes may have encountered particular problems of recovery or contamination, then the hole is re-drilled. Vertical holes were chosen given the essentially horizontal nature of the bauxite horizon and there is no requirement to adjust the resource calculations for the dip of the deposit.

The sampling was focused on defined bauxite lithological units but a capping interval and basal interval of non-bauxitic material were also sampled to close off the mineralized zone with a chemical analysis. To allow for proper observation of the lithologies and textures the core was split into two (2) equal halves and one (1) half was transferred to a split PVC tube where it was examined and then subdivided by lithology for sampling. The other half was retained in the core box for reference.

Sample preparation was carried out by ACME Analytical Laboratories Ltd. that has good ISO certified facilities for such work in Georgetown as well as offering rapid expediting services to their Vancouver laboratory where XRF analysis was made for major oxides and LOI was determined by thermo-gravimetric methods. A total of 2489 samples were analysed for resource estimation purposes. Four sets of control samples were inserted into the analytical sample stream:

- Certified Reference Samples (SRM 600 and SRM 698);
- Standard (Bonasika) Reference Samples;
- Pulp Duplicates;
- Field Duplicates

The results of the Quality Control programme indicate that assays of the CRMs are all within acceptable threshold limits, except for the silica in SRM 698, probably due to the very low silica content (0.69%) of the reference material. Such low silica values are generally not representative of bauxite in Bonasika 7 and therefore sub-optimal assay accuracy in this value range is not considered critical. Statistical Production Control (SPC) charts demonstrate the absence of meaningful bias or deviations of calibration over the duration of the exploration campaign. The higher assay variation shown for the standard reference material most likely results from sub-optimal homogenization; the absence of statistically significant bias or shift of instrumental calibration is confirmed. Descriptive statistics demonstrate that pulp duplicates have narrow and un-biased grade variations and that field duplicates have consistent grades, with similar population distributions and similar means. As always, silica shows the higher variation.

A representative deposit composite sample was assayed at both the Acme and SGS laboratories and showed a close grade comparison for all major oxides. Other Bonasika representative composite samples have also shown a reasonable comparison between the predicted grades, based on multiple samples, and the single head sample of the composite sample as determined by Acme or third party laboratories.

In situ bulk density readings were taken by excavating 30 x 30 x 30cm pits within trenches where the bauxite could be exposed. By conducting the pit excavation at different levels within two different pit locations it was possible to calculate the densities for the range of bauxite lithologies within the deposit for resource estimation.

Resource modelling of Bonasika 7 was conducted by Dominique Butty M. Sc. EuroGeol with inputs from Bryan S. Osborne P. Geo., acting as Qualified Person throughout the duration of the exploration and analytical programme. The deposit was modelled in 3D by Ordinary Kriging using vertical drilling data obtained by sonic coring.

The database comprised three files encompassing collar coordinate, lithologies and assays. Samples for assay were collected by lithology at reasonably constant intervals and did not necessitate regularisation to a standard length prior to modelling. However, lithologies were found inappropriate for domaining due to poor continuity and a tendency for grades to extend across lithological boundaries. As a result the lithologies were replaced by larger units, called Main Geological Units, depicting the broader stratigraphic sequence and distribution of the sediments hosting the bauxite deposits.

The units Refractory Grade Bauxite and Direct Feed Bauxite are based on chemistry alone and stand within the following limits, defined on the basis of cut-off grade sensitivities:

RGB		DFB	
SiO_2	$\leq 20\%$	SiO_2	$\leq 5\%$
Al_2O_3	$\geq 48\%$	Al_2O_3	$\geq 48\%$
Fe_2O_3	$\leq 5\%$	Fe_2O_3	$\leq 5\%$

Data analysis was conducted to highlight characteristics having an incidence on resource modelling in general and domaining in particular. Descriptive statistics was also conducted for main geological units by major oxide and sample length.

Vertical bauxite profiles generally display strong grade trends and analysis of this feature demonstrates that, characteristically, grade profiles are similar irrespective of the bauxite thickness. Graphical representations of vertical trends help identifying natural breaks in the grade profiles and, with due consideration to target grade specifications, support the selection of domain boundaries The top and bottom of bauxite is marked by strong increases of SiO_2, corresponding to comparable decreases of Al_2O_3. The SiO_2 and Al_2O_3 cut-offs delimit approximately the same bauxite intercepts. At Bonasika 7, Fe_2O_3 increases towards the bauxite floor but is mostly well below the cut-off grade.

Chemical composition of bauxite is a direct expression of mineral composition. The sum of major oxides and LOI adds to about 100%. Additionally, there are strong bivariate and multivariate dependences between grades. These characteristics are important from a modelling perspective, given that the nature of bauxite must be preserved in the process, and have been fully analysed.

Cut-off grade selection was largely process driven, in that the bauxite produced had to be upgradeable to Refractory Grade bauxite or amenable to direct feed. After examining a wide range of silica and alumina cut offs, $<20\%Si0_2$ and $>48\%Al_20_3$ cut-offs were selected to define the outer limits of the deposit. For consistency with the other Bonasika deposits, a similar 5%

Fe_2O_3 cut-off was applied to Bonasika 7 although this deposit contains but few Fe_2O_3 values in excess of 5%. For DFB material, the SiO_2 cut-off was lowered to <5% to comply with process parameters, allowing for mine dilution.

Thus for the overall bauxite domain, the surfaces of the top and bottom of bauxite are based on the bauxite composites obtained for cut-off grades 20% SiO_2, 48% Al_2O_3 and 5% Fe_2O_3 for the RGB domain (inclusive of DFB) and 5% SiO_2, 48% Al_2O_3 and 5% Fe_2O_3 for the DFB domain. The surfaces were applied on the 3D model using TINs (Triangulated Irregular Network). The surfaces of other domains were derived from the stratigraphic sequence of the Main Geological Units. These domains are therefore called stratigraphic domains.

Three grade models were considered, the Refractory Grade Bauxite domain, the Direct Feed Bauxite domain and “off-grade” including all other stratigraphic domains. In the latter grade model, the proportion of each stratigraphic domain was captured to support material handling and mining studies. In addition, a model was developed for Refractory Grade Bauxite inclusive of Direct Feed Bauxite.

3D modelling of thin layers requires strict constraints on the vertical and horizontal search ranges in order to limit mixing grades belonging to the different positions in the grade profile. To assist in maintaining the integrity of grades within the bauxite layer, kriging was applied in a flat space, i.e. samples and blocks were translated in space to transform the bauxite bed into a flat layer. This Unfolding process aids sample selection by allowing a narrow search range in the vertical direction, with the least spatial continuity, and reasonably long search ranges in the horizontal direction to collect samples within specific positions in the grade profile.

For spatial analysis, directional variograms of SiO_2, Al_2O_3 and Fe_2O_3 were produced at azimuths 0°, 30°, 60°, 90°, 120° and 150°. They demonstrate that while horizontal anisotropy is not an issue, there is a strong vertical anisotropy for all grades.

For each grade model, a common variogram was used for LOI, SiO_2, TiO_2 and Al_2O_3 given the compatibility of the respective variograms and the necessity of maintaining the linear relationships between grades as well as the sum of major oxides and LOI. This constraint is strictly required to preserve the nature of bauxite, for each block, in terms of chemical and mineralogical compositions. Iron demonstrates a very different a spatial variability from the other major oxides due to minor outliers of high Fe_2O_3 values and requires a separate variogram. Checks have shown that the sum of oxides plus LOI remained within acceptable tolerances despite this procedure.

Kriging efficiency and kriging slope of regression were calculated from the common variograms of LOI, SiO_2, TiO_2 and Al_2O_3.

Bonasika 7 shows a higher degree of lateral continuity as compared to the other Bonasika deposits. The deposit nevertheless requires further drilling to allocate all resources to the Measured Resource category. Continuity drilling, as carried out at Bonasika 6, is also required to verify the continuity of DFB as well short scale variations of boundaries between the two bauxite domains and off-grade material.

A QKNA analysis - based on the optimisation of the kriging slope regression (KSR) and kriging efficiency (KE) - was performed to determine the optimum block size, search range and sample selection. At Bonasika 7, a block size of 60 x 60 x 2m was found to be a good fit with the exploration grid size ensuring sound block estimates.

Resource classification based on Kriging Efficiency and Kriged Slope Regression has become widely accepted as a basis to resource categorisation and these parameters were calculated for each block. The various resource categories also need to display reasonable continuity over the deposit. Furthermore, given that resource classification must be supported by other factors including, in particular, the quality, robustness and completeness of the exploration database, as well as geological, mining and processing criteria, the specific assigning of categories need to be considered.

The mineral resources based in part on the kriging parameters and in part on the continuity of the mineralisation and on the other factors discussed above are as follows:

Table 3-1 Bonasika 7 Unwashed Mineral Resources - RGB and DFB, December 2010

Mineral Resource Category	Tonnage Kt	LOI %	SiO_2 %	TiO_2 %	Fe_2O_3 %	Al_2O_3 %	Totox %
RGB Indicated Resources	3174	27.9	12.2	2.3	1.0	55.5	98.9
DFB Indicated Resources	2387	31.6	3.0	2.7	0.7	60.8	98.9
RGB Inferred Resources	84	27.9	12.1	2.5	1.0	55.4	98.9
DFB Inferred Resources	100	31.3	3.7	2.5	0.8	60.6	99.0

The RGB and DFB resources are not added together as the RGB bauxite will be washed, significantly reducing the tonnage while improving the grades.

Mineral resource modelling has been conducted with specific block sizes appropriate to the drill spacing and bauxite continuity as expressed by the variography.

The resource models were validated in a number of ways. It was verified that grades are consistent with underlying samples, that bi-variate and multi-variate relationships between grades are preserved, that the sum of major oxides and LOI is maintained, that comparable tonnage and grades are obtained by alternative modelling methods (comparison with 2D polygonal model and between 3D models), and that the spatial distribution of grades is preserved.

It is concluded that the Indicated Mineral Resources of 5.56Mt are sufficient in quantity and acceptable in quality to support feasibility related studies of developing the Bonasika 7 deposit for a sintered bauxite production operation. Recommendations for future work are as follows:

Drilling of the Bonasika 7 deposit on a regular 60m x 60m would allow for the categorisation of the mineral resources as Measured. This would call for approximately 150 additional holes and would allow for detailed mine planning.

When a decision will have been made to proceed with the project it is recommended to drill the initial pit area (covering six quarters at a hole spacing of 30m). This would assist in scheduling bauxite grades and aid grade control which will be critical in the early stages of development. Some short range continuity drilling would also help in developing an appropriate grade control programme.

The conversion of the un-washed resources to mineral reserves requires confirmation of an appropriate process flow sheet with well established recovery and grade enhancement parameters.

4.0 INTRODUCTION

Since June 2008, Aluminium Industry Professionals Inc (Aluminpro) has been providing bauxite exploration expertise to First Bauxite Corporation (FBX) for the Bonasika Project in Guyana. This work has involved the setting up of procedures for exploration and analytical work, training field staff, database compilation and resource modelling and estimation. Bryan S. Osborne P.Geo has acted as Qualified Person for the Project since inception.

Aluminpro provided the mineral resource section to a Feasibility Study for the Bonasika Project completed by Met-Chem Canada Inc. in July 2010. This first report covered the resources of three deposits, Bonasika 1, 2 and 5 on the Bonasika Mining Licence and the Bonasika 6 (UWC) on the Waratilla Cartwright Prospecting Licence (WC PL).

A contract was signed between Aluminpro and FBX in October, 2010 that called for deposit modelling and mineral resource estimation of the Bonasika 7 deposit. This current report covers the exploration activities and data supporting the resource modelling and estimation of this Bonasika 7 (LWC) deposit, also on the WC PL. This report has been prepared by Dominique Butty EuroGeol. who has conducted all the resource estimates for the Bonasika Project to date and visited the Bonasika ML and WC LP sites in 2009.

The report is compliant with National Instrument 43 101 – Standards of Disclosure for Mineral Projects and the Table of Contents follows the format suggested in Form 43 101F.

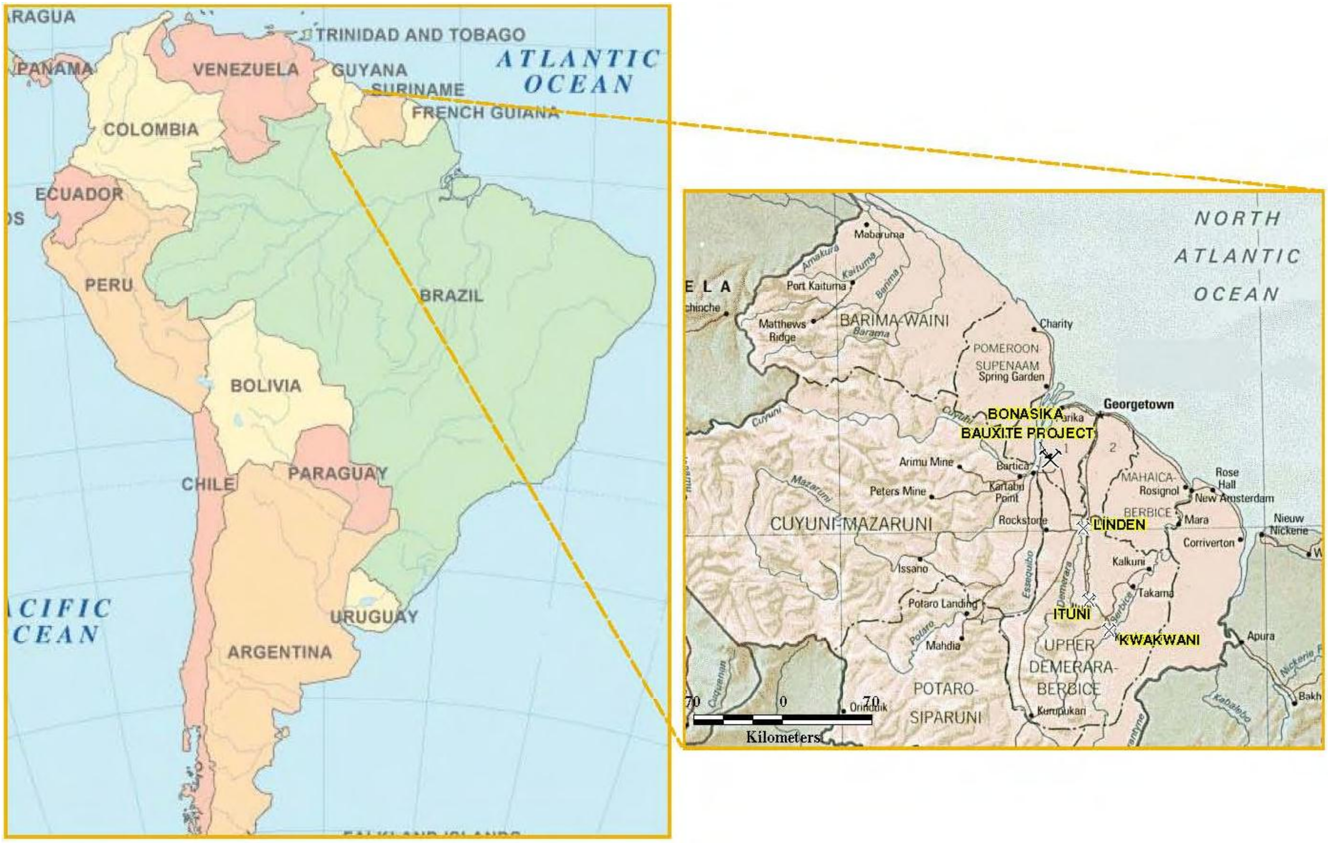
5.0 RELIANCE ON OTHER EXPERTS

The author has worked closely with Bryan S. Osborne P. Geo of Aluminpro, Qualified Person in carrying out the resource modelling and estimation. The author has reviewed for the planning, implementation, exploration procedures and quality control of the exploration work conducted on Bonasika 7 since May 2010 and is satisfied with the reliability of the data generated.

6.0 PROPERTY DESCRIPTION AND LOCATION

The Waratilla Cartwright Prospecting Licence (WC PL) that hosts the Bonasika 6 and 7 deposits is located east of the Essequibo River, about 12 km east of Bartica, and about 70 km southwest of the capital city of Georgetown, Guyana. The location is shown in Figure 6.1. The area is accessible by the paved road to the Timehri International airport, a 15 minutes boat trip across to the west bank of the Demerara River to the Sand Hills site. The area is accessed by an 18 km road from Sand Hills to the camp site from which trails provide access to the Bonasika 6 and 7 deposits. Figure 6.2 shows the access to the WC PL and the adjacent Bonasika Mining Licence in detail.

Figure 6-1 – Location of Bonasika Project



6.1 Property Ownership and Agreements

The WC PL was granted to GINMIN (the Licensee) in March, 2006 for the purposes of bauxite prospection. It covers an area of 9,884 acres, or approximately 40 km^2 and the location is shown in Figure 4.2. The prospecting licence was granted for a period of three (3) years during which time the Licensee has the right to apply for a Mining Licence. A letter from the GGMC dated May 6, 2011 confirms renewal of the licence for an additional three year term to April 7, 2014.

Annual rental for the PL is due at the rate of US0.50cts per acre in Year 1, US0.60cts per acre in Year 2 and US1.00$ in Year 3.

At any time during the term of the PL the licensee may request conversion of any part of the prospecting area to a Mining Licence, subject to the provision of a Feasibility Study and its approval by the Minister. The Licence is issued for 20 years and there is an annual rental of US3.00$ per acre. A royalty of 1.5% ad valorem of gross production sales or of production costs leaving the plant will be levied.

Figure 6.3 shows the WC PL boundaries, topography, access and sites of resource drilling for both the UWC and LWC deposits.

6.2 Environmental Exposures

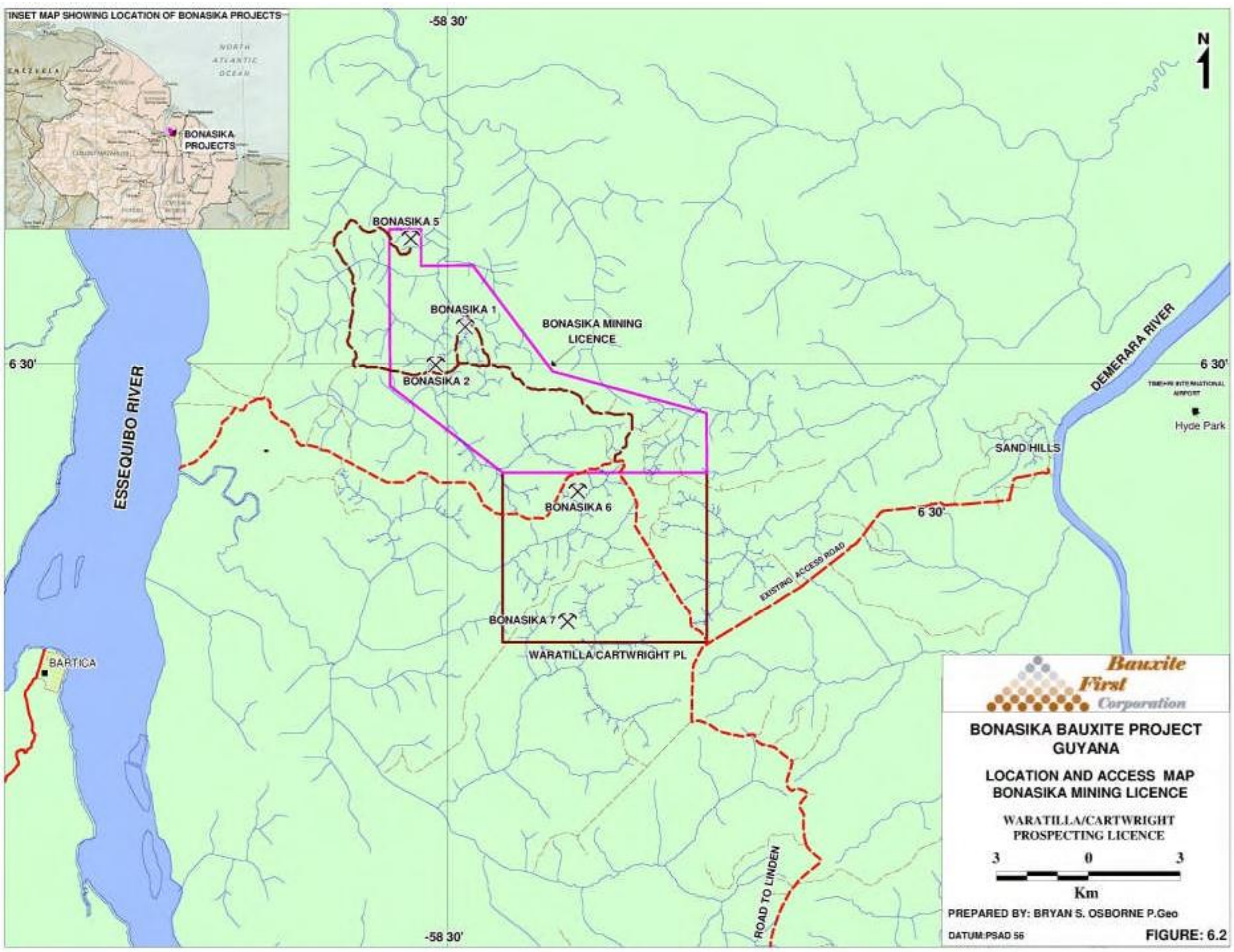
Currently, there are no known environmental risks on the WC PL.

First Bauxite has commissioned an Environmental Management Plan ("EMP") for the overall project, including the development of the WC deposits, which is to be submitted to the Guyana Environment Protection Agency for approval.

6.3 Survey of the Licence Boundaries

The north and a part of the western and southern boundaries of the Waratilla Prospecting Licence have been surveyed and cut (Figure 6.2). The initial survey reference points for this survey, the site topography and the drill collars were established by navigational GPS.

Figure 6-2 Location and Access of Bonasika Licence



7.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

7.1 Accessibility

The WC PL is accessible by a logging road from the dock at Sand Hills on the west bank of the Demerara River. The distance from the dock to the WC Base Camp is 18km. It is feasible to make the journey from central Georgetown to the site in 2.5 hours including the 15 minutes crossing of the Demerara River from the Timehri dock to Sand Hills (Figure 6.2)

The same logging road continues to the Bonasika site, a further 10km beyond the WC Base Camp. Various additional logging roads provide access to the zones of mineralisation that have been identified to date on the WC PL.

7.2 Climate

Guyana has a tropical climate with almost uniformly high temperatures and humidity, and much rainfall. Seasonal variations in temperature are slight, particularly along the coast. Guyana lies south of the path of Caribbean hurricanes and none are known to have hit the country.

Temperatures in Georgetown are quite constant, with an average high of 32°C and an average low of 24°C in the hottest month (July), and an average range of 23°C to 29°C in February, the coolest month. The highest temperature ever recorded in the capital was 34°C and the lowest only 20°C. Humidity averages 70% year-round.

Rainfall is heaviest in the northwest and lightest in the southeast and interior. The annual average for Georgetown is approximately 225 cm. Although rain falls throughout the year, a summer rainy season extends from May to late July and a second rainy season extends from November through January. Rain generally falls in heavy, afternoon showers or thunderstorms. Overcast days are rare; most days include four (4) to eight (8) hours of sunshine from morning through early afternoon.

7.3 Local Resources

Abundant labour is available in the region, given proximity to the capital and Linden which is the centre of the bauxite mining industry. This includes tradesmen such as mechanics, electricians, carpenters and heavy equipment operators with mining experience.

The Bonasika and Waratilla Cartwright project areas are wooded, largely with second growth tropical jungle, and are actively logged on a small scale.

The creeks draining the area would provide an adequate source of water for a bauxite wash plant should this be located close to Bonasika 7. There is also an abundance of clean sands for construction purposes.

7.4 Local Infrastructure

There is essentially no infrastructure in the area. A small wooden dock exists at Sand Hills from which a network of bush roads extends into the hinterland for the purposes of gathering timber. These roads may be driven by 4 x 4 vehicle and ATV.

7.5 Physiography

The area is approximately on the height of land between the Essequibo River to the west and the Demerara River to the east. The highest point on the PL is 73.5m. The terrain on the licence is typical for the area; it is dominated by flat topped hills with broad valleys. The overall relief is of the order of 35m in the south west of the licence.

The westward flowing Cartwright creek drains much of the central zone of the PL; the most easterly part of the PL is drained by the headwaters of Waratilla Creek flowing eastward towards the Demerara River. Southward flowing Sasapru creek drains the southern part of the PL, while the north westerly flowing Bonasika creek drains the most north westerly part.

