GRAEME CAMPBELL & ASSOCIATES PTY LTD
Specialists in Mine-Waste Geochemistry,
& Soil-Moisture-Retention Testing

P.O. Box 247, Bridgetown, Western Australia 6255
Phone: (61 8) 9761 2829 Fax: (61 8) 9761 2830
E-mail: gca@wn.com.au

0922

COMPANY: Brockman Resources Limited

ATTENTION: Colin Paterson

FROM: Graeme Campbell

SUBJECT: Marrillana Iron Ore Project: Mine-Waste Geochemistry & Implications for Mine-Waste Management

NO. PAGES (including this page): 43 DATE: 31st July 2009

Colin,

The statistical assessment of Sulphur occurrences within the waste-zone shows that the Deposit is characterised by negligible amounts of sulphide-minerals (refer Attachment I).

Details of the selected samples submitted for testing as part of this study are presented in Attachment II, and copies of laboratory reports are presented in Attachment III. Results are presented in Tables 1 and 2.

The samples were all circum-neutral (pH 6-8) with low contents of soluble-salts (chlorides chiefly), as typical of surficial strata in the Pilbara. Enrichments in minor-elements were confined to As, Sb and Se with the degree of enrichment being slight. Moreover, these enriched-elements correspond to "fixed" forms of low solubility and bio-availability.

In a nutshell, the mine-wastes to be produced during the Project should be geochemically benign, and pose no geochemical concerns for water-quality, and/or revegetation works.

Regards,

Dr GD Campbell
Director

TABLES

Table 1: Testwork Results for Mine-Waste Samples

SITE-SAMPLE NO.	LITHOTYPE	pH-(1:2)	EC-(1:2) [mS/cm]	TOTAL-C (%)	CO_3-C (%)	ANC (kg H_2SO_4/ tonne)
75205	Overburden-[Gravels-Cobbles] (TOB)	6.4	0.11	0.63 (0.62)	0.55	49 (47)
74010	Overburden-[Gravels-Cobbles] (TOB)	7.3	0.14	0.31	0.23	29
76431	Overburden-[Gravels-Cobbles] (TOB)	7.3	0.24	0.09	nm	5
77028	Overburden-[Gravels-Cobbles] (TOB)	7.3	0.11	0.13	nm	13
76694	Overburden-[Gravels-Cobbles] (TOB)	7.5	0.13	0.08	nm	1
75215	Hematite-Detitrital-Waste (THD)	6.6	0.11	0.10	nm	2
76321	Hematite-Detitrital-Waste (THD)	7.2	0.11	0.16	nm	1
74020	Hematite-Detitrital-Waste (THD)	7.3	0.20	0.11	nm	1
76449	Hematite-Detitrital-Waste (THD)	7.5	0.11	0.09	nm	<1
77032	Hematite-Detitrital-Waste (THD)	7.4	0.096	0.10	nm	2
76732	Hematite-Detitrital-Waste (THD)	7.4 (7.4)	0.046 (0.051)	0.12	nm	-1
76310	Overburden-[Sands-Gravels] (TSD)	6.8	0.18	0.50	0.44	26

Notes:

EC = Electrical Conductivity; ANC = Acid-Neutralisation-Capacity; nm = not measured
pH-(1:2) and EC-(1:2) values correspond to pH and EC measured on sample slurries prepared with deionised-water, and a solid:solution ratio of *c.* 1:2 (w/w).
All results expressed on a dry-weight basis, except for pH-(1:2), and EC-(1:2).
Values in parentheses represent duplicates.

Table 2: Multi-Element-Analysis Results for Mine-Waste Samples

ELEMENT	TOTAL-ELEMENT CONTENT (mg/kg or %)			AVERAGE-CRUSTAL-ABUNDANCE (mg/kg or %)	GEOCHEMICAL-ABUNDANCE INDEX (GAI)		
	TOB (#75205)	TOB (#74010)	TOB (#76431)		TOB (#75205)	TOB (#74010)	TOB (#76431)
Al	1.5%	6.0%	2.5%	8.2%	0	0	0
Fe	37.2%	21.6%	31.7%	4.1%	**3**	2	2
Na	0.023%	0.071%	0.031%	2.3%	0	0	0
K	0.18%	0.55%	0.27%	2.1%	0	0	0
Mg	0.18%	0.28%	0.18%	2.3%	0	0	0
Ca	1.8%	1.2%	0.13%	4.1%	0	0	0
Ag	<0.2	<0.2	<0.2	0.07	0	0	0
Cu	10	30	15	50	0	0	0
Zn	17	36	18	75	0	0	0
Cd	<0.1	0.2	0.1	0.11	0	0	0
Pb	8	19	10	14	0	0	0
Cr	57	140	65	100	0	0	0
Ni	8	27	14	80	0	0	0
Co	3.1	8.6	3.7	20	0	0	0
Mn	450	500	530	950	0	0	0
Hg	0.04	<0.01	0.01	0.05	0	0	0
Sn	0.7	2.2	1.0	2.2	0	0	0
Sr	15	42	15	370	0	0	0
Ba	110	390	110	500	0	0	0
Th	4.4	13	5.5	12	0	0	0
U	0.89	2.0	0.94	2.4	0	0	0
Tl	0.12	0.30	0.18	0.6	0	0	0
V	56	140	64	160	0	0	0
As	12	14	10	1.5	2	**3**	2
Bi	0.13	0.36	0.18	0.048	1	2	1
Sb	1.2	1.6	1.1	0.2	2	2	2
Se	0.53	0.52	0.48	0.05	**3**	**3**	**3**
Mo	1.0	1.2	0.8	1.5	0	0	0
B	<50	<50	<50	10	0	0	0
P	590	370	410	1,000	0	0	0
F	150	240	180	950	0	0	0

Notes:
Average-crustal abundance of elements based on Bowen (1979), and the Geochemical-Abundance Index (GAI) is based on Förstner *et al.* (1993).

References:
Bowen HJM, 1979, "Environmental Chemistry of the Elements", Academic Press, New York.
Förstner U, Ahlf W and Calmano W, 1993, "Sediment Quality Objectives and Criteria Development in Germany", *Water Science & Technology*, 28:307-316.

Table 2 (Cont'd): Multi-Element-Analysis Results for Mine-Waste Samples

ELEMENT	TOTAL-ELEMENT CONTENT (mg/kg or %)			AVERAGE-CRUSTAL-ABUNDANCE (mg/kg or %)	GEOCHEMICAL-ABUNDANCE INDEX (GAI)		
	TOB (#77028)	TOB (#76694)	THD (#75215)		TOB (#77028)	TOB (#76694)	THD (#75215)
Al	2.1%	0.89%	2.3%	8.2%	0	0	0
Fe	31.3%	28.6%	44.5%	4.1%	2	2	**3**
Na	0.038%	0.070%	0.013%	2.3%	0	0	0
K	0.12%	0.21%	0.11%	2.1%	0	0	0
Mg	0.86%	0.15%	0.12%	2.3%	0	0	0
Ca	0.24%	0.054%	0.12%	4.1%	0	0	0
Ag	<0.2	<0.2	<0.2	0.07	0	0	0
Cu	40	7	13	50	0	0	0
Zn	69	26	13	75	0	0	0
Cd	0.1	<0.1	0.1	0.11	0	0	0
Pb	8	6	15	14	0	0	0
Cr	83	52	67	100	0	0	0
Ni	39	7	10	80	0	0	0
Co	21	2.3	3.9	20	0	0	0
Mn	1,100	340	540	950	0	0	0
Hg	0.02	<0.01	0.03	0.05	0	0	0
Sn	0.9	0.4	1.1	2.2	0	0	0
Sr	19	7.1	9.1	370	0	0	0
Ba	76	63	72	500	0	0	0
Th	4.3	2.2	7.1	12	0	0	0
U	1.3	0.50	1.2	2.4	0	0	0
Tl	0.19	0.09	0.17	0.6	0	0	0
V	89	31	70	160	0	0	0
As	13	6	14	1.5	**3**	1	**3**
Bi	0.18	0.08	0.30	0.048	1	0	2
Sb	1.4	0.71	1.8	0.2	2	1	**3**
Se	0.24	0.31	0.77	0.05	2	2	**3**
Mo	1.3	0.6	1.4	1.5	0	0	0
B	<50	<50	<50	10	0	0	0
P	600	360	620	1,000	0	0	0
F	160	150	150	950	0	0	0

Table 2 (Cont'd): Multi-Element-Analysis Results for Mine-Waste Samples

ELEMENT	TOTAL-ELEMENT CONTENT (mg/kg or %)			AVERAGE-CRUSTAL-ABUNDANCE (mg/kg or %)	GEOCHEMICAL-ABUNDANCE INDEX (GAI)		
	THD (#76321)	THD (#74020)	THD (#76449)		THD (#76321)	THD (#74020)	THD (#76449)
Al	2.5%	2.6%	2.4%	8.2%	0	0	0
Fe	45.6%	46.8%	44.3%	4.1%	**3**	**3**	**3**
Na	0.019%	0.018%	0.015%	2.3%	0	0	0
K	0.095%	0.11%	0.091%	2.1%	0	0	0
Mg	0.14%	0.12%	0.11%	2.3%	0	0	0
Ca	0.89%	0.088%	0.050%	4.1%	0	0	0
Ag	<0.2	<0.2	<0.2	0.07	0	0	0
Cu	9	11	10	50	0	0	0
Zn	12	36	10	75	0	0	0
Cd	<0.1	0.1	0.1	0.11	0	0	0
Pb	12	12	11	14	0	0	0
Cr	64	67	62	100	0	0	0
Ni	8	9	10	80	0	0	0
Co	4.1	3.4	3.0	20	0	0	0
Mn	830	700	670	950	0	0	0
Hg	0.02	0.02	0.09	0.05	0	0	0
Sn	1.1	1.3	1.2	2.2	0	0	0
Sr	11	9.7	7.0	370	0	0	0
Ba	63	60	36	500	0	0	0
Th	8.0	7.5	7.9	12	0	0	0
U	1.2	1.2	1.2	2.4	0	0	0
Tl	0.30	0.16	0.15	0.6	0	0	0
V	69	78	69	160	0	0	0
As	13	14	14	1.5	**3**	**3**	**3**
Bi	0.21	0.21	0.22	0.048	2	2	2
Sb	1.4	1.5	1.4	0.2	2	2	2
Se	0.95	0.50	0.72	0.05	**4**	**3**	**3**
Mo	1.1	1.3	1.1	1.5	0	0	0
B	<50	<50	<50	10	0	0	0
P	560	500	520	1,000	0	0	0
F	160	160	160	950	0	0	0

Table 2 (Cont'd): Multi-Element-Analysis Results for Mine-Waste Samples

ELEMENT	TOTAL-ELEMENT CONTENT (mg/kg or %)			AVERAGE-CRUSTAL-ABUNDANCE (mg/kg or %)	GEOCHEMICAL-ABUNDANCE INDEX (GAI)		
	THD (#77032)	THD (#76732)	TSD (#76310)		THD (#77032)	THD (#76732)	TSD (#76310)
Al	2.1%	1.9%	6.0%	8.2%	0	0	0
Fe	45.5%	45.9%	21.6%	4.1%	**3**	**3**	2
Na	0.038%	0.014%	0.071%	2.3%	0	0	0
K	0.12%	0.054%	0.55%	2.1%	0	0	0
Mg	0.19%	0.087%	0.28%	2.3%	0	0	0
Ca	0.065%	0.034%	1.2%	4.1%	0	0	0
Ag	<0.2	<0.2	<0.2	0.07	0	0	0
Cu	9	4	30	50	0	0	0
Zn	9	<1	36	75	0	0	0
Cd	0.1	<0.1	0.2	0.11	0	0	0
Pb	10	11	19	14	0	0	0
Cr	59	61	140	100	0	0	0
Ni	9	3	27	80	0	0	0
Co	5.0	1.9	8.6	20	0	0	0
Mn	1,100	650	500	950	0	0	0
Hg	<0.01	<0.01	<0.01	0.05	0	0	0
Sn	1.0	1.0	2.2	2.2	0	0	0
Sr	12	4.7	42	370	0	0	0
Ba	76	31	400	500	0	0	0
Th	6.4	7.5	13	12	0	0	0
U	1.1	1.1	2.0	2.4	0	0	0
Tl	0.13	0.09	0.30	0.6	0	0	0
V	63	61	140	160	0	0	0
As	13	12	14	1.5	**3**	2	**3**
Bi	0.18	0.18	0.36	0.048	1	1	2
Sb	1.4	1.4	1.6	0.2	2	2	2
Se	0.43	0.41	0.52	0.05	**3**	2	**3**
Mo	1.3	1.3	1.2	1.5	0	0	0
B	<50	<50	<50	10	0	0	0
P	560	410	370	1,000	0	0	0
F	160	140	240	950	0	0	0

ATTACHMENT I

SULPHUR OCCURRENCES AND UNIVARITATE STATISTICS

Coffey Mining ABN 52 065 481 209
1162 Hay Street, West Perth WA 6005 Australia,
PO Box 1671, West Perth WA 6872 Australia
T (+61) (8) 9324 8800 F (+61) (8) 9324 8877
coffey.com

Memorandum

Date:	31 July 2009
Company:	Brockman Resources Ltd
Attention:	Colin Paterson
Copy:	Alex Virisheff
From:	Iain Macfarlane
Subject:	**Marillana Iron Ore Project - Sulphur**

Dear Colin

As per you request of 30 June 2009, please find in Table 1 basic statistics for sulphur within the mineralised zone at Marillana, and also by lithology type these being:

- Waste Detritals (OVB).
- Mineralised Detritals (THDs).
- High Alumina Detritals (THDAs) - assigned to waste.
- Pisolites (TPS) - assigned to waste.
- Channel Iron Deposits (CIDs).
- Enriched basement? material.
- Non-mineralised basement material.

