



Notat

Etablissement: Beredskabsstyrelsen Nordjylland

Dato: 13. maj 2015

Mulig drivmiddelforurening hos BRSNJ

Indledning

I november 2014 kontakter beredskabsstyrelsens miljøkoordinator, Mads Rolf Ahrenskjær, Miljøafdelingen ved Forsvarsministeriets Ejendomsstyrelse angående en mulig forurening.

Ansatte ved Beredskabsstyrelsen Nordjylland i Thisted har konstateret en mislugt fra vandet i en vandhane i et tekøkken. Lugten beskrives som en markant lugt af organiske opløsningsmidler. I en analyse foretaget af BRS Kemisk beredskab ses spor af ETBE, der benyttes som tilsætningsstof til benzin.

NIRAS har for Forsvarsministeriets Ejendomsstyrelse udført undersøgelser af drikkevandet hos Beredskabsstyrelsen Nordjylland i Thisted.

Prøvetagning og analyser

Den 2. december 2014 udtages der vandprøver fra vandhaner otte steder (VP1 - VP8) på etablisementet. Vandprøverne analyseres for olieprodukter og MTBE. Vandprøven, der udtages i tekøkkenet (VP7a), aftappes i modsætning til de øvrige vandprøver uden at vandet har løbet først. Der udtages, efter vandet har løbet et stykke tid, endnu en vandprøve (VP7b), der analyseres ved et GC-MS scan.

Alle vandprøver analyseres ved ALS. Analyseresultater fremgår af tabel 1 og analyserapporter vedlagt i bilag 2.



Analyseresultater, grundvand Totalkulbrinter, BTEXN og MTBE (µg/l)								
Anlæg	ID	Totalkulbrinter	Benzen	Toluen	Ethylbenzen	Xylener	Naphthalen	MTBE
I bygning 101	VP1 - dec. 2014	<5	<0,10	<0,10	<0,10	<0,10	<0,10	<0,020
Syd for bygning 114/119	VP2 - dec. 2014	<5	<0,10	<0,10	<0,10	<0,10	<0,10	<0,020
Syd for bygning 113	VP3 - dec. 2014	<5	<0,10	<0,10	<0,10	<0,10	<0,10	<0,020
Sydvest for bygning 110	VP4 - dec. 2014	<5	<0,10	<0,10	<0,10	<0,10	<0,10	<0,020
I bygning øst for bygning 110	VP5 - dec. 2014	<5	<0,10	<0,10	<0,10	<0,10	<0,10	<0,020
Badeværelse i bygning 110	VP6 - dec. 2014	<5	<0,10	<0,10	<0,10	<0,10	<0,10	<0,020
Tekøkken i bygning 110	VP7a - dec. 2014	<5	<0,10	<0,10	<0,10	<0,10	<0,10	0,34
Tekøkken i bygning 110	VP7b - dec. 2014	i.p.*	i.p.*	i.p.*	i.p.*	i.p.*	i.p.*	i.p.*
I bygning 102	VP8 - dec. 2014	<5	<0,10	0,23	<0,10	0,62	<0,10	<0,020
Grundvandskvalitetskriterium 1)		9	1	5	-	5	1	5
Detektionsgrænse		5	0,10	0,10	0,10	0,10	0,10	0,020

Tabel 1: Analyseresultater for vandprøver, analyseret for totalkulbrinter, BTEXN og MTBE.
* Udført som GC/MS scan.

Det fremgår af tabel 1, at der er konstateret et indhold af MTBE på 0,34 µg/l i vandprøven (VP7a) udtaget i tekøkkenet. Indholdet er betydeligt mindre end Miljøstyrelsens grundvandskvalitetskriterium på 5 µg/l.

Endvidere fremgår det, at der er konstateret indhold af toluen og xylener på henholdsvis 0,23 og 0,62 µg/l i vandprøven (VP8) udtaget i bygning 102. Indholdene er betydeligt mindre end Miljøstyrelsens grundvandskvalitetskriterier på 5 µg/l.

I de resterende analyserede vandprøver er der ikke konstateret indhold af olieprodukter eller MTBE over analysemetodens detektionsgrænse.

Da ovenstående indhold af MTBE ikke burde kunne lugtes, vurderes det, at der kan være indhold af andre stoffer i vandet, end dem der er analyseret for, og det besluttes at udtage en vandprøve til TerrAttest. Ved TerrAttest analyseres der for en lang række organiske og uorganiske stoffer, jf. bilag 2.

Den 5. januar 2015 udtages der en vandprøve (VP9) fra vandhanen i tekøkkenet, efter vandet har løbet et stykke tid. Vandprøven analyseres ved TerrAttest og endvidere for MTBE.



Vandprøven analyseres ved Eurofins. Analyseresultater fremgår af tabel 2 og analyserapporter vedlagt i bilag 2.

