

ANGLO AMERICAN LISHEEN MINING LTD.



Final Report

Lisheen Mine Discharge Limit for Phosphorous in Terms of Irish and EU Legislation

November 2007

PROJECT NO. : 1560702

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Signature :	Date : Wednesday 21 st November 2007

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Project Manager		
Orla O' Connell		21 st November 2007
	Signed	Date
Peer Reviewer		
Shane O' Neill		21 st November 2007
	Signed	Date

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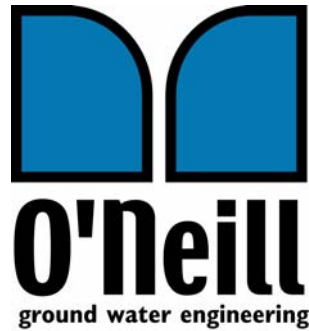
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LISHEEN MINE DISCHARGE EMISSION LIMIT FOR PHOSPHOROUS IN CONTEXT OF IRISH AND EU LEGISLATIVE REQUIREMENTS

1.0 Introduction

1.1 O' Neill Ground Water Engineering Ltd. (OGE) were requested by Anglo American Lisheen Mining Ltd. to address the issue of phosphorous in context of standards in existing legislation and new regulations as it pertains to emission limits from the Lisheen Mine discharges to the Drish and Rossestown Rivers.

2.0 Legislation

2.1 There are two pieces of legislation controlling the discharge of phosphorous, namely:

- *The Phosphorous Regulations* - (Local Government (Water Pollution) Act, 1977 (Water Quality Standards for Phosphorus) Regulations 1998 - SI 258/1998) provide the discharge limits.
- *The Surface Water Regulations* - (Quality of water intended for the abstraction of drinking water) Regulations 1989 - SI 294/1989) provide for surface water quality standards. (Now superseded by the P regs).

2.2 The requirements and standards set out in the Phosphorous Regulations, as they pertain to the Lisheen Mine discharges are summarised below:

- Firstly the analysis must be MRP (mg/l).
- For streams and rivers with a Q value of 4-5 then the resultant P value in the stream when fully mixed is 0.020 mg/l MRP (0.065 mg/l as PO₄).

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Directors: S O'Neill (Managing) O O'Neill
Registered Office as above. Registered No. 354725. VAT No. 3900664V

- For streams and rivers with a Q value of 4 or 3-4 then the resultant P value in the stream when fully mixed is 0.030 mg/l MRP (0.097 mg/l as PO₄).
- For streams and rivers with a Q value of 3 then the resultant P value in the stream when fully mixed is 0.05 mg/l MRP (0.16 mg/l as PO₄).

2.3 The Surface Water Regulations have a variety of standards depending on the classification of the water.

- For A1 waters the I/PV value is 0.5 mg/l as P₂O₅ (0.11 mg/l as P);
- For A2 and A3 waters the I/PV value is 0.7 mg/l as P₂O₅ (0.154 mg/l as P);

3.0 Review of Historical Chemistry Data

OGE Sampling

3.1 On 18th October 2007, OGE took upstream, discharge and downstream samples of the Drish Rossestown Rivers. The samples were analysed for phosphate levels and the certificate of analysis is presented in *Appendix No. 1*. The phosphate results are presented in *Table No. 1* below:

Table No. 1: Summary of Phosphate Concentrations in OGE Samples taken on 18th October 2007

River	Sample ID	Location	Phosphate (mg/l PO ₄ -P)	Phosphate (mg/l PO ₄)
Rossestown	EUROSS	Upstream	0.024	0.074
Rossestown	DISROSS	Discharge Point	<0.01	<0.03
Rossestown	QDSROSS	Downstream	<0.01	<0.03
Drish	ZUSDRIS	Upstream	<0.01	<0.03
Drish	DISDRIS	Discharge Point	<0.01	<0.03
Drish	QDSDRIS	Downstream	<0.01	<0.03



- 3.2 The concentrations of phosphate upstream of the discharge point of 0.075mg/l PO₄ exceeded the limit of 0.065mg/l as PO₄ for rivers of good water quality status, with a Q value of 4-5. This is due to discharge from the upstream Templetuohy waste water treatment plant.
- 3.3 The phosphate concentration of <0.03mg/l PO₄ in the discharge and the downstream sample was less than the limit of 0.065mg/l asPO₄ for rivers of good water quality status, with a Q value of 4-5.
- 3.4 These samples results indicate that at present, the discharge and downstream concentration of phosphate comply with the limits set out in the Phosphorous Regulation (1998).