The soils comprise a thin layer of humus typically underlain by white and brown sands and sandy clays, with an area of outcropping bauxite in the south west.

8.0 HISTORY

8.1 History of the Guyanese Bauxite Industry

The first published report of bauxite, by Sir John Harrison, appeared in the Official Gazette of Guyana on June 16, 1910. In 1914, the DEMBA, owned at the time by Aluminum Company of America ("Alcoa"), secured leases around Mackenzie where bauxite deposits had been identified. In 1917 the company commenced the mining of bauxite in this area at the Three Friends Mine.

In 1929, the Aluminium Company of Canada took over control of DEMBA who conducted drilling in the Ituni area south of Mackenzie in the 1930s and between 1937 and 1943 in the Essequibo area, including the Bonasika deposits. In 1938, the company started the shipment of super-calcined refractory bauxite at Mackenzie and in 1943 also started mining at Ituni.

The Berbice Company Limited began exploration in the more southerly Berbice area in 1938. In 1942, the Berbice Bauxite Company, a subsidiary of American Cyanamid, started production of chemical grade bauxite at Kwakwani. In 1952, the same company, by now acquired by Reynolds Metal Company, started producing metallurgical grade bauxite at the mine.

The Second World War called for a secure source of bauxite to supply a burgeoning aluminium industry in North America. Guyana was foremost in meeting this need and the country became one of the world's top producers during the 1950s. During this boom period, drilling was carried out by Harvey Aluminum Incorporated in the Groete Creek and Blue Mountains areas west of the Essequibo River and Barima Minerals Limited drilled selected targets in the Pomeroon area north of Bonasika. In the early 1960s, DEMBA drilled the Waratilla-Cartwright area within the Essequibo group of deposits just south of Bonasika. In 1961, DEMBA completed construction of an alumina refinery at Mackenzie that was operated until 1982.

Foreign companies controlled the Guyanese bauxite industry until the early 1970s when the Government nationalized the companies. However, various subsequent State-owned bauxite companies did not perform as expected and lost a significant proportion of their former market share, in part, because of lower than expected prices for bauxite, declining production and poor fiscal performance.

Twenty-seven (27) years after the initial nationalisation of DEMBA in 1998, the Government of Guyana announced privatization plans for the state-owned bauxite companies.

The Bauxite Company of Guyana Inc. was established in 2004 following an agreement between United Company RUSAL ("RUSAL") and the Government of Guyana for mine development in the Berbice region. In 2006, RUSAL finalised a transaction acquiring the assets of the state mining company Aroaima Mining Company ("AMC"). The largest volume of bauxite is produced at the Aroaima mine managed by Bauxite Company of Guyana Inc. ("BCGI"). Metallurgical bauxite supplies the Nikolaev alumina refinery in the Ukraine with high-quality bauxite used for "sweetening" a lower grade Guinean source of bauxite; chemical grade bauxite is also exported.

In 2004, Cambior Inc. acquired a 70% stake in Omai Bauxite Mining Inc., with the government of Guyana retaining 30% as a part of the government's privatization of certain assets of Linden

Mining Enterprises Ltd. After considerable investment to upgrade the Linden operations, by 2007 Cambior's stake was sold to Bosai Minerals Group Co. Ltd. of China who now produces refractory bauxite, as well as chemical and cement grades. Annual production of bauxite products totals approximately 600,000 tonnes of which about a half are refractory grade.

8.2 History of Exploration on the Waratilla Cartwright PL

The Waratilla Cartwright property was explored by DEMBA in 1963-1964 when 68 holes totalling 6,817 m were drilled of which 31 holes cut significant bauxite. DEMBA estimated 13.1 million short tons of Refractory A Grade Super Calcined ("**RASC**") bauxite and 4.4 million short tons of Metallurgical Grade ("**MAZ**") bauxite. These resources are not NI 43-101 compliant and have been replaced by the estimates prepared and presented in this current report.

The DEMBA drilling formed the basis to the 2009 - 2010 drilling program that is designed to improve knowledge of the mineralization, to extend the limits to the potential deposits at Waratilla Cartwright, and to estimate the resources compliant with NI 43-101 reporting standards.

8.3 Ownership History

The areas that are the subject of this Report have been owned only by DEMBA in the 1940s and 1960s and exploration has been exclusively for bauxite. There has been no bauxite production of bauxite from either the Bonasika or Waratilla Cartwright properties.

First Bauxite obtained the rights directly through application to the Guyana Geology and Mines Commission (GGMC) in March 2006.

9.0 GEOLOGICAL SETTING

The bauxite properties held by First Bauxite that are the subject of this Report are located on the northern flank of the Guyana Shield in a region referred to as the Coastal Plains. Given the extent of recent marine deposits, the tropical weathering and forest cover, the bedrock geology is very poorly understood and its role in the development of the overlying bauxites is unknown and perhaps slight.

The Bonasika 7 bauxite deposit rests on white kaolinitic clay whose depth has not been widely determined but likely exceeds several metres. No un-weathered bedrock has been encountered in the area. A single deep hole (WCLS013) was drilled on Bonasika 7 and at this location 5.2m of basal clay underlay the bauxite horizon. Beneath, 12.8m of yellowish clay was encountered that became increasingly saprolitic with depth. The hole was terminated at 39.4m in saprolite with abundant zones of decomposed gneiss.

The bauxites are generally covered by poorly consolidated sediments deposited in a shallow sea that advanced onto the submerging Guyana Shield during the Tertiary. The Berbice White Sand Formation is a Pleistocene, continental-deltaic sequence that covers a wide extent of northern Guyana and largely conceals the principal areas of bauxite mineralization and their overlying Tertiary sediments. However, the deposits outcrop both on the Bonasika ML and Waratilla Cartwright PL (Bonasikas1, 2, 5 and 7).

The bauxite deposits of Guyana, and their geological setting, are described by Bleackley in the Geological Survey of Guiana Bulletin No. 34 (1964). Most of the known deposits, and those which are exploited, occur as clusters along an axis, sub-parallel to the current Atlantic coast-line, over a north-south distance of some 250 km. The deposits are low-lying and typically buried beneath the Tertiary sediments; the bauxite is for the most part light coloured, high-grade, gibbsitic and low in iron.

Flanking the bauxite belt on the landward or westward side are a number of isolated laterised plateaus where sporadic bauxite occurs notably in the vicinity of the Blue Mountains some 20 km west of the Bonasika area. These bauxites are at higher elevations, are iron rich as well as being capped by Fe-laterite. Such isolated plateaus may have been once a part of a more extensive peneplain where bauxite was developed in-situ on a Pre-Cambrian terrain of alumina-rich gneisses or meta-sediments.

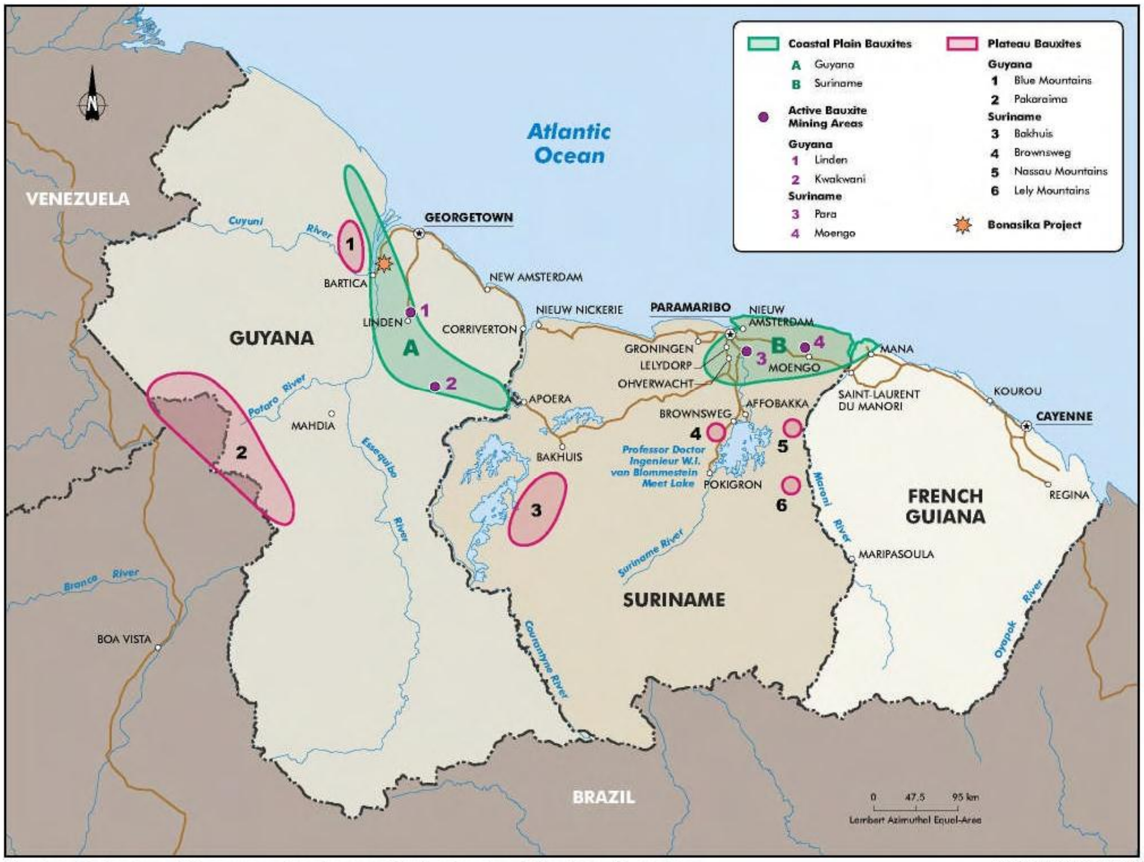
Thus, there are two types of bauxite occurring in Guyana. Firstly, typical high iron “plateau-type” bauxite developed in-situ by the weathering of a Pre-Cambrian basement and occurring today as isolated ranges of hills or inselbergs and capped by iron laterite. Secondly, low-iron bauxites, capped by sediments and occurring as residual pockets on the plateaus, on their flanks, or in proximal channels.

Spore dating by T. Van der Hammen and T.A Wijmstra (1964) suggests a single period of bauxite development period between the late Eocene and early Oligocene (approximately 40 million years). This suggests a period of intense bauxitization on the plateaus through tropical weathering with simultaneous or subsequent erosion and development of iron depleted bauxite deposits in a reducing environment.

Relief is essential for bauxite development since an underlying drainage system is required to provide for the evacuation of vast volumes of water that remove all but the most insoluble elements, with the notable exception of alumina, which remains as aluminum hydroxide along with iron, titania and silica. Within a broad peneplain of plateaus, deeply incised valleys provide drawdown for the drainage network that underlies the laterite profile and contributes to the pre-requisite conditions for bauxite development both on the plateaus and flanks.

Observations also suggest however, that bauxitization may have continued after deposition of the residual alumina-enriched sediments flanking the plateaus. Certainly, there has been extensive remobilisation of the alumina and iron rich minerals as witnessed by gibbsite re-cementation and iron depletion. Since the strata hosting the bauxite is close to horizontal, this implies slight tilting or faulting in order to uplift the pile and so create the conditions favourable to water flow and on-going bauxitization. Bleackley mentions post-Berbice faulting, along the course of the lower Essequibo, presumably N-S, as well as E-W faulting to the north of the Bonasika area. The present day topography also exhibits evidence of block faulting with discrete more-or-less orthogonal escarpments.

Figure 9-1 Guyana Shield Bauxites



The Bauxite Regions of Guyana and Suriname with the Location of the Bonasika Project

(Prepared by BSO 28.10.09)

The Bonasika bauxite deposits form a cluster known as the Essequibo Group in the northerly part of the Coastal Plain Bauxite Belt between the Demerara and Essequibo Rivers, to the east and west respectively. It is only in this region that the bauxites are exposed at surface; bauxite has however been intersected at depths of 60 m in the area by recent drilling.

To the south are located the bauxite-producing areas comprising the Linden, Ituni and Kwakwani Groups (Figure 9.1). At the active East Montgomery Mine in the Linden-Mackenzie area, the bauxite horizon is covered by up to 70 m of overburden.

10.0 DEPOSIT TYPES

The Bonasika 6 and 7 deposits on the Waratilla Cartwright PL are considered to be derived from plateau-type bauxites. The extent to which they are in situ or transported within pockets on the plateaus, flanking former plateaus or in-filling valleys as channel bauxites is unknown.

The iron-cap typical of plateau bauxites underlain by a weathering profile dominated by downward percolation of solutions is not seen at in the Waratilla area.

These deposits may be compared to those seen in the Linden region of Guyana both in terms of their morphology and chemistry. The bauxite deposits in the Linden region may exceed tens of millions of tonnes; for example the remaining reserves of bauxite at East Montgomery are in the order of 60 Mt. By comparison, to date some 12Mt of bauxite resources have been drilled by FBX on the Waratilla Cartwright PL.

Close comparison may also be drawn with the bauxite deposits described in Arkansas, USA. They also show similarities with the Sangaredi deposit in Guinea which is a basin in-filled with bauxitic sediments derived from the surrounding plateaus as further described below under Mineralization - Section 11.0.

The deposits described in this Report and those of Sangaredi and Arkansas exhibit bauxite within a sedimentary, reducing environment that is depleted in iron oxides; the bauxites are typically white and high grade.

Exploration at Waratilla Cartwright has been guided by the drill results of a program conducted by the Demerara Bauxite Company Ltd. between in the 1960s.

Systematic, vertical drilling is the standard method of sampling this type of deposit. On account of the high clay content of the upper part of the bauxite profile and the poorly consolidated nature of sections throughout the profile, conventional coring yields poor recovery. First Bauxite has implemented a sonic method of drilling that provides good recoveries without the need for water or drilling mud while coring. A wide core diameter is preferred to assist in sampling the chemical variations, particularly silica and iron.

Coring through the entire bauxite profile to the basal kaolinitic horizon at depth and then tracing the bauxite horizon laterally with additional holes, until the zone is diminished below one meter thickness, ensures that the continuity of mineralization is determined for resource estimation.

11.0 MINERALIZATION

11.1 Key Lithological and Morphological Features

Logging of the core has allowed for a detailed stratigraphic profile to be developed through the mineralization and the enclosing host rocks. A system of lithology coding was established at the outset of the program and has been subsequently amplified as new units have been encountered as shown in Table 11.1 below. Codes 1 to 9 show the principal lithologies in actual typical vertical profile; codes 10 to 11 are minor sub-units and those numbers carrying a suffix allow for sub-division of the principal lithologies.

Table 11-1 Coding of Lithologies and Sub-Units for Core Logging

Code	Description
0	Unrecovered
1	Topsoil
2	Unconsolidated Berbice Sands
3	Sandstone
4	Mudstone
5	Clay
6	Bauxitic Clay
7	Bauxite
8	Laterite
9	Basal Clay
10	Lignite
11	Siderite
11a	Massive Siderite
11b	Granular Siderite
3a	Siltstone
4a	Carbonaceous Mudstone
5a	Flint Clay
7a	Clayey Bauxite
7b	Granular Bauxite
7c	Massive Bauxite
7d	Lateritic Bauxite
8a	Lateritic Clay
8b	Bauxitic Laterite
8c	Clayey Laterite

Mineralization is essentially confined to unit "7 – Bauxite" although lower off-grade mineralization occurs in the clays both above and below the bauxite horizon. Typical geological cross-sections of the Bonasika 7 deposit are presented in Section 25 - Illustrations.

Drilling on the Waratilla Cartwright PL and Bonasika ML has demonstrated similar lithological, chemical and morphological features as summarised below:

- Bauxite occurs in a sedimentary pile with a granulometry ranging from clays to fine gravels;
- The bauxite shows a core of higher grade mineralization encompassing inter-layered units of hard massive bauxite, coarse, porous granular bauxite and very fine gibbsite units that have the appearance of clay;
- This core is within an envelope of clayey bauxite capped by a blue-grey bauxitic clay;
- The bauxite is largely composed of gibbsite and minor boehmite with kaolinite, anatase, siderite and pyrite;
- Clasts of gibbsite and less frequent “flint clay” (indurated kaolinite) are common in the bauxite horizon;
- The bauxite is always underlain by a white kaolinitic clay, several metres thick;
- Mudstones, with increasing lignite, siderite and iron-sulphides towards the base, frequently cap the bauxitic sequence. Unconsolidated sandstones also commonly cap the bauxite horizon;
- Below the lignites, the mudstones commonly show interspersed kaolinite and gibbsite;
- No iron capping is seen on the bauxite profile, local areas of more lateritic bauxite are observed in the profile in certain sectors particularly on the Bonasika ML;
- Water flow appears more horizontal than vertical, largely through the granular horizons;
- Gleys, organic horizons, sulphides and siderite indicate a reducing environment;
- Of the five deposits drilled all but the Bonasika 2 deposit strike SW to NE;
- The excavated walls at Bonasika 7 pit outcrops show an extensive system of fractures, probably collapse features in-filled by bauxites clasts in a clay matrix.

11.2 Principal Bauxite Lithologies

The following is a description of the different principal bauxite lithologies:

11.2.1 Granular Bauxite

The key feature of this lithology is the coarse, granular texture of the rock that is composed largely of bauxite clasts or fragments. The bauxite is friable, porous and has poor cohesion. Clay constitutes less than 10% of the rock mass. This unit comprises a vuggy, typically a cream coloured bauxite with interstices, veins and vugs that may be in-filled with clay. Amorphous gibbsite (and likely boehmite) may re-cement the mass and also partially infill the vugs. Washing reveals nodules of coarse to fine cream to pink gibbsite.

Very locally, siderite may be associated with the lower part of the granular horizon e.g. Hole WCLS069.

11.2.2 Massive Bauxite

This bauxite is a cream coloured, very compact bauxite that can be very hard to core. It is essentially micro-crystalline to amorphous gibbsite with minor boehmite. Massive with lower porosity than the above described granular bauxite and more readily recovered as continuous core sections. It contains less than 10% clay material. It lacks the honeycomb texture and pinkish colouration so typical of this unit seen in surface exposure at Bonasika.

11.2.3 Fine Bauxite

This is soft cream coloured bauxite that typically consists of very fine gibbsite grains. With the presence of water, this bauxite has a sticky feel and appearance. The gibbsite grains can become very coarse or nodular, but are always supported with a very fine cream coloured gibbsitic matrix. The fine gibbsitic matrix usually make up more than 50% of the rock mass.

The fine bauxite tends to be associated with the high grade core zone of the LWC deposit and typically occurs at the base of the bauxite profile. However, it can also be observed at the top of the high grade core zone and sometimes intercalated within it.

Both the granular, massive and fine bauxite lithologies constitute the higher grade core zone of the LWC deposit.

11.2.4 Clayey Bauxite

This is a cream to light grey coloured bauxite lithology with clay constituting less than 50% and more than 10% of the rock mass. Where the bauxite patches coalesce, the clay fraction forms the interstices and gibbsite becomes more visible. On washing the bauxite, it is found to be comprised of a high proportion of cream to pink grains or nodules of micro-crystalline gibbsite. Locally siderite-enriched pockets may be associated with this unit at the base of the bauxite profile. Local siderite may also occur locally near the contact with carbonaceous mudstone at the top of the profile and also at the base of the clayey bauxite unit, particularly on the western margins. Minor pyrite also occurs locally throughout the clayey bauxite horizon.

The clayey bauxite tends to form an envelope around a higher grade core zone of massive, granular and fine bauxite. Thus the bauxite horizon is usually capped by clayey bauxite and merges into clayey bauxite on the margins of the deposit.

11.2.5 Bauxitic Clay

A white to light grey compact clay with patches of pinkish to whitish coloured bauxite (gibbsite) supported within the matrix. The bauxite patches gradually increase downwards in the profile and may attain one cm in diameter. Bauxite makes up less than 50% of the lithology. A transition may sometimes be observed from mudstone into a bauxitic clay with increasing white patches of kaolinite (and pink gibbsite) developing downwards into the bauxite horizon.

Figure 11-1 Plates of Principal Lithologies at Bonasika 6 and 7

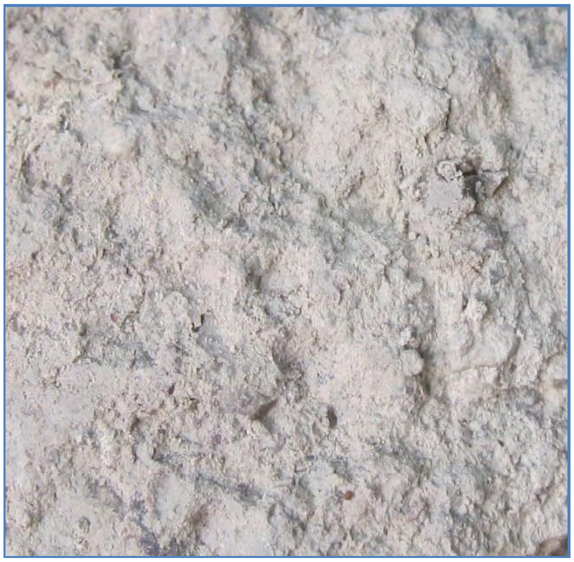


Plate 1a Massive Bauxite - WCSD056

Plate 1b Granular Bauxite - WCSD069

Plate 1c Clayey Bauxite - WCSD069

The full extent of the resources at Waratilla Cartwright is yet to be determined. However, the deposits would again appear to be smaller than those deposits currently being exploited in the Linden and Kwakwani areas of north-eastern Guyana by the Bosai Minerals Group and Rusal respectively.

As mentioned in Sections 9 and 10, the Bonasika deposits differ from the high plateau bauxites of the interior, such as those found in the Pakaraima Mountains in south-western Guyana and the Bakhuis Mountains in Western Suriname (Figure 6.1), in not having the iron cap and generally being much lower in iron, and higher in alumina throughout the profile.

11.3 Genesis

The Bonasika deposits show many similarities with the Sangaredi deposit in Guinea where the bauxite comprises a sedimentary sequence with high grade bauxites being encountered in coarse, porous clastic horizons interlayered with horizons of white gibbsitic “clays”. Both areas show the development of bauxite within a reducing environment with marked iron depletion. And, both areas show the development of lignite suggestive of sedimentary accumulation in a basin or broad, slow flowing river channel.

Sangaredi formed in a down-faulted, rift-type basin and the accumulated bauxite sediments in fact rest on an underlying in-situ bauxite high in iron. The deposit was then subsequently uplifted by faulting above the surrounding plateaus. Prior to mining, Sangaredi hosted more than 250 Mt of high grade bauxite whereas Bonasika 6 and 7 deposits host some 12 Mt of bauxite. Nevertheless, the analogy is significant in suggesting a possible the environment of deposition. The tectonic setting of the Essequibo region is poorly understood but Bleackley does describe block faulting here and even the current topography shows such evidence. Faulting or tilting likely played a key role in providing the relief necessary to promote the appropriate geomorphic and hydraulic conditions throughout a multi-phase history of bauxite development in the region. A generalised genesis is proposed as follows:

- Development of early bauxites on uplifted, incised peneplains under tropical weathering conditions;
- Erosion of the bauxite-bearing plateaus creating deposits of detrital bauxite within depressions on the plateaus, as flanking deposits of bauxitic colluvium or as dispersal fans and alluvium as channels;
- Burial of the bauxitic units by encroaching waters and deposition of shallow sediments including fine sandstones, siltstones, mudstones and local lignites;
- Minor tectonic movements resulting in block faulting with uplift, tilting and incision by renewed stream action;
- The coarser textured horizons acted as porous aquifers that locally persisted as zones of alteration, with leaching of the iron, further enrichment of the bauxites and their partial cementation, all within a reducing environment.

More work is required to confirm the genetic model for bauxite development in this region.

11.4 Mineralogy

The mineralogy of the Bonasika 7 deposit is based on macroscopic observation of drill core and a high definition mineralogy and XRD investigation carried out by SGS Lakefield on representative composite core samples.

In core samples, gibbsite is the most abundant mineral occurring as clasts, where the crystalline to microcrystalline nature of this mineral is quite evident, with a cream or pink colouration of the matrix that is indicative of gibbsite. The matrix material is quite clay-like in appearance and can frequently be mistaken for kaolinite (and vice versa); generally this very fine gibbsite has a pasty texture. The bauxite clasts also commonly display a cream coloured amorphous texture that is composed of gibbsite and minor boehmite.

Kaolinite is the second most abundant mineral observed in the bauxite profile, particularly on the lateral margins of the deposit but also in the upper and lower parts of the profile. Above the bauxite, the mudstones merge downwards into a kaolinite/gibbsite admixture that becomes progressively more gibbsite enriched both as clasts and matrix. Beneath the bauxite, kaolinite becomes the predominant mineral as white, compact basal clay. An outcrop in the south west area of the Bonasika deposit displays sub-vertical fractures, up to 50cm in width, cutting through the bauxite horizons that are in-filled with kaolinite and bauxite clasts.