Analyseresultater, grundvand Totalkulbrinter, BTEXN og MTBE (µg/l)								
Anlæg	ID	Totalkulbrinter	Benzen	Toluen	Ethylbenzen	Xylener	Naphthalen	MTBE
Tekøkken i bygning 110	VP9 - jan. 2015	71**	<0,10**	<0,10**	0,17**	<0,20**	<0,4**	<0,10
Grundvandskvalitetskriterium 1)		9	1	5	-	5	1	5
Detektionsgrænse		5	0,10	0,10	0,10	0,20	0,4	0,10

Tabel 2: Analyseresultater for vandprøver, analyseret for totalkulbrinter, BTEXN og MTBE.
** Udført som TerrAttest.

Det fremgår af tabel 2, at der i vandprøven (VP9) konstateres et totalindhold af olieprodukter på 71 µg/l, hvilket overskrider Miljøstyrelsens grundvandskvalitetskriterium på 9 µg/l.

Kort forinden lugtgenerne i tekøkkenet registreres, er der blevet installeret en ny vandvarmer, som vurderes, at kunne være kilden til de konstaterede indhold i vandet. Med baggrund i dette besluttet det, at udtage en vandprøve direkte fra vandvarmeren (VP9), samt en prøve af det kolde vand (VP7), der ikke har været gennem vandvarmeren.

Begge vandprøver analyseres for olieprodukter og MTBE ved ALS. Analyseresultater fremgår af tabel 3 og analyserapport vedlagt i bilag 2.

Analyseresultater, grundvand Totalkulbrinter, BTEXN og MTBE (µg/l)								
Anlæg	ID	Totalkulbrinter	Benzen	Toluen	Ethylbenzen	Xylener	Naphthalen	MTBE
Tekøkken i bygning 110	VP7 - mar. 2015	<5	<0,10	<0,10	<0,10	<0,10	<0,10	<0,020
Vandvarmer i bygning 110	VP9 - mar. 2015	<5	<0,10	<0,10	<0,10	<0,10	<0,10	3,2
Grundvandskvalitetskriterium 1)		9	1	5	-	5	1	5
Detektionsgrænse		5	0,10	0,10	0,10	0,10	0,10	0,020

Tabel 3: Analyseresultater for vandprøver, analyseret for totalkulbrinter, BTEXN og MTBE.

Det fremgår af tabel 3, at der konstateres et indhold af MTBE på 3,2 µg/l i vandet fra vandvarmeren, samt at der ikke konstateres indhold af MTBE over detektionsgrænsen i vandet, der ikke har været gennem vandvarmeren.



Konklusion

Med baggrund i ovenstående resultater vurderes lugtgenerne registreret i tekøkkenet ikke at stamme fra en drivmiddelforurening.

Endvidere vurderes det, at lugtgenerne er relateret til varmtvandsbeholderen tilknyttet tekøkkenet.

Bilag

1. Situationsplan
2. Analyserapporter

Referencer

- 1) Miljøstyrelsen, Liste over kvalitetskriterier i relation til forurennet jord og kvalitetskriterier for drikkevand, opdateret maj 2014.