Lisheen Monthly and Quarterly Sampling Data 2005 – 2007

Drish River

- 3.5 The monthly sampling data for phosphorous from the first monitoring point 336m downstream of the Drish River discharge point (PWE1) for the period 2004 to 2006 and the quarterly sampling data for 2007 is presented in *Table No. 2* below.

Table No. 2: Phosphate Levels in the Drish River Downstream of PWE1

Year	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2004	mg/L P	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2005	mg/L P	<0.001	<0.001	<0.001	0.016	0.046	0.039	0.02	<0.001	<0.001	<0.001	<0.001	<0.001
2006	mg/L P	<0.001	0.205	0.08	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
2007	mg/L P	0.046	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-

- 3.6 One of the primary objectives of the Water Framework Directive (WFD) (2006/60/EC) is that all river should reach good quality status (Q4). The Q rating for the Drish River at 336m and 5056m downstream of PWE1 is presented in *Table No. 3* below.



Table No. 3: Q Rating at Monitoring Stations on the River Drish

Year	Q Rating	
	Castletown Bridge (Station No. 0700)	Boolabeheha Bridge (Station No. 0100)
2005	3	3
2002	2-3	3
1999	2	3-4
1996	3-4	4
1992	4-5	4
1988	4	4-5

- 3.7 One of the primary objectives of the Water Framework Directive (WFD) (2006/60/EC) is that all rivers should reach good quality status (Q4). The Q rating for the Drish River at 336m and 5056m downstream of PWE1 is presented in *Table No. 3* below.
- 3.8 The most recent Q rating for the Drish River is 3, which would equate to a resultant P value in the stream when fully mixed of 0.050 mg/l MRP (0.16 mg/l as PO₄). However, considering the WFD objective for good water quality status, it would be pertinent to ensure that the discharge from Lisheen Mine does not cause the phosphate levels in the Drish River downstream to rise above 0.030 mg/l MRP (0.097 mg/l as PO₄).
- 3.9 The downstream phosphate concentration exceeded the limit for Q4 waters in May and June 2005, March 2006 and January 2007. The phosphate concentration on all other sampling dates was below this limit. This is equivalent to an 89% compliance during the monitoring period.



Rossestown River

3.10 The monthly sampling data for phosphorous from the first monitoring point 10m downstream of the Rossestown River discharge point (PWE2) for the period 2004 to 2006 and the quarterly sampling data for 2007 is presented in *Table No. 4* below.

Table No. 4: Phosphate Levels in the Rossestown River Downstream of PWE2

Year	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2004	mg/L P	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2005	mg/L P	<0.001	<0.001	<0.001	<0.001	0.024	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
2006	mg/L P	<0.001	0.048	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-
2007	mg/L P	<0.001	-	-	<0.001	-	-	<0.001	-	-	<0.001	-	-

3.11 The Q rating for the Rossestown River at two downstream monitoring points is presented in *Table No. 5* below.

Table No. 5: Q Rating at Monitoring Stations on the Rossestown River

Year	Q Rating		
	Templetuohy Bridge (Station No. 0400)	Lisaticy Bridge (Station No. 0100)	Kilclonagh Bridge (Station No. 0200)
2005	3	3	3
2002	3	3	3-4
1999	3	4	4
1996	3	3-4	4
1992	3	4	4
1988	3-4	3-4	3-4
1985	-	3-4	4
1981	-	3-4	4
1977	-	3-4	4



- 3.12 As is the case with the Drish River, the most recent Q rating for the Rossestown River is 3, which would equate to a resultant P value in the stream when fully mixed of 0.050 mg/l MRP (0.16 mg/l as PO₄).
- 3.13 The downstream phosphate concentration exceeded the limit for Q4 waters on one occasion only in February 2006. The phosphate concentration on all other sampling dates was below this limit. This equates to a 97% compliance.

4.0 Summary and Conclusion

- 4.1 Given that the objective of the WFD is to achieve good water quality status (Q4), then the most appropriate emission limit for the Lisheen Mine would be to achieve a phosphate concentration of 0.030 mg/l MRP (0.097 mg/l as PO₄) in the resultant fully mixing water downstream of the discharge point.
- 4.2 The quarterly samples taken from Drish and Rossestown Rivers were shown to be 89% and 97% compliant, respectively, with this limit for Q4 waters.