Cumulative frequency plots and histograms for each lithology are presented as Figures 1 - 18.

Should you have any queries, please do not hesitate to get in touch with the undersigned.

For and on behalf of Coffey Mining Pty Ltd

Iain Macfarlane

Iain Macfarlane
Senior Consultant Resources

F:\MINE\Projects\Brockman Resources\MINEWPER00706AC_Marillana Resource Estimation\Client Deliverables\Jul_09\Sulphur Stats Study_Final_31_Jul_09.doc

Table 1
Marillana Iron Ore Project
Basic Statistics for Sulphur

Material Type		Waste Detritals	Mineralised Detrital	High Alumina Detritals	Pisolites	Channel Iron Deposits	Enriched Basement? Material	Non-mineralised Basement Material
No. of Data		10,075	14,537	285	5,209	2,400	1,843	2,118
Minimum		0.001	0.002	0.004	0.001	0.003	0.001	0.001
Maximum		0.295	0.175	0.040	0.277	0.100	0.107	0.441
Mean		0.015	0.014	0.016	0.014	0.021	0.022	0.015
Mode		0.013	0.014	0.012	0.011	0.022	0.019	0.011
Percentiles	**10**	0.008	0.011	0.010	0.008	0.009	0.010	0.006
	20	0.010	0.012	0.011	0.009	0.012	0.013	0.008
	30	0.011	0.013	0.012	0.010	0.015	0.015	0.009
	40	0.012	0.013	0.012	0.011	0.017	0.018	0.010
	50	0.013	0.014	0.013	0.012	0.020	0.021	0.011
	60	0.014	0.015	0.014	0.013	0.022	0.024	0.013
	70	0.015	0.015	0.016	0.014	0.024	0.027	0.015
	80	0.017	0.016	0.020	0.016	0.027	0.031	0.019
	90	0.020	0.019	0.027	0.020	0.032	0.036	0.026
	95	0.026	0.022	0.032	0.024	0.038	0.040	0.034
	97.5	0.035	0.026	0.036	0.031	0.044	0.045	0.042
	99	0.052	0.034	0.037	0.041	0.050	0.051	0.058

Figure 1

Marillana Iron Ore Project

Cumulative Frequency Plot of S for Raw Sample Data (All Lithologies)

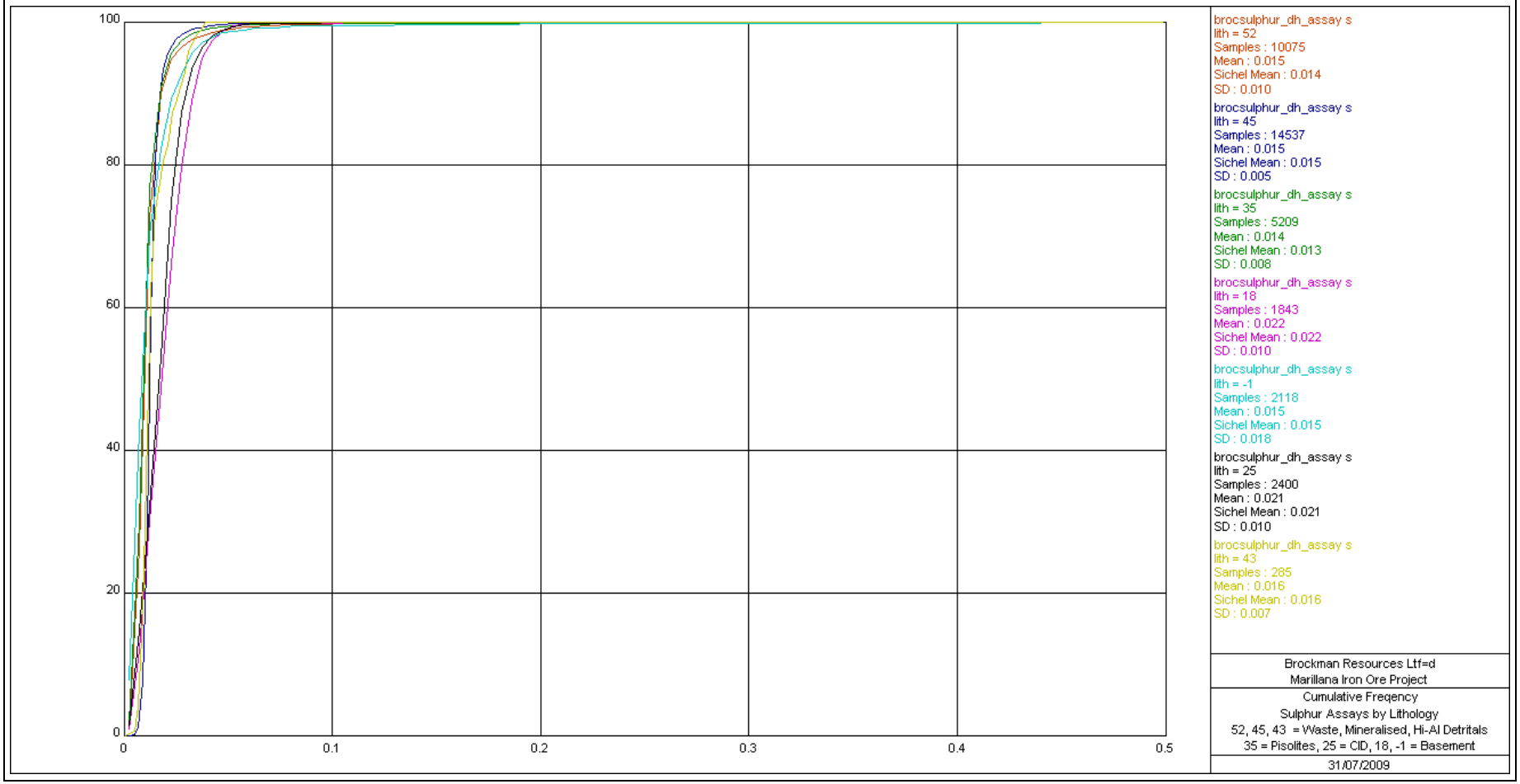


Figure 2

Marillana Iron Ore Project
Histogram Plot of S for Raw Sample Data (All Materials)

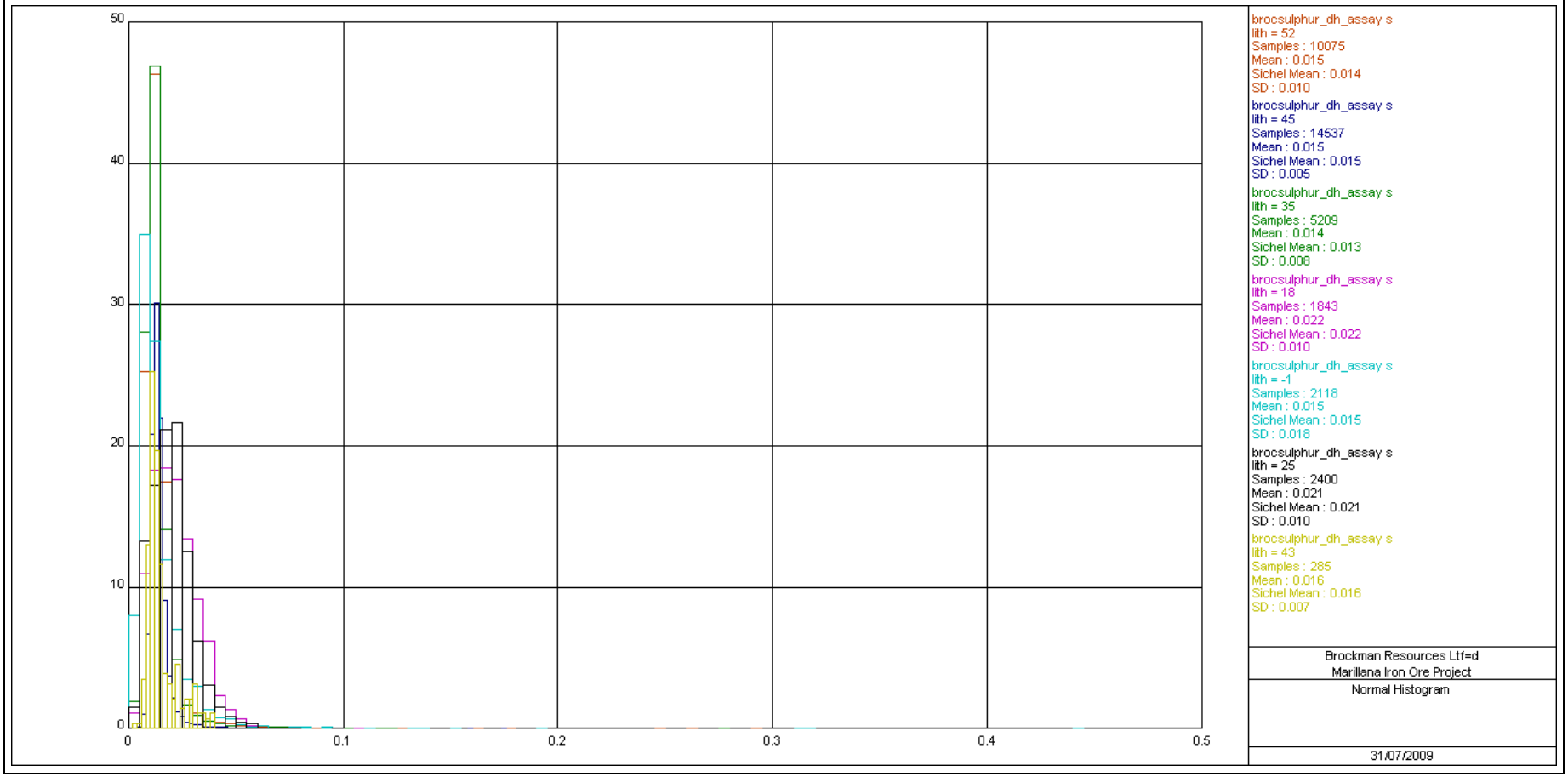


Figure 3

Marillana Iron Ore Project
Cumulative Frequency Plot of S for Raw Sample Data (All Materials Combined)

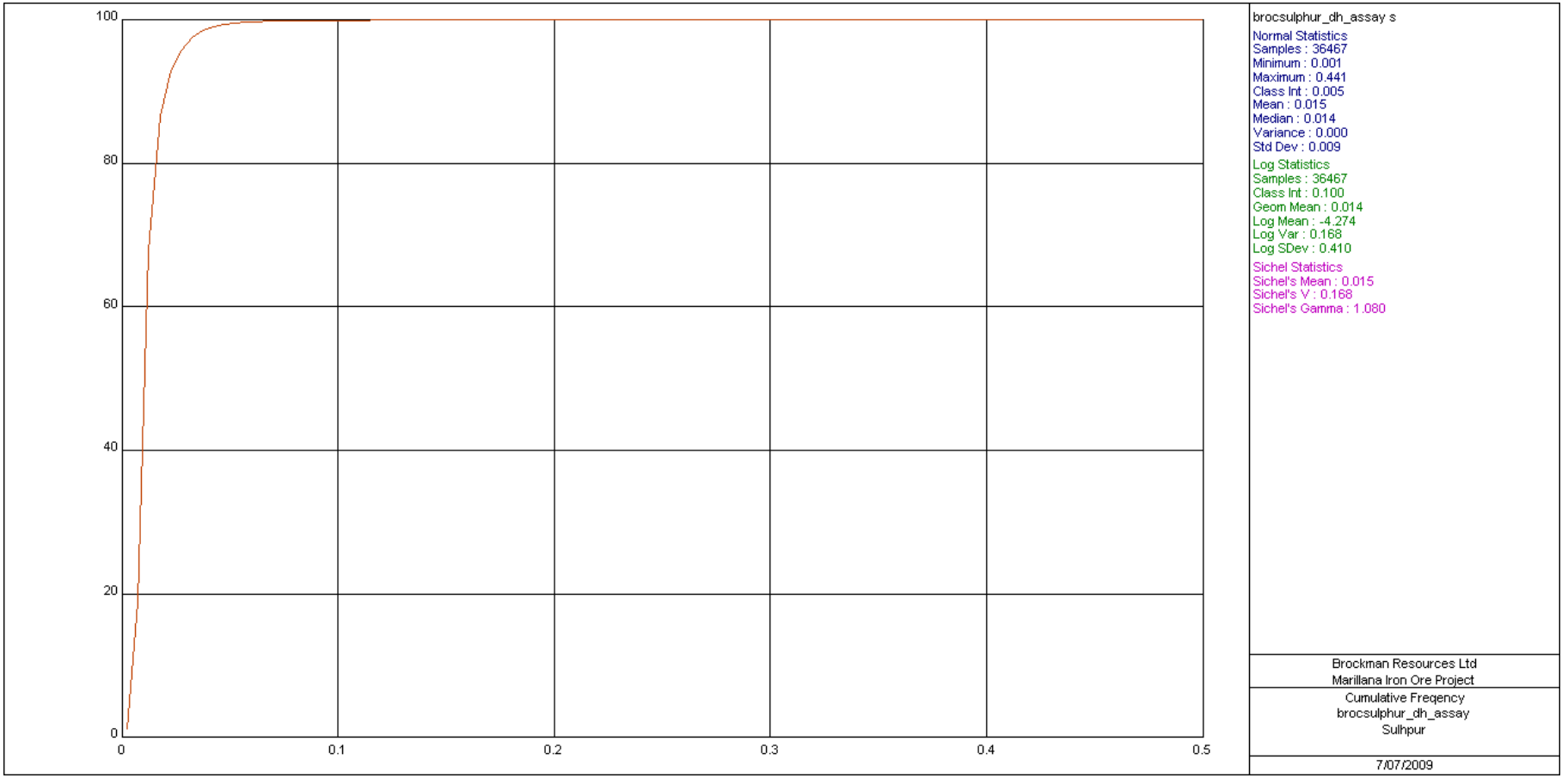


Figure 4

Marillana Iron Ore Project
Histogram Plot of S for Raw Sample Data (All Materials Combined)