BILAG 1

Situationsplan



Etabl. BRS221
Beredskabsstyrelsen, Nordjylland
Situationsplan

Bilag: 1

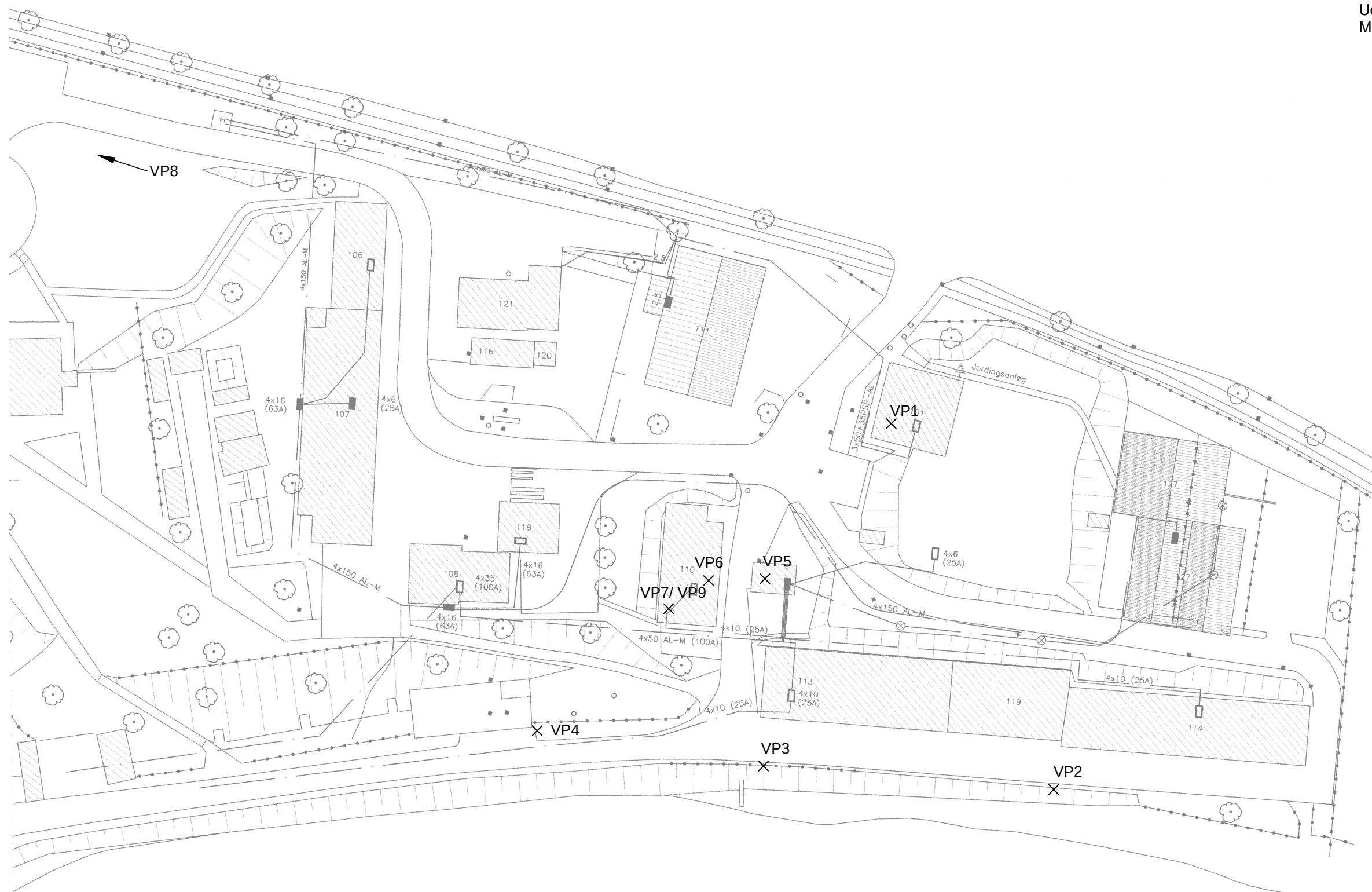
Klassifikation: UKLASSIFICERET

Dato: 11.05.2015

Udført af: HHL

Målestok: 1:2000

VP1 X Vandprøve



BILAG 2

Analyserapporter



ALS Denmark A/S
Bakkegårdsvej 406 A
DK-3050 Humlebæk
Telefon: +45 4925 0770
www.alsglobal.dk

ANALYSERAPPORT

NIRAS
Vestre Havnepromenade 9
9100 Aalborg
Att.: NIRAS

Udskrevet: 15-12-2014
Version: 1
Modtaget: 02-12-2014
Påbegyndt: 02-12-2014
Ordrenr.: 282543

Sagsnavn: 218576
Lokalitet: Beredskabsstyrelsen, Thisted
Udtaget: 02-12-2014
Prøvetype: Råvand
Prøvetager: Niras/MRJ
Kunde: NIRAS, Vestre Havnepromenade 9, 9100 Aalborg

Prøvenr.:	158634/14	158635/14	158636/14	158637/14	158638/14		
Prøve ID:	VP1	VP2	VP3	VP4	VP5		
Kommentar	*1	*1	*1	*1	*1		
Parameter						Enhed	Metode
BTEXN i vand						-	GC/MS/SIM
Benzen	<0.10	<0.10	<0.10	<0.10	<0.10	µg/l	GC/MS/SIM
Toluen	<0.10	<0.10	<0.10	<0.10	<0.10	µg/l	GC/MS/SIM
Ethylbenzen	<0.10	<0.10	<0.10	<0.10	<0.10	µg/l	GC/MS/SIM
Xylener	<0.10	<0.10	<0.10	<0.10	<0.10	µg/l	GC/MS/SIM
Naphtalen	<0.10	<0.10	<0.10	<0.10	<0.10	µg/l	GC/MS/SIM
Kulbrinter i vand						-	GC/FID/pentan
Total kulbrinter	<5.0	<5.0	<5.0	<5.0	<5.0	µg/l	GC/FID/pentan
Purge & Trap, MTBE						-	GC/MS, P&T
Methyl-tert-butylether(MTBE)	<0.020	<0.020	<0.020	<0.020	<0.020	µg/l	GC/MS, P&T

Prøvenr.:	158639/14	158640/14	158641/14	158642/14		
Prøve ID:	VP6	VP7a	VP7b	VP8		
Kommentar	*1	*1	*2	*1		
Parameter					Enhed	Metode
BTEXN i vand					-	GC/MS/SIM
Benzen	<0.10	<0.10		<0.10	µg/l	GC/MS/SIM
Toluen	<0.10	<0.10		0.23	µg/l	GC/MS/SIM
Ethylbenzen	<0.10	<0.10		<0.10	µg/l	GC/MS/SIM
Xylener	<0.10	<0.10		0.62	µg/l	GC/MS/SIM
Naphtalen	<0.10	<0.10		<0.10	µg/l	GC/MS/SIM
Kulbrinter i vand					-	GC/FID/pentan
Total kulbrinter	<5.0	<5.0		<5.0	µg/l	GC/FID/pentan
Purge & Trap, MTBE					-	GC/MS, P&T
Methyl-tert-butylether(MTBE)	<0.020	0.34		<0.020	µg/l	GC/MS, P&T
GC/MS Scan analyse			Se bem.		-	GC/MS scan

Kommentar

- *1 Ingen kommentar
- *2 Der er udført GC/MS scan på pentanekstraktet. Der er ikke påvist nogen komponenter. Der er hverken fundet BTEX'er eller chlorerede opløsningsmidler.