APPENDIX NO. 1

*CERTIFICATE OF ANALYSIS FOR
OGE SAMPLES*



Project Code : 07-12695
Report Date : 31-Oct-2007

Report Unique ID: 14665
Commen. Date: 18/10/2007

Customer: Ms. Aishling Whelan
O'Neill Groundwater
UNIT D7 M7 BUSINESS PARK NEWHALL NAAS CO.
KILDARE

Contact Details:
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bsebastian@groundwatereng.ie
avantzelfde@GROUNDWATERENG.IE

Approved by : **Shona Fox**
Laboratory Manager

Sample Number : 122474 Client ID: EUSROSS 18/10/07
Sample Type:Groundwater Received: 18/10/2007 Condition: Good

Analysis	Component	Specification	Result	Units
BOD	*BOD	-	<2	mg/l
COD	*COD	-	38	mg/l

Sample Number : 122475 Client ID: DISSROSS 18/10/07
Sample Type:Groundwater Received: 18/10/2007 Condition: Good

Analysis	Component	Specification	Result	Units
BOD	*BOD	-	<2	mg/l
COD	*COD	-	<10	mg/l
Organic Carbon	Total Organic Carbon	-	<5	mg/l
TON as N	*TON as N	-	1.64	mg/l

Project Code : 07-12695

Report Unique ID: 14665

Sample Number : 122476

Client ID: QDSROSS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
BOD	*BOD	-	<2	mg/l
COD	*COD	-	<10	mg/l
Organic Carbon	Total Organic Carbon	-	<5	mg/l
TON as N	*TON as N	-	2.76	mg/l

Sample Number : 122477

Client ID: ZUSDRIS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
BOD	*BOD	-	<2	mg/l
COD	*COD	-	38	mg/l
Organic Carbon	Total Organic Carbon	-	13	mg/l
TON as N	*TON as N	-	1.05	mg/l

Sample Number : 122478

Client ID: DISDRIS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
BOD	*BOD	-	<2	mg/l
COD	*COD	-	<10	mg/l
Organic Carbon	Total Organic Carbon	-	<5	mg/l
TON as N	*TON as N	-	1.93	mg/l

Project Code : 07-12695

Report Unique ID: 14665

Sample Number : 122479

Client ID: XDSDRIS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
BOD	*BOD	-	<2	mg/l
COD	*COD	-	<10	mg/l
Organic Carbon	Total Organic Carbon	-	<5	mg/l
TON as N	*TON as N	-	2.07	mg/l

Sample Number : 122480

Client ID: DRISTRIBUS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
BOD	*BOD	-	<2	mg/l
COD	*COD	-	34	mg/l
Organic Carbon	Total Organic Carbon	-	12	mg/l
TON as N	*TON as N	-	2.68	mg/l

Sample Number : 122481

Client ID: EUROSS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
e.Coli	e.Coli ***	-	<1	MPN/100 mls
Total Coliforms	Total Coliforms ***	-	<1	MPN/100 mls

Project Code : 07-12695

Report Unique ID: 14665

Sample Number : 122482

Client ID: EUSROSS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
Organic Carbon	Total Organic Carbon	-	14	mg/l
TON as N	*TON as N	-	2.76	mg/l

Sample Number : 122483

Client ID: DISSROSS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
e.Coli	e.Coli ***	-	<1	MPN/100 mls
Total Coliforms	Total Coliforms ***	-	<1	MPN/100 mls

Sample Number : 122484

Client ID: QDSROSS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
e.Coli	e.Coli ***	-	<1	MPN/100 mls
Total Coliforms	Total Coliforms ***	-	<1	MPN/100 mls

Sample Number : 122485

Client ID: ZUSDRIS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
e.Coli	e.Coli ***	-	<1	MPN/100 mls
Total Coliforms	Total Coliforms ***	-	<1	MPN/100 mls

Project Code : 07-12695

Report Unique ID: 14665

Sample Number : 122486

Client ID: DISDRIS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
e.Coli	e.Coli ***	-	<1	MPN/100 mls
Total Coliforms	Total Coliforms ***	-	<1	MPN/100 mls

Sample Number : 122487

Client ID: XDSDRIS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
e.Coli	e.Coli ***	-	<1	MPN/100 mls
Total Coliforms	Total Coliforms ***	-	<1	MPN/100 mls

Sample Number : 122488

Client ID: DRISTRIBUS 18/10/07

Sample Type:Groundwater

Received: 18/10/2007

Condition: Good

<i>Analysis</i>	<i>Component</i>	<i>Specification</i>	<i>Result</i>	<i>Units</i>
e.Coli	e.Coli ***	-	<1	MPN/100 mls
Total Coliforms	Total Coliforms ***	-	<1	MPN/100 mls