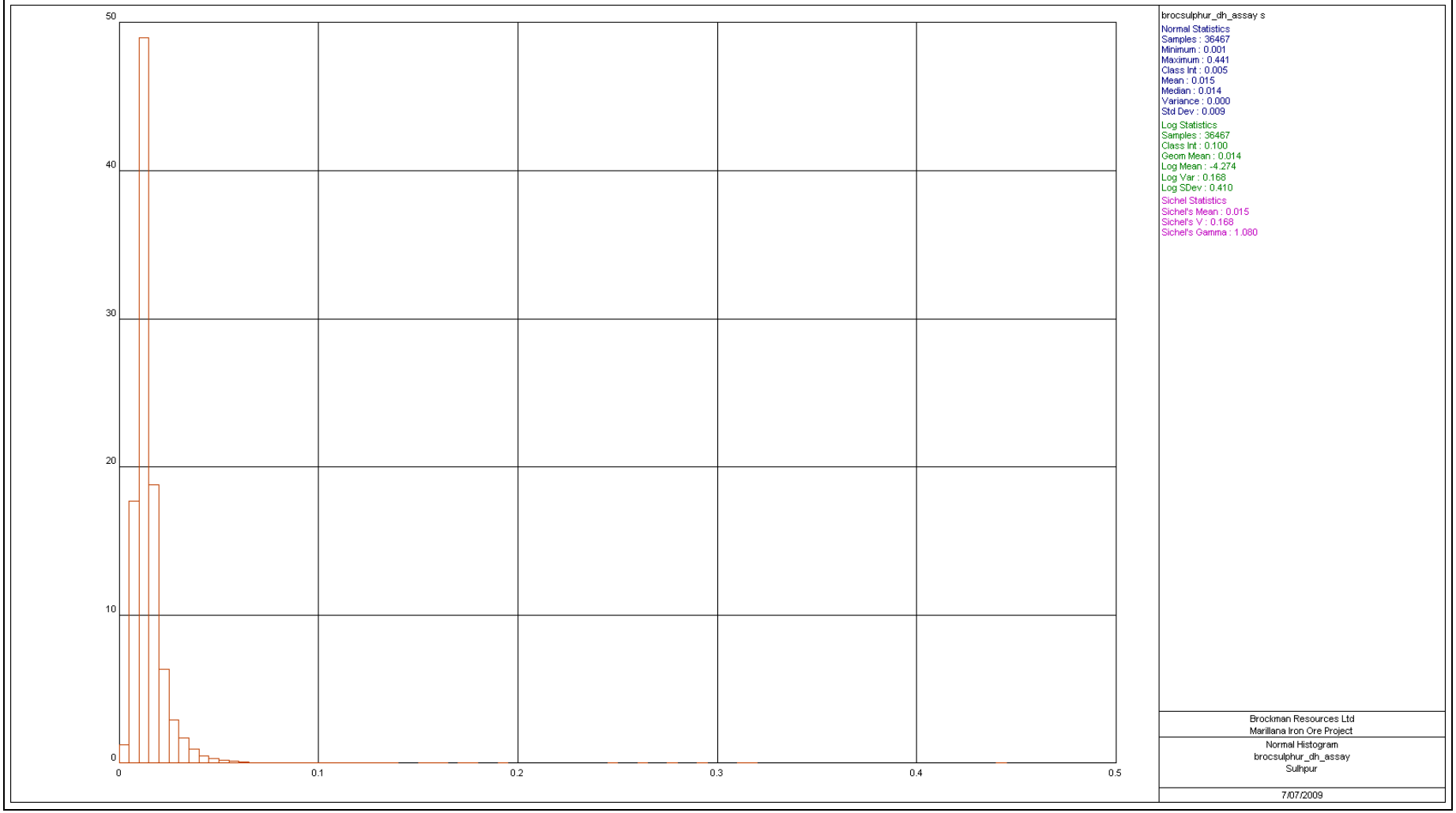


Figure 5

Marillana Iron Ore Project
Cumulative Frequency Plot of S for Material Type – Waste Detritals

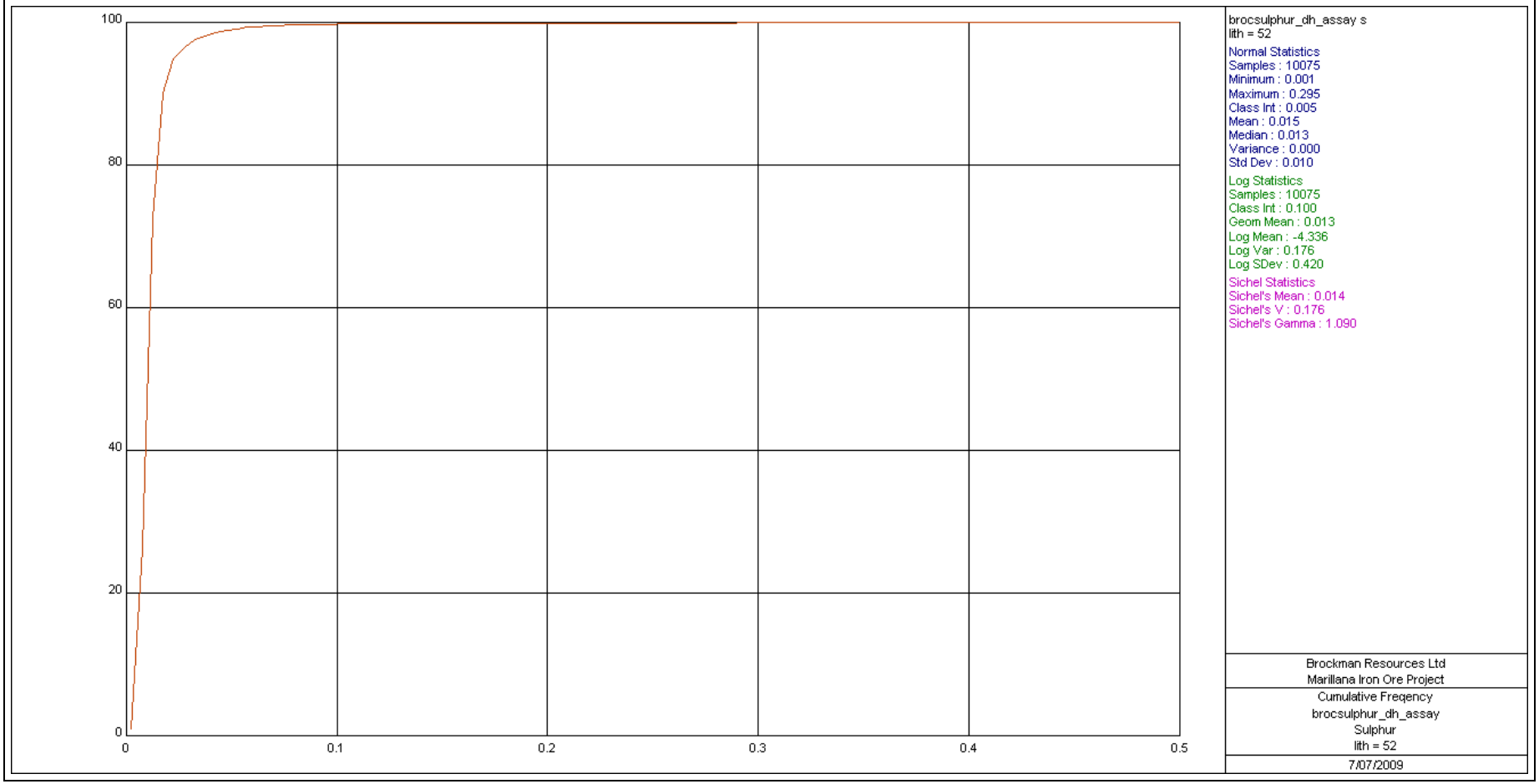


Figure 6

Marillana Iron Ore Project
Histogram Plot of S for Material Type – Waste Detritals

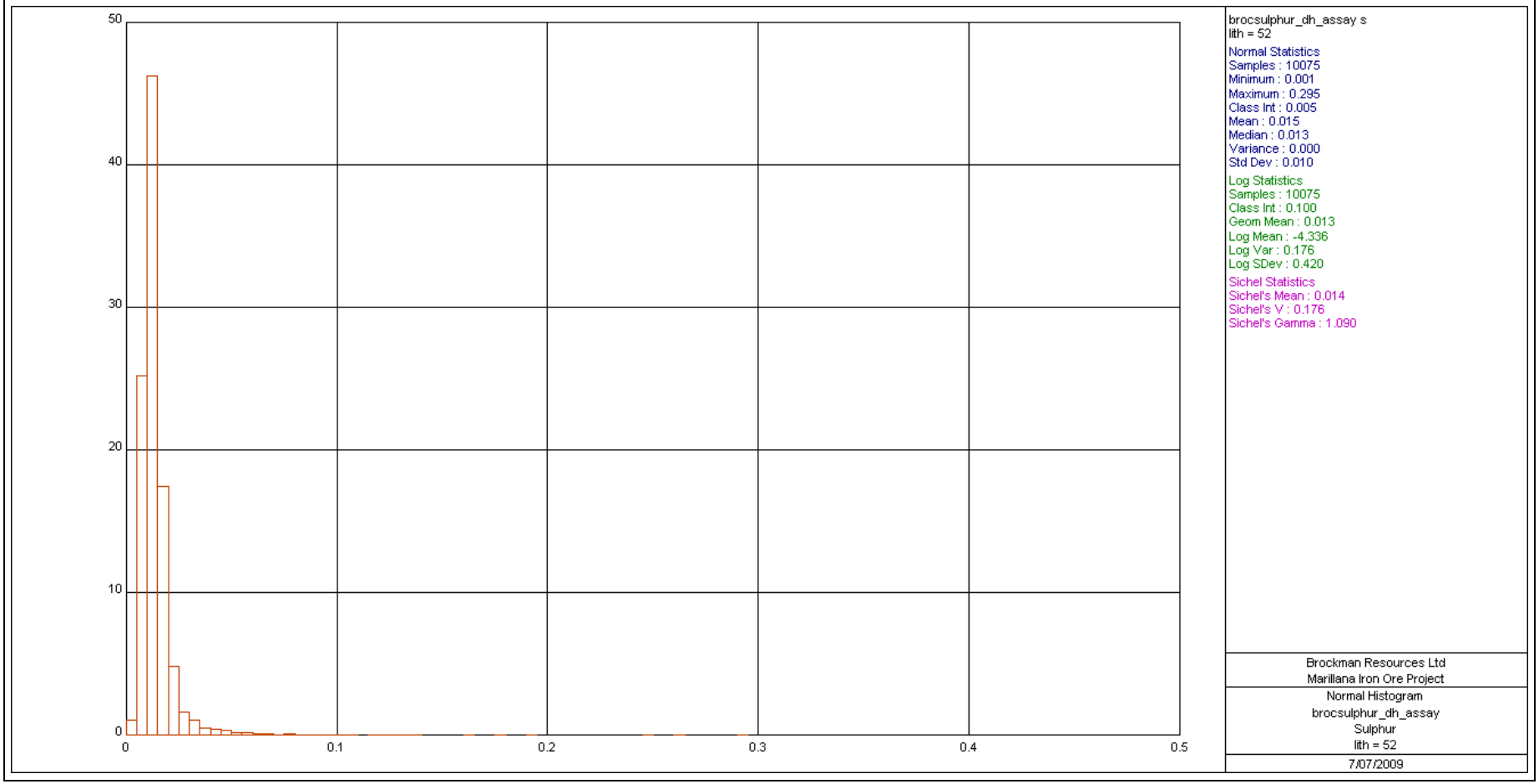


Figure 7

Marillana Iron Ore Project
Cumulative Frequency Plot of S for Material Type – Mineralised Detritals