Trine Kornbeck

NIRAS A/S
Vestre Havnepromenade 9
Postboks 119
9000 Aalborg
Att.: Morten M. R. Jensen (MRJ)

Rapportnr.: AR-15-CA-00263970-01
Batchnr.: EUDKVE-00263970
Kunde nr. CA0000190
Modt. dato: 05.01.2015

Analysereport

Sagsnr.: 218576
Sagsnavn: Simons Bakke 25, Thisted
Prøvetype: Grundvand
Prøvetager: Rekvirenten MRJ
Prøveudtagning: 05.01.2015
Analyseperiode: 05.01.2015 - 16.01.2015

Prøvemærke: VP9

Lab prøvenr:	80212217	Enhed	DL.	Metode	Um (%)
MTBE og nedbrydningsprodukter					
MTBE (ter-butylmethylether)	< 0.1	µg/l	0.1	ISO 15680 P&T GC/MS	14
Udført ved underleverandør					
Ydelse fra underleverandør	Se bilag			*	

Batchkommentar:

Resultatet af TerrAttest er vedlagt i særskilt bilag.

16.01.2015

Kundecenter
Tel 70224267
G30@eurofins.dk


Hanne Jensen
Kunderådgiver

Tegnforklaring:

<: mindre end

>: større end

#: ingen parametre er påvist

DL.: Detektionsgrænse

*): Ikke omfattet af akkrediteringen

i.p.: ikke påvist

i.m.: ikke målelig

Um (%): Den ekspanderede måleusikkerhed Um er lig 2 x RSD%, se i øvrigt www.eurofins.dk, søgeord: Måleusikkerhed.

Prøvningsresultaterne gælder udelukkende for de(n) undersøgte prøve(r).

Rapporten må ikke gengives, undtagen i sin helhed, uden prøvningslaboratoriets skriftlige godkendelse.

Eurofins Miljø A/S
Att. Susanne Peterson
Ladelundvej 85
DK-6600 Vejen
DENMARK

Certificate of analysis

Date: 01-16-2015

Please find enclosed the analytical results of the test carried out for the project.

Certificate number/Version	2015001909/1
Your project number	---
Your project name	-
Your order number	-
Samples received on	01-09-2015

This Certificate of Analysis shall not be reproduced except in full, without written approval of the laboratory.

Soil samples will be stored 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 mentioned periods have expired. If you require Eurofins Analytico to store the samples for a longer period, please complete this page and return it to Eurofins Analytico at least one week before the period is due to expire. The costs of prolonged storage periods may be found in our pricelist.

Storage period:

Date:

Name:

Signature:

We are confident 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,

Eurofins Analytico B.V.



Ing. A. Veldhuizen
Technical Manager

Eurofins Analytico B.V.

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Certificate of analysis

Your project number ---
Your project name -
Your order number -

Certificate number/Version 2015001909/1
Start date 01-09-2015
Report date 01-16-2015/08:35
Annex A,B,C
Page 1/1

Sampled by
Sample matrix Water; Groundwater

Analysis	Unit	1
Physical and chemical analyses		
EC-temp. corr. factor (mathematical)		1.211
Q Electric conductivity 25 °C	µS/cm	540
Q Electric conductivity 25 °C	mS/m	54
Q Electric conductivity 20°C	mS/m	49
Measuring temperature (EC)	°C	16.5
Measuring temperature (pH)	°C	20.1
Q pH		7.6
Metals		
Q Barium (Ba)	µg/L	23
Q Copper (Cu)	µg/L	9.3
Q Nickel (Ni)	µg/L	3.0
Q Zinc (Zn)	µg/L	51
Volatile Organic Hydrocarbons		
Q Ethylbenzene	µg/L	0.17
Phenols		
Polycyclic Aromatic Hydrocarbons		
Chlorobenzenes		
Chlorophenols		
PolyChlorinated Biphenyl (PCB)		
Organic Chlorinated Pesticides		
Miscellaneous Organic compounds		
Total Petroleum Hydrocarbons		
TPH C10-C12	µg/L	27
TPH C30-C35	µg/L	22
TPH C35-C40	µg/L	22

No.	Sample description	Date sampling	Sample nr.
1	835-2014-80212217	09-Jan-2015	8419319

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

Verified
ASM

Eurofins Analytico B.V.