Other minerals that may be observed in hand specimen are iron carbonate (siderite) and iron sulphide (pyrite). Siderite occurs as small globular nodules of an olive green colour, typically at the very base of the bauxite horizon. Pyrite occurs as fine dark patches within the bauxite matrix or as thin encrustations, often crystalline, partially coating the gibbsite clasts. The content of iron minerals at Bonasika 7 is low compared to the other Bonasika deposits, with total Fe_2O_3 being less than 1% here as compared to over 2%. Most of the iron is in the form of pyrite.

Work by SGS Lakefield by XRD analysis indicates that in addition to of major amounts of gibbsite and lesser kaolinite there is titanium dioxide in the form of anatase although this is not seen as a discrete mineral in the core. XRD analysis also indicates trace amounts of quartz, boehmite, alunite, hematite, potassium feldspar and maghemite.

The SGS work confirms that the Al hydroxide phase gibbsite $Al(OH)_3$ is the primary Al phase in all samples investigated (72.0% to 88.8%). Minor amounts of boehmite ($\gamma AlO{\cdot}OH$) are also present (0.1% to 0.7%).

Table 11-2 Summary of Semi-Quantitative XRD Analysis

Mineral	LWCLGMIN1 (wt %)	LWLCHGMIN1 (wt %)
Alunite	0.3	0.5
Anatase	2.3	2.8
Boehmite	0.1	0.7
Gibbsite	72.0	88.8
Hematite	0.5	0.4
Kaolinite	22.4	4.9
Maghemite	0.3	0.3
Microcline	1.6	0.4
Quartz	0.5	1.4
TOTAL	100.0	100.2

NB - For minerals of less than 0.5% the identification is tentative

LWCLGMIN1 refers to Lower Waratilla Cartwright (Bonasika 7), Low Grade Mineralogy Sample

LWCHGMIN1 refers to Lower Waratilla Cartwright (Bonasika 7), High Grade Mineralogy Sample

The XRD analysis does not discriminate minerals that are in an amorphous state which is the common habit of boehmite, in which case the extent of this bauxite phase may be under-estimated.

12.0 EXPLORATION WORK

12.1 Nature and Extent of Exploration Work

First Bauxite commenced exploration on the Bonasika 7 deposit in June 2010 and completed the programme of exploration in November 2010.

Table 12.1 summarises the key exploration work conducted by First Bauxite on both Waratilla Cartwright deposits for comparative purposes:

Table 12-1 Exploration Work Summary 2008-2010 – WC PL

Exploration Activity	Bonasika 7	Bonasika 6
Drilling		
Number of Holes Drilled	192	150
Total (m)	7017	6,981
Average Hole Depth (m)	36.54	46.50
Number of Cross Sections (E-W)	20	18
Mineralized Area Drilled (m)	1,600 x 1,100	1,600 x 700

Sampling	Bonasika 7	Bonasika 6
Regulars+ Controls (ACME)	2489 + 179	1,907 + 125
Density Test Samples:		
Pits	15	
Cores	3	45
Trench Channel Samples	21	
Bulk Process Samples	6	1

Table 12-1 Exploration Work Summary 2008-2010 – WC PL (cont.)

12.2 Drilling, Sampling and Analysis

Sections 13 and 14 below discuss the Drilling and Sampling and Analysis in detail.

12.3 Surveying

The collars of the sonic holes were surveyed using a Topcon Total Field Station; they are tied into a primary benchmark defined by First Bauxite using a navigational GPS. In addition, lines have been cut and surveyed at 30 m or 60 m intervals across the two WC deposits for topographic control.

The Lower Waratilla Cartwright survey work was validated in November 2010 respectively by an Independent Certified Surveyor, Mr, Trotman SLS. The results of this work are discussed in Section 16.1.

12.4 Sampling for Process Test Work

Three pits have been excavated within the bauxite to provide typical bauxite bulk samples for process test work. In addition, large diameter drilling (6 inch) has been used to collect representative samples of different lithologies across the Bonasika deposit.

Table 12.2 below lists the sources of the samples collected, their weights and destinations for process test work:

Table 12-2 Bulk Samples and Test Work Summary – Bonasika 7

Type of Test	Material class	Sample Ref.	Samples	Weight (kg)	Primary Test Facility	Date
Granulometry	Core-6"&3"	WCLS018-BS-1	2	62.7	Bonasika Site Lab/ACME	30.09.10
Wash test #1 to 4	Trench(High Grade Bx.)	LWC PT-1	4	120	Bonasika Site Lab/ACME	7- 8,10
Wash Test # 5	Trench(Low Grade Bx.)	LWC PT-2	1	193.6	Bonasika Site Lab/ACME	25.09.10
Wash Test # 6 & 7	Trench (Low Grade Bx.)	LWC PT-3	2	80	Bonasika Site Lab/ACME	06.10.10
Wash Test # 8 & 9	Trench (Avg Grade Bx.)	LWC PT-5	2	80	Bonasika Site Lab/ACME	11.11.10
Wash Test # 10	Trench (Cl Bx)	LWC PT-6B	1	40	Bonasika Site Lab/ACME	22.11.10
Wash Test # 11	Trench (Ma/Gr Bx)	LWC PT-6A	1	40	Bonasika Site Lab/ACME	23.11.10
Wash Test # 12	Trench (Typical Grade - 6% blend)	LWC PT-6A/6B	1	40	Bonasika Site Lab/ACME	13.12.10
Wash Test # 13	Trench (Typical Grade - 8% blend)	LWC PT-6A/6B	1	40	Bonasika Site Lab/ACME	15.12.10
Tycan Pressure Washing	Trench (Cl Bx)	LWC PT-6B	1	1260	Outotec, OK, USA	12.11.10
Tycan Pressure Washing	Trench (Ma/Gr Bx)	LWC PT-6A	1	1260	Outotec, OK, USA	12.11.10
Particle size analysis	Trench, crushed	LWC PT-6A,B,C	6	240	Bon Site Lab/ACME	20.11.10
Tycan Pressure Washing Test#14	Wide Dia. Core (RGB)	LWC CR-RS-1	1	521	Waratilla Site Lab	16.01.11
Tycan Pressure Washing Test#14	Wide Dia. Core (DFB)	LWC CR-RS-1	1	124	Waratilla Site Lab	16.01.10
Tycan Pressure Washing Test#14	Wide Dia. Core (DFB 3%)	LWC CR-RS-1	1	677	Waratilla Site Lab	16.01.10
Wash Test # 15	Wide Dia. Core WCLS170 (Cl Bx)	LWC CR-CLBx	1	80	Waratilla Site Lab	7.02.10
Wash Test # 16	Wide Dia. Core PW-11-01 (Cl Bx)	LWC CR-CLBx	1	80	Waratilla Site Lab	12.02.10

The 6in diameter drilling was done in the vicinity of previously drilled regular 3in holes for which lithological logs and assays were available as a basis of selecting a composite representative sample. The grades of the major oxides displayed excellent continuity, except for silica. The population distributions for silica are similar although the means are 7.79% (3in) versus 6.51% (6in). The distances between twin-holes are not negligible (5 m on average) and, given the lateral variability of silica, such a mean grade difference is not surprising.

12.5 In Situ Density Tests

Three pits have provided fifteen sites for the measuring of in situ bulk densities at Bonasika 7. Small pits of 30 cm x 30 cm x 30 cm have been carefully excavated on the deposit with the volume being measured by the amount of water required to fill the pit and the excavated material has been dried completely and weighed. This exercise was conducted on various lithologies in various locations. Figure 12.1 shows a typical pit excavated for in situ bulk density measurement.

Figure 12-1 In-Situ Density

Table 12.3 provides the in situ dry densities and moisture contents of various Bonasika 7 bauxite lithologies.

Table 12-3 Bonasika 7 In situ Bulk Densities by Lithology

Location	Sample ID	Lithology	Wet Weight (g)	Dry Weight (g)	Pit Volume of Water (ml)	Moisture Content %	Dry Density (g/cm3)
Pit 1 (WCLS013)	P1-62	Massive	55139	48689	29500	11.70	1.65
Pit 1 (WCLS013)	P1-63	Massive	51292	44569	29000	13.11	1.54
Pit 1 (WCLS013)	P1-66	Massive	54618	46581	29000	14.71	1.61
Pit 1 (WCLS013)	P1-67	Massive	52438	46164	26500	11.96	1.74
Pit 1 (WCLS013)	P1-68	Massive	54984	48554	28000	11.69	1.73
Pit 2 (WCLS014)	P1-75	Massive	53411	47092	28500	11.83	1.65
Pit 2 (WCLS014)	P1-76	Massive	52190	44967	28000	13.84	1.61
Average						**12.69**	**1.65**
Pit 2 (WCLS014)	P2-70	Granular	48837	43190	28500	11.56	1.52
Pit 2 (WCLS014)	P1-73	Fine Granular	50793	42363	28000	16.60	1.51
Pit 2 (WCLS014)	P1-74	Fine Granular	49432	41924	28500	15.19	1.47
Average						**14.45**	**1.50**
Pit 2 (WCLS014)	P2-69	Clayey	49700	41900	29500	15.69	1.42
Pit 1 (WCLS013)	P1-61	Clayey	48625	41065	26500	15.55	1.55
Pit 1 (WCLS013)	P1-65	Clayey	52979	42813	28000	19.19	1.53
Pit 2 (WCLS014)	P1-71	Clayey	50685	41876	28500	17.38	1.47
Average						**16.95**	**1.49**

Calculated pit volume based on a 30 cm excavated cube is 27000cm^3.

12.6 Interpretation

The drilling, sampling and analytical work has allowed for the delineation of the bauxite horizon at Bonasika 7. The almost complete recovery of the core within this horizon has allowed for the constituent lithologies to be clearly identified and sampled and the chemical nature of each to be established.

The bauxite horizons are close to horizontal and have been drilled to their extremities in most sectors unless topography or increasing depth has made continued exploration un-merited. While the general lithologies may be linked from hole to hole, frequent clay layers display less continuity.

At Bonasika 7 the exposed outcrop shows vertical fissures in-filled with white clay and bauxite clasts cutting the bauxite horizon. Such zones may account, in part, for the clay layers encountered in drilling.

Following drilling, sampling and chemical analysis of 192 holes, a series of E-W and N-S geological and chemical sections have been developed across the Bonasika 7 deposit that clearly demonstrate the nature and extent of mineralization. In addition to the sections, modelling of the resource has been carried for each deposit, with the interpolated grades and thicknesses, as a basis to mine planning studies. Drilling on various grid sizes has allowed for the variography of the mineralization to be broadly established as a basis to interpolation and to resource categorisation.

12.7 Execution of the Exploration Work and Reliability

The drilling, logging, sampling and surveying has been carried out by GINMIN, a wholly owned subsidiary of First Bauxite Corporation. Two (2) site geologists of GINMIN, Neville Clementson M.Sc. and Guillaume Girouard M.Sc., have carried out this work and provided constant close field supervision.

Exploration activities have been monitored by Bryan S. Osborne, P. Geo, Qualified Person throughout the duration of the program since June 2010. Based on the witnessing of the drilling and sample collection, coupled with the available QA/QC data developed during the conducting of the program, it is considered that the exploration data, sampling and analysis provides a sound basis to resource estimation.

Various procedures have been implemented to verify the reliability of the exploration work conducted as presented and discussed in Section 14 Data Verification.

13.0 DRILLING

Sonic drilling has been employed to sample the Bonasika bauxite deposits (Figure 13.1). The method provides the rotation and vibration forces necessary to core the overburden and bauxite profile without the use of water or additives coming into contact with the core. High frequency resonant vibrations are sent down the drill string and the operator can control the frequencies according to the specific rock conditions to maximise recovery. The recoveries are very close to 100% and the core is largely undisturbed which is normally difficult to achieve by conventional drilling of bauxite deposits. All boreholes are vertical since the bauxite horizon is close to horizontal.

A total of 192 sonic drilling holes have been drilled by First Bauxite on the Bonasika 7 deposit. The drilling has been conducted on east – west lines spaced 60m apart. The holes are spaced 120m apart on these lines but the actual collars are displaced 60m on alternating lines such that a diagonal pattern of holes is achieved with average drill spacing between holes of 85m.

For the Bonasika 7, drilling started in June 2010 with First Bauxite is using a crawler-mounted SDC550-18 sonic drill machine (250 HP at 1,850 rpm) as shown in Figure 13.1.

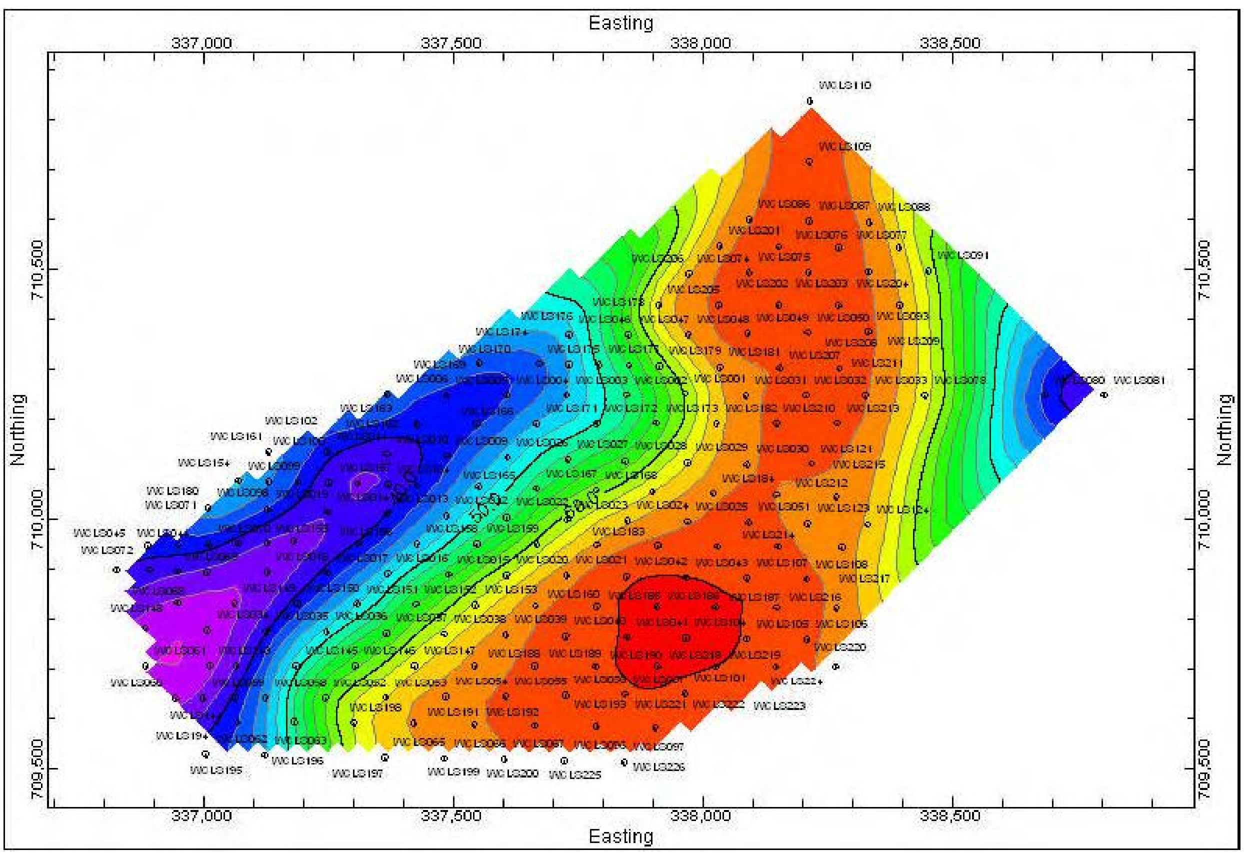
The rig is equipped with an automatic rod-handling system and a First Bauxite customised core extruder. The standard diameter of the core is 7.62 cm.

All cores were photographed on delivery to the core laboratory and the recoveries recorded prior to logging and splitting for sampling.

Figure 13-1 Sonic Drill SD550-18

Figure 13 2 shows the drill grid and surface topography of the deposit area.

Figure 13-2 Bonasika 7 – Topography and Drill Collar Locations



13.1 Drilling Procedures

Procedures call for drilling the overburden sequence with the sonic bit attached to the casing (14 cm OD) and water flushing cuttings from the hole to within a meter or two (2) above the bauxite horizon. Sonic coring is done with a hardened bit that is bevelled outwards to minimise compaction of the sample within the core barrel. After each run of two (2) or three (3) m, the casing is advanced behind the drill stem.

On completion of the run, the core barrel and rod assembly is retracted from the hole in standard three (3) m segments, or a convenient combination. Core is extracted using a hydraulic ram onto a PVC pipe, or by sonic vibration of drill stem and capture of the continuous core within a plastic cylinder.

Core samples with run depth markers are placed in the core box by a field technician. On completion of the hole, the core boxes are covered and transported to the core shed where they are immediately photographed and the recoveries recorded before any disturbance of the core by logging or sampling.

Geotechnical holes are drilled to establish the overburden stratigraphy as well as allowing for investigating the physical properties of the various lithologies by different mechanical tests.

13.2 Core Splitting and Logging Procedures

To allow for proper observation of the lithologies and textures the core is split into two (2) equal halves and one (1) half is transferred to a split PVC tube where it is examined and then subdivided by lithology for sampling. The other half is retained in the core box for reference. Generally, the splitting is achieved with a hammer and chisel although hard sections may require a blade saw.

A standard drill record or log form has been prepared specifically for the Project and calls for the coding of lithology, bauxite type, colour, hardness and texture. The codes for the lithologies and bauxite types are provided in Section 11 Mineralization, Table 11.1.

13.3 Core and Sample Archiving

All split cores are archived in extensive core sheds at the project site. In certain cases, this material has been used to prepare composite samples for process test work.

Samples from the Acme sample preparation laboratory are also retrieved from Georgetown and stored at the project site.

14.0 SAMPLING METHOD AND APPROACH

14.1 Approach

The resource estimation at Bonasika 7 is based entirely on core sampling on a drill grid of 85m x 85m. The cores were drilled by sonic drilling methods that preclude the washing of the bauxite by water which can lead to loss of silica using conventional coring techniques. Wide diameter core (7.62 cm) also assists in achieving improved recoveries. Generally, recoveries were 100% in the bauxite horizon but if poor recoveries or contamination was noted the holes would be re-drilled.

Vertical holes were chosen given the essentially horizontal nature of the bauxite horizon and there is no requirement to adjust the resource calculations for the dip of the deposit.

The sampling was focused on defined bauxite lithological units but a capping interval and basal interval of non-bauxitic material were also sampled to close off the mineralized zone with a chemical analysis.

The sonic drill technique has the disadvantage of shattering the bauxite where it is loosely cemented and of compacting the core where the clay content is elevated; there is also some smearing of the very clayey bauxite and fine gibbsite horizons where the moisture levels are elevated. These effects are of a very local nature and are not expected to impact significantly on the width of the intercepts logged nor on the resource estimation.

The compaction effect requires that density measurements be taken by the excavation of measured volumes of pit material rather than by using core as the latter material yields biased and elevated in situ density results.

Core logging and sampling were carried out at the Bonasika project site under the direct supervision of experienced FBX bauxite geologists, periodically carried out in conjunction with the Qualified Person.

14.2 Core Selection and Collection Procedures

After photographing the core, it was split with a steel blade and the full bauxite profile placed in a PVC tray for logging and the selection of samples destined for chemical analysis. Such selection was based on lithological boundaries but with a target interval of 50 cm. To capture a particular unit however, a sample interval could vary between 20 cm and 80 cm thick.

Working down the hole sample by sample, each is placed in plastic bag and firmly stapled with a sample tag (1) also stapled on the inside of the bag. The Hole No., Interval, Date and name of the person responsible for logging and splitting was recorded on the stub (2) in the sample tag book retained by First Bauxite. A sample tag (3) was also stapled on the inside of the core box at the end of the sample showing the interval taken.

Field duplicates are collected to monitor the reproducibility of the sampling procedures. The duplicates are obtained by taking half of the split core and inserting them at approximately every

40th interval in the sample stream. Reference samples and pulp samples were also inserted at similar intervals to control sample preparation and laboratory reproducibility. These results are discussed in Section 16 – Data Validation.

14.3 Sample Summaries

A summary of frequency of the lithologies and their grades and the descriptive statistics of the main geological units are provided under Section 19 – Mineral Resource Modelling and Estimation (Tables 19.2 and 19.3 respectively). A summary of the sample length statistics is provided in Table 19.4.

15.0 SAMPLE PREPARATION, ANALYSIS AND SECURITY

Sample preparation is carried out by ACME Analytical Laboratories Ltd. that has good ISO certified facilities for such work in Georgetown as well as offering rapid expediting services to Vancouver. The sample preparation laboratory was inspected by the Bryan S. Osborne on July 9th, 2008 and found to offer the range of services required by the company. The principal analytical laboratory is the ACME Analytical Laboratories (Vancouver) Ltd., which offers the XRF and LOI analysis as required by First Bauxite.

15.1 Sample Preparation

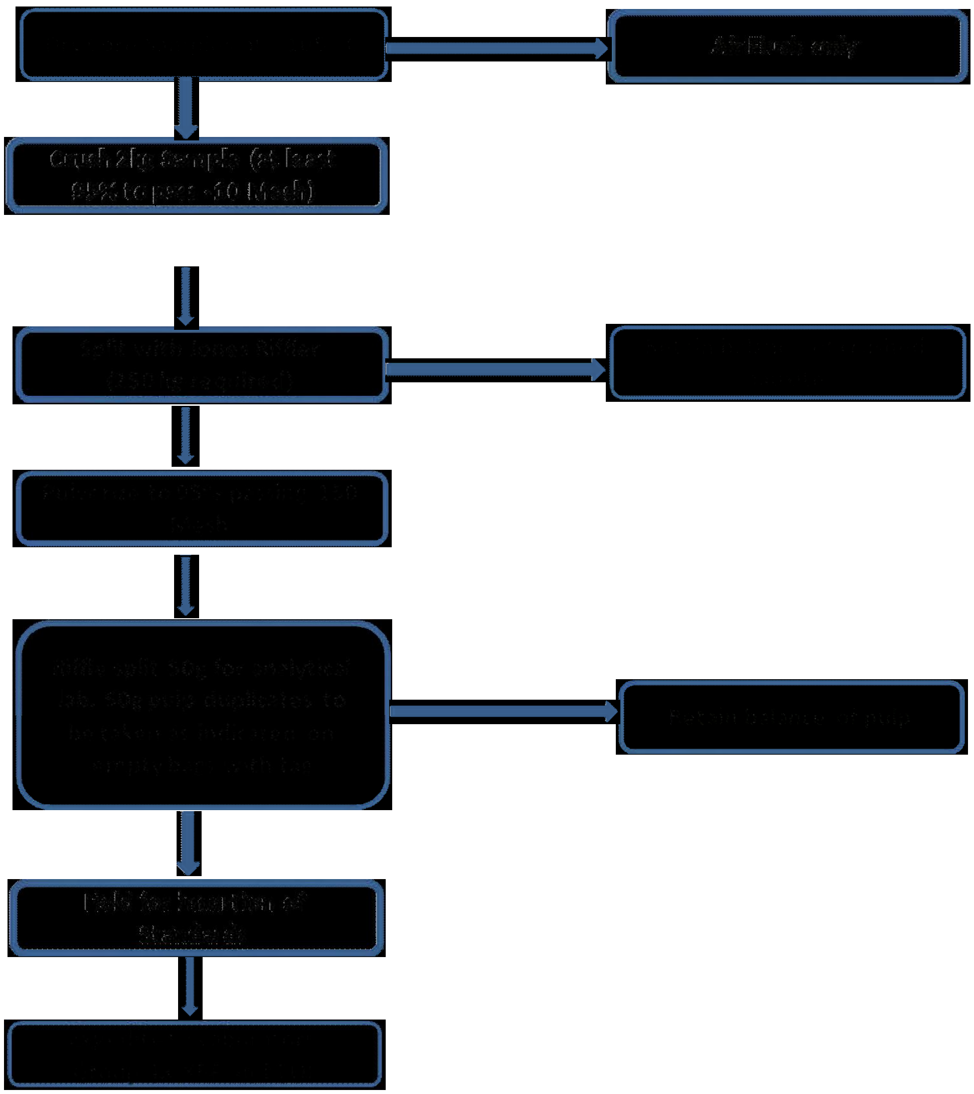
The scheme for sample preparation is shown below as Figure 15.1

A 50 cm split core weighs almost 2 kg on a wet basis. The sample is dried at 105°C and then crushed in its entirety to – 10 Mesh, a 250 g split sample is then pulverised to 95% passing 150 Mesh (ACME Code R150). Fifty grams (50g) splits are bagged for shipment.