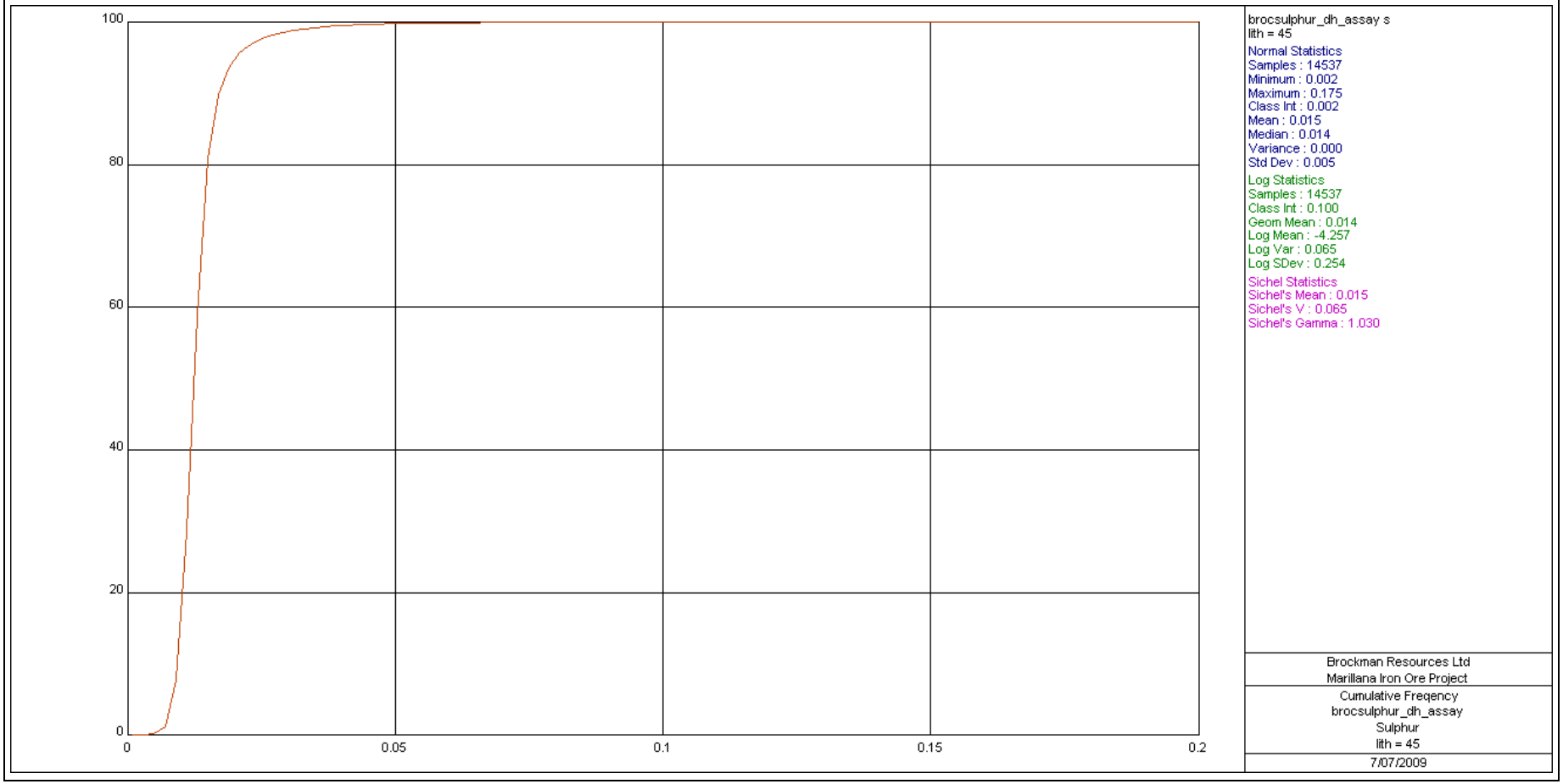


Figure 8

Marillana Iron Ore Project
Histogram Plot of S for Material Type – Mineralised Detritals

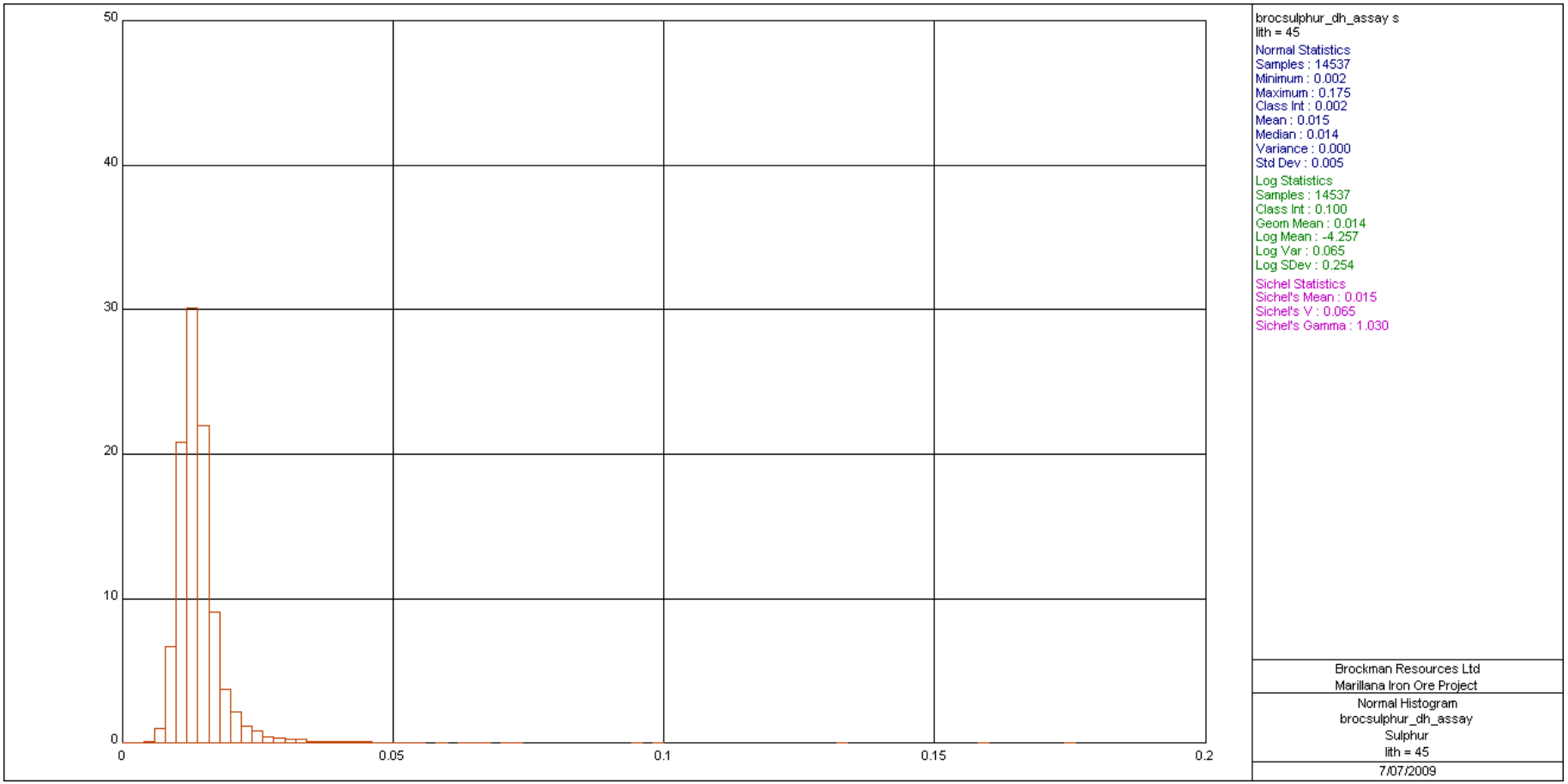


Figure 9

Marillana Iron Ore Project
Cumulative Frequency Plot of S for Material Type – High Alumina Detritals

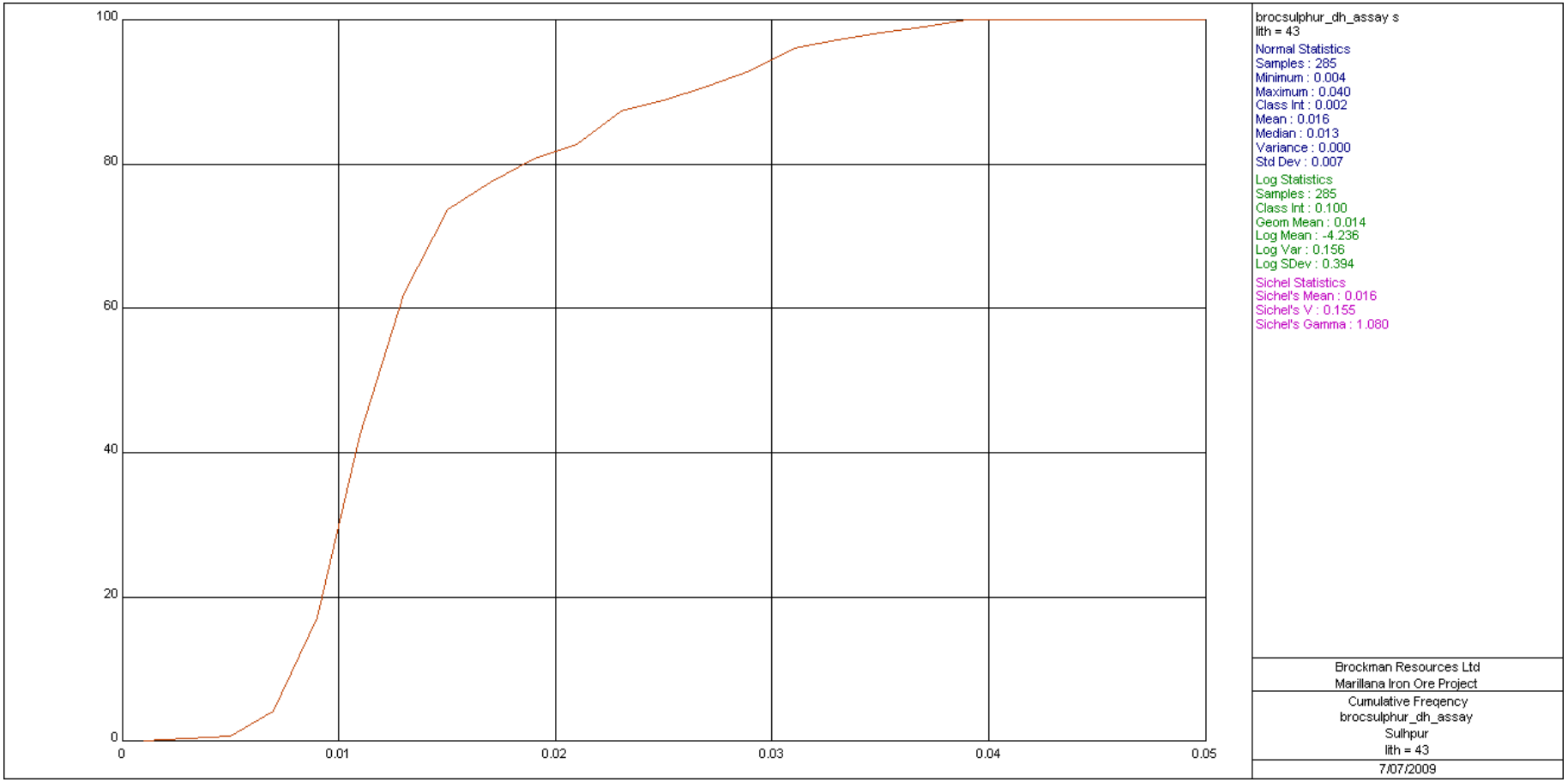


Figure 10

Marillana Iron Ore Project
Histogram Plot of S for Material Type – High Alumina Detritals

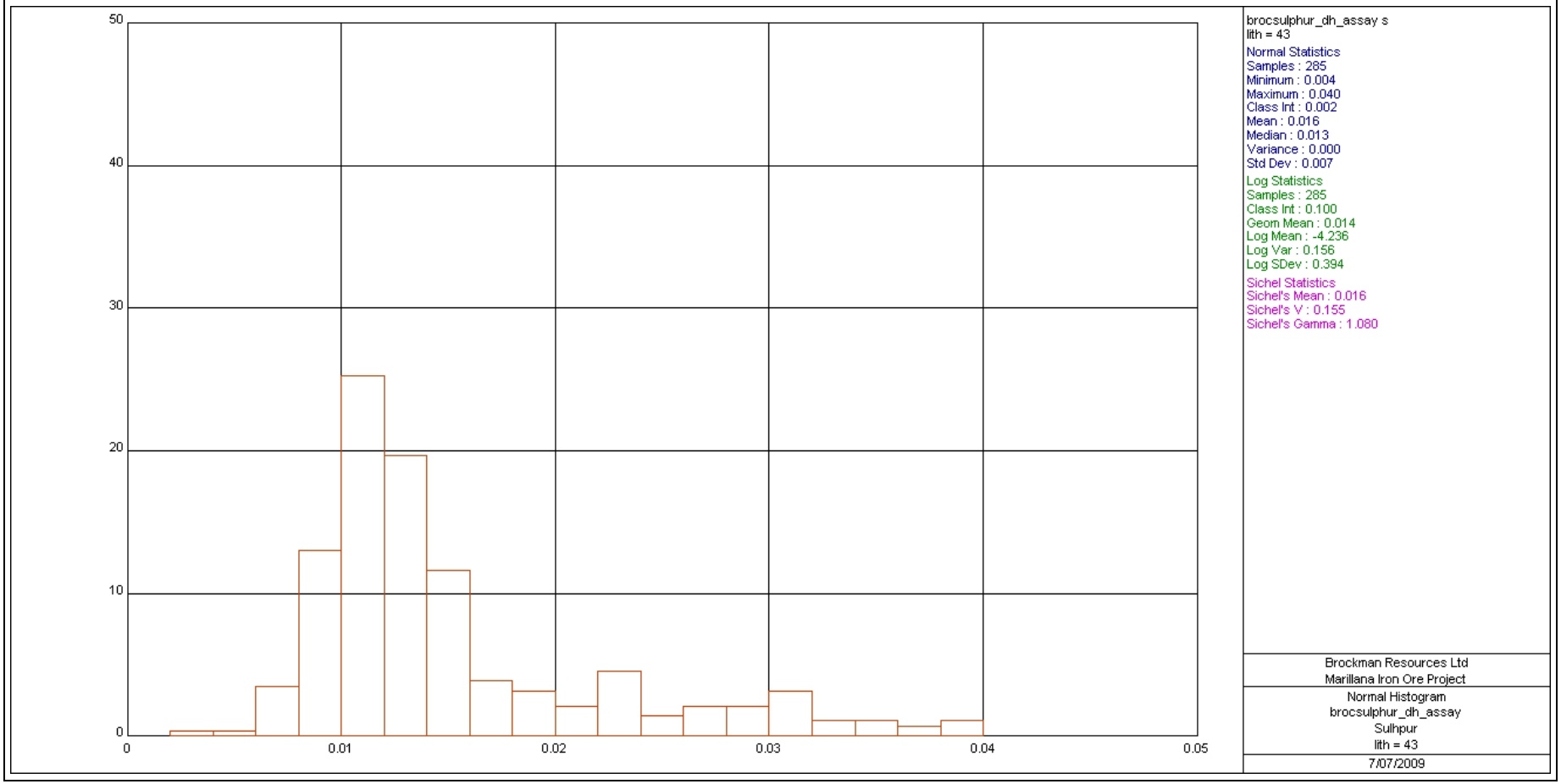


Figure 11

Marillana Iron Ore Project
Cumulative Frequency Plot of S for Material Type – Pisolites