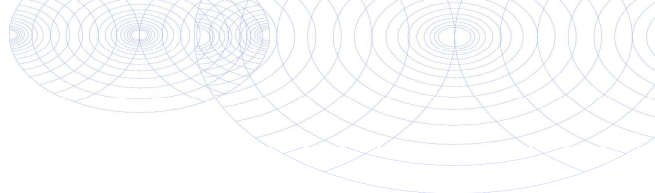
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Annex (A) concerning subsample information referring to certificate of analysis 2015001909/1

Page 1/1

Sample nr.	Drill-#	Description	From	To	Barcode	Sample description
8419319					W00026175	835-2014-80212217

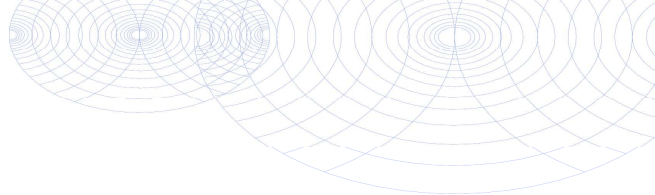


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**Annex (B) concerning remarks referring to certificate of analysis 2015001909/1**

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General remark referring to certificate of analysis

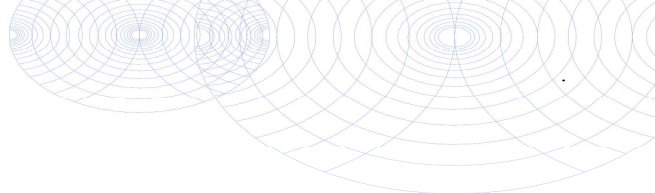
Other components are possibly present at concentrations below the reporting limit

**Eurofins Analytico B.V.**

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Annex (C): method references belonging to certificate of analysis 2015001909/1

Page 1/1

Analysis	Method	Technique	Method reference
Acidity (pH)	W0524	Potentiometry	I.a.w. ISO 10523
Electric conductivity	W0506	Conductometry	I.a.w. NEN-ISO 7888
TerrAttesT metals	W0421	ICP-MS	Acc. NEN-EN-ISO 17294-2 / CMA2/I/B.5
Ethylbenzene (TAT)	W0254	HS-GC/MS	In house method
TPH fractioned (TAT)	W0215	LVI-GC-FID	TerrAttesT



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Informative Enclosure

According to article 5.8.3 and to upgrade the quality of the data, the ISO/IEC 17025 accredited laboratories are obliged to notice if a sample is suitable for performing the required analyses. It concerns topics as sample packaging, field preservation, transport and storage of samples, analysis of samples before the expiration of the term of preservation. From January 1st 2004 the laboratories work against the new criteria. Till January 1st 2006 you will be informed by this informative enclosure, as explained below. After January 1st 2006, these remarks concerning samples and analyses will be part of the entire certificate of analysis. In the transition period only, the parties involved agreed to use the information for optimising the processes.

Non compliance(s) of the criteria is(are) observed that may have influenced the accuracy of the test results of samples mentioned below.

Analysis

The preservation term for this parameter has been expired.

Electric conductivity 25 °C

Sample nr.

8419319

Eurofins Analytico B.V.

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Certificate of analysis

Your project number ---
Your project name -
Your order number -

Certificate number/Version 2015001909/1
Start date 01-09-2015
Report date 01-16-2015/08:35
Annex A,B,C
Page 1/9

Sampled by
Sample matrix Water; Groundwater

Analysis	Unit	1
Physical and chemical analyses		
EC-temp. corr. factor (mathematical)		1.211
Q Electric conductivity 25 °C	µS/cm	540
Q Electric conductivity 25 °C	mS/m	54
Q Electric conductivity 20°C	mS/m	49
Measuring temperature (EC)	°C	16.5
Measuring temperature (pH)	°C	20.1
Q pH		7.6
Metals		
Q Arsenic (As)	µg/L	<3.0
Q Antimony (Sb)	µg/L	<5.0
Q Barium (Ba)	µg/L	23
Q Beryllium (Be)	µg/L	<1.0
Q Cadmium (Cd)	µg/L	<0.40
Q Chromium (Cr)	µg/L	<2.0
Q Cobalt (Co)	µg/L	<1.0
Q Copper (Cu)	µg/L	9.3
Q Mercury (Hg)	µg/L	<0.040
Q Lead (Pb)	µg/L	<3.0
Q Molybdenum (Mo)	µg/L	<2.0
Q Nickel (Ni)	µg/L	3.0
Q Selenium (Se)	µg/L	<5.0
Q Tin (Sn)	µg/L	<5.0
Q Vanadium (V)	µg/L	<2.0
Q Zinc (Zn)	µg/L	51
Volatile Organic Hydrocarbons		
Q Benzene	µg/L	<0.10
Q Ethylbenzene	µg/L	0.17
Q Toluene	µg/L	<0.10
Q o-Xylene	µg/L	<0.10
Q m,p-Xylene	µg/L	<0.10

No.	Sample description	Date sampling	Sample nr.
1	835-2014-80212217	09-Jan-2015	8419319

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

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BNP Paribas S.A. 227 9245 25
VAT/BTW No. NL 8043.14.883.B01
KvK No. 09088623
IBAN: NL71BNP0227924525
BIC: BNPNL2A

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Sampled by
Sample matrix Water; Groundwater