Project Code : 07-12695

Report Unique ID: 14665

Methods of Analysis

Analysis Name:

BOD
COD
Organic Carbon
TON as N
Total Coliforms
e.Coli

Method:

G/04: Based on APHA, 2005, 21st Edition, Method 5210B. TCMP Nitrification inhibition.
G/03: Based on APHA, 2005, 21st Edition, Method 5220D
TOC Analyser
G/67 Based on APHA, 2005, 21st Edition, 4500-N02B. Colorimetric method
MPN based on IDEXX defined substrate method
G/72 MPN based on IDEXX defined substrate method

Notes

* = INAB accredited test

** = subcontracted test

*** = outside accredited range

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Attention Örla O'Connell
Unit D5, M7 Business Park, Newhall

IRELAND

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Date: 11-01-2007

Please find enclosed the analytical results of the following analysis.

Certificate number	2007146468
Your project number	1560701
Your project name	Lisheen
Your order number	
Samples received on	10-22-2007

This Certificate of Analysis may only be used in its entirety.
Additional information concerning this Certificate of Analysis can be found in the Analytico document 'Specifications of Methods of Analysis'. Copies are available from our Customer Service department.

Soil samples will be stored under controlled conditions for a period of 6 weeks and water samples for a period of 2 weeks after receipt of the samples at our laboratory. Without any additional request, samples will be disposed when the above periods have expired. If you require Analytico to store the samples for a longer period, please complete this page and return it to Analytico at least one week before the period is due to expire. The costs of prolonged storage periods may be found in our fees overview.

Storage period:

Date:

Name:

Signature:

We trust that we have performed the order in accordance with your expectations. If you have any remaining questions concerning this Certificate of Analysis, please don't hesitate to contact our Customer Service.

Yours sincerely,

Analytico Milieu B.V.



Ing. A. Veldhuizen
Laboratory Manager

Analytico Milieu B.V.

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Certificate of analysis

Your project number	1560701	Certificate number	2007146468
Your project name	Lisheen	Start date	10-22-2007
Your order number		Report date	11-01-2007/12:58
Date sampling	10-18-2007	Enclosure	A, B, C
Sampled by	öOC	Page	1/4

Analysis	Unit	1	2	3	4	5
Elements						
Q Cadmium (Cd)	µg/L	<0.40	1.0	<0.40	<0.40	1.0
Q Chromium (Cr)	µg/L	<1.0	<1.0	<1.0	<1.0	<1.0
Q Copper (Cu)	µg/L	<5.0	<5.0	<5.0	<5.0	<5.0
Q Mercury (Hg)	µg/L	<0.050	<0.050	<0.050	<0.050	<0.050
Q Nickel (Ni)	µg/L	<5.0	31	21	<5.0	32
Q Lead (Pb)	µg/L	<5.0	16	<5.0	<5.0	19
Q Zinc (Zn)	µg/L	<10	350	230	<10	360
Q Calcium (Ca)	mg/L	87	110	100	110	110
Q Iron (Fe)	mg/L	0.80	0.29	0.16	0.12	0.36
Q Potassium (K)	mg/L	1.2	6.2	5.8	2.9	6.2
Q Magnesium (Mg)	mg/L	11	42	40	20	42
Q Manganese (Mn)	mg/L	0.033	0.073	0.029	0.053	0.080
Q Sodium (Na)	mg/L	8.2	13	13	9.4	14
Inorganic Compounds						
Composite alkalinity (P-value)	mmol/L	<0.10	<0.10	<0.10	<0.10	<0.10
Total alkalinity (M-value)	mmol/L	4.9	4.5	4.4	6.2	4.6
Q Ammonia as NH ₄ -N	mg N/L	0.33	1.5	0.30	0.051	1.5
Q Ammonia (NH ₄)	mg/L	0.42	1.9	0.38	0.066	1.9
Q Carbonate	mg/L	<5.0	<5.0	<5.0	<5.0	<5.0
Q Bicarbonate (HCO ₃)	mg/L	300	280	270	380	280
Q Ortho-phosphate (PO ₄ -P)	mg P/L	0.024	<0.010	<0.010	<0.010	<0.010
Q Ortho-phosphate (PO ₄)	mg PO ₄ /L	0.074	<0.030	<0.030	<0.030	<0.030
Q Bromide	mg/L	<0.050	0.075	<0.050	<0.050	<0.050
Q Chloride	mg/L	15	22	21	17	21
Q Sulphate	mg/L	2.5	220	200	21	220
Q Nitrate equivalent NO ₃ -N	mg N/L	2.7	1.6	2.7	1.0	1.6
Q Nitrate (NO ₃)	mg/L	12	7.0	12	4.6	7.3
Q Nitrite as NO ₂ -N	mg N/L	0.031	0.041	0.031	0.012	0.061
Q Nitrite (NO ₂)	mg/L	0.10	0.13	0.10	0.039	0.27
Hardness temporary	mmol/L	2.5	2.5	2.2	3.1	2.3