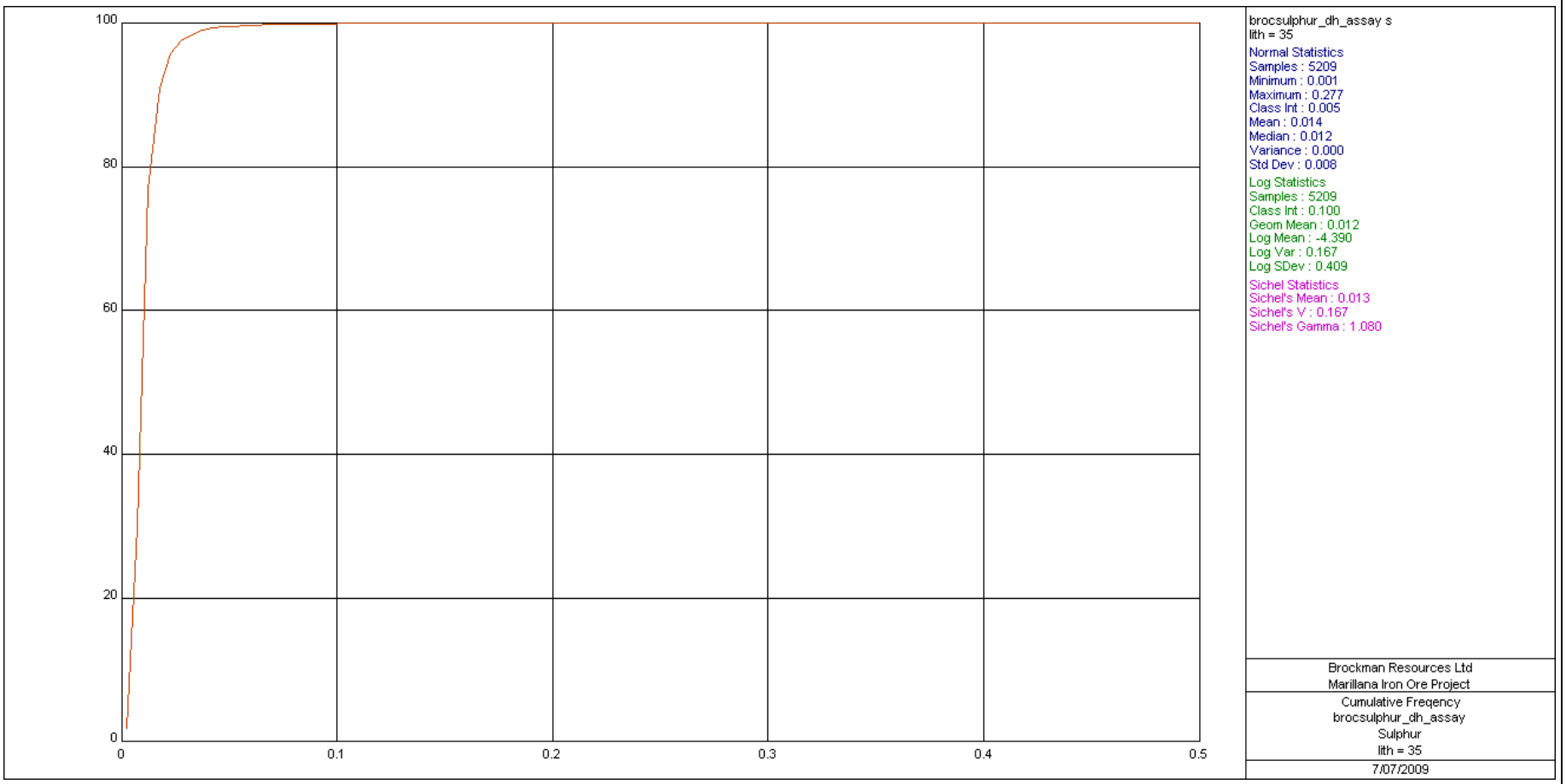


Figure 12

Marillana Iron Ore Project
Histogram Plot of S for Material Type – Pisolites

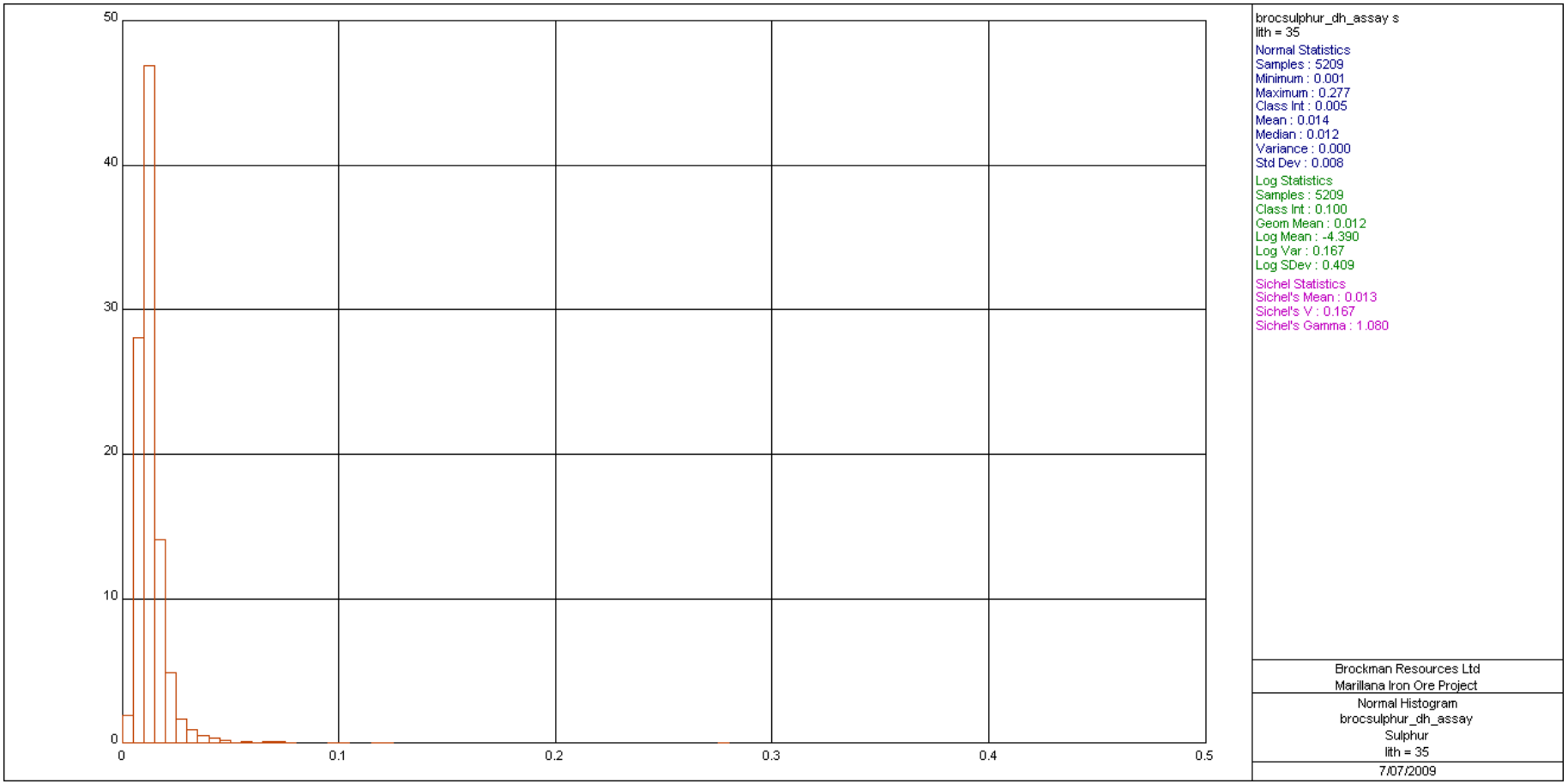


Figure 13

Marillana Iron Ore Project
Cumulative Frequency Plot of S for Material Type – Channel Iron Deposits

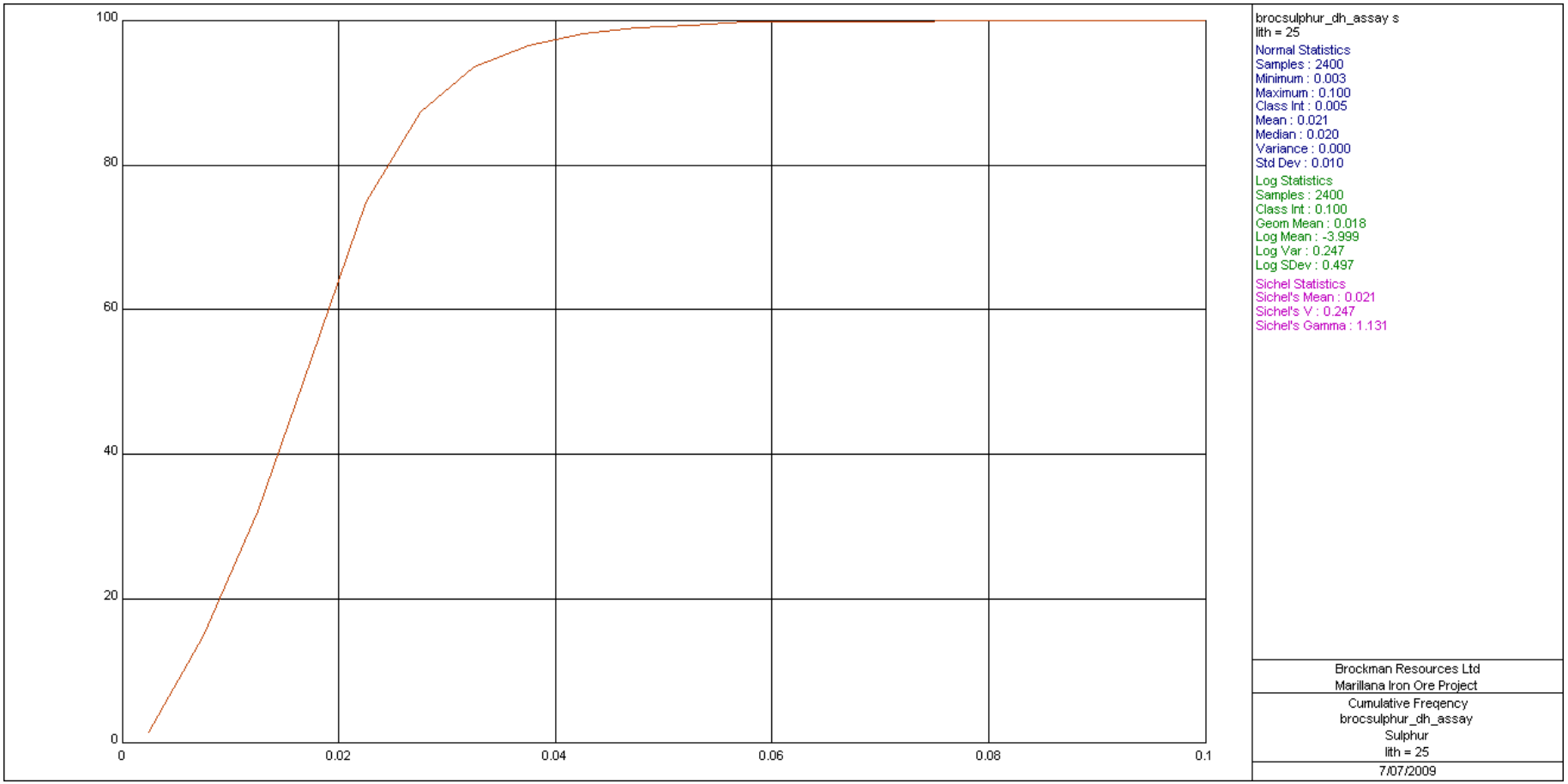


Figure 14

Marillana Iron Ore Project
Histogram Plot of S for Material Type – Channel Iron Deposits