The Bonasika Reference Material and Pulp Duplicates are inserted into the sample stream at the Acme sample preparation laboratory in Georgetown.

ACME handles the expediting of the pulped samples through the Guyanese authorities to their laboratory in Vancouver. The rejects of both the crushed core (approximately 1.5 kg) and pulps (approximately 200 g) are initially retained at the ACME laboratory in Georgetown and ultimately archived at the Bonasika site.

Figure 15-1 Scheme for Sample Preparation of Cores by ACME Laboratories, Georgetown



15.2 Sample Analysis

All systematic resource samples from the five explored Bonasika deposits have been analysed at the ACME Laboratory in Vancouver, B.C. In 1996, ACME became the first commercial geochemical analysis and assaying lab in North America to be accredited under ISO 9001; the laboratory has maintained its registration in good standing since.

XRF analytical techniques are considered the most reliable for determining bauxite major oxides. Specific instructions were provided by Aluminpro to ACME with regard to the procedures required to achieve accurate and precise results. A series of Bonasika 7 samples were also tested for a wider range of chemistry by ICP MS methods at ACME. This work was intended to identify potential deleterious constituents.

XRF analysis has also been conducted on composite samples at SGS providing a third party verification of the XRF results from Acme.

X-Ray Diffraction (XRD) analysis was used to determine the mineralogical composition of the bauxites at SGS in Lakefield, Ontario.

15.3 Analytical Procedure

15.3.1 Loss on Ignition

LOI has been determined by thermo-gravimetric methods. Six (6) to seven (7) grams of 150 – 200 mesh sample pulp is weighed into a ceramic cup and roasted at 105 ºC for two (2) hours and then cooled in a desiccator. All ceramic cups are pre-roasted at 1,050 ºC for a few hours. The samples are then weighted and put into a muffle furnace at 600 ºC and the furnace temperature is turned up to 1,050 ºC stepwise. After two (2) hours roasting at 1,050 ºC, samples are cooled down in desiccators and weighed. Water moisture and LOI are calculated.

15.3.2 XRF Analysis

Three (3) grams of the roasted sample is fused at 1,100 ºC in a platinum-gold crucible with nine (9) grams of Sigma Norrish Formula X-ray Flux (47% Lithium Tetraborate, 36.7% Lithium Carbonate and 16.3% Lanthanum Oxide). The molten material is cast into a preheated platinum mould assembly to cool, producing a stable, transparent, homogeneous and crack-free disk. All flux is pre-roasted at 400 ºC and kept in desiccators.

The fusion disks are analysed using a Siemens SRS-3000 sequential X-Ray Spectrometer with a rhodium tube for 11 elements which include CaO, K_2O, P_2O_5, SiO_2, Al_2O_3, MgO, Na_2O, Fe_2O_3, TiO_2, MnO and Ba. The counting time for silica was extended to 60 seconds (at the expense of K_2O and Na_2O) to improve the precision for this oxide. All elements analysed are corrected for absorption effect, enhancement effect, line overlap, background correction and LOI. The calibration curves for whole rock analysis are setup using 15 synthetic and commercial standards which include two (2) bauxite standards with certified analytical data.

In terms of internal laboratory quality control, every batch of 20 fusion disks includes one (1) in-house or commercial standard and one (1) repeat sample. Every ten (10) samples analysed include one of two (2) commercial standards. The lower limit of detection (or two (2) times standard deviation) for whole rock analysis is 0.01% except for SiO_2 which is 0.1%.

15.3.3 Quality Control for Sample Collection, Preparation and Analysis

Field duplicates are collected randomly by taking both halves of the core and bagging them with separate tags. The numbers for those samples taken in duplicate are pre-marked in the sample tag book. Both tags (3) are stapled on the inside of the core box at the end of the two (2) halves sampled.

Random dummy samples are also inserted into the sample streams that are subsequently replaced by reference material after crushing and grinding. For this purpose, a supply of bauxitic material is provided for insertion into the sample stream as clearly pre-marked in the sample tag book. The above control samples are introduced at intervals of approximately 40 samples; they remain blind, or unknown to the analytical laboratory.

During the sampling process, periodic slots are allocated for pulp samples to be taken at the sample preparation laboratory. An empty sample bag with the allocated number is inserted into the sample stream for reception of the pulp duplicate. These pulp duplicates are likewise inserted at random intervals of approximately 40.

At the ACME analytical laboratory, two (2) internationally certified bauxite reference samples (SRM 600 and SRM 698) were inserted to assure instrumental fidelity at approximately every 10th to 20th sample interval. The laboratory also did a random repeat analysis at every 20th sample interval.

15.3.4 Sample Custody, Dispatch and Archiving

Neville Clementson, FBX Site Geologist has been responsible for sample custody at site since 2008. Samples, once bagged are stored in a locked, secure place on site prior to shipment to the ACME Laboratory in Georgetown, approximately every week. Sulay Mendoza, FBX Geological Technician, has been responsible for sample custody between the site and ACME Laboratories in Georgetown since 2008.

Throughout the sample handling from collection at site to the analytical laboratory, there is considered to be an adequate protection for the safe and un-tampered delivery of the samples for analysis.

16.0 DATA VALIDATION

16.1 Survey Validation

Surveying of the drill collars and topography was carried out by the First Bauxite surveyor. In November 2010, an independent audit of the survey work was carried by Joel L. Trotman, a Sworn Land Surveyor following completion of the resource drilling at Bonasika 7.

A validation was carried out in parts; firstly to examine the data submitted by the First Bauxite surveyor and, secondly to re-survey selected drill collars and compare the results against the previously submitted data. Differences between the surveyed coordinates and elevations are shown as Table 16.1:

Table 16-1 Descriptive Statistics of Survey Differences

Statistic	Delta N	Delta E	Delta El.
No. of observations	64	64	64
Minimum	-3.134	-0.024	0.002
Maximum	2.488	3.272	0.411
Median	-0.167	0.771	0.059
Mean	**-0.341**	**0.941**	**0.089**
Variance (n-1)	1.036	0.359	0.008
Standard deviation (n-1)	1.018	0.599	0.091
Variation coefficient	-2.959	0.632	1.013
Skewness (Pearson)	-0.421	1.698	1.750
Kurtosis (Pearson)	1.624	3.141	2.683
Standard error of the mean	0.127	0.075	0.011

ARD and MPD statistics (as described below in Section 16.2) were applied to verify that the above survey deviations were within acceptance thresholds considering the size of the exploration grid (85m), as shown as follows:

ARD < 5%	MPD
100.00%	0.20%
100.00%	0.55%
100.00%	0.00%

16.2 Analytical Data Validation

Statistical controls of check samples/assays submitted hereafter include:

Standard descriptive statistics

Mean Percentage Difference (MPD) = 1/n Σ(100.(x1-x2)/(x1+x2)).

Absolute Relative Difference (ARD) = 2 *|(X1-X2)|/(X1+X2).

Statistical Process Control (SPC) charts for reference material.

Mean Percentage Difference (MPD):

MPD is a comparison of one population of paired values against another. For excellent comparison, MPD values should tend to zero. The algebraic sign is taken into account when calculating the MPD, making it a measure of bias between the pairs of results.

A negative MPD means that there is an overall tendency for the second result to be larger than the first (x1 – x2) < 0.

A positive MPD means that there is an overall tendency for the second result to be smaller than the first (x1 – x2) > 0.

In each case, x1 is the original sample and x2 is the duplicate.

Absolute Relative Difference (ARD):

ARD is the absolute grade difference between a pair of samples relative to the mean grade for that pair. ARD results for sample pairs can be plotted against their relative ranking to assess data performance against threshold criteria. The threshold criteria used are as follows:

90% of field duplicate pairs should have an ARD < 15%.

90% of pulp duplicate pairs or pulp re-assay pairs should have an ARD of <5%

Additional Controls and Criteria

Assays accuracy should be ± 5% of a certified value within the 95% confidence interval.

Four sets of control samples were inserted into the analytical sample stream:

- Certified Reference Samples;
- Standard Reference Samples;
- Pulp Duplicates;
- Field Duplicates

16.2.1 Certified Reference Material

Certified reference material from the US National Institute of Standards and Technology (SRM 600 and 698) was inserted in the sample flow by the Acme laboratory to determine the accuracy of assay results and verify the absence of bias and deviations of instrumental calibration over time. Table 16.2 provides the estimates of laboratory accuracy:

Table 16-2 Estimates of Laboratory Accuracy Using NIST SRM 600 and 698

NIST SRM 600	Unit	SiO_2	TiO_2	Al_2O_3	Fe_2O_3	LOI
Grade SRM 600	%	20.30	1.31	40.00	17.00	20.50
Est. Std. Dev SRM 600 *		0.40	0.04	0.40	0.30	0.20
Mean Assay	%	20.25	1.27	40.07	17.28	20.50
Std. Deviation Assay (n-1)		0.08	0.01	0.09	0.07	0.00
Accuracy Assay Abs. **	%	0.16	0.01	0.18	0.14	0.00
Accuracy Assay Rel.	%	0.8%	0.9%	0.5%	0.8%	0.0%
Assay within ± 2 σ	%	100.0%	100.0%	100.0%	100.0%	100.0%
Assay within ± 3 σ	%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 16-2 (cont.) Estimates of Laboratory Accuracy Using NIST SRM 600 and 698

NIST SRM 698	Unit	SiO_2	TiO_2	Al_2O_3	Fe_2O_3	LOI
Grade SRM 698	%	0.69	2.38	48.20	19.60	27.30
Est. Std. Dev SRM 698 *		0.03	0.07	0.40	0.20	0.20
Mean Assay	%	0.72	2.37	48.08	19.59	27.22
Std. Deviation Assay (n-1)		0.05	0.01	0.19	0.08	0.15
Accuracy Assay Abs. **	%	0.10	0.03	0.38	0.15	0.30
Accuracy Assay Rel.	%	14.3%	1.2%	0.8%	0.8%	1.1%
Assay within ± 2 σ	%	75.2%	100.0%	100.0%	100.0%	93.6%
Assay within ± 3 σ	%	80.3%	100.0%	100.0%	100.0%	99.4%

(*) NIST's estimated uncertainty of assay results. (**) Absolute value within the 95% confidence interval

Assay results are all within acceptable threshold limits, except for the silica of SRM 698: accuracy should be ±5% of certified value (it is 14%) and 95% assay results returned should be within ± 2 σ (it is 75%) and 99% ± 3 σ (it is 80%). These sub-optimal results are probably due to the very low silica content of the reference material. Such low silica values are generally not representative of bauxite in Bonasika 7 and therefore sub-optimal assay accuracy in this value range is not considered critical. Statistical Production Control (SPC) charts demonstrate no significant bias and/or deviations of calibration over the duration of the exploration campaign. Figure 16.1 is an example of a SPC chart for alumina analyses of Standard Reference Material.

16.2.2 Bonasika Standard Reference Material

Standard Reference Material was inserted in the sample flow to determine the precision of assay results and verify the consistency of instrumental calibration over time. For this purpose a reference sample made up from well homogenised Bonasika bauxite.

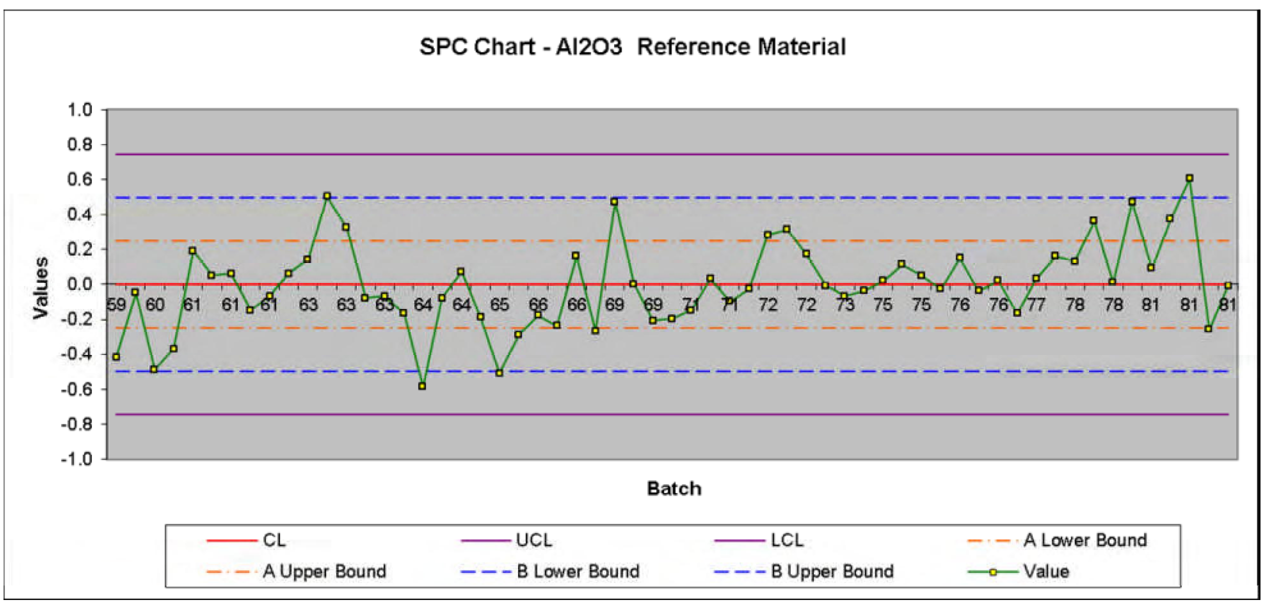
Table 16-3 Estimates of Laboratory Precision Using Standard Reference Material

REFERENCE MATERIAL	Unit	SiO_2	TiO_2	Al_2O_3	Fe_2O_3	LOI
Mean Grade	%	7.36	2.23	58.31	0.91	30.34
Std. Dev		0.10	0.03	0.25	0.01	0.20
Precision Assay Abs. *	%	0.20	0.05	0.49	0.02	0.40
Precision Assay Rel.	%	2.7%	2.4%	0.8%	2.8%	1.3%
Assay within ± 2 σ	%	93.2%	94.9%	93.2%	93.2%	93.2%
Assay within ± 3 σ	%	98.3%	98.3%	100.0%	98.3%	98.3%

(*) Absolute value within the 95% confidence interval

In the case of SiO_2 and Al_2O_3, the precision obtained is wider than the accuracy estimates derived from certified material. However, the absence of statistically significant bias and/or shift of instrumental calibration is confirmed by SPC charts. Higher assay variation returned for standard reference material generally results from sub-optimal homogenization.

Figure 16-1 Statistical Process Control (SPC) Chart: Standard Reference Material – Al_20_3



16.2.3 Pulp Sample Duplicates

Pulp samples were taken to monitor the reproducibility of the sample preparation procedures. The samples were taken at the sample preparation laboratory at random intervals specified by First Bauxite, averaging an insertion at approximately every 40th interval.

The analysis of the paired data shows a satisfactory compliance with ARD criteria (90% of duplicate pairs should have ARD values of <5%) and regular MPD distributions around mean values nearing 0%, as demonstrated by the following table. Pulp duplicates show narrow and un-biased grade variations:

Assay	ARD < 5%	MPD
SiO_2	87.93%	0.01%
TiO_2	98.28%	0.07%
Al_2O_3	100.00%	0.02%
Fe_2O_3	89.66%	0.07%
LOI	100.00%	0.00%

Descriptive statistics shown below confirm that grades of pulp sample duplicates have consistent grades, with similar population distributions and similar means.

Table 16-4 Descriptive Statistics of Pulp Duplicate samples

Descriptive Statistic	SiO_2	TiO_2	$Al2O_3$	Fe_2O_3	LOI	SiO_2d	TiO_2d	Al_2O_3d	Fe_2O_3d	LOId
No. of observations	58	58	58	58	58	58	58	58	58	58
Minimum	0.85	1.65	39.91	0.29	16.90	1.03	1.66	39.74	0.28	16.90
Maximum	38.70	3.57	62.97	6.31	32.79	38.85	3.56	63.18	6.17	32.77
Median	7.82	2.28	57.17	0.70	29.84	7.83	2.29	57.34	0.71	29.95
Mean	**9.69**	**2.37**	**57.04**	**0.90**	**28.95**	**9.68**	**2.37**	**57.07**	**0.90**	**28.96**
Variance (n-1)	57.57	0.13	19.09	0.68	9.94	57.89	0.13	19.14	0.65	9.97
Standard deviation (n-1)	7.59	0.36	4.37	0.82	3.15	7.61	0.36	4.38	0.81	3.16
Variation coefficient	0.78	0.15	0.08	0.91	0.11	0.78	0.15	0.08	0.89	0.11
Skewness (Pearson)	1.25	0.67	-1.24	5.09	-1.23	1.26	0.65	-1.26	5.01	-1.23
Kurtosis (Pearson)	2.06	1.27	2.41	30.49	2.08	2.08	1.15	2.58	29.86	2.07
Standard error of the mean	1.00	0.05	0.57	0.11	0.41	1.00	0.05	0.57	0.11	0.41

Suffix 'd' stands for duplicate

16.2.4 Field Duplicates (Half Cores)

The field duplicates were collected to monitor the reproducibility of the sample collection procedures. The duplicates were obtained by taking half of the split core and inserting them at approximately every 40th interval in the sample stream.

Except for SiO_2, the analysis of the paired data shows a good compliance with ARD criteria (90% of duplicate pairs should have ARD values of <15%) and regular MPD distributions around mean values nearing 0%, as demonstrated by the table and box plot overleaf. In general, the field duplicates show narrow and un-biased grade variations.

Assay	ARD < 15%	MPD
SiO_2	80.33%	-0.99%
TiO_2	100.00%	-0.07%
Al_2O_3	100.00%	0.05%
Fe_2O_3	90.16%	-0.15%
LOI	100.00%	0.14%

Half core samples generally show substantial grade differences due to the absence of sample homogenization and natural short scale variations. The above MPD scattering of paired data is generally low and indicates a remarkable homogeneity of core samples, but for SiO_2.

Descriptive statistics (shown overleaf) confirm that field duplicates have consistent grades, with similar population distributions and similar means.

Table 16-5 Descriptive Statistics of Field Duplicate Samples (Half Cores)

Descriptive Statistics	SiO_2	TiO_2	Al_2O_3	Fe_2O_3	LOI	SiO_2d	TiO_2d	Al_2O_3d	Fe_2O_3d	LOId
No. of observations	61	61	61	61	61	61	61	61	61	61
Minimum	1.07	1.45	46.64	0.33	21.34	0.90	1.44	47.08	0.36	21.68
Maximum	28.60	3.79	64.37	1.91	32.69	27.70	3.83	64.58	3.14	32.74
Median	7.30	2.25	58.16	0.78	29.89	7.64	2.27	58.31	0.74	29.88
Mean	**8.32**	**2.38**	**57.97**	**0.83**	**29.45**	**8.15**	**2.38**	**58.02**	**0.84**	**29.52**
Variance (n-1)	36.18	0.25	12.37	0.13	6.16	33.49	0.25	11.97	0.23	5.58
Standard deviation (n-1)	6.01	0.50	3.52	0.36	2.48	5.79	0.50	3.46	0.48	2.36
Variation coefficient	0.72	0.21	0.06	0.44	0.08	0.70	0.21	0.06	0.56	0.08
Skewness (Pearson)	1.05	0.96	-0.81	1.12	-1.14	0.98	0.96	-0.70	2.70	-1.04
Kurtosis (Pearson)	0.94	0.83	0.65	0.91	0.82	0.88	0.79	0.52	9.22	0.77
Standard error of the mean	0.77	0.06	0.45	0.05	0.32	0.74	0.06	0.44	0.06	0.30

Suffix 'd' stands for duplicate

16.3 Conclusions on the Sampling and Analytical Programme

The QA/QC program indicates a good performance by the Acme Analytical Laboratories (Vancouver) Ltd in achieving reproducibility of precise and accurate results as indicated by the results of the reference samples, the certified samples and also laboratory repeats.

The pulp duplicates also demonstrate acceptable results in terms of sample preparation at the Georgetown laboratory.

The results of the field sample duplicates indicate that good reproducibility is more difficult to achieve, particularly as regards the silica. Silica is always a problem in sampling bauxite deposits due to its highly variable distribution or "nugget effect". Only very large samples can fully overcome this sampling problem; although even twin holes tend to give disparate values. The comparative results for the field duplicates is however, considered acceptable for the purpose of resource estimation. The interpolation by kriging also helps to smooth out variability in the resource model.

16.4 Validation of Composite Samples

For process test purpose, numerous composites from half-core samples have been prepared to meet target grades based on ACME XRF and LOI analyses of the constituent intervals. These composites have then been sampled and head grades analysed either at Acme or other laboratories for a range of test work. The most recent Bonasika 7 comparisons are shown below in Table 16.6.

Table 16-6 Bonasika 7 Predicted versus Composite Head Grades (Acme vs SGS

		SiO_2%	TiO_2%	Al_2O_3%	Fe_2O_3%	LOI%	Totox%
1	Predicted*	6.64	2.26	60.03	0.99	29.58	99.51
	Acme analysis	5.92	2.26	60.44	0.96	29.50	99.08
	SGS analysis	5.56	2.14	59.60	0.96	30.30	98.56
2	Predicted (High Grade)*	3.00	2.72	61.47	0.61	31.35	99.15
	SGS analysis	3.95	2.65	59.60	0.57	33.50	100.27
3	Predicted (Low Grade)*	13.25	2.33	54.98	0.90	27.64	99.10
	SGS analysis	12.00	2.29	56.00	0.75	29.00	100.04
4	RGB Predicted*	11.01	2.37	55.79	0.81	28.51	98.49
	Acme analysis	10.48	2.41	56.56	0.82	28.78	99.05
5	DFB Predicted*	4.03	2.65	59.77	0.69	31.26	98.33
	Acme analysis	3.72	2.65	60.82	0.75	31.35	99.29
6	DFB (3%) Predicted*	3.05	2.77	60.27	0.68	31.62	98.39
	Acme analysis	3.03	2.58	61.18	0.73	31.73	99.25

** Predicted refers to the grades of a composite sample prepared on the basis of many Acme core assays*

The above table indicates that based on the sampling of one set of half cores analysed at Acme, reasonable predictions can be made of the head grades of the composites, made up of the corresponding half cores, and tested at either Acme or SGS. As always, silica is the major oxide which is least predictable.

17.0 ADJACENT PROPERTIES

The area surrounding the Waratilla Cartwright Prospecting Licence is adjoined on the east, west and south by a Permit for Geological and Geophysical Survey covering 609,344.7 ha referred to as the Essequibo-Demerara PGGS that is also held by First Bauxite. This very extensive PGGS, granted in August 2007, is currently under option to Rio Tinto Alcan and exploration is on-going on plateaus between the Essequibo River and Demerara Rivers. No mining operations or deposits with known resources occur in the area of the PGGS.

The Bonasika Mining Licence adjoins the full northern boundary of the WCPL and the unwashed mineral resources were reported by First Bauxite Corporation in a Feasibility Study issued by the Company in August 2010 as follows:

Table 17-1 Resource Table August 2010

Resources	Tonnage Kt	Al_2O_3 %	LOI %	SiO_2 %	TiO_2 %	Fe_2O_3 %
Bonasika 1						
Measured	1,443	55.80	28.40	11.50	1.90	2.00
Indicated	90	53.90	27.60	13.70	1.90	2.50
Sub-Total	1,533	55.69	28.35	11.70	1.90	2.03
Bonasika 2						
Measured	342	54.73	27.56	13.55	1.93	1.69
Indicated	90	54.86	27.55	13.42	1.79	1.85
Sub-Total	432	54.75	27.56	13.52	1.90	1.73
Bonasika 5						
Indicated	645	55.06	27.86	12.75	1.76	1.98

18.0 MINERAL PROCESSING

The Mineral Resources stated in this report are on an unwashed or un-beneficiated basis. While a portion of the deposit may be considered Direct Feed Fauxite (DFB) for a sintering plant, a significant tonnage of Refractory Grade Bauxite (RGB) requires an appropriate process to beneficiate this bauxite to provide an acceptable feed for the sintering plant and to maximise the use of the resource. FBX is pursuing on-going studies to confirm the process and parameters required to achieve acceptable grades and recoveries from RGB. This work is not within the Scope of Work mandated to Aluminpro.