No. Sample description

1 EUSROSS
2 DISROSS
3 QDSROSS
4 ZUSDRIS
5 DISDRIS

Analytico-#
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Certificate of analysis

Your project number	1560701	Certificate number	2007146468
Your project name	Lisheen	Start date	10-22-2007
Your order number		Report date	11-01-2007/12:58
Date sampling	10-18-2007	Enclosure	A, B, C
Sampled by	öC	Page	2/4

Analysis	Unit	1	2	3	4	5
Hardness temporary	°D	14	13	12	17	13
Hardness temporary	°F	25	23	22	31	23

No. Sample description

1 EUSROSS
 2 DISROSS
 3 QDSROSS
 4 ZUSDRIS
 5 DISDRIS

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 3497588
 3497589
 3497590
 3497591
 3497592

Q: Dutch Accreditation Council (RvA) accredited operation
 A: AP04 accredited operation
 S: AS3000 accredited operation

Analytico Milieu B.V.

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 KvK No. 09088623

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Certificate of analysis

Your project number	1560701	Certificate number	2007146468
Your project name	Lisheen	Start date	10-22-2007
Your order number		Report date	11-01-2007/12:58
Date sampling	10-18-2007	Enclosure	A, B, C
Sampled by	ÖOC	Page	3/4

Analysis	Unit	6	7
Elements			
Q Cadmium (Cd)	µg/L	0.91	<0.40
Q Chromium (Cr)	µg/L	<1.0	<1.0
Q Copper (Cu)	µg/L	<5.0	<5.0
Q Mercury (Hg)	µg/L	<0.050	<0.050
Q Nickel (Ni)	µg/L	28	<5.0
Q Lead (Pb)	µg/L	21	<5.0
Q Zinc (Zn)	µg/L	320	<10
Q Calcium (Ca)	mg/L	110	110
Q Iron (Fe)	mg/L	0.39	0.17
Q Potassium (K)	mg/L	5.8	4.1
Q Magnesium (Mg)	mg/L	40	22
Q Manganese (Mn)	mg/L	0.077	<0.010
Q Sodium (Na)	mg/L	13	8.4
Inorganic Compounds			
Composite alkalinity (P-value)	mmol/L	<0.10	<0.10
Total alkalinity (M-value)	mmol/L	4.6	6.4
Q Ammonia as NH ₄ -N	mg N/L	1.2	<0.050
Q Ammonia (NH ₄)	mg/L	1.6	<0.065
Q Carbonate	mg/L	<5.0	<5.0
Q Bicarbonate (HCO ₃)	mg/L	280	390
Q Ortho-phosphate (PO ₄ -P)	mg P/L	<0.010	<0.010
Q Ortho-phosphate (PO ₄)	mg PO ₄ /L	<0.030	<0.030
Q Bromide	mg/L	<0.050	<0.050
Q Chloride	mg/L	21	19
Q Sulphate	mg/L	200	24
Q Nitrate equivalent NO ₃ -N	mg N/L	1.6	2.6
Q Nitrate (NO ₃)	mg/L	7.3	12
Q Nitrite as NO ₂ -N	mg N/L	0.074	<0.010
Q Nitrite (NO ₂)	mg/L	0.24	<0.030
Hardness temporary	mmol/L	2.3	3.2

No. Sample description

6 ZSDSRI5
7 DRISTRIBUS

Analytico-#
3497593
3497594

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Certificate of analysis

Your project number	1560701	Certificate number	2007146468
Your project name	Lisheen	Start date	10-22-2007
Your order number		Report date	11-01-2007/12:58
Date sampling	10-18-2007	Enclosure	A, B, C
Sampled by	ÖÖC	Page	4/4