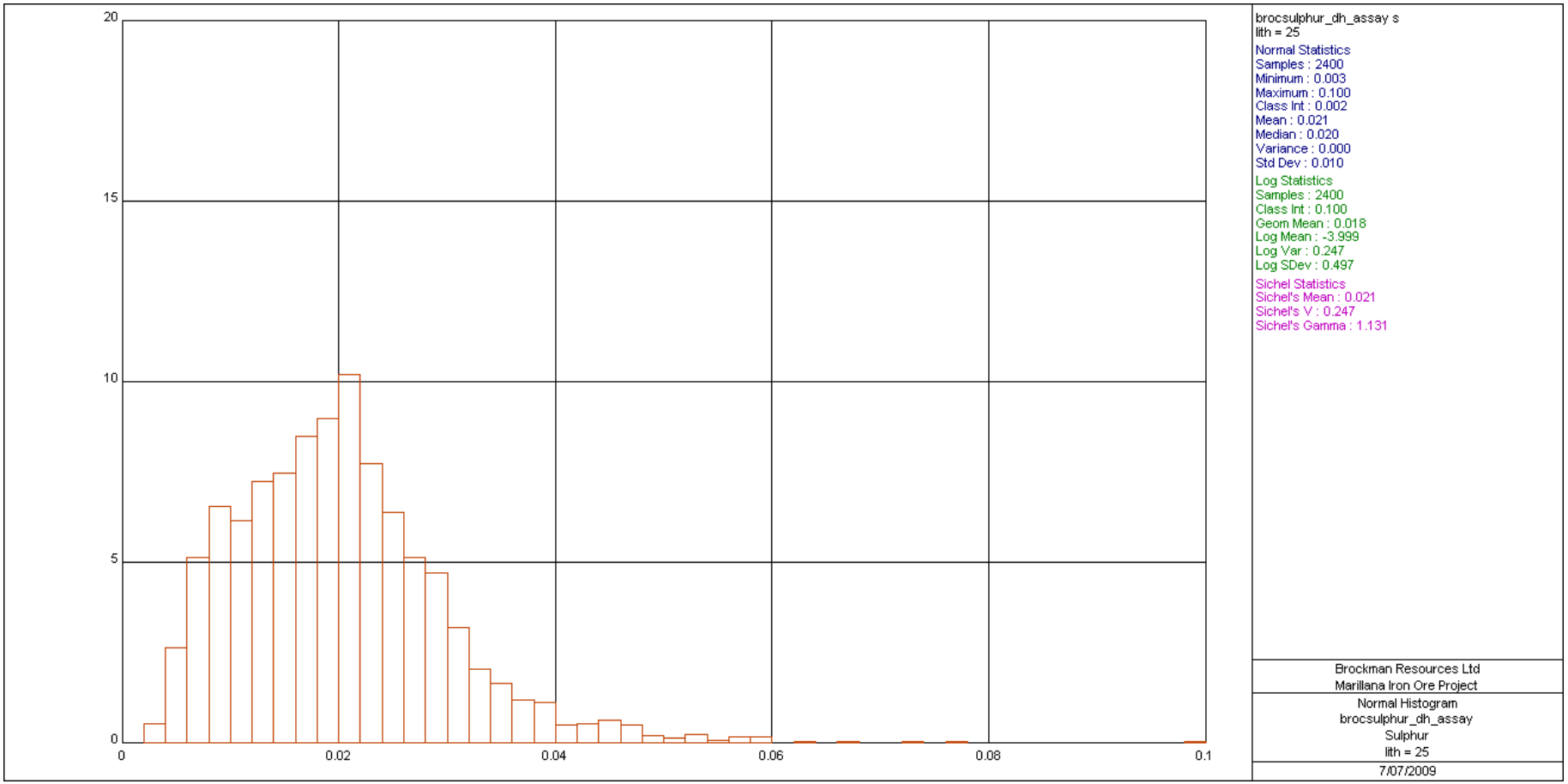


Figure 15

Marillana Iron Ore Project
Cumulative Frequency Plot of S for Material Type – Enriched basement? material

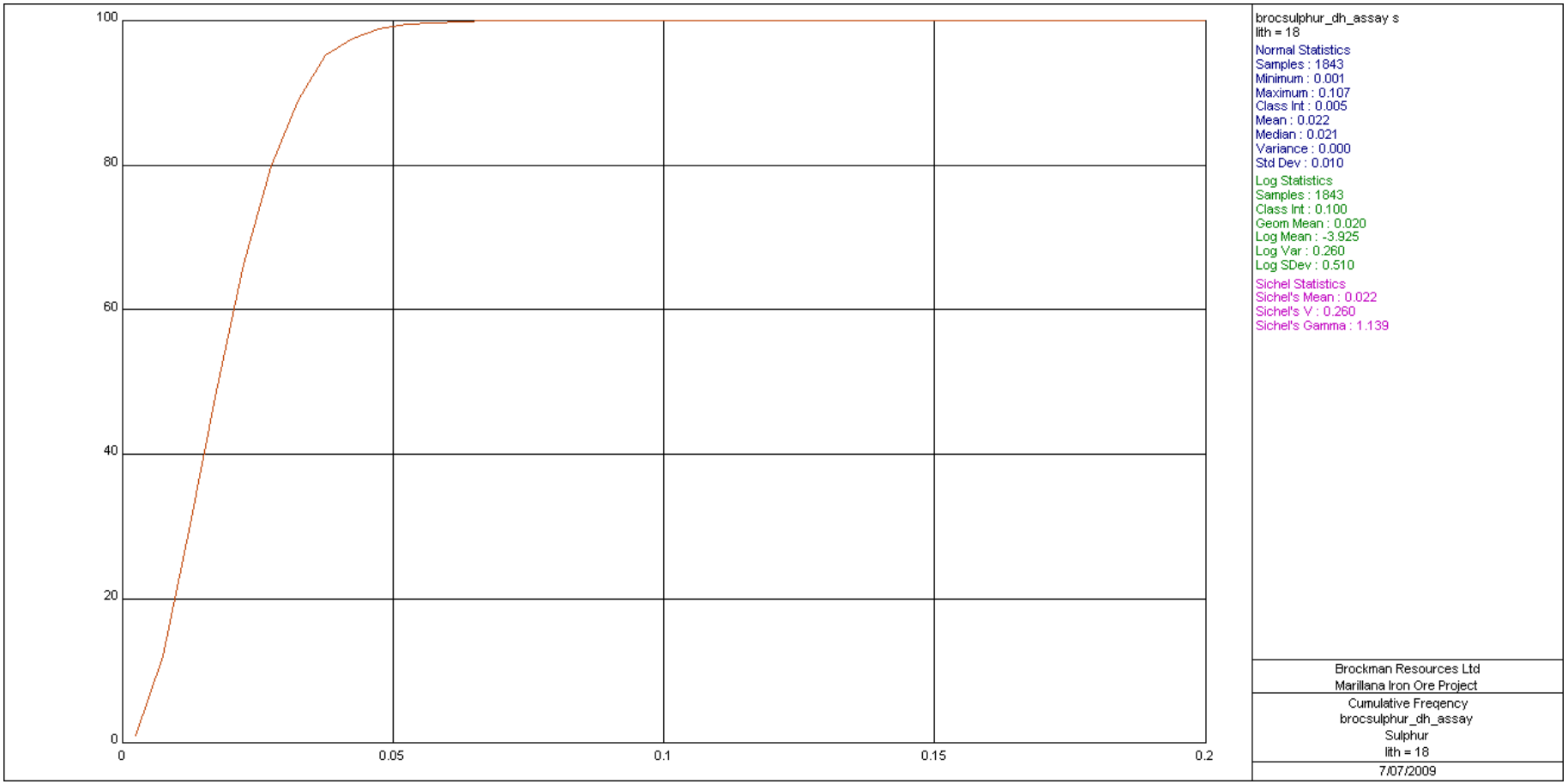


Figure 16

Marillana Iron Ore Project
Histogram Plot of S for Material Type – Enriched basement? material

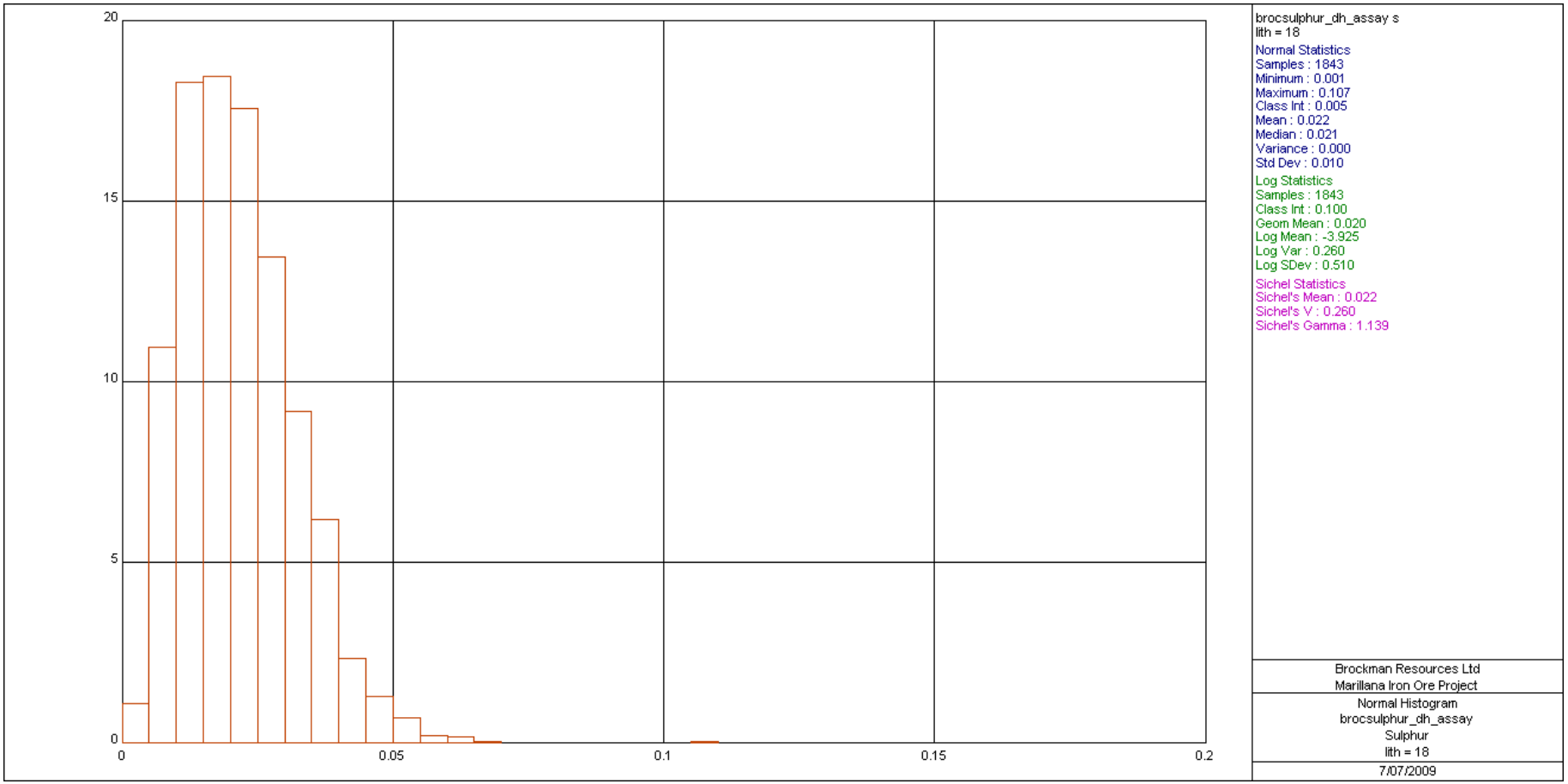


Figure 17

Marillana Iron Ore Project

Cumulative Frequency Plot of S for Material Type – Non-mineralised basement material