Analysis	Unit	1
Q Xylenes (sum)	µg/L	<0.20
Q Styrene	µg/L	<0.10
Q 1,2,4-Trimethylbenzene	µg/L	<0.10
Q 1,3,5-Trimethylbenzene	µg/L	<0.10
Q n-Propylbenzene	µg/L	<0.10
Q Isopropylbenzene	µg/L	<0.10
Q n-Butylbenzene	µg/L	<0.10
Q sec-Butylbenzene	µg/L	<0.10
Q tert-Butylbenzene	µg/L	<0.10
Q p-Cymene	µg/L	<0.10
Phenols		
Q Phenol	µg/L	<0.5
Q o-Cresol	µg/L	<0.30
Q m-Cresol	µg/L	<0.30
Q p-Cresol	µg/L	<0.20
Q Cresols (sum)	µg/L	<0.80
Q 2,4-Dimethylphenol	µg/L	<0.02
Q 2,5-Dimethylphenol	µg/L	<0.02
Q 2,6-Dimethylphenol	µg/L	<0.03
Q 3,4-Dimethylphenol	µg/L	<0.02
Q o-Ethylphenol	µg/L	<0.03
Q m-Ethylphenol	µg/L	<0.02
Q Thymol	µg/L	<0.01
Q 2,3/3,5-Dimethylphenol + 4-Ethylphenol	µg/L	<0.02
Polycyclic Aromatic Hydrocarbons		
Q Naphtalene	µg/L	<0.4
Q Acenaphthylene	µg/L	<0.04
Q Acenaphthene	µg/L	<0.1
Q Fluorene	µg/L	<0.01
Q Phenanthrene	µg/L	<0.02
Q Anthracene	µg/L	<0.01

No.	Sample description	Date sampling	Sample nr.
1	835-2014-80212217	09-Jan-2015	8419319

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Sampled by
Sample matrix Water; Groundwater

Analysis	Unit	1
Q Fluoranthene	µg/L	<0.02
Q Pyrene	µg/L	<0.06
Q Benzo(a)anthracene	µg/L	<0.04
Q Chrysene	µg/L	<0.02
Q Benzo(b+k)fluoranthene	µg/L	<0.06
Q Benzo(a)pyrene	µg/L	<0.1
Q Dibenzo(ah)anthracene	µg/L	<0.08
Q Benzo(ghi)perylene	µg/L	<0.1
Q Indeno(123cd)pyrene	µg/L	<0.06
Q PAH 10 VROM (sum)	µg/L	<0.8
Q PAH 16 EPA (sum)	µg/L	<1.1

Volatile halogenated Hydrocarbons

Q Chloromethane	µg/L	<0.20
Q Dichloromethane	µg/L	<0.20
Q Vinyl chloride	µg/L	<0.20
Q 1,1-Dichloroethene	µg/L	<0.10
Q trans 1,2-Dichloroethene	µg/L	<0.10
Q cis1,2-Dichloroethene	µg/L	<0.10
Q Chloroethane	µg/L	<0.10
Q Trichlorofluoromethane	µg/L	<0.10
Q Trichloromethane	µg/L	<0.20
Q Tetrachloromethane	µg/L	<0.10
Q 1,1-Dichloroethane	µg/L	<0.10
Q 1,2-Dichloroethane	µg/L	<0.10
Q 1,1,1-Trichloroethane	µg/L	<0.10
Q 1,1,2-Trichloroethane	µg/L	<0.10
Q Trichloroethane (sum)	µg/L	<0.20
Q 1,1,1,2-Tetrachloroethane	µg/L	<0.10
Q 1,1,2,2-Tetrachloroethane	µg/L	<0.10
Q Tetrachloroethane (sum)	µg/L	<0.20
Q Trichloroethene	µg/L	<0.10

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Sampled by
Sample matrix Water; Groundwater

Analysis	Unit	1
Q Tetrachloroethene	µg/L	<0.10
Q 2,2-Dichloropropane	µg/L	<0.10
Q 1,2-Dichloropropane	µg/L	<0.10
Q 1,3-Dichloropropane	µg/L	<0.10
Q 1,2,3-Trichloropropane	µg/L	<0.10
Q 1,1-Dichloro-1-propene	µg/L	<0.10
Q cis1,3-Dichloropropene	µg/L	<0.10
Q trans1,3-Dichloropropene	µg/L	<0.10
Q 1,3-Dichloropropene (sum)	µg/L	<0.20
Q Bromomethane	µg/L	<0.10
Q Bromochloromethane	µg/L	<0.10
Q Dibromomethane	µg/L	<0.10
Q 1,2-Dibromoethane	µg/L	<0.10
Q Tribromomethane	µg/L	<0.10
Q Bromodichloromethane	µg/L	<0.10
Q Dibromochloromethane	µg/L	<0.10
Q 1,2-Dibromo-3-chloropropane	µg/L	<0.10
Q Bromobenzene	µg/L	<0.10
Chlorobenzenes		
Q Monochlorobenzene	µg/L	<0.050
Q 1,2,3-Trichlorobenzene	µg/L	<0.10
Q 1,2,4-Trichlorobenzene	µg/L	<0.10
Q 1,3,5-Trichlorobenzene	µg/L	<0.010
Q Trichlorobenzenes (sum)	µg/L	<0.21
Q 1,2,3,4-Tetrachlorobenzene	µg/L	<0.020
Q 1245&1235 Tetrachlorobenzene	µg/L	<0.020
Q Tetrachlorobenzenes (sum)	µg/L	<0.040
Q Pentachlorobenzene	µg/L	<0.010
Q Hexachlorobenzene	µg/L	<0.030
Q 1,2-Dichlorobenzene	µg/L	<0.10
Q 1,3-Dichlorobenzene	µg/L	<0.10