The Mineral Resources stated do not consider other possible end uses for the bauxite such as for propants or cement products.

19.0 MINERAL RESOURCE MODELLING AND ESTIMATION

19.1 Definition

A bauxite mineral resource is a concentration of alumina-enriched material of intrinsic economic interest, close to the surface, in such form and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a mineral resource are known, estimated or interpreted from specific geological evidence and knowledge.

19.2 Resource Modelling

Modelling was conducted by Dominique Butty M. Sc. EuroGeol with inputs from Bryan S. Osborne P. Geo., acting as Qualified Person throughout the duration of the exploration and analytical programme.

Techbase version 2.9, from Techbase Int. Ltd, CO, USA, was used for variography and resource modelling. The Bonasika 7 bauxite deposit was modelled in 3D by Ordinary Kriging ("**OK**") using vertical drilling data obtained by sonic coring.

19.3 Database

The database used for modelling consists of the following information:

- The collar coordinate database identifying the UTM coordinates of each sonic drill hole collar, elevation, inclination, azimuth and end of hole ("**EOH**") depth below surface elevation;
- The lithology database identifying the intercepts and lithology code for each hole;
- The assay database with Al_2O_3, SiO_2, Fe_2O_3, TiO_2 and LOI of bauxite and off-grade material above and below bauxite. Sample lengths range from 0.2m to 0.8m although generally a 0.5m interval was targeted;
- In situ density measurements of the main bauxite facies.

A total of 192 vertical holes are encompassed within the Bonasika 7 database (Figure 13.2). The holes are spaced on lines 120m apart however, holes are displaced by 60m on alternating lines and the resulting diagonal drill hole pattern is such that the holes are effectively 85m apart. Samples were collected by lithology at reasonably constant intervals and did not necessitate regularisation to a standard length prior to modelling. Samples were assayed for LOI by thermo-gravimetry and for SiO_2, TiO_2, Fe_2O_3 and Al_2O_3 by XRF. Density estimates are based on density measurements obtained by pitting within trenches to provide access to different bauxite levels on the Bonasika 7 deposit.

Key lithological units as described in Section 11.2 have short range continuity and occur as lenses rather than continuous layers. Lithofacies are based on the observation of physical characteristics and do not correspond to specific grades. Hence, the lithofacies bauxite, and its variations such as Granular Bauxite, do not imply compliance with ore grade specifications, as demonstrated in Section 19.4 (Data Analysis).

Lithologies were found inappropriate for domaining and were replaced by larger units, called hereafter Main Geological Units, depicting the broader stratigraphic sequence and distribution of the sediments hosting the bauxite deposits.

The Main Geological Units are based on lithologic descriptions, with minor adjustments based on grades (Table 19.1). The lithologic description of Clay is generic in a sense that it includes sedimentary clays and mudstones occurring within Upper Clays and/or Basal Clay, as well as clays within the bauxitic layer. Clay occurring within the bauxitic layer is allocated to the Upper/Lower Bauxitic Layer or rarely to Refractory Grade Bauxite when grades are within specifications. Clay occurring below the bauxitic layer is allocated to the Lower Lateritic Clays or to Basal Clays depending on the proportion of Fe_2O_3 (generally >20%).

The definition of Refractory Grade Bauxite is based on chemistry alone, which reflects product grade specifications. Grades of Refractory Grade Bauxite and Direct Feed Bauxite stand within the following limits, defined on the bass of cut-off grade sensitivities (Section 19.5):

RGB		DFB	
SiO_2	≤ 20%	SiO_2	≤ 5%
Al_2O_3	≥ 48%	Al_2O_3	≥ 48%
Fe_2O_3	≤ 5%	Fe_2O_3	≤ 5%

Typical sections of lithologies and main geological units are presented in Section 25 - Illustrations.

Table 19-1 Main Geological Units

Code	Description	Comment	Off-Grade Domain 3D Model	Bauxite Domain 3D Model	Short Description
0	Unrecovered	Same as lithology	**0**		
10	Top Soil	Same as lithology	**30**		**Top Soil and Sands**
30	Berbice Sand	Same as lithology			
35	Clay & Silt with Sand Intercalations	Mudstone/clays and siltstone interbedded with sands.	**40**		**Upper Clays**
40	Upper Clays	Mudstone and clays, locally lateritic.			
50	Upper Lateritic Clays	Lateritic clays and laterite.			
60	Upper Bauxitic Layer	Bauxitic clays and clayey bauxite, locally lateritic.	**60**		**Upper Bauxitic Layer Off-Grade**
65	Refractory Grade Bauxite	Commercial grade bauxite, mostly consisting of granular bauxite and clayey bauxite.		**65**	**Refractory Grade Bauxite**
66	Direct Feed Bauxite	Commercial grade bauxite, mostly consisting of massive, granular bauxite and clayey bauxite.		**66**	**Direct Feed Bauxite**
65	Refractory Grade Bauxite	Commercial grade bauxite, mostly consisting of granular bauxite and clayey bauxite.		**65**	**Refractory Grade Bauxite**
70	Lower Bauxitic Layer	Bauxitic clays and clayey bauxite, locally lateritic.	**70**		**Lower Bauxitic Layer Off-Grade**
85	Lower Lateritic Clays	Lateritic clays and laterite.	**90**		Basal Clays
90	Basal Clays	Clays, locally lateritic.			

Main geological units were not all allocated to specific domains in the 3D models. Top Soil and Berbice Sands were grouped into Domain 30, Clay and Silt with Sand Intercalations, Upper Clays and Upper Lateritic Clays into Domain 40 and Basal Clays into Domain 90.

19.4 Data Analysis

The purpose of data analysis is to highlight characteristics having an incidence on resource modelling in general and domaining in particular. Table 19.2 demonstrates the average grades of the principal lithologies occurring at Bonasika 7:

Table 19-2 Grades of Lithologies Occurring in Bonasika 7

Code	Description	Tally(n)	LOI	SiO_2%	TiO_2%	Fe_2O_3%	Al_2O_3%
4	Mudstone	161	11.563	60.918	1.068	3.311	22.345
5	Clay	95	15.228	44.981	1.544	2.259	35.196
6	Bauxitic clay	334	20.784	29.290	1.944	1.563	45.484
7a	Clayey bauxite	1040	27.718	12.457	2.372	1.276	55.111
7b	Granular bauxite	258	30.738	5.242	2.599	0.861	59.494
7c	Massive bauxite	147	29.712	7.293	2.335	0.770	58.904
8	Laterite	7	28.288	1.370	1.963	26.243	41.485
9	Basal clay	443	18.146	34.745	1.822	2.718	41.590

Massive, Granular Bauxite and Clayey Bauxite are the main contributors to Refractory Grade Bauxite. Box plots show that lithologies contain grade outliers resulting from the difficulty of identifying bauxite types visually. Figures 19.1 and 19.2 are examples of Granular and Clayey Bauxite respectively. Figure 19.2 - Clayey Bauxite shows a wide range of silica and alumina values since it is particularly difficult to discriminate this lithology from a frequent very fine grained gibbsite horizon that appears to be clay but is in fact very low in silica.

Figure 19-1 Box Plots for Clayey Bauxite – Bonasika 7 (LWC)

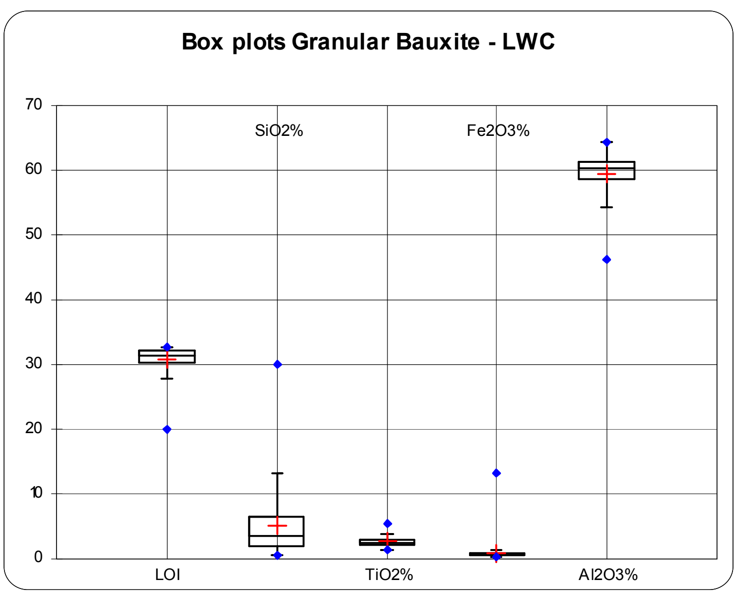
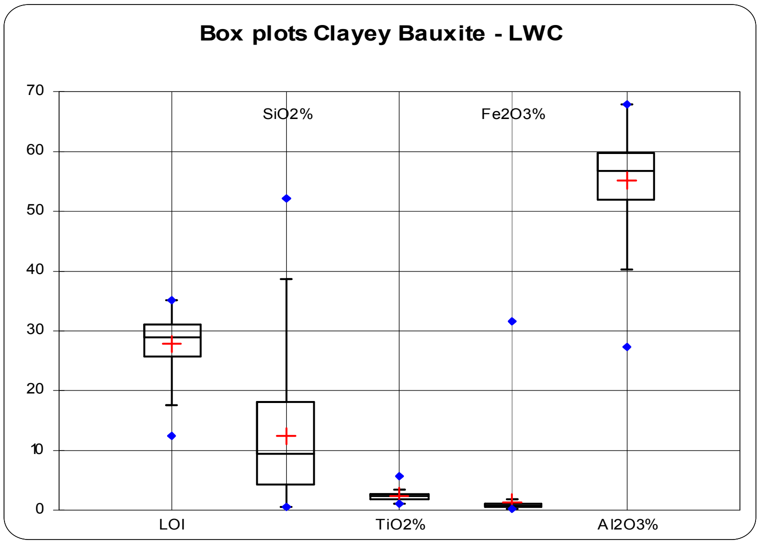


Figure 19-2 Box Plots for Clayey Bauxite – Bonasika 7 (LWC)

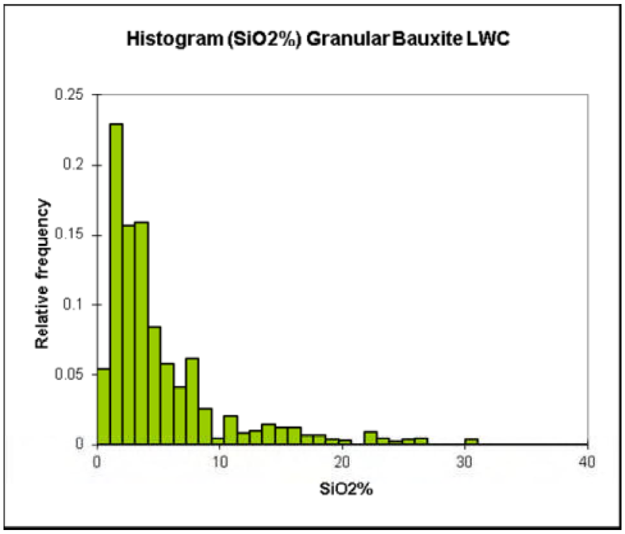


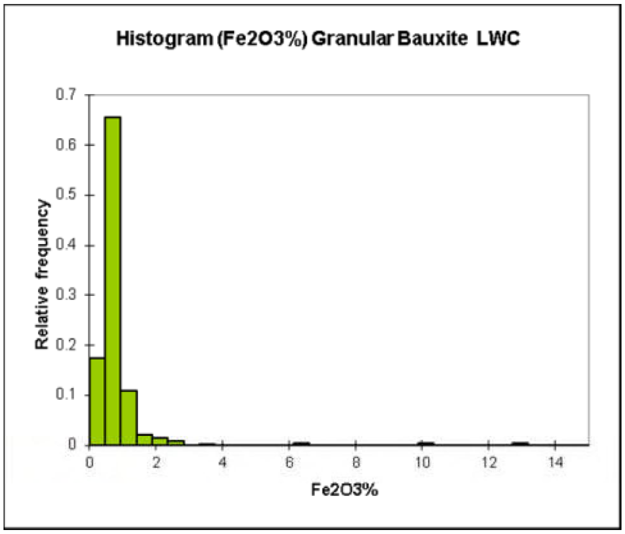
Box Plot Conventions

- The lower edge of the box represents the first quartile Q1.
- A black line and the associated figure represent the median.
- A red cross and the associated figure represent the average.
- The upper edge of the box represents the third quartile Q3.
- Lower limit: Q1 – 1.5 (Q3 – Q1).
- Upper limit: Q3 + 1.5 (Q3 – Q1).
- Values outside the range Q1 - 3 (Q3 – Q1) and Q3 + 3 (Q3 – Q1) are displayed the *.
- Values within Q1 - 3 (Q3 – Q1) and Q1 – 1.5 (Q3 – Q1) or within Q3 + 1.5 (Q3 – Q1) and Q3 + 3 (Q3 – Q1) are displayed with an "o" and are considered anomalous.

Histograms have been prepared for the major oxides for each bauxite lithology. Grade populations are highly skewed due to the bauxite composition, with on the one hand a very high grade population (DFB) and on the other hand a population containing higher silica RGB and minor off-grade material. The histograms below show that logging of Granular Bauxite was consistent with RGB grade specifications.

Figure 19-3 Grade Histograms Granular Bauxite, Bonasika 7





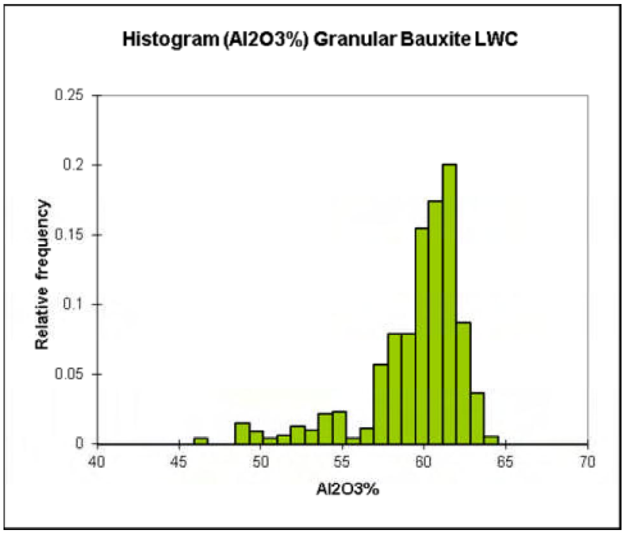


Table 19-3 Descriptive Statistics of Main Geological Units by Major Oxide

STATISTIC OF SAMPLES	SiO_2% D40	SiO_2% D60	SiO_2% D65	SiO_2% D66	SiO_2% D70	SiO_2% D85	SiO_2% D90
No. of observations	248	415	784	573	70	6	389
Minimum	4.390	6.040	1.330	0.460	0.440	0.580	6.680
Maximum	97.530	65.240	38.340	14.320	42.110	1.870	76.960
Median	50.070	32.750	11.550	2.850	22.750	1.000	40.030
Mean	**55.656**	**32.650**	**12.233**	**3.079**	**18.114**	**1.062**	**37.563**
Variance (n-1)	342.038	79.181	28.665	3.129	147.537	0.284	96.380
Standard deviation (n-1)	18.494	8.898	5.354	1.769	12.146	0.533	9.817
Variation coefficient	0.332	0.272	0.437	0.574	0.666	0.458	0.261
Skewness (Pearson)	0.656	-0.044	0.744	1.822	-0.208	0.701	-0.178
Standard error of the mean	1.174	0.437	0.191	0.074	1.452	0.217	0.498

STATISTIC OF SAMPLES	Al_2O_3% D40	Al_2O_3% D60	Al_2O_3% D65	Al_2O_3% D66	Al_2O_3% D70	Al_2O_3% D85	Al_2O_3% D90
No. of observations	248	415	784	573	70	6	389
Minimum	0.740	23.470	40.120	53.080	29.260	30.090	12.680
Maximum	50.350	56.860	66.500	67.730	61.500	49.040	52.050
Median	30.260	43.980	55.710	60.890	49.280	37.690	39.600
Mean	**26.654**	**43.718**	**55.380**	**60.789**	**48.978**	**38.813**	**39.924**
Variance (n-1)	145.75	26.747	9.747	1.989	27.255	56.048	34.896
Standard deviation (n-1)	12.073	5.172	3.122	1.410	5.221	7.487	5.907
Variation coefficient	0.452	0.118	0.056	0.023	0.106	0.176	0.148
Skewness (Pearson)	-0.663	-0.544	-0.529	-0.402	-0.552	0.252	-0.956
Standard error of mean	0.767	0.254	0.112	0.059	0.624	3.056	0.300

Table 19.3 (cont.) Descriptive Statistics of Main Geological Units

STATISTIC OF SAMPLES	Fe_2O_3% D40	Fe_2O_3% D60	Fe_2O_3% D65	Fe_2O_3% D66	Fe_2O_3% D70	Fe_2O_3% D85	Fe_2O_3% D90
No. of observations	248	415	784	573	70	6	389
Minimum	0.440	0.180	0.250	0.300	0.510	17.570	0.370
Maximum	36.310	22.380	12.130	4.870	31.660	40.100	30.410
Median	1.820	0.990	0.900	0.700	1.340	30.340	1.240
Mean	**2.941**	**1.557**	**1.069**	**0.811**	**4.805**	**29.760**	**2.897**
Variance (n-1)	17.937	5.704	0.681	0.258	32.851	75.997	24.294
Standard deviation (n-1)	4.235	2.388	0.825	0.508	5.732	8.718	4.929
Variation coefficient	1.437	1.532	0.772	0.626	1.184	0.267	1.699
Skewness (Pearson)	4.504	5.607	6.628	3.905	1.930	-0.298	3.322
Standard error of mean	0.269	0.117	0.029	0.021	0.685	3.559	0.250

Table 19-4 Descriptive Statistics of Sample Length

STATISTIC OF SAMPLES	Length D 40	Length D60	Length D65	Length D66	Length D70	Length D85	Length D90
No. of observations	248	415	784	573	70	6	389
Minimum	0.130	0.170	0.100	0.140	0.200	0.480	0.160
Maximum	2.700	0.810	0.850	0.780	0.730	0.720	1.200
Median	0.550	0.480	0.500	0.500	0.470	0.505	0.600
Mean	**0.514**	**0.462**	**0.472**	**0.470**	**0.460**	**0.550**	**0.572**
Variance (n-1)	0.039	0.017	0.015	0.012	0.016	0.008	0.011
Standard deviation (n-1)	0.196	0.130	0.122	0.110	0.127	0.092	0.106
Variation coefficient	0.381	0.282	0.259	0.235	0.274	0.152	0.185
Skewness (Pearson)	5.319	-0.120	-0.344	-0.594	-0.088	1.229	-0.404
Standard error of mean	0.012	0.006	0.004	0.005	0.015	0.037	0.005

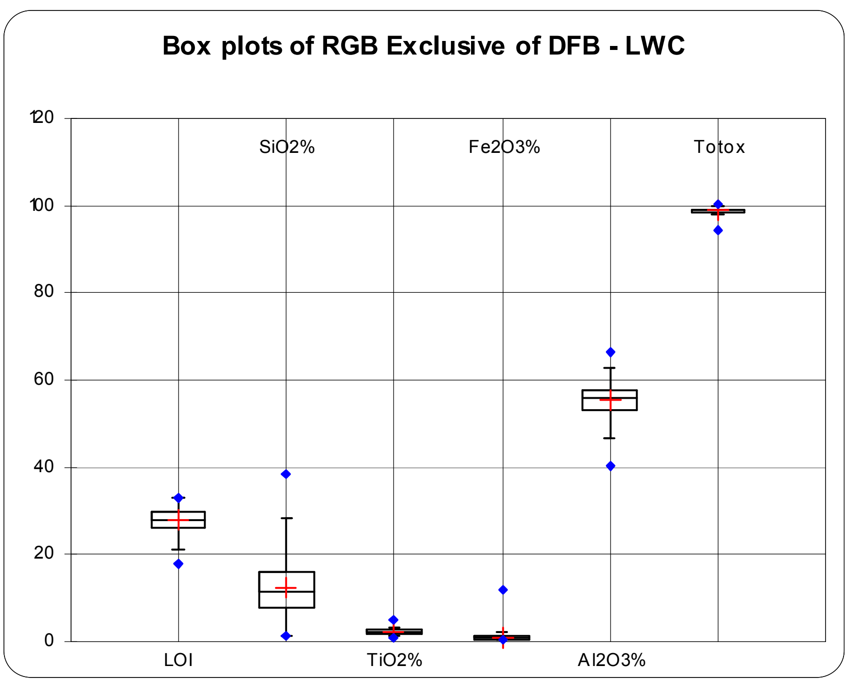
Sampling lengths of bauxite intercepts, ranging from codes 60 to 70, vary within relatively tight limits (90% of the population within +/- 20 cm) around a mean of 0.45m, while sampling lengths of off-grade members are marginally longer and more variable for code 40. Tests have shown that length weighing has a minor impact on statistical results for RGB and DFB.

The following Tables 19.5 and 19.6 and Box Plots (Figures 19.4 and 19.5) provide the grade statistics of RGB and DFB samples respectively. Extreme values outside grade specifications are due to minor off-grade inclusions.

Table 19-5 Descriptive Statistics of the Refractory Grade Bauxite

Statistic of Samples	LOI%	SiO_2%	TiO_2%	Fe_2O_3%	Al_2O_3%	Totox
No. of observations	784	784	784	784	784	784
Minimum	17.640	1.330	1.090	0.250	40.120	94.530
Maximum	32.830	38.340	4.910	12.130	66.500	100.300
Median	28.130	11.550	2.280	0.900	55.710	98.890
Mean	**27.842**	**12.233**	**2.356**	**1.069**	**55.380**	**98.880**
Variance (n-1)	5.291	28.665	0.214	0.681	9.747	0.157
Standard deviation (n-1)	2.300	5.354	0.463	0.825	3.122	0.396
Variation coefficient	0.083	0.437	0.196	0.772	0.056	0.004
Skewness (Pearson)	-0.702	0.744	1.145	6.628	-0.529	-2.207
Standard error of mean	0.082	0.191	0.017	0.029	0.112	0.014

Figure 19-4 Box Plots of Refractory Grade Bauxite at Bonasika 7

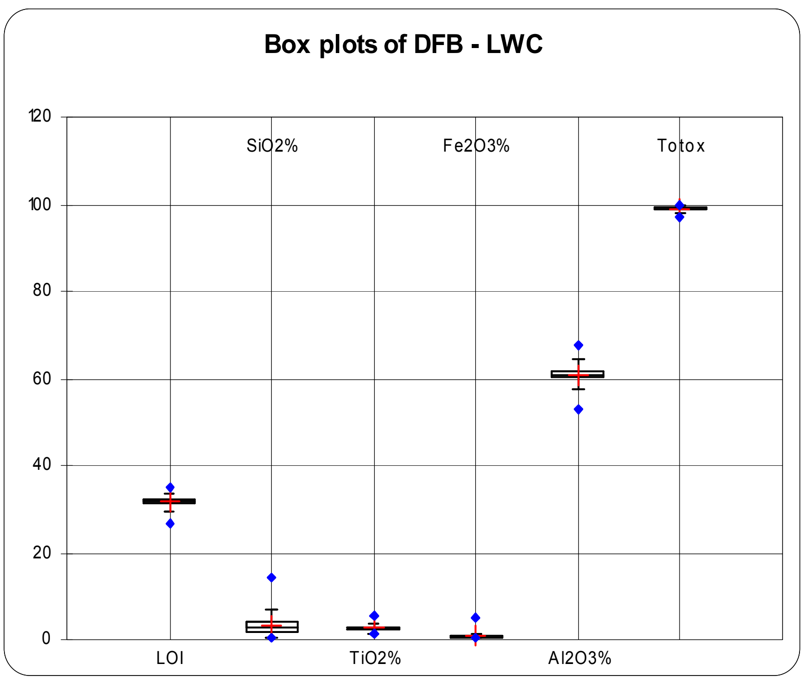


Very narrow grade ranges and low standard deviations are the characteristics of DFB as shown in Table 19.6 below. Of interest are also the grade contrasts between RGB and DFB. These contrasts have been quantified by contact analysis presented in the next paragraph.