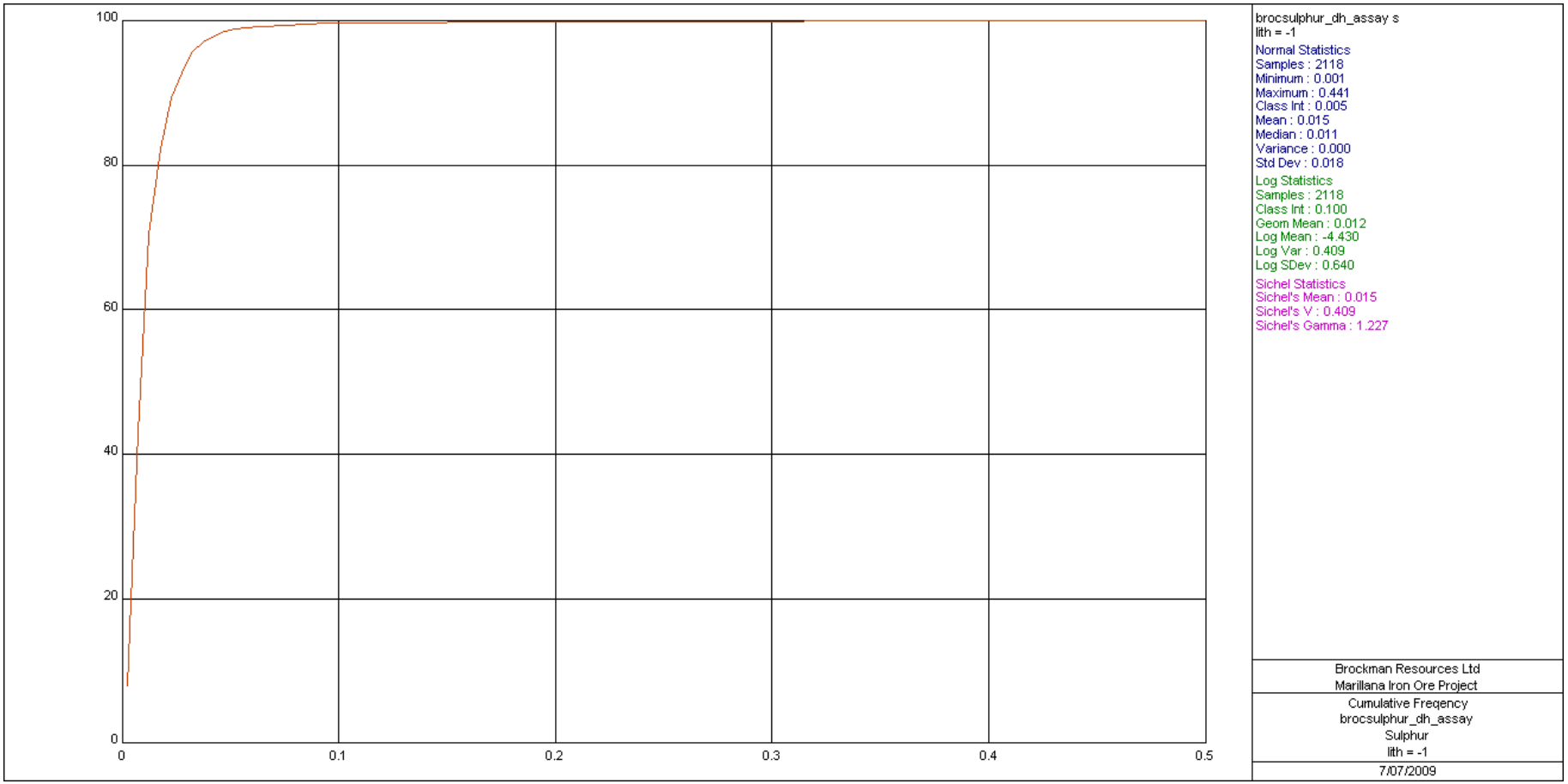
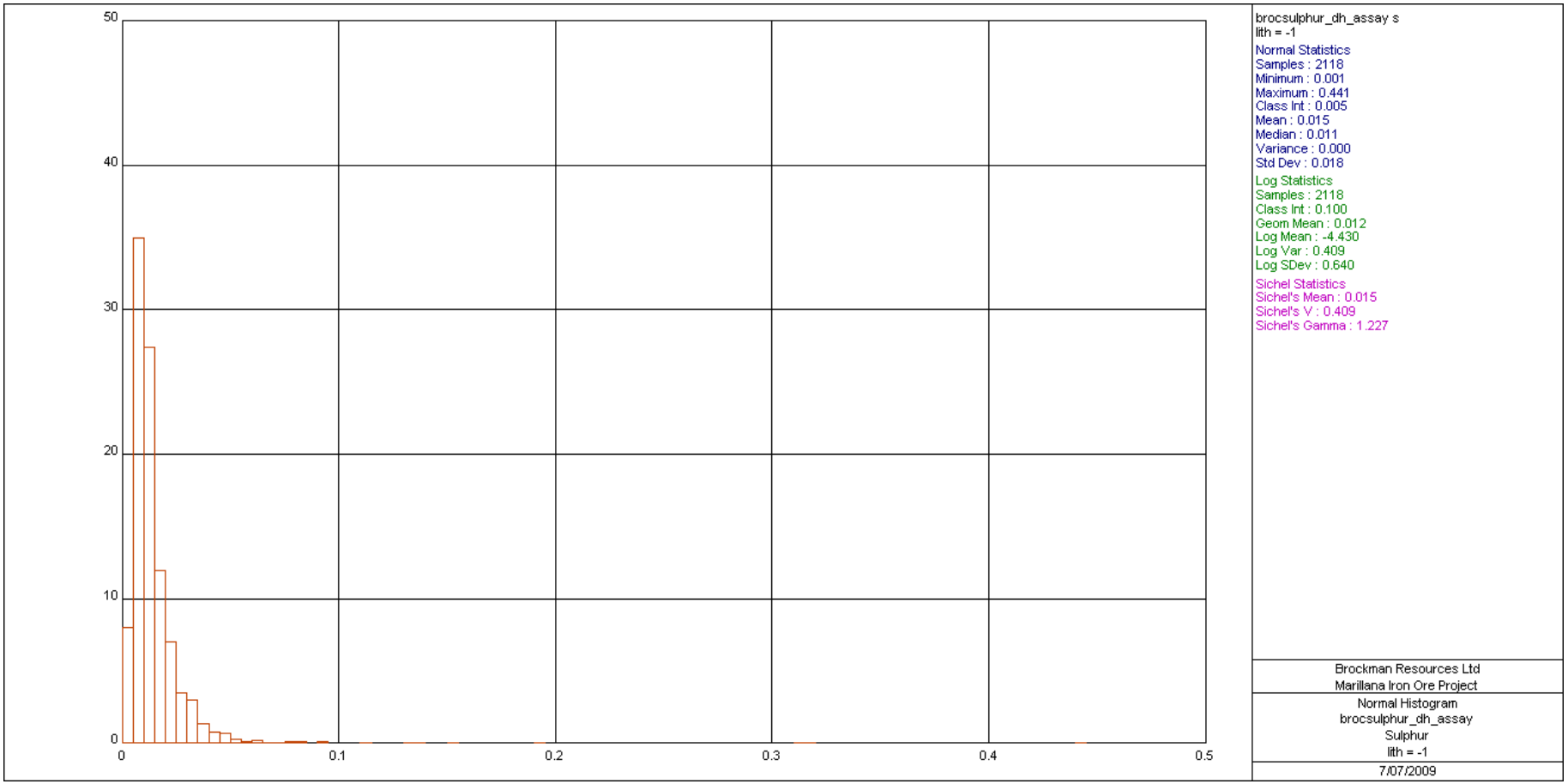


Figure 18

Marillana Iron Ore Project
Histogram Plot of S for Material Type – Non-mineralised basement material



ATTACHMENT II

DETAILS OF SELECTED SAMPLES SUBJECTED TO TESTING

Hole ID	E (local)	N (local)	E (MGA)	N(MGA)	Sample ID	Type	Lab Job no	Batch No	Geology	From	To	Fe%	Al2O3%	SiO2%	P%	S%
MRC0560	23069.83	50414.03	737087.5	7493018	75205	COMP	u133984	75144	TOB	8	10	36.5	3.04	34.6	0.067	0.013
MRC0560	23069.83	50414.03	737087.5	7493018	75215	NORM	u133984	75144	THD	20	21	44	4.52	27.37	0.067	0.015
MRC0587	19875.22	50421.26	734571.2	7494986	76310	COMP	u134815	75145	TSD	8.00	10.00	19.13	12.80	47.96	0.04	0.019
MRC0587	19875.22	50421.26	734571.2	7494986	76321	NORM	u134815	75145	THD	21.00	22.00	44.73	4.94	26.15	0.07	0.014
MRC0532	17470.32	50585.03	732774.1	7496593	74010	COMP	u133173	75143	TOB	10.00	12.00	20.87	11.90	46.76	0.04	0.017
MRC0532	17470.32	50585.03	732774.1	7496593	74020	NORM	u133173	75143	THD	21.00	22.00	46.48	4.89	24.18	0.06	0.014
MRC0590	16069.43	50501.14	731617.1	7497387	76431	COMP	u134815	75145	TOB	8.00	10.00	29.01	5.06	47.85	0.05	0.01
MRC0590	16069.43	50501.14	731617.1	7497387	76449	NORM	u134815	75145	THD	28.00	29.00	44.61	4.92	27.50	0.06	0.012
MRC0602	10070.1	50100.44	726637	7500756	77028	NORM	u134817	75145	TOB	22.00	23.00	27.95	6.97	44.52	0.07	0.133
MRC0602	10070.1	50100.44	726637	7500756	77032	NORM	u134817	75145	THD	26.00	27.00	45.94	3.95	25.93	0.07	0.03
MRC0596	12075.25	50098	728217.8	7499523	76694	COMP	u134816	75145	TOB	2.00	4.00	26.25	1.56	57.52	0.04	0.015
MRC0596	12075.25	50098	728217.8	7499523	76732	NORM	u134816	75145	THD	43.00	44.00	45.23	3.96	28.26	0.05	0.013

TOB overburden waste mostly unconsolidated gravel and cobblestones

TSD overburden comprising mostly sand with minor gravel

THD hematite detrital mineralisation comprising fine gravels (mostly hematite, goethite and minor chert) and silt (~15 to 20%)

ATTACHMENT III

LABORATORY REPORTS

Dr G Campbell
CAMPBELL, GRAEME and ASSOCIATES
PO Box 247
BRIDGETOWN WA 6255

JOB INFORMATION

JOB CODE	**143/0905387**
No. of SAMPLES	12
CLIENT O/N	GCA0922
PROJECT	Marillana project
STATE	Waste rock
DATE RECEIVED	18/06/09
DATE COMPLETED	9/07/09

LEGEND

X	= Less than Detection Limit
N/R	= Sample Not Received
*	= Result Checked
( )	= Result still to come
I/S	= Insufficient Sample for Analysis
E6	= Result X 1,000,000
UA	= Unable to Assay
>	= Value beyond Limit of Method

The samples were received as mine waste and required crushing, drying, mixing, splitting and fine pulverising in a zirconia bowl.

Results of analysis on:

Element		**C**	**TOC+C**	**C-CO3**
Method		**Ind/IR**	**HotAcid Ind/IR**	**/CALC**
Detection		**0.01**	**0.01**	**0.01**
Units		**%**	**%**	**%**
Sample Name				
Control Blank		X		
75205		0.63	0.08	0.55
75205	check	0.62		
75215		0.1		
76310		0.5	0.06	0.44
76321		0.16		
74010		0.31	0.08	0.23
74020		0.11		
76431		0.09		
76449		0.09		
77028		0.13		
77032		0.1		
76694		0.08		
76732		0.12		
LECO5		1.18		
LECO4		0.6		

1. The C, S results were determined from the pulverised portion
2. The Carbon and Sulphur was determined according to Genalysis method number MPL_W043
3. S-SO4 was determined by precipitation of BaSO4 according to Genalysis method number ENV_W039
4. TOC+C (acid insoluble carbon compounds and elemental carbon) by a C&S analyser after removal of carbonates and soluble organic carbon according to Genalysis method number MPL_W046

Acid Neutralisation Capacity (ANC)

sample name		Fizz Rate	initial effervescence	HCl molarity	NaOH molarity	Colour Change	ANC soln pH	pH Drop	ANC (kg H2SO4 /tonne)
75205		2	moderate	0.5080	0.5300	N	1.3		49
75205	check	2	moderate	0.5080	0.5300	N	1.3		47
75215		0	none	0.5080	0.2320	N	1.5		2
76310		2	moderate	0.5080	0.5300	N	1.4		29
76321		0	none	0.5080	0.5300	N	1.3		1
74010		2	moderate	0.5080	0.5300	N	1.3		26
74020		0	none	0.5080	0.2320	N	1.5		1
76431		0	none	0.5080	0.2320	N	1.6		5
76449		0	none	0.5080	0.2320	N	1.5		0
77028		0	none	0.5080	0.2320	N	1.6		13
77032		0	none	0.5080	0.2320	N	1.5		2
76694		0	none	0.5080	0.2320	N	1.5		1
76732		0	none	0.5080	0.2320	N	1.4		-1

Notes:

1. ANC was determined on 2g of the -2mm portion. Acid concentrations are as stated.
2. Colour change: Y indicates the appearance of a green colouration as the pH=7 endpoint was approached. N no change. Two drops of hydrogen peroxide are added to each sample as the endpoint is approached to oxidise any ferrous iron
3. pH drop : Result reported when the pH drops to a value below 4 on addition of peroxide
4. This procedure according to Genalysis method number ENV_W035

NATA ENDORSED DOCUMENT
Company Accreditation Number 3244
The contents of this report have been prepared in accordance with the terms of NATA accreditation and as such should only be reproduced in full.

NATA Signatory: Ann Evers

Date: 9th July 2009

This document is issued in accordance with NATA's accreditation requirements.

Graeme Campbell & Associates Pty Ltd

Laboratory Report

pH-(1:2) & EC-(1:2) TESTWORK

SAMPLE NO.	SAMPLE WEIGHT (g)	SAMPLE + DEION.-W WEIGHT (g)	pH-(1:2)	EC-(1:2) (mS/cm)
75205	30.0	60.0	6.4	0.11
75215	30.0	60.0	6.6	0.11
76310	30.0	60.0	6.8	0.18
76321	30.0	60.0	7.2	0.11
74010	30.0	60.0	7.3	0.14
74020	30.0	60.0	7.3	0.20
76431	30.0	60.0	7.3	0.24
76449	30.0	60.0	7.5	0.11
77028	30.0	60.0	7.3	0.11
77032	30.0	60.0	7.4	0.096
76694	30.0	60.0	7.5	0.13
76732	30.0	60.0	7.4	0.046
76732-1	30.0	60.0	7.4	0.051

Note: EC = Electrical-Conductivity.
Testwork performed on crushed (nominal -2 mm) samples.
pH-(1:2) and EC-(1:2) values correspond to pH and EC values of suspensions with a solid:solution ratio of *c.* 1:2 (w/w) prepared using deionised-water.
Drift in pH-glass-electrode less than 0.1 pH unit between commencement, and completion, of testwork.
Drift in EC-electrode less than 0.50 µS/cm between commencement, and completion, of testwork.
Testwork performed in a constant-temperature room (viz. 21 +/- 2-3 ^{o}C).