Analysis	Unit	6	7
Hardness temporary	°D	13	18
Hardness temporary	°F	23	32

No. Sample description

6 ZSDRIS
7 DRISTRIBUS

Analytico-#
3497593
3497594

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Initials
Pr.coord.
JM

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Enclosure (A) concerning subsample information referring to certificate of analysis 2007146468

Page 1/1

Analytico-#	Drill-#	Description	Description	From	To	Barcode	Sample description
3497588						0730015397	EUSROSS
3497588						0730015454	
3497588						0720077814	
3497588						0840202342	
3497588						0580385086	
3497589						0730015473	DISROSS
3497589						0730015418	
3497589						0720059567	
3497589						0840202257	
3497589						0580385034	
3497590						0730015345	QDSROSS
3497590						0730015234	
3497590						0720077938	
3497590						0840202505	
3497590						0580385091	
3497591						0730015462	ZUSDRIS
3497591						0730015246	
3497591						0720077807	
3497591						0840202516	
3497591						0580385099	
3497592						0730015119	DISDRIS
3497592						0730015274	
3497592						0720077809	
3497592						0840202273	
3497592						0580385062	
3497593						0730015099	ZDSDRIS
3497593						0730015157	
3497593						0720077820	
3497593						0840202124	
3497593						0580385088	
3497594						0730015193	DRISTRIBUS
3497594						0730015272	
3497594						0720077810	
3497594						0840202266	
3497594						0580385081	



Enclosure (B) concerning remarks referring to certificate of analysis 2007146468

Page 1/1

General remark referring to certificate of analysis
Revised version dated 1st of November 2007

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Enclosure (C) concerning method references referring to certificate of analysis 2007146468

Page 1/1

Analysis	Method	Technique	Method reference
Sulphate ionchromatography	W0304	Ion Chromatography	In accordance with NEN-EN-ISO 10304-1/
ICP-MS Sodium (Na)	W0420	ICP-MS	In acc. with NEN-EN-ISO 17294-2: 2004/ i
Nitrite (discrete analyser)	W0566	Spectrometry	In accordance with 0-NEN 6604:2006
Chloride ionchromatography	W0304	Ion Chromatography	In accordance with NEN-EN-ISO 10304-1/
ICP-MS Cadmium	W0420	ICP-MS	In acc. with NEN-EN-ISO 17294-2: 2004/ i
ICP-MS Iron (Fe)	W0420	ICP-MS	In acc. with NEN-EN-ISO 17294-2: 2004/ i
ICP-MS Lead	W0420	ICP-MS	In acc. with NEN-EN-ISO 17294-2: 2004/ i
ICP-MS Zinc	W0420	ICP-MS	In acc. with NEN-EN-ISO 17294-2: 2004/ i
ICP-MS Magnesium (Mg)	W0420	ICP-MS	In acc. with NEN-EN-ISO 17294-2: 2004/ i
ICP-MS Copper	W0420	ICP-MS	In acc. with NEN-EN-ISO 17294-2: 2004/ i
Hardness temporary	W0545	Titrimetry	In house method
Ammonium (discrete analyser)	W0566	Spectrometry	In accordance with 0-NEN 6604:2006
ICP-MS Chromium	W0420	ICP-MS	In acc. with NEN-EN-ISO 17294-2: 2004/ i
Manganese (Mn)	W0420	ICP-MS	In acc. with NEN-EN-ISO 17294-2: 2004/ i
Composite alkalinity (P-value)	W0545	Titrimetry	In accordance with NEN-EN-ISO 9963-1
ICP-MS Mercury	W0420	ICP-MS	Cf. NEN-EN-ISO 17294-2: 2004 / Gelijk.w.
Nitrate (discrete analyser)	W0566	Spectrometry	In accordance with 0-NEN 6604:2006
ICP-MS Potassium (K)	W0420	ICP-MS	In acc. with NEN-EN-ISO 17294-2: 2004/ i
ICP-MS Nickel	W0420	ICP-MS	In acc. with NEN-EN-ISO 17294-2: 2004/ i
Ortho-phosphate (discrete analyser)	W0566	Spectrometry	In accordance with 0-NEN 6604:2006
Bromide ionchromatography	W0304	Ion Chromatography	In accordance with NEN-EN-ISO 10304-1/
ICP-MS Calcium (Ca)	W0420	ICP-MS	In acc. with NEN-EN-ISO 17294-2: 2004/ i
Carbonate /Bicarbonate	W0545	Titrimetry	In house method

Further information about the applied methods as well as the classification of the accuracy, are listed in our supplement: "Specification of methods of analyses", version January 2004.

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