Table 19-6 Descriptive Statistics of Direct Feed Bauxite

Statistic of Samples	LOI%	SiO_2%	TiO_2%	Fe_2O_3%	Al_2O_3%	Totox
No. of observations	573	573	573	573	573	573
Minimum	26.600	0.460	1.560	0.300	53.080	97.240
Maximum	35.110	14.320	5.660	4.870	67.730	100.000
Median	31.650	2.850	2.630	0.700	60.890	98.930
Mean	**31.534**	**3.079**	**2.701**	**0.811**	**60.789**	**98.914**
Variance (n-1)	0.816	3.129	0.290	0.258	1.989	0.138
Standard deviation (n-1)	0.903	1.769	0.539	0.508	1.410	0.372
Variation coefficient	0.029	0.574	0.199	0.626	0.023	0.004
Skewness (Pearson)	-1.438	1.822	1.591	3.905	-0.402	-0.325
Standard error of mean	0.038	0.074	0.023	0.021	0.059	0.016

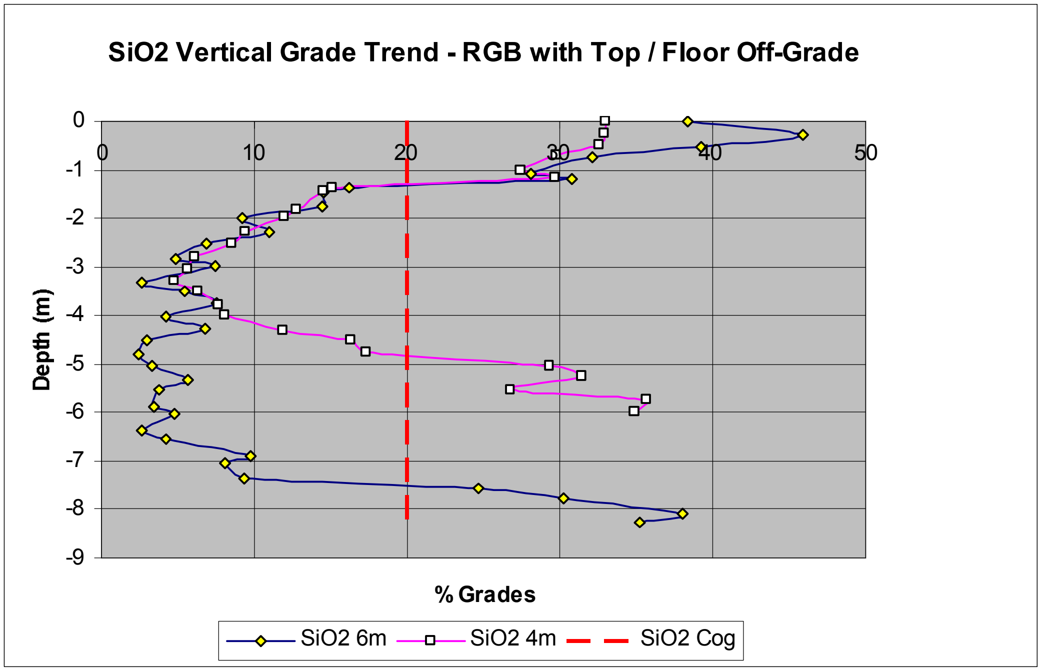
Figure 19-5 Box Plots of Direct Feed Bauxite at Bonasika 7

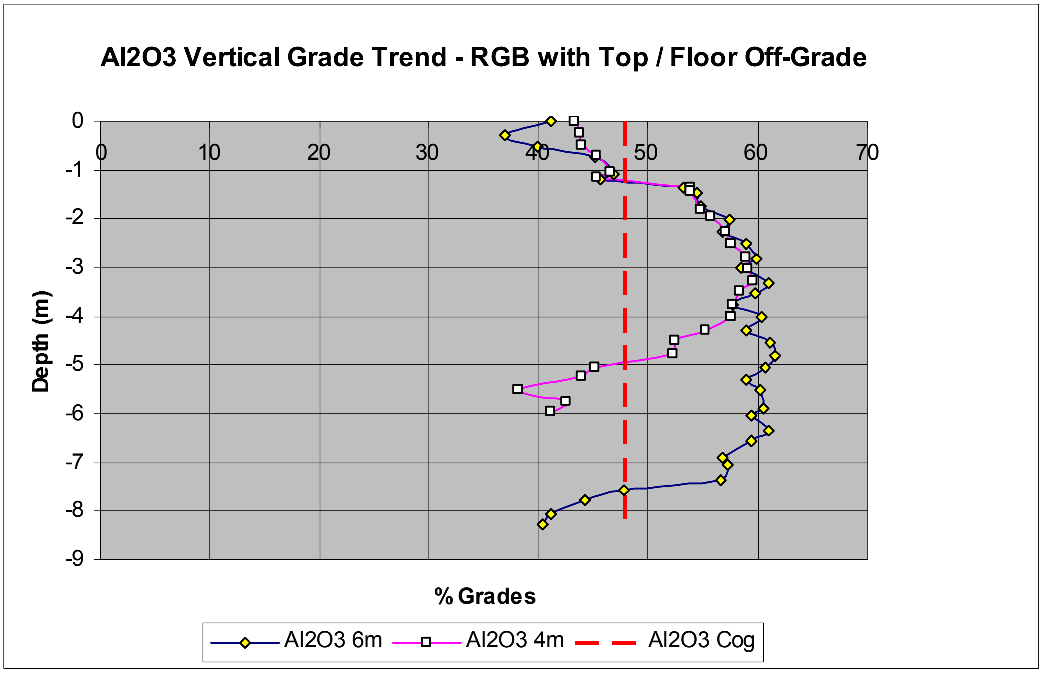


Vertical bauxite profiles generally display strong grade trends. Characteristically, grade profiles are similar irrespective of the bauxite thickness. In other words, the profile is compressed for thin bauxite layers and extended for thick bauxite layers, while keeping a similar shape. This is shown hereafter for bauxite averaging 3.6 and 6.3 m thickness with off-grade material above and below. The graphs represent the average of several holes.

The top and bottom of bauxite is marked by strong increases of SiO_2, corresponding to comparable decreases of Al_2O_3. The SiO_2 and Al_2O_3 cut-offs delimit approximately the same bauxite intercepts. In Bonasika 7, Fe_2O_3 increases towards the bauxite floor but most of the time is well below the cut-off grade. Examples are given for silica and alumina in Figure 19.6 below:

Figure 19-6 Vertical Grade Trends for SiO_2 and Al_2O_3





Graphical representations of vertical trends help identifying natural breaks in the grade profiles and, with due consideration to target grade specifications, support the selection of domain boundaries. The SiO_2 grade profile indicates a sudden change of bauxite composition between 15% and 20% SiO_2, while Al_2O_3 shows a similar change between 45% and 50%. Although the selection of grade cuts was heavily influenced by consideration of the run of mine grade specification, a 20% SiO_2 cut-off does correspond to a natural break in the bauxite profile. The RGB domain is then well defined by strong chemical contrasts in terms of both SiO_2 and Al_2O_3.

Chemical composition of bauxite is a direct expression of mineral composition. The sum of major oxides and LOI add to about 100%. Additionally, there are strong bivariate and multivariate dependences between grades. These characteristics are important from a modelling perspective given that the nature of bauxite must be preserved in the process. The following statistics are applied to RGB and DFB.

In terms of bi-variate relationships, the following Table 19.7 depicts the inverse correlations between SiO_2 and Al_2O_3 as well as between SiO_2 and LOI, and the positive correlation between LOI and Al_2O_3. These correlations are strictly based on the mineralogical composition of bauxite. These correlations are strong for RGB with and without DFB, and moderate for DFB.

Table 19-7 Proximity matrices - Pearson correlation coefficient

RGB Excusive of DFB	**LOI%**	**SiO_2%**	**TiO_2%**	**Fe_2O_3%**	**Al_2O_3%**
LOI%	**1**	**-0.973**	0.257	-0.041	**0.904**
SiO_2%	**-0.973**	**1**	-0.331	0.010	**-0.942**
TiO_2%	0.257	-0.331	**1**	0.084	0.180
Fe_2O_3%	-0.041	0.010	0.084	**1**	-0.265
Al_2O_3%	**0.904**	**-0.942**	0.180	-0.265	**1**

DFB	**LOI%**	**SiO_2%**	**TiO_2%**	**Fe_2O_3%**	**Al_2O_3%**
LOI%	**1**	-0.728	-0.009	-0.118	0.333
SiO_2%	-0.728	**1**	-0.262	0.064	-0.729
TiO_2%	-0.009	-0.262	**1**	0.091	-0.138
Fe_2O_3%	-0.118	0.064	0.091	**1**	-0.396
Al_2O_3%	0.333	-0.729	-0.138	-0.396	**1**

RGB Inclusive of DFB	**LOI%**	**SiO_2%**	**TiO_2%**	**Fe_2O_3%**	**Al_2O_3%**
LOI%	**1**	-0.975	0.344	-0.161	**0.920**
SiO_2%	**-0.975**	**1**	-0.416	0.140	**-0.961**
TiO_2%	0.344	-0.416	**1**	0.019	0.290
Fe_2O_3%	-0.161	0.140	0.019	**1**	-0.322
Al_2O_3%	**0.920**	**-0.961**	0.290	-0.322	**1**

In terms of multi-variate relationships, the major oxides are generally strongly correlated with each other, except for DFB, as shown below and in the graphs submitted in Figure 19.7:

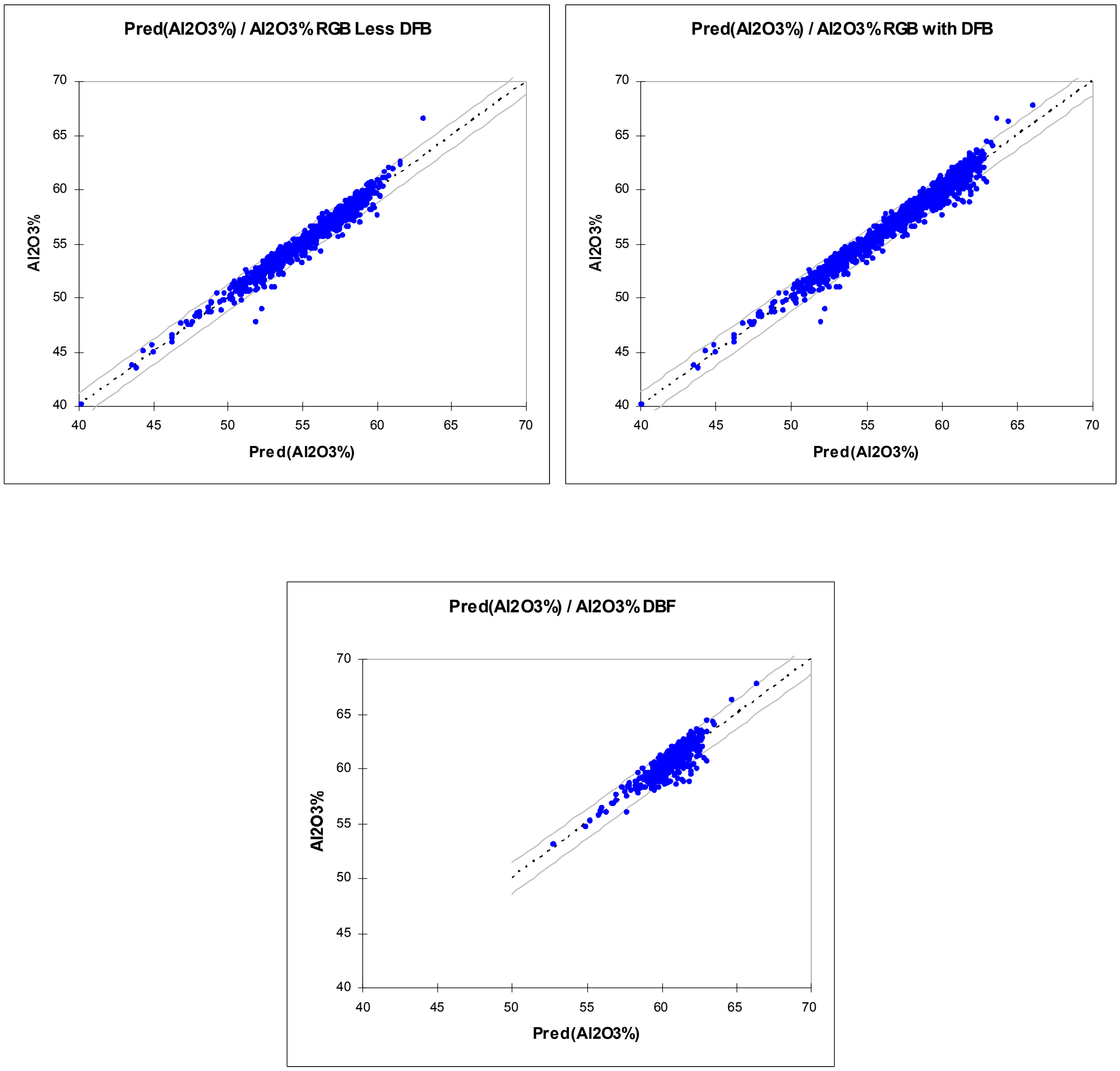
RGB Less DFB Al_2O_3 = 84.017- 0.631*LOI - 0.812* SiO_2 - 1.022* Fe_2O_3, R^2 = 0.96 MSE 0.38

DFB Al_2O_3 = 88.130 - 0.756*LOI - 0.843* SiO_2 - 1.074* Fe_2O_3, R^2 = 0.79 MSE 0.46

RGB with DFB Al_2O_3 = 85.927 - 0.688*LOI - 0.837* SiO_2 - 1.038* Fe_2O_3, R^2 = 0.97 MSE 0.41

The lower correlation observed for DFB is probably due to the narrow spread of the population and, possibly, the presence of boehmite which impacts on the relationship between Al_2O_3 and LOI.

Figure 19-7 Al_2O_3 Forecasts Based on LOI, SiO_2 and Fe_2O_3



19.5 Cut-Off Strategy

Cut-off grade selection was largely process driven, in that the bauxite produced had to be upgradeable to Refractory Grade Bauxite or amenable to Direct Feed. After examining a wide range of silica and alumina cut offs, <20%$Si0_2$ and >48%Al203 cut-offs were selected to define the outer limits of the deposit. Then the impact of an iron cut-off was examined as shown in Table 19.8 below. A cut-off on Fe_2O_3 proved necessary for the Bonasika 1, 2 and 5 deposits to obtain average grades compatible with process feed. For consistency, a similar Fe_2O_3 cut-off was applied to Bonasika 7 although this deposit contains but few Fe_2O_3 values in excess of 5%.

Table 19-8 Cut-off Grade Sensitivity – LWC

COG			Kt	Surface	OB	BX	LOI	SiO_2	TiO_2	Fe_2O_3	Al_2O_3
SiO_2	Al_2O_3	Fe_2O_3		m^2	m	m	%	%	%	%	%
20	48	6	6,510	1,022,155	28.7	4.2	29.3	8.6	2.5	0.9	57.5
20	**48**	**5**	**6,495**	**1,022,155**	**28.7**	**4.2**	**29.3**	**8.6**	**2.5**	**0.9**	**57.5**
20	48	4	6,490	1,022,155	28.7	4.2	29.3	8.6	2.5	0.9	57.5

COG sensitivities were run using polygonal models, or 2D models based on composites, clipped by a polygon delimiting the surface area explored by drilling. No constraints were applied other than a minimum bauxite thickness of 1m.

The following cut-offs shown in Table 19.9 were applied to define DFB material. A SiO_2 cut-off of 5% was selected to comply with process parameters, allowing for mine dilution.

Table 19-9 Cut-off Grade Sensitivity to Select DFB

COG			Kt	Surface	OB	BX	LOI	SiO_2	TiO_2	Fe_2O_3	Al_2O_3
SiO_2	Al_2O_3	Fe_2O_3		m^2	m	m	%	%	%	%	%
10	48	5	4,434	853,318	29.3	3.5	30.8	5.1	2.6	0.9	59.5
8	48	5	3,790	797,055	29.2	3.2	31.1	4.4	2.6	0.8	60.0
7	48	5	3,375	767,727	29.5	2.9	31.3	3.9	2.6	0.8	60.3
6	48	5	2,974	699,248	29.2	2.8	31.4	3.4	2.7	0.8	60.6
5	**48**	**5**	**2,520**	**601,597**	**28.5**	**2.8**	**31.6**	**3.0**	**2.7**	**0.7**	**60.8**
4	48	5	1,981	501,058	27.9	2.6	31.7	2.6	2.7	0.7	61.1

19.6 Domaining

The bauxite domain is based on chemical boundaries that may not be visible at the mine faces. Hence, detailed mine face sampling and grade control will be required to ensure accurate ore lifting, particularly if RGB and DFB are to be mined separately. These are however, standard practices for Refractory Grade Bauxite production.

The surfaces of the top and bottom of bauxite are based on the bauxite composites obtained for cut-off grades 20% SiO_2, 48% Al_2O_3 and 5% Fe_2O_3 for domain D65 (inclusive of DFB) and 5% SiO_2, 48% Al_2O_3 and 5% Fe_2O_3 for domain D66. The surfaces were applied on the 3D model using TINs (Triangulated Irregular Network).

The surfaces of other domains were derived from the stratigraphic sequence of the Main Geological Units. These domains are therefore called stratigraphic domains.

Three grade models were considered, the Refractory Grade Bauxite domain (D65), the Direct Feed Bauxite domain (D66) and off-grade including all other stratigraphic domains. In the latter grade model, the proportion of each stratigraphic domain - D30 to D60 and D70 to D90 - was captured to support material handling and mining studies (Table 19.10).

In addition, a model was developed for Refractory Grade Bauxite inclusive of Direct Feed Bauxite.

Table 19-10 3D Model Domains

Off-Grade Domain 3D Model	Bauxite Domain 3D Model	Description
30		**Top Soil and Sands**
40		**Upper Clays**
60		**Upper Bauxitic Layer Off-Grade**
	65	**Upper Refractory Grade Bauxite**
	66	**Direct Feed Bauxite**
	65	**Upper Refractory Grade Bauxite**
70		**Lower Bauxitic Layer Off-Grade**
90		Basal Clays

19.7 Modelling Method

3D modelling of thin layers requires strict constraints on the vertical and horizontal search ranges in order to limit - as much as practicable within the constraint of the block dimensions - mixing grades belonging to the different positions in the grade profile (refer to Section 19.4.1.). In particular, it is important to avoid mixing top and floor material with the central part of the profile, which in general supports the best grades. This is not achievable for layers less than twice the thickness of blocks, which in most cases is a serious limitation given that on average the bauxite deposits are 4-5m thick.

With the above in mind and to assist maintaining the integrity of grades within the bauxite layer, Ordinary Kriging (OK) was applied in a flat space, i.e. samples and blocks were translated in space to transform the bauxite bed into a flat layer. This process called Unfolding or Unwrinkling facilitates sample selection by allowing a narrow search range in the vertical direction, with the least spatial continuity, and reasonably long search ranges in the horizontal direction to collect samples within specific positions in the grade profile. As above mentioned, this is constrained by the block dimensions. At the scale of the study the bauxite layer is regular, therefore Unfolding with the top surface of bauxite is deemed adequate.

19.8 Spatial Analysis

Directional variograms of SiO_2, Al_2O_3 and Fe_2O_3 - shown overleaf for azimuths 0°, 30°, 60°, 90°, 120° and 150° - demonstrate that horizontal anisotropy is not an issue. However, there is a strong vertical anisotropy for all grades.

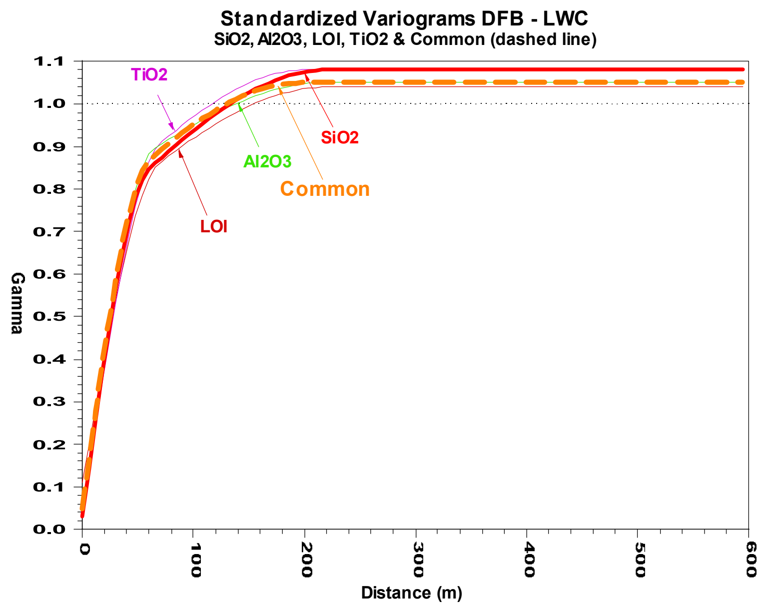
For each grade model, a common variogram was used for LOI, SiO_2, TiO_2 and Al_2O_3 given the compatibility of the respective variograms and the necessity of maintaining the linear relationships between grades as well as the sum of major oxides and LOI. This constraint is strictly required to preserve the nature of bauxite, for each block, in terms of chemical and mineralogical compositions. An example of common variogram is displayed in Figure 14.8 and shows a high degree of compatibility between grades

Kriging efficiency and kriging slope of regression were calculated from the common variograms of LOI, SiO_2, TiO_2 and Al_2O_3.

Abbreviations

Var	Grade variance	R_1	Range of first structure
C_o	Nugget	R_2	Range of second structure
C_1	Sill contribution of first structure	Tot Sill	$C_o + C_1 + C_2$
C_2	Sill contribution of second structure		

Figure 19-8 Common Standardized Variogram DFB - LWC



Iron demonstrates a very different spatial variability from the other major oxides. It has generally much longer ranges and sills systematically below the population variance. The long ranges indicate spatial regularity of generally low Fe_2O_3 values. However, minor outliers of high Fe_2O_3 values have a disproportionate impact on the population variance, which is therefore never reached within the range of the variograms. The result is that during block interpolation, the kriging variance is theoretically underestimated. Filtering these Fe_2O_3 outliers resolves the problem and well-behaved variograms are obtained. Filtering however strongly reduces the population subset variance and therefore results in the same situation as accepting variograms with sills well below the population variance. Given that Fe_2O_3 outliers cannot be separated into specific domains, it was decided to go ahead with the variograms obtained from the respective domain populations. Because of this particularity, specific variograms were used to estimate Fe_2O_3 block values. Checks have shown that the sum of oxides plus LOI remained within acceptable tolerances.

Bonasika 7 shows a higher degree of lateral continuity as compared to the other Bonasika deposits. The deposit nevertheless requires further drilling to allocate all resources to the Measured Resource category. Continuity drilling, as carried out in Upper Waratilla (Bonasika 6), is also required to verify the continuity of DFB as well short scale variations of boundaries between bauxite domains (RGB & DFB) and off-grade material.

19.9 Quantitative Kriging Neighbourhood Analysis

A QKNA analysis - based on the optimisation of the kriging slope regression (KSR) and kriging efficiency (KE) - was performed to determine the optimum block size, search range and sample selection. In LWC, a block size of 60 x 60 x 2m was found to be a good fit with the exploration grid size ensuring sound block estimates. The extent of the search range and the maximum number of samples selected within the search range were limited so as to ensure that negative kriging weights remained well below a critical level (<3%). Keeping smoothing at reasonable level was also a consideration for selecting the search range.

KE, (Block Variance – Kriging Variance) / Block Variance, is inversely proportional to the Kriging Variance and indicates how well a block is informed; in other words, the smaller the Kriging Variance the more robust the block estimation. KE values vary between 0 and 1, 1 being theoretically a perfect estimate.

KSR, (Block Variance – Kriging Variance + abs(μ)) / (Block Variance – Kriging Variance + 2 abs(μ)), stands for the regression slope between true and estimated block value. KSR provides an indication of the bias affecting an estimate obtained by Ordinary Kriging (OK). KSR varies from 0 to 1, 1 being an indication of a conditionally unbiased estimate. KSR and KE have a correlation close to 1.

Resource classification based on KE and KSR has become widely accepted, bearing in mind however that resource classification is supported by a number of other factors not captured by these values depending only on the variogram, the geometry of the exploration data and block size. Other considerations include in particular the quality, robustness and completeness of the exploration database, as well as geological, mining and processing criteria.

A well informed block has a KE of ≈0.8 and KSR of ≈0.9. At exploration stage, block estimates should average KE values ≥ 0.50 and KSR values ≥ 0.60.