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Sampled by
Sample matrix Water; Groundwater

Analysis	Unit	1
Q 1,4-Dichlorobenzene	µg/L	<0.10
Q Dichlorobenzenes (sum)	µg/L	<0.30

Chlorophenols

Q o-Chlorophenol	µg/L	<0.1
Q m-Chlorophenol	µg/L	<0.02
Q p-Chlorophenol	µg/L	<0.02
Q Monochlorophenols (sum)	µg/L	<0.14
Q 2,3-Dichlorophenol	µg/L	<0.02
Q 2,4/2,5-Dichlorophenol	µg/L	<0.01
Q 2,6-Dichlorophenol	µg/L	<0.03
Q 3,4-Dichlorophenol	µg/L	<0.02
Q 3,5-Dichlorophenol	µg/L	<0.03
Q Dichlorophenols (sum)	µg/L	<0.11
Q 2,3,4-Trichlorophenol	µg/L	<0.02
Q 2,3,5-/2,4,5-Trichlorophenol	µg/L	<0.02
Q 2,3,6-Trichlorophenol	µg/L	<0.01
Q 2,4,6-Trichlorophenol	µg/L	<0.05
Q 3,4,5-Trichlorophenol	µg/L	<0.01
Q Trichlorophenols (sum)	µg/L	<0.11
Q 2,3,4,5-Tetrachlorophenol	µg/L	<0.01
Q 2,3,4,6 / 2,3,5,6-Tetrachlorophenol	µg/L	<0.020
Q Tetrachlorophenols (sum)	µg/L	<0.03
Q Pentachlorophenol	µg/L	<0.010
Q 4-Chloro-3-methylphenol	µg/L	<0.02

Polychlorinated Biphenyl (PCB)

Q PCB 28	µg/L	<0.01
Q PCB 52	µg/L	<0.01
Q PCB 101	µg/L	<0.01
Q PCB 118	µg/L	<0.01
Q PCB 138	µg/L	<0.01
Q PCB 153	µg/L	<0.01

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Sampled by
Sample matrix Water; Groundwater

Analysis	Unit	1
Q PCB 180	µg/L	<0.01
Q PCB (6) (sum)	µg/L	<0.06
Q PCB (7) (sum)	µg/L	<0.07
Chloronitrobenzenes		
Q o/p-Chloronitrobenzene	µg/L	<0.20
Q m-Chloronitrobenzene	µg/L	<0.20
Q Monochloronitrobenzenes (sum)	µg/L	<0.40
Q 2,3-Dichloronitrobenzene	µg/L	<0.1
Q 2,4-Dichloronitrobenzene	µg/L	<0.1
Q 2,5-Dichloronitrobenzene	µg/L	<0.1
Q 3,4-Dichloronitrobenzene	µg/L	<0.1
Q 3,5-Dichloronitrobenzene	µg/L	<0.06
Q Dichloronitrobenzenes (sum)	µg/L	<0.46
Miscellaneous Chlor. HCs		
Q 2-Chlorotoluene	µg/L	<0.1
Q 4-Chlorotoluene	µg/L	<0.1
Q Chlorotoluenes (sum)	µg/L	<0.2
Q 1-Chloronaphtalene	µg/L	<0.02
Organic Chlorinated Pesticides		
Q 4,4 -DDE	µg/L	<0.01
Q 2,4 -DDE	µg/L	<0.01
Q 4,4 -DDT	µg/L	<0.20
Q 4,4 -DDD + 2,4 -DDT	µg/L	<0.02
Q 2,4 -DDD	µg/L	<0.01
Q DDT/DDE/DDD (sum)	µg/L	<0.25
Q Aldrin	µg/L	<0.02
Q Dieldrin	µg/L	<0.02
Q Endrin	µg/L	<0.02
Q Sum Drins	µg/L	<0.06
Q alfa-HCH	µg/L	<0.08

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Sampled by
Sample matrix Water; Groundwater