Dr GD Campbell
12th July 2009

ANALYTICAL REPORT

Dr G. CAMPBELL
CAMPBELL, GRAEME and ASSOCIATES
PO Box 247
BRIDGETOWN, W.A. 6255
AUSTRALIA

JOB INFORMATION

JOB CODE	:	143.0/0905387
No. of SAMPLES	:	12
No. of ELEMENTS	:	32
CLIENT O/N	:	GCA0922 (Job 1 of 1)
SAMPLE SUBMISSION No.	:	
PROJECT	:	Marillana Project
STATE	:	Pulp
DATE RECEIVED	:	18/06/2009
DATE COMPLETED	:	13/07/2009
DATE PRINTED	:	13/07/2009

LEGEND

X	= Less than Detection Limit
N/R	= Sample Not Received
*	= Result Checked
( )	= Result still to come
I/S	= Insufficient Sample for Analysis
E6	= Result X 1,000,000
UA	= Unable to Assay
>	= Value beyond Limit of Method

MAIN OFFICE AND LABORATORY
15 Davison Street, Maddington 6109, Western Australia
PO Box 144, Gosnells 6990, Western Australia
Tel: +61 8 9251 8100 Fax: +61 8 9251 8110
Email: genalysis@genalysis.com.au
Web Page: www.genalysis.com.au

KALGOORLIE SAMPLE PREPARATION DIVISION
12 Keogh Way, Kalgoorlie 6430, Western Australia
Tel: +61 8 9021 6057 Fax: +61 8 9021 3476

ADELAIDE SAMPLE PREPARATION DIVISION
124 Mooringe Avenue, North Plympton 5037, South Australia
Tel: +61 8 8376 7122 Fax: +61 8 8376 7144

JOHANNESBURG SAMPLE PREPARATION DIVISION
43 Malcolm Moodie Crescent,
Jet Park, Gauteng, South Africa 1459
Tel: +27 11 552 8149 Fax: +27 11 552 8248

SAMPLE DETAILS

DISCLAIMER

Genalysis Laboratory Services Pty Ltd wishes to make the following disclaimer pertaining to the accompanying analytical results.

Genalysis Laboratory Services Pty Ltd disclaims any liability, legal or otherwise, for any inferences implied from this report relating to either the origin of, or the sampling technique employed in the collection of, the submitted samples.

SIGNIFICANT FIGURES

It is common practice to report data derived from analytical instrumentation to a maximum of two or three significant figures. Some data reported herein may show more figures than this. The reporting of more than two or three figures in no way implies that the third, fourth and subsequent figures may be real or significant.

Genalysis Laboratory Services Pty Ltd accepts no responsibility whatsoever for any interpretation by any party of any data where more than two or three significant figures have been reported.

SAMPLE STORAGE DETAILS

GENERAL CONDITIONS

SAMPLE STORAGE OF SOLIDS

Bulk Residues and Pulps will be stored for 60 DAYS without charge. After this time all Bulk Residues and Pulps will be stored at a rate of $3.00 per cubic metre per day until your written advice regarding collection or disposal is received. Expenses related to the return or disposal of samples will be charged to you at cost. Current disposal cost is charged at $75.00 per cubic metre.

SAMPLE STORAGE OF SOLUTIONS

Samples received as liquids, waters or solutions will be held for 60 DAYS free of charge then disposed of, unless written advice for return or collection is received.

NOTES

*** NATA ENDORSED DOCUMENT ****

Company Accreditation Number 3244

The contents of this report have been prepared in accordance with the terms of NATA accreditation and as such should only be reproduced in full.

The analysis results reported herein have been obtained using the following methods and conditions:

The 12 samples GCA75205 to GCA76732 were received as being 'waste rock' which had been dried and pulverised in a zirconia bowl.

The results have been determined according to Genalysis methods codes :
Digestions : MPL_W001 (A/), MPL_W005 (BP/), ENV_W012 (DH/SIE), MPL_W011 (D/), MPL_W008 (CM/).
Analytical Finishes: ICP_W004 (/OES), ICP_W005 (/MS), and AAS_W004 (/CVAP).

The results included the assay of blanks and international reference standards OREAS 45P and STSD-2 and Genalysis in-house standards HgSTD-4, OREAS 97.01 and MPL-3

The results are expressed as parts per million or percent by mass in the dried and prepared material.

NATA Signatory: A Evers
Chief Chemist

Date: 10 July 2009
This document is issued in accordance with NATA’s accreditation requirements.

NOTES

ANALYSIS

ELEMENTS	Ag	Al	As	B	Ba	Bi	Ca	Cd	Co	Cr
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
DETECTION	0.2	50	2	50	0.1	0.01	50	0.1	0.1	5
DIGEST	A/	A/	A/	D/	A/	A/	A/	A/	A/	A/
ANALYTICAL FINISH	MS	OES	MS	OES	MS	MS	OES	MS	MS	OES
SAMPLE NUMBERS										
0001 75205	X	1.49%	12	X	100.7	0.13	1.72%	X	3.1	57
0002 75215	X	2.25%	14	X	71.9	0.30	1124	0.1	3.9	67
0003 76310	X	5.92%	14	X	381.2	0.36	1.13%	0.2	8.6	137
0004 76321	X	2.49%	13	X	63.0	0.21	1078	X	4.1	64
0005 74010	X	5.45%	15	X	417.3	0.37	8811	0.2	9.6	142
0006 74020	X	2.51%	14	X	59.5	0.21	879	0.1	3.4	67
0007 76431	X	2.41%	10	X	102.5	0.18	1276	0.1	3.7	65
0008 76449	X	2.39%	14	X	35.9	0.22	491	0.1	3.0	62
0009 77028	X	3.20%	9	X	113.4	0.13	2318	0.2	21.0	83
0010 77032	X	2.02%	13	X	75.9	0.18	646	0.1	5.0	59
0011 76694	X	8874	6	X	62.9	0.08	537	X	2.3	52
0012 76732	X	1.81%	12	X	30.6	0.18	332	X	1.9	61
CHECKS										
0001 75205	X	1.39%	11	X	99.3	0.14	1.58%	0.1	3.0	50
STANDARDS										
0001 HgSTD-4										
0002 MPL-3	11.3	6.94%	694		433.8	45.24	6082	5.2	192.3	286
0003 OREAS 45P				X						
0004 OREAS 97.01										
0005 STSD-2										
BLANKS										
0001 Control Blank	X	X	X	X	0.1	X	X	X	X	10
0002 Control Blank										
0003 Control Blank										
0004 Acid Blank	X	X	X		X	X	X	X	X	X
0005 Acid Blank				X						
0006 Control Blank										

ANALYSIS

ELEMENTS	Cu	F	Fe	Hg	K	Mg	Mn	Mo	Na	Ni
UNITS	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm
DETECTION	1	50	0.01	0.01	20	20	1	0.1	20	1
DIGEST	A/	DH/	D/	CM/	A/	A/	A/	A/	A/	A/
ANALYTICAL FINISH	OES	SIE	OES	CVAP	OES	OES	OES	MS	OES	OES
SAMPLE NUMBERS										
0001 75205	10	145	37.12	0.04	1781	1704	441	1.0	225	8
0002 75215	13	145	44.48	0.03	1044	1142	539	1.4	123	10
0003 76310	30	233	21.56	X	5472	2713	499	1.2	706	27
0004 76321	9	152	45.53	0.02	944	1308	835	1.1	183	8
0005 74010	31	265	23.57	0.02	5417	2882	1027	1.2	553	27
0006 74020	11	158	46.80	0.02	1100	1130	697	1.3	177	9
0007 76431	15	180	31.65	0.01	2619	1733	522	0.8	308	14
0008 76449	10	158	44.27	0.09	903	1042	665	1.1	141	10
0009 77028	40	214	31.22	0.04	5631	8537	839	1.2	2761	39
0010 77032	9	158	45.49	0.02	1160	1801	1064	1.3	377	9
0011 76694	7	145	28.60	X	2038	1437	331	0.6	698	7
0012 76732	4	133	45.81	X	537	862	648	1.3	140	3
CHECKS										
0001 75205	10	158	37.75	0.04	1646	1574	389	0.8	199	7
STANDARDS										
0001 HgSTD-4				0.27						
0002 MPL-3	1688				3.22%	7796	1538	11.0	3.61%	1617
0003 OREAS 45P			19.92							
0004 OREAS 97.01										
0005 STSD-2		998								
BLANKS										
0001 Control Blank	X	X	X	X	X	X	X	X	X	X
0002 Control Blank										
0003 Control Blank				X						
0004 Acid Blank	X				X	X	X	X	X	X
0005 Acid Blank			X							
0006 Control Blank										

ANALYSIS

ELEMENTS	P	Pb	S	Sb	Se	Sn	Sr	Th	Tl	U
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
DETECTION	50	2	50	0.05	0.01	0.1	0.05	0.01	0.02	0.01
DIGEST	A/	A/	A/	A/	BP/	A/	A/	A/	A/	A/
ANALYTICAL FINISH	OES	MS	OES	MS	MS	MS	MS	MS	MS	MS
SAMPLE NUMBERS										
0001 75205	587	8	148	1.17	0.53	0.7	14.57	4.37	0.12	0.89
0002 75215	615	15	118	1.78	0.77	1.1	9.05	7.05	0.17	1.20
0003 76310	366	19	161	1.55	0.52	2.2	41.02	12.03	0.30	1.91
0004 76321	560	12	110	1.37	0.95	1.1	10.71	7.92	0.30	1.18
0005 74010	404	19	138	1.51	0.55	2.0	40.49	11.59	0.40	1.81
0006 74020	494	12	80	1.46	0.50	1.3	9.70	7.47	0.16	1.13
0007 76431	410	10	X	1.03	0.48	1.0	14.71	5.43	0.18	0.94
0008 76449	517	11	X	1.35	0.72	1.2	6.94	7.86	0.15	1.12
0009 77028	598	8	882	1.38	0.24	0.9	18.79	4.29	0.19	1.25
0010 77032	555	10	212	1.39	0.43	1.0	11.73	6.39	0.13	1.10
0011 76694	352	6	69	0.71	0.31	0.4	7.05	2.11	0.09	0.50
0012 76732	402	11	60	1.34	0.41	1.0	4.68	7.46	0.09	1.04
CHECKS										
0001 75205	551	8	165	0.96	0.50	0.6	14.11	4.09	0.12	0.85
STANDARDS										
0001 HgSTD-4										
0002 MPL-3	1638	1952	3.14%	196.11		3.5	365.46	91.68	18.15	11.57
0003 OREAS 45P										
0004 OREAS 97.01					0.78					
0005 STSD-2										
BLANKS										
0001 Control Blank	X	X	X	X	X	X	X	0.02	X	X
0002 Control Blank					X					
0003 Control Blank										
0004 Acid Blank	X	X	X	0.07		X	X	0.04	0.03	X
0005 Acid Blank										
0006 Control Blank					X					

ANALYSIS

ELEMENTS	V	Zn
UNITS	ppm	ppm
DETECTION	2	1
DIGEST	A/	A/
ANALYTICAL FINISH	OES	OES
SAMPLE NUMBERS		
0001 75205	56	17
0002 75215	70	13
0003 76310	131	36
0004 76321	69	12
0005 74010	128	40
0006 74020	78	36
0007 76431	64	18
0008 76449	69	10
0009 77028	89	69
0010 77032	63	9
0011 76694	31	26
0012 76732	61	X
CHECKS		
0001 75205	53	11
STANDARDS		
0001 HgSTD-4		
0002 MPL-3	145	1068
0003 OREAS 45P		
0004 OREAS 97.01		
0005 STSD-2		
BLANKS		
0001 Control Blank	X	2
0002 Control Blank		
0003 Control Blank		
0004 Acid Blank	X	X
0005 Acid Blank		
0006 Control Blank		

METHOD CODE DESCRIPTION

A/MS

Multi-acid digest including Hydrofluoric, Nitric, Perchloric and Hydrochloric acids in Teflon Beakers. Analysed by Inductively Coupled Plasma Mass Spectrometry.

A/OES

Multi-acid digest including Hydrofluoric, Nitric, Perchloric and Hydrochloric acids in Teflon Beakers. Analysed by Inductively Coupled Plasma Optical (Atomic) Emission Spectrometry.

BP/MS

Aqua-Regia digest followed by Precipitation and Concentration. Specific for Selenium. Analysed by Inductively Coupled Plasma Mass Spectrometry.

D/OES

Sodium peroxide fusion (Zirconium crucibles) and Hydrochloric acid to dissolve the melt. Analysed by Inductively Coupled Plasma Optical (Atomic) Emission Spectrometry.

DH/SIE

Alkaline fusion (Nickel crucible) specific for Fluorine. Analysed by Specific Ion Electrode.

CM/CVAP

Low temperature Perchloric acid digest specific for Mercury. Analysed by Cold Vapour Generation Atomic Absorption Spectrometry.