For resource categorisation, one expect Measured Resources to consist of continuous zones with KE > 0.7, Indicated Resources of continuous zones with KE >0.5 and Inferred Resources of continuous zones with KE >0.3. In terms of KSR values, typical ranges are >0.9 for Measured, 0.7 to 0.9 for Indicated, and <0.7 for Inferred Resources. Consequently, the resource categorisation criteria suggested in this report stand as follows:

Table 19-11 Kriging Based Resource Categorisation Scheme

	Resource Category 1	Resource Category 2	Resource Category 3
KSR	< 0.7	0.7 to 0.9	> 0.9
KE	> 0.3	> 0.5	> 0.7

Categories 1, 2 and 3 could report to Inferred, Indicated and Measured Resources respectively, provided that the other considerations mentioned above regarding the exploration database, geology, mining and processing support such categorisation as decided by the Qualified Person.

19.10 Resource Model

Model and modelling parameters as well as reporting criteria are summarized below in Table 19.12, while the model resources based on KE and KSR are tabulated in Tables 19.13 to 19.14.

The respective position and orientation of the block model and drill grid ensured a balanced availability of samples within the search range, with drill holes in the NE, SE, SW and NW quadrants around each block and one drill hole in the centre of each second block. While some blocks were thus better informed than others, this configuration avoided the selection of samples from preferential NW-SE directions owing to the orientation of the drill grid (NE-SW). Ultimately, Measured Resources categorisation would require in-fill drilling in the centre of the current pattern, achieving a 60m square grid.

The maximum number of samples allowed for kriging was seldom a constraint with the configuration selected for the search neighbourhood.

The relatively wide exploration grid called for an interpolation in two stages, first using a search range of 90 m and then a search range 100 m, to evaluate cells poorly informed in the first pass.

Table 19-12 Model and Modelling Parameters

Parameters	Units	Bonasika 7
Block Model		
Xo, lower left	m	336,700
Yo, lower left	m	709,410
Zo, top	m	80
Block dimension in X	m	60
Block dimension in Y	m	60
Block dimension in Z	m	2
Number of blocks in X		32
Number of blocks in Y		24
Number of blocks in Z		55
Baseline Azimuth	deg	90

Modelling	**Units**	**Bonasika 7**
Method		OK
Search horizontal	m	90 & 100
Search vertical	m	1.5
Maximum samples		25
Minimum samples		2
Horizontal block discretisation		9 x 9
Vertical block discretisation		3
Resource reporting		
Density	t/m^3	1.50
Minimum bauxite thickness	m	1
Maximum overburden	m	Not applied
Maximum stripping ratio	m/m	Not Applied
Categorisation		Sections 19.9 and 19.11

Table 19-12 (cont.) Model and Modelling Parameters

Table 19-13 Unwashed Resources - RGB Exclusive of DFB based on KE and KSR

Resources	Tonnage Kt	LOI %	SiO_2 %	TiO_2 %	Fe_2O_3 %	Al_2O_3 %	Totox %	KE	KSR
Category 1	84	27.9	12.1	2.5	1.0	55.4	98.9	0.45	0.68
Category 2	2,529	28.0	12.1	2.3	1.0	55.5	98.9	0.70	0.84
Category 3	645	27.7	12.5	2.3	1.0	55.4	98.8	0.84	0.92
Total	**3,258**	**27.9**	**12.1**	**2.3**	**1.0**	**55.5**	**98.9**	**0.72**	**0.85**

Table 19-14 Unwashed Resources DFB based on KE and KSR

Resources	Tonnage Kt	LOI %	SiO_2 %	TiO_2 %	Fe_2O_3 %	Al_2O_3 %	Totox %	KE	KSR
Category 1	100	31.3	3.7	2.5	0.8	60.6	99.0	0.45	0.67
Category 2	1,230	31.6	3.2	2.6	0.8	60.7	98.9	0.74	0.86
Category 3	1,157	31.6	2.8	2.8	0.7	61.0	98.9	0.83	0.92
Total	**2,487**	**31.6**	**3.1**	**2.7**	**0.7**	**60.8**	**98.9**	**0.77**	**0.88**

The RGB bauxite will require washing whereas the DFB bauxite will either be direct feed to the sinter plant or blended with the washed product from processing the RGB. Hence, the two tonnages and their respective grades are reported separately.

Samples were not regularised to a standard length given that sampling was carried out at reasonably constant intervals. Also, length regularisation has undesirable side effects since grades are not uniformly distributed over sampling intervals. Therefore, averaging grades of partial sections of one or several samples leads to incorrect results.

An average density of 1.5 t/m^3 was assigned to both RGB and DFB, based on the proportion of specific lithofacies contained within the respective domains, as shown in Table 19.15 below. In situ bulk density tests were based on excavation and measurement of the volume of small pits and then weighing the dried volume of bauxite extracted.

Table 19-15 In situ Density Estimates

RGB Exclusive of DFB

Lithofacies	Description	Tally	Proportion	Density t/m3
9	Basal clay	52	6.6%	1.40
6	Bauxitic Clay	80	10.2%	1.40
5	Clay	2	0.3%	1.40
7a	Clayey Bauxite	519	66.2%	1.49
7b	Granular Bauxite	68	8.7%	1.50
7c	Massive bauxite	63	8.0%	1.65
Total / Average		**784**	**100.0%**	**1.49**

DFB

Lithofacies	Description	Tally	Proportion	Density t/m3
9	Basal clay	2	0.3%	1.40
6	Bauxitic Clay	7	1.2%	1.40
5	Clay	0	0.0%	1.40
7a	Clayey Bauxite	307	53.7%	1.49
7b	Granular Bauxite	179	31.3%	1.50
7c	Massive bauxite	77	13.5%	1.65
Total / Average		**572**	**100.0%**	**1.51**

19.11 Resource Categorization and Statement

Given the small vertical dimension of the bauxite layer, resources categories were allocated based on the weighted average of KE and KSR of blocks sharing the same easting and northing. Hence, this method follows a 2D approach. Categories one, two and three are flagging blocks that could potentially report respectively to Inferred, Indicated or Measured Resources. However, organizing blocks into continuous zones with specific resource categories is a more sensible approach both from the geological and mining point of views. Therefore, resource categorisation should allocate blocks to the resource category principally represented, except for blocks clearly reporting the inferred category. In the case of Bonasika 7, most of the resources would fall in the Indicated category. This is illustrated in Figures 19.9 and 19.10 below:

Figure 19-9 Resource Categorisation RGB inclusive of DFB

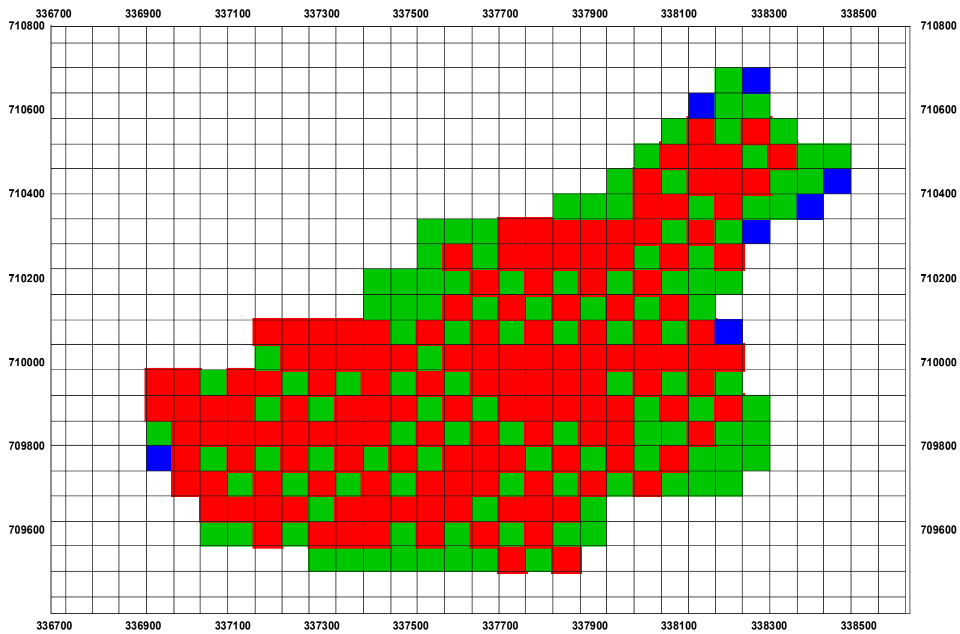
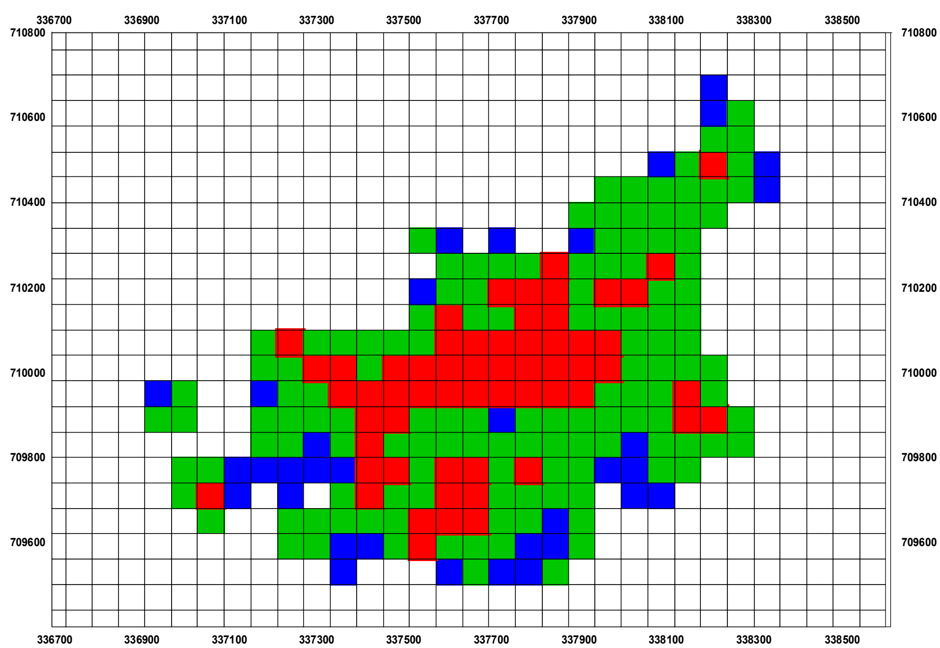


Figure 19-10 Resource Categorisation – DFB



Blue=category 1, Green = category 2, Red = category

The following Table 19.16 shows the Bonasika 7 mineral resources based in part on the kriging parameters and in part on the continuity of the mineralisation. The RGB and DFB resources are not added together as the RGB bauxite will be washed, significantly reducing the tonnage while improving the grades.

Table 19-16 Bonasika 7 Unwashed Mineral Resources - RGB and DFB, December 2010

Mineral Resource Category	Tonnage Kt	LOI %	SiO_2 %	TiO_2 %	Fe_2O_3 %	Al_2O_3 %	Totox %
RGB Indicated Resources	3174	27.9	12.2	2.3	1.0	55.5	98.9
DFB Indicated Resources	2387	31.6	3.0	2.7	0.7	60.8	98.9
RGB Inferred Resources	84	27.9	12.1	2.5	1.0	55.4	98.9
DFB Inferred Resources	100	31.3	3.7	2.5	0.8	60.6	99.0

The Bonasika 6 mineral resources, some 3km north of Bonasika 7 on the WC PL, were provided in a 43 101 compliant report on the project dated August 10 and are provided below in Table 19.17 for comparative purposes. No division is made between RGB and DFB because these two domains were not modelled and estimated separately at Bonasika 6.

Table 19-17 Bonasika 6 Unwashed Mineral Resources, June 2010

Mineral Resource Category	Tonnage Kt	LOI %	SiO_2 %	TiO_2 %	Fe_2O_3 %	Al_2O_3 %	Totox %
Indicated Resources	4596	29.3	7.9	2.3	1.0	58.9	99.4
Inferred Resources	269	28.4	9.6	2.1	1.0	58.5	99.6

19.12 Model Validation

The purpose of this section is to verify that block models are coherent with bauxite samples and that natural relationships between grades are preserved. It is also checked that the tonnage and grades obtained can be validated by alternative modelling methods. Differences, if any, are explained and reconciled.

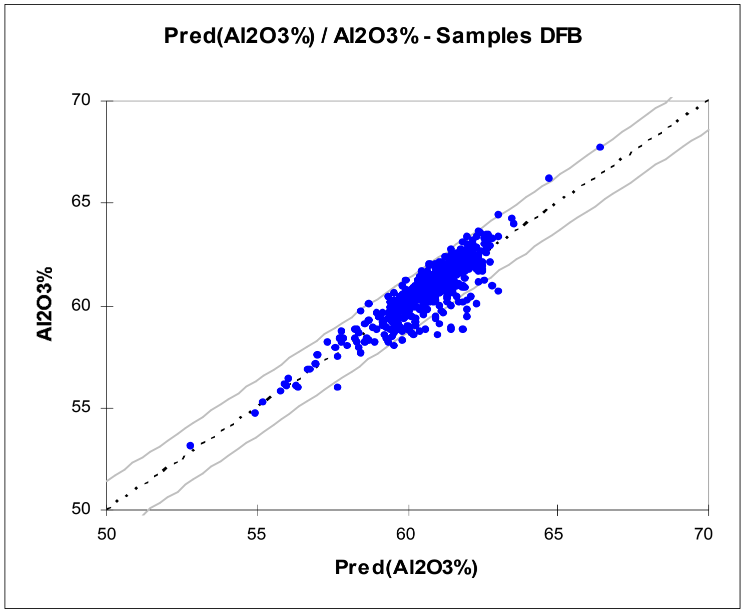
The main differences between samples and model statistics stem from the contraction of the standard deviations due to the change of the grade support from core lengths (0.5m) to blocks with dimensions of 60 x 60 x 2m. While average grades are consistent between the two sets of data, grade ranges and standard deviations are significantly reduced for blocks values. Also, inclusions of internal waste are generating outliers in the sample grades, hence increasing the population ranges, while the smoothing effect of kriging reduces considerably the spread of grades around their mean values. Table 19.18 below illustrates these aspects and is an example by comparing the sample grades and block grades for the DFB model:

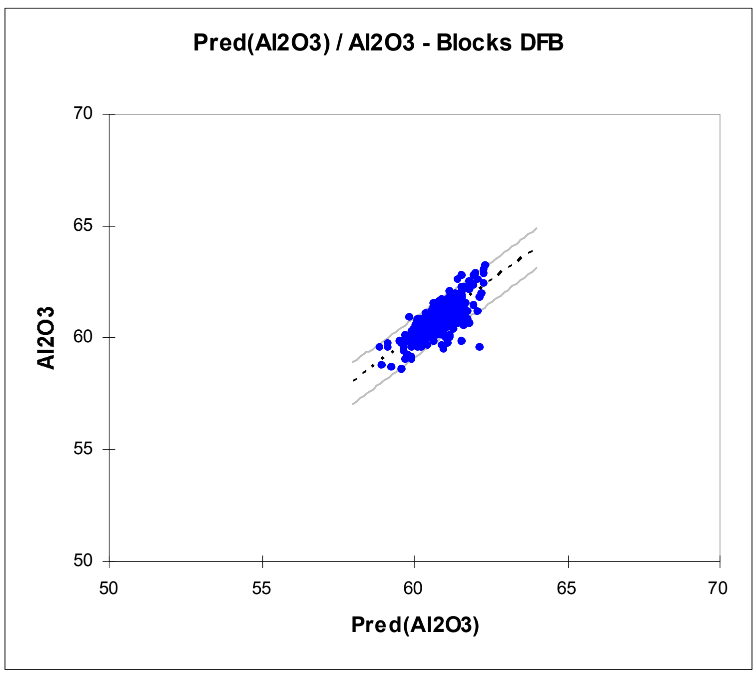
Table 19-18 Sample Grades vs. Blocks Grades RGB Exclusive of DFB - LWC

	Samples			Blocks		
Statistic	**SiO_2%**	**Fe_2O_3%**	**Al_2O_3%**	**SiO_2%**	**Fe_2O_3%**	**Al_2O_3%**
No. of observations	573	573	573	423	423	423
Minimum	0.46	0.30	53.08	0.76	0.36	58.55
Maximum	14.32	4.87	67.73	5.93	2.12	63.22
Median	2.85	0.70	60.89	3.10	0.70	60.85
Mean	**3.08**	**0.81**	**60.79**	**3.07**	**0.74**	**60.85**
Variance (n-1)	3.13	0.26	1.99	0.73	0.05	0.57
Standard deviation (n-1)	1.77	0.51	1.41	0.85	0.22	0.75
Variation coefficient	0.57	0.63	0.02	0.28	0.30	0.01
Skewness (Pearson)	1.82	3.91	-0.40	-0.04	1.30	0.34
Standard error of the mean	0.07	0.02	0.06	0.04	0.01	0.04

On analysing the linear relationships between LOI and major oxides it may be demonstrated that grade correlations are well preserved. Similarly, multi-linear relationships between major oxides and LOI are maintained, as shown hereafter for the relationship of Al_2O_3 with SiO_2, Fe_2O_3 and LOI. Figure 19.11 illustrates the predicted Al_2O_3 grades based on sample interval assays (top) and by block values (bottom) for the DFB bauxite domain. The smoothing effect of block modelling considerably reduces the range of Al_2O_3 values.

Figure 19-11 Al_2O_3% Forecasts based on SiO_2%, Fe_2O_3% and LOI





Samples (top) versus Blocks (bottom) – DFB Domain

A further means of validating the resource model is compare the tonnages and grades of block models with polygonal models. Table 19.19 shows a comparison between the polygonal model for RGB, including DFB, versus the 3D block model.

Table 19-19 Polygonal Model versus 3D Block Model – RGB Including DFB

Polygonal	Surface	Overburden	Bauxite	LOI	SiO_2	TiO_2	Fe_2O_3	Al_2O_3	Totox
kt	m^2	m	m	%	%	%	%	%	%
6,495	1,022,155	28.7	4.2	29.3	8.6	2.5	0.9	57.5	98.9

Block Model	Surface	Overburden	Bauxite	LOI	SiO_2	TiO_2	Fe_2O_3	Al_2O_3	Totox
kt	m2	m	m	%	%	%	%	%	%
5,900	969,912	28.6	4.1	29.4	8.4	2.5	0.9	57.7	98.9

Tonnage of polygonal model 9% higher than block model

Minor grade variations result from different model boundaries. The polygonal model is limited to the extent of the surface area explored by drilling, while the block model boundary corresponds to the polygon enclosing the resources potentially recoverable. Also, in peripheral areas, the block model does not fully include the area of influence of boreholes. This limitation is imposed by the use of triangulation to define the bauxite layer. Otherwise, the RGB model inclusive of RGB and the corresponding polygonal model are both restricted by the same constraints in terms of bauxite thickness.

A fundamental difference between the polygonal and block models is that the former does not take into account neighbouring grades and thickness while the latter does. While global grade estimates are not significantly influenced, local grade estimates as well as local and global tonnage estimates are affected to a much larger degree. The most important result is a reduction of the tonnage estimate due to the impact of thin and/or absent mineralization within and around the deposit. This effect is inversely proportional to the size and regularity of the mineralisation.

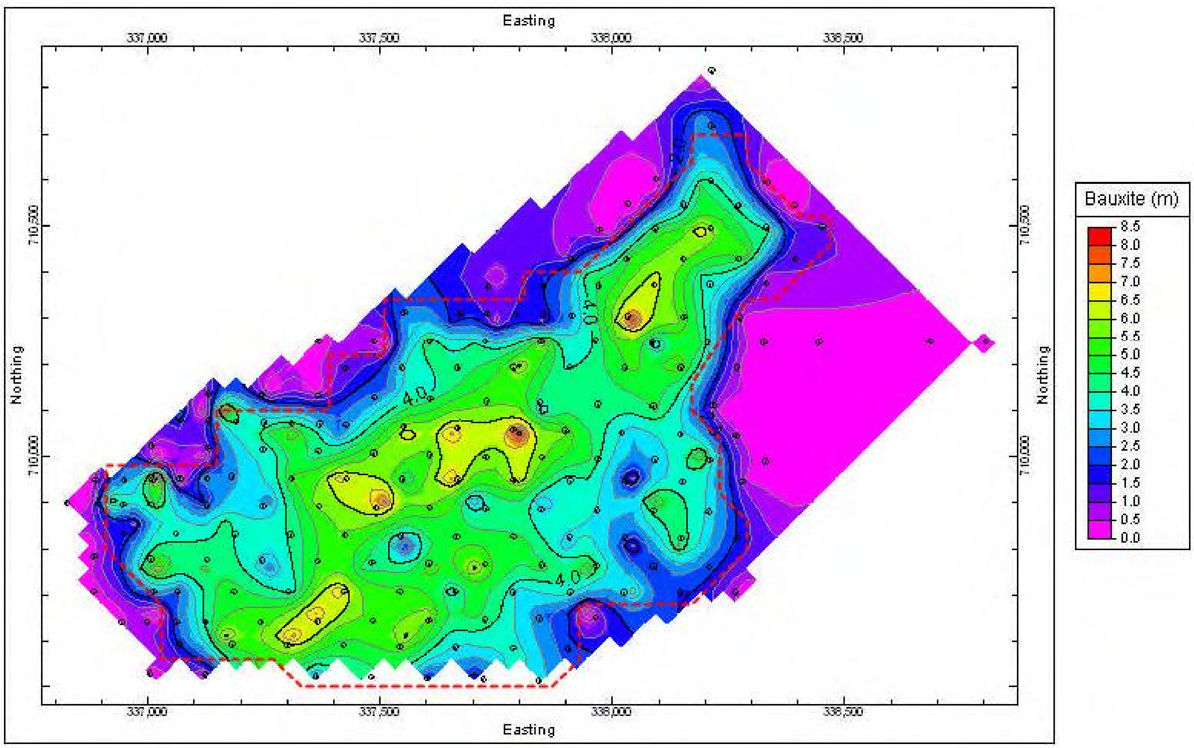
In summary, compared to a block model, a polygonal model will report consistent average grades at the level of global estimation, but the tonnage reported will be systematically higher, 9% as seen in the comparison in Table 19.15. The polygonal model provides a useful control as it is simple to implement and unlikely to be affected by manipulation or interpretation errors. It validates global grade estimates and sets the upper limit for the global tonnage estimate.

The DFB model is enclosed within the boundaries of the RGB model inclusive of DFB, which therefore imposes the constraints regarding bauxite thickness. In this sense, DBF and polygonal models are not strictly comparable in terms of surface extent. The block model is larger surface wise and thinner due to the inclusion of DBF intercepts below 1m. However, grades are consistent and tonnage comparable.

As a further validation of the 3D resource block models, RGB including DFB and DFB bauxite block values have been compared to the respective composites in order to evaluate the effect of change of support from composited core samples to 60 x 60 m x 2 m blocks. For this purpose the bauxite thickness, SiO_2, Fe_2O_3 and Al_2O_3 are plotted using minimum smoothing for composite values and no smoothing for block values.

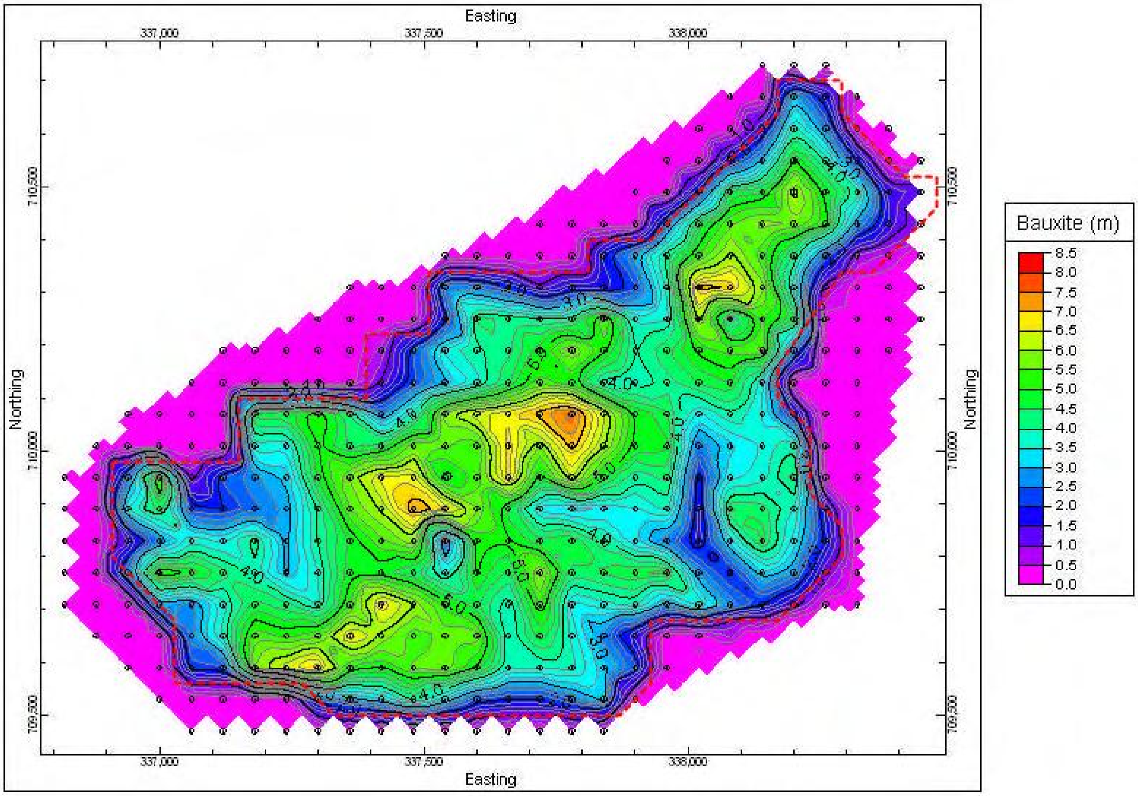
The resource block models only include blocks qualifying as resources; other blocks are ignored by setting them to nil. The few and minor bauxite outliers extending beyond the resource boundary, indicated as a red dashed line in figure shown below, can be examined in Figure 19.11 depicting the bauxite thickness of composites (above) and of the resource model (below).