Analysis	Unit	1
Q beta-HCH	µg/L	<0.07
Q gamma-HCH	µg/L	<0.10
Q delta-HCH	µg/L	<0.04
Q Sum 4 HCH-compounds	µg/L	<0.29
Q α-Endosulfan	µg/L	<0.05
Q α-Endosulfansulphate	µg/L	<0.03
Q α-Chlordan	µg/L	<0.01
Q γ-Chlordan	µg/L	<0.01
Q Chlordans (sum)	µg/L	<0.02
Q Heptachlor	µg/L	<0.01
Q Heptachloroepoxide	µg/L	<0.03
Q Hexachlorobutadiene	µg/L	<0.10
Q Isodrin	µg/L	<0.10
Q Telodrin	µg/L	<0.07
Q Tedion	µg/L	<0.07
Phosphor pesticides		
Q Azinphos-ethyl	µg/L	<0.1
Q Azinphos-methyl	µg/L	<0.07
Q Bromophos-ethyl	µg/L	<0.07
Q Bromophos-methyl	µg/L	<0.06
Q Chloropyriphos-ethyl	µg/L	<0.06
Q Chloropyriphos-methyl	µg/L	<0.1
Q Cumaphos	µg/L	<0.02
Q Demeton-S/Demeton-O-ethyl	µg/L	<0.1
Q Diazinone	µg/L	<0.04
Q Dichlorovos	µg/L	<0.1
Q Disulphotone	µg/L	<0.04
Q Fenitrothion	µg/L	<0.1
Q Fenthion	µg/L	<0.1
Q Malathion	µg/L	<0.1
Q Parathion-ethyl	µg/L	<0.2

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Sampled by
Sample matrix Water; Groundwater

Analysis	Unit	1
Q Parathion-methyl	µg/L	<0.2
Q Pyrazophos	µg/L	<0.2
Q Triazophos	µg/L	<0.2
Nitrogen pesticides		
Q Ametryn	µg/L	<0.10
Q Atrazin	µg/L	<0.08
Q Cyanazine	µg/L	<0.1
Q Desmetryn	µg/L	<0.10
Q Prometryn	µg/L	<0.10
Q Propazine	µg/L	<0.08
Q Simazine	µg/L	<0.20
Q Terbutylazine	µg/L	<0.06
Q Terbutryn	µg/L	<0.10
Miscellaneous pesticides		
Q Bifenthrine	µg/L	<0.08
Q Carbaryl	µg/L	<0.10
Q Cypermethrin A,B, C and D	µg/L	<0.20
Q Deltamethrin	µg/L	<0.20
Q Linuron	µg/L	<0.10
Q Permethrin A	µg/L	<0.06
Q Permethrin B	µg/L	<0.06
Q Permethrins (sum)	µg/L	<0.12
Q Propachlor	µg/L	<0.02
Q Trifluralin	µg/L	<0.02
Miscellaneous Organic compounds		
Q Biphenyl	µg/L	<0.01
Q Nitrobenzene	µg/L	<0.3
Q Dibenzofurane	µg/L	<0.1
Total Petroleum Hydrocarbons		
TPH C10-C12	µg/L	27

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Sampled by
Sample matrix Water; Groundwater

Analysis	Unit	1
TPH C12-C16	µg/L	<15
TPH C16-C21	µg/L	<15
TPH C21-C30	µg/L	<20
TPH C30-C35	µg/L	22
TPH C35-C40	µg/L	22
Q TPH (sum C10-C40)	µg/L	<100

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ACC.		TERRATTEST 7.23 REPORTING LIMIT		ACC.		TERRATTEST 7.23 REPORTING LIMIT		ACC.		TERRATTEST 7.23 REPORTING LIMIT	
S	W	soil mg/kg d.w.	ground water µg/l	S	W	soil mg/kg d.w.	ground water µg/l	S	W	soil mg/kg d.w.	ground water µg/l
								</			



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TEST Reg.nr. 361

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ANALYSERAPPORT

Udskrevet: 13-03-2015
Version: 1
Modtaget: 06-03-2015
Påbegyndt: 06-03-2015
Ordrenr.: 290182

NIRAS
Vestre Havnepromenade 9
9100 Aalborg
Att.: NIRAS

Sagsnavn: 218576
Lokalitet: Beredskabsstyrelsen, Thisted
Udtaget: 06-03-2015
Prøvetype: Råvand
Prøvetager: Niras/MRJ
Kunde: NIRAS, Vestre Havnepromenade 9, 9100 Aalborg

Prøvenr.:	25718/15	25719/15		
Prøve ID:	VP7	VP9		
Kommentar	*1	*1		
Parameter			Enhed	Metode
BTEXN i vand			-	GC/MS/SIM
Benzen	<0.10	<0.10	µg/l	GC/MS/SIM
Toluen	<0.10	<0.10	µg/l	GC/MS/SIM
Ethylbenzen	<0.10	<0.10	µg/l	GC/MS/SIM
Xylener	<0.10	<0.10	µg/l	GC/MS/SIM
Naphtalen	<0.10	<0.10	µg/l	GC/MS/SIM
Kulbrinter i vand			-	GC/FID/pentan
Total kulbrinter	<5.0	<5.0	µg/l	GC/FID/pentan
Purge & Trap, MTBE			-	GC/MS, P&T
Methyl-tert-butylether(MTBE)	<0.020	3.2	µg/l	GC/MS, P&T
Kommentar				

*1 Ingen kommentar

Ditte T.E. Strecker

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