Figure 19-12 Bauxite Thickness (m) of Composites (above) and Block Model (below)



RGB Inclusive of DFB

Bauxite Thickness (m) of Composites (above) and Block Model (below)



RGB Inclusive of DFB

While the smoothing and contraction of the range of the value populations, a natural outcome of the interpolation process discussed above, the general distribution of values is well preserved between the block models and the composites.

20.0 OTHER RELEVANT INFORMATION

No additional information is considered necessary to make this technical report more understandable.

21.0 INTERPRETATION AND CONCLUSIONS

The geometry and continuity of the Bonasika 7 bauxite deposit has been determined by extensive drilling and sampling. The mineralized horizon is essentially flat and largely continuous with the exception of local clay seams that occur and likely result from sub-vertical fracturing and in-filling subsequent to bauxitization. The deposit is similar in character to those developed in the Linden producing area, although not as thick and higher in silica. The deposit is also smaller, but it has the advantage of being exposed at surface and having a much reduced waste stripping ratio compared to the Linden deposits.

The variography, combined with systematic geological data that has been statistically analysed provides a sound basis to mineral resource categorisation. Closer spaced drilling however, is required for detailed mine planning.

Mineral resource modelling has been conducted with specific block sizes appropriate to the drill spacing and bauxite continuity as expressed by the variography. Grades of the resource model are consistent with sample grades. The validity of the models has been checked by comparing the estimation results with those of polygonal estimates. This comparison indicates that the grades of the block models are consistent with polygonal models and the sum of the oxides is preserved. Differences in tonnage are inherent between polygonal and kriged interpolated estimation methods with the former typically resulting in larger tonnages.

The Indicated Mineral Resources reported in Table 19.16 are sufficient in quantity and acceptable in quality to support feasibility related studies of developing the Bonasika 7 deposit for a sintered bauxite production operation. The mineral resources may be supplemented at a later date by a comparable tonnage of bauxite in the Bonasika 6 deposit some three km to the north.

22.0 RECOMMENDATIONS

Drilling of the Bonasika 7 deposit on a regular 60m x 60m would allow for the categorisation of the mineral resources as Measured. This would call for approximately 150 additional holes and would allow for detailed mine planning.

When a decision will have been made to proceed with the project it is recommended to drill the initial pit area (covering six quarters) at a spacing of 30m. This would assist in scheduling bauxite grades and aid grade control which will be critical in the early stages of development. Some short range continuity drilling would also help in developing an appropriate grade control programme.

The conversion of the un-washed resources to mineral reserves requires confirmation of an appropriate process flow sheet with well established recovery and grade enhancement parameters.

23.0 REFERENCES

D. Bleackley, 1964,

Bauxites and Laterites of British Guiana, Geological Survey of British Guiana, Bull. 34.

D. Butty, Aluminium Industry Professionals Inc., June 2010.

Resource Modelling of Waratilla, Bonasika 1,2 and 5,

J. Trotman, S & PM Inc, November, 2010

Validation Survey Report

Th. Van der Hammen and T.A. Wijmstra, 1964

A palynological study on the Tertiary and Upper Cretaceous of British Guiana

Leidsche Geologische Mededelingen Vol. 30.

24.0 DATE AND SIGNATURE

To Accompany the Report entitled

"Technical Report – Bonasika 7 Bauxite Deposit, Waratilla Cartwright Prospecting License" dated May 9, 2011

I, Dominique L. Butty, Eurogeol, do hereby certify that:

1) I am a Consulting Geologist with Butty Herinckx & Partners, working on behalf of Aluminium Industry Professionals Inc., with an office at Chemin de la Coix 16, 1070 Puidoux, Switzerland;

2) I hold a "Diplôme de Géologie" from the University of Lausanne, Switzerland (1970) and a MA degree in Computer Management from Leiden University (1985);

3) I am a member of the Swiss Association of Geologists and of the European Federation of Geologists (registration 214);

4) I have worked in mineral exploration industry continuously since 1970 and specifically in the bauxite industry as a geologist in exploration, development and mine operations;

5) I have read the definition of "qualified person" set out in the National Instrument 43-101 and certify that by reason of my education, affiliation with a professional association and past relevant work experience, I fulfil the requirements to be an independent qualified person for the purposes of NI 43-101;

6) I have visited the Bonasika Mining Licence and Waratilla Cartwright Prospecting Licence in June 2009, and subsequently carried out the resource evaluation of the Bonasika deposits 1 through 7;

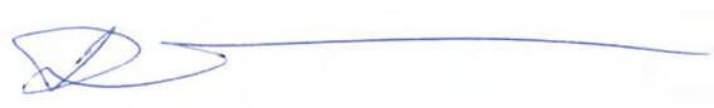
7) Neither I, nor any affiliated entity of mine, is at present under an agreement, arrangement or understanding or expects to become, an insider, associate, affiliated entity or employee of First Bauxite Corporation, or any associated or affiliated entities;

8) Neither I, nor any affiliated entity of mine, own, directly or indirectly, nor expect to receive, any interest in the properties or securities of First Bauxite Corporation, or any associated or affiliated companies;

9) Neither I, nor any affiliated entity of mine, have earned the majority of our income during the preceding three (3) years from First Bauxite Corporation, or any associated or affiliated companies;

10) I have read NI 43-101 and Form 43-101F1 and have prepared the technical report in compliance with NI 43-101 and Form 43-101F1; and have prepared the report in conformity with generally accepted Canadian mining industry practice, and as of the date of the certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading. I have no knowledge of any material fact or change which is not reflected in this report.

This 10 day of May, 2011.



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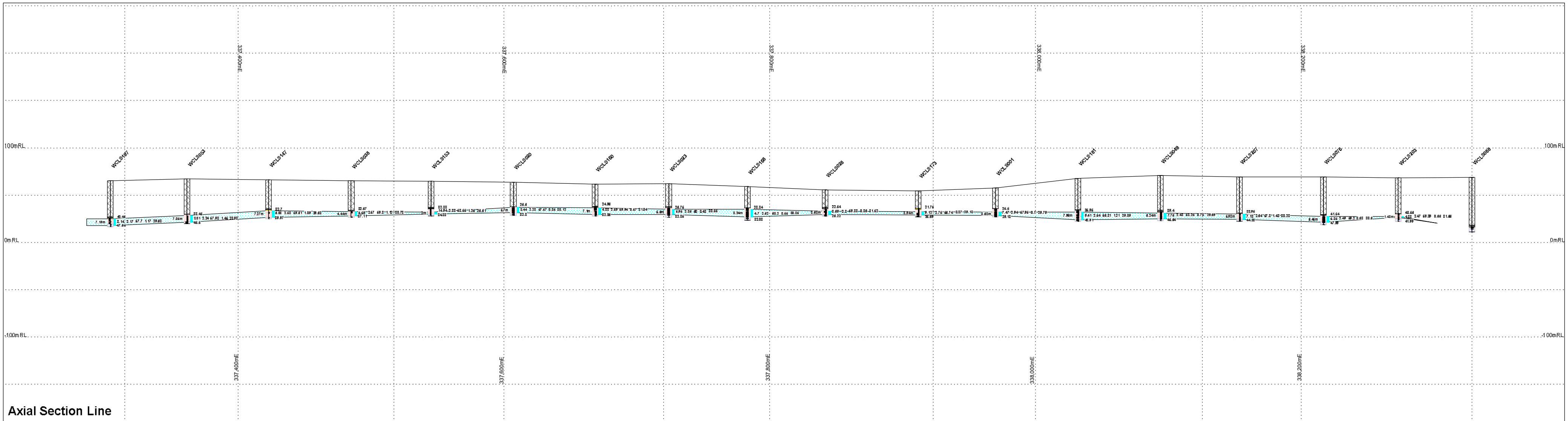
Dominique L. Butty, Eurogeol
On behalf of ALUMINPRO Aluminium Industry Professionals Inc.

25.0 ILLUSTRATIONS

Cross-Sections of Bonasika 7 on following pages.

1. Axial section line
2. Line 200
3. Line 1400
4. Line 1800
5. Line 2200



Bauxite First Corporation

Lower Waratilla Cartwright Cross-Section Line
with Resource Envelope at > 48% Al2O3/ < 20% SiO2 cut-off.
(Minimum 1 m Bauxite Thickness)
Final

Prepared and Drawn by:
Guillaume Girouard

Datum: PSAD 56 UTM

Approved by:
Bryan S. Osborne P.Geo

Date: March 3rd, 2011

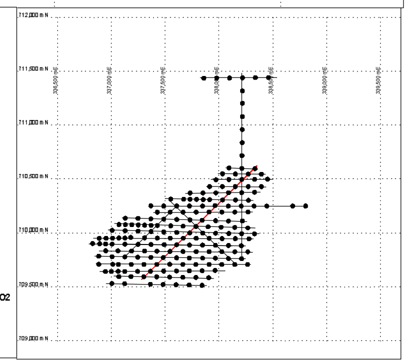
40 0 40 80
Meters

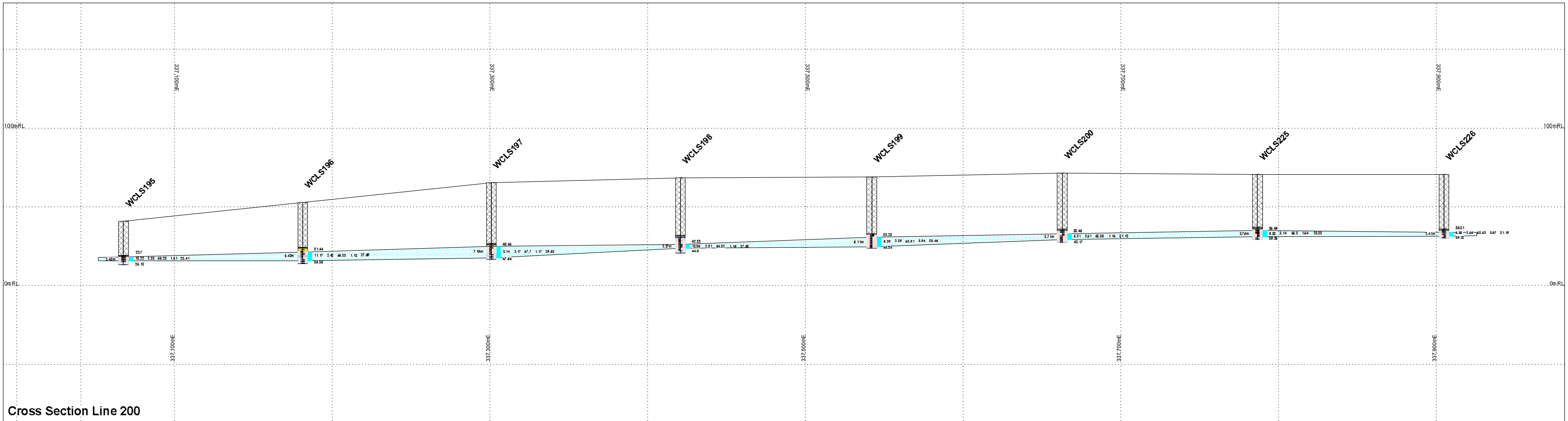
0	Un-Recovered Material
4	Sedimentary Cover
5	Clay
6	Bauxitic Clay
7	Bauxite
7a	Clayey Bauxite
7b	Granular Bauxite
7c	Massive Bauxite
7d	Lateritic Bauxite
8	Laterite
9	Basal Clay

Legend for Lithology

Bauxite > 48% Al2O3, < 20% SiO2

3.69 2.01 59.88 0.86 31.52 SiO2, TiO2, Al2O3, Fe2O3, LOI





Bauxite First Corporation

Lower Waratilla Cartwright Cross-Section Line 200 W-E
with Resource Envelope at > 48% Al2O3 / < 20% SiO2 cut-off
(Minimum 1 m Bauxite Thickness)
Final

Prepared and Drawn by:
Guillaume Girouard

Datum: PSAD 56 UTM

Approved by:
Bryan S. Osborne P.Geo

Date: March 11th 2011

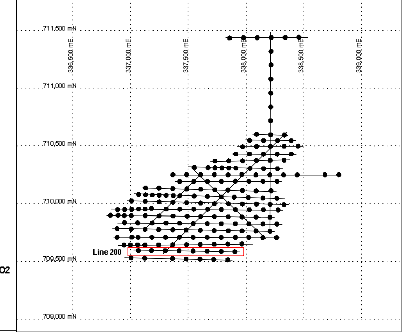
25 0 25 50
Meters

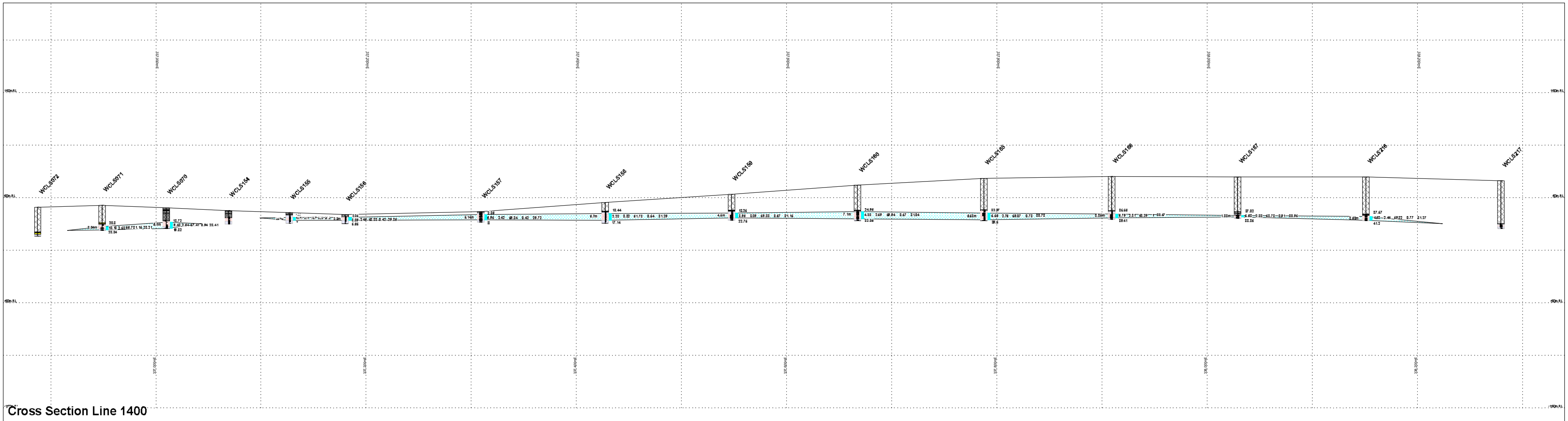
- 0 Un-Recovered Material
- 4 Sedimentary Cover
- 5 Clay
- 6 Bauxitic Clay
- 7 Bauxite
- 7a Clayey Bauxite
- 7b Granular Bauxite
- 7c Massive Bauxite
- 7d Lateritic Bauxite
- 8 Laterite
- 9 Basal Clay

Legend for Lithology

Bauxite > 48% Al2O3, < 20% SiO2

3.69 2.01 59.88 0.86 31.52 SiO2, TiO2, Al2O3, Fe2O3, LOI





Cross Section Line 1400

Bauxite First Corporation

Lower Waratilla Cartwright Cross-Section Line 1400 W-E
with Resource Envelope at > 48% Al2O3/ < 20% SiO2 cut-off
(Minimum 1 m Bauxite Thickness)
Final

Prepared and Drawn by:
Guillaume Girouard

Datum: PSAD 56 UTM

Approved by:
Bryan S. Osborne P.Geo

Date: March 11th, 2011

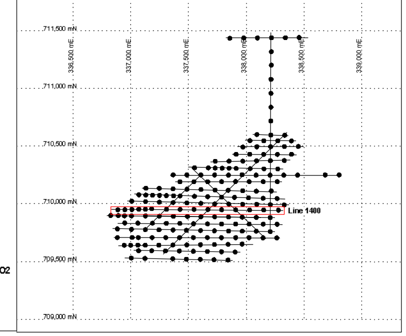
35 0 35 70
Meters

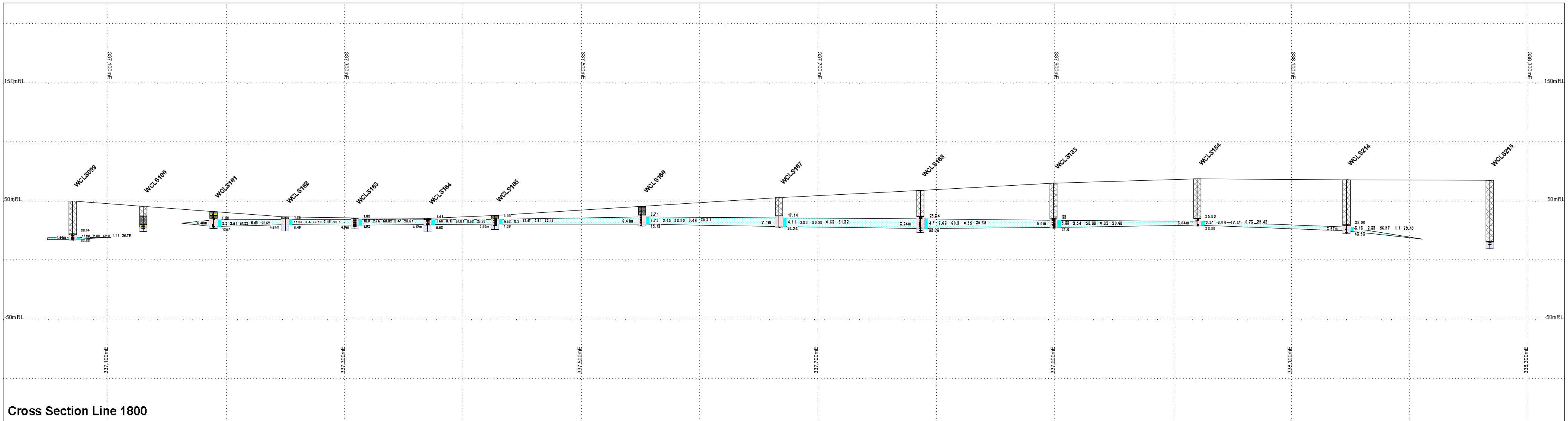
0	Un-Recovered Material
4	Sedimentary Cover
5	Clay
6	Bauxitic Clay
7	Bauxite
7a	Clayey Bauxite
7b	Granular Bauxite
7c	Massive Bauxite
7d	Lateritic Bauxite
8	Laterite
9	Basal Clay

Legend for Lithology

Bauxite > 48% Al2O3, < 20% SiO2

3.69 2.01 59.88 0.86 31.52 SiO2, TiO2, Al2O3, Fe2O3, LOI





Cross Section Line 1800

Bauxite First Corporation

Lower Waratilla Cartwright Cross-Section Line 1800 W-E
with Resource Envelope at > 48% Al2O3/ < 20% SiO2 cut-off
(Minimum 1 m Bauxite Thickness)
Final

Prepared and Drawn by:
Guillaume Girouard

Datum: PSAD 56 UTM

Verified by:
Bryan S. Osborne P.Geo

Date: March 11, 2011

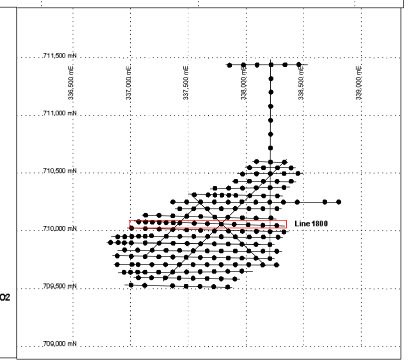
30 0 30 60
Meters

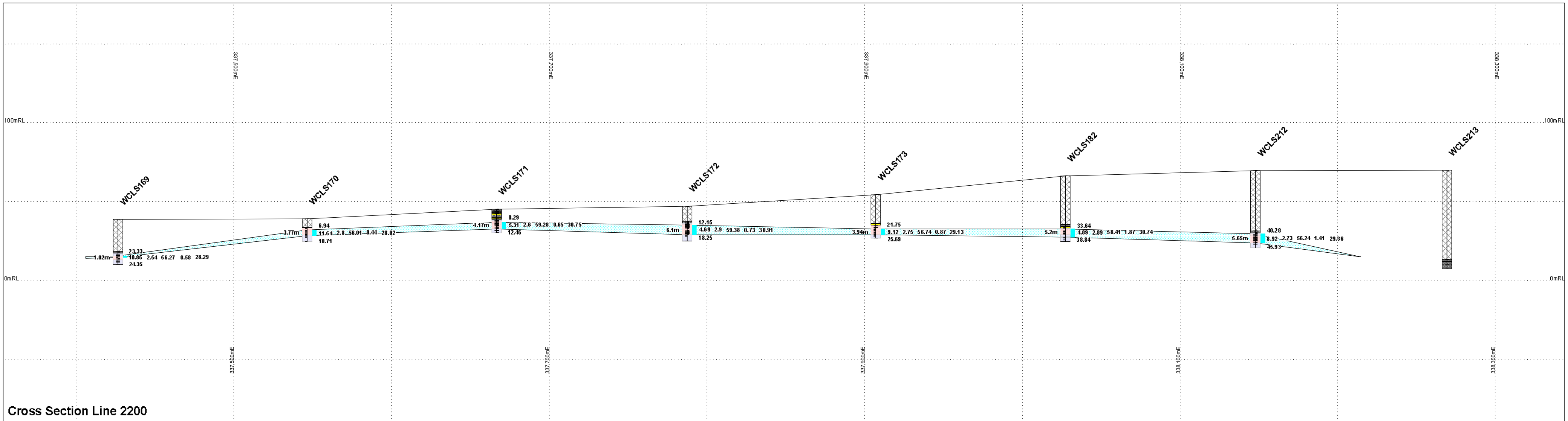
- 0 Un-Recovered Material
- 4 Sedimentary Cover
- 5 Clay
- 6 Bauxitic Clay
- 7 Bauxite
- 7a Clayey Bauxite
- 7b Granular Bauxite
- 7c Massive Bauxite
- 7d Lateritic Bauxite
- 8 Laterite
- 9 Basal Clay

Legend for Lithology

Bauxite > 48% Al2O3, < 20% SiO2

3.69 2.01 59.88 0.86 31.52 SiO2, TiO2, Al2O3, Fe2O3, LOI





Bauxite First Corporation

Lower Waratilla Cartwright Cross-Section Line 2200 W-E
with Resource Envelope at > 48% Al2O3/ < 20% SiO2 cut-off
(Minimum 1 m Bauxite Thickness)
Final

Prepared and Drawn by:
Guillaume Girouard

Datum: PSAD 56 UTM

Verified by:
Bryan S. Osborne P.Geo

Date: March 11, 2011

25 0 25 50
Meters

0	Un-Recovered Material
4	Sedimentary Cover
5	Clay
6	Bauxitic Clay
7	Bauxite
7a	Clayey Bauxite
7b	Granular Bauxite
7c	Massive Bauxite
7d	Lateritic Bauxite
8	Laterite
9	Basal Clay

Legend for Lithology

Bauxite > 48% Al2O3, < 20% SiO2

3.69 2.01 59.88 0.86 31.52 SiO2, TiO2, Al2O3, Fe2O3, LOI