

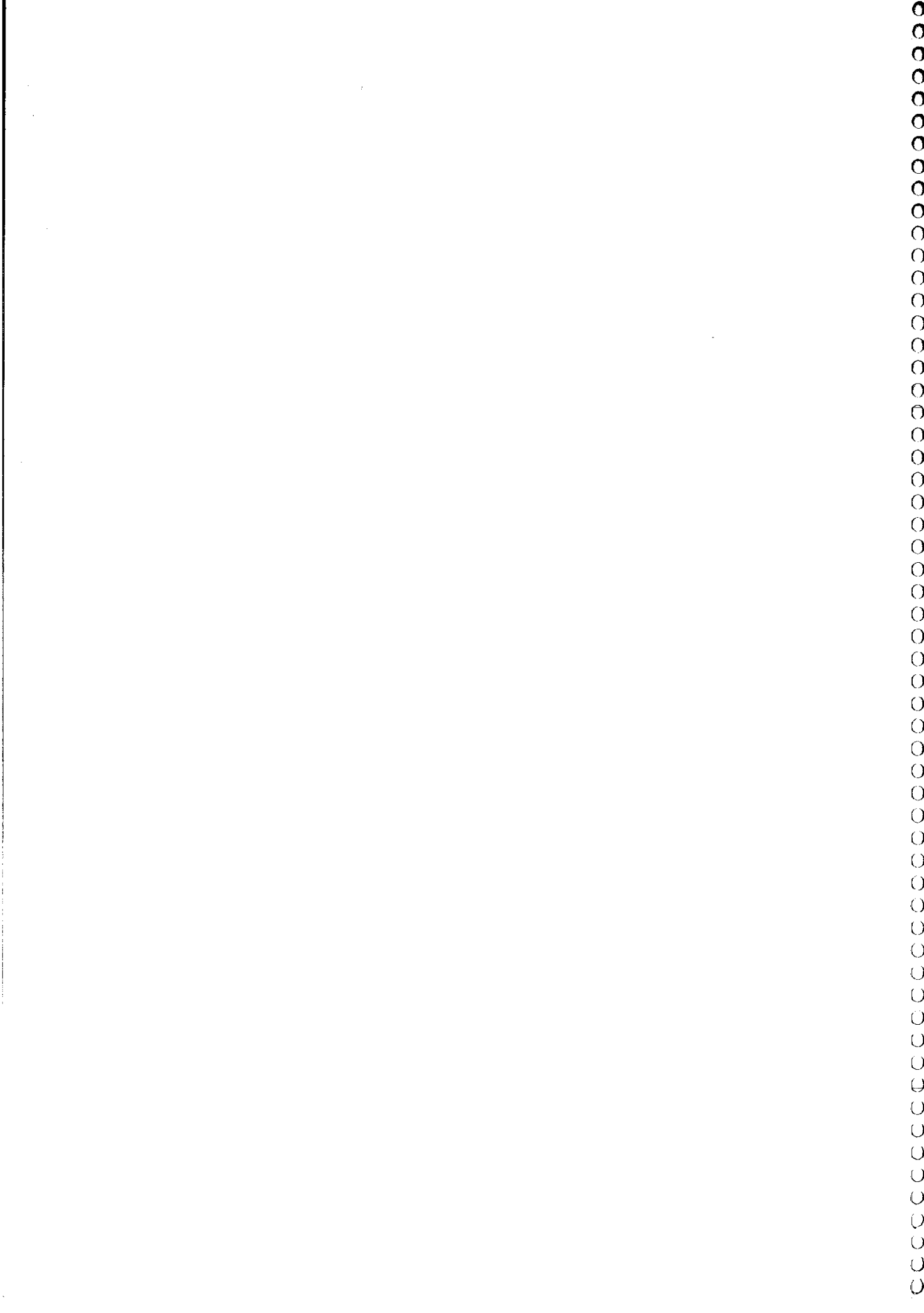


Plano de Monitorização para a Hidrogeologia

novembro 2012 – outubro 2013

IMA 46.13-12/02.13

DEZEMBRO 2013



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Relatório elaborado para
UNITED RESINS – Produção de Resinas, S.A.
Rua Acácias Lote 126, Gala-São Pedro
3090-380 Figueira da Foz

IMA 46.13-12/02.13

DEZEMBRO 2013

Ficha técnica

Designação do Projeto: Plano de Monitorização para a Hidrogeologia
novembro 2012 – outubro 2013


Cliente: UNITED RESINS – Produção de Resinas, S.A.
Rua Acácias Lote 126, Gala - São Pedro
3090-380 Figueira da Foz

Sector Operacional: Laboratório

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1. Introdução

1.1 Considerações Gerais

O presente relatório de monitorização da componente de hidrogeologia, do projeto da "Unidade industrial United Resins – Produção de Resinas, S.A.", foi elaborado na sequência da Declaração de Impacte Ambiental (DIA) e tendo em conta os planos de monitorização propostos no respectivo Relatório de Conformidade Ambiental do Projeto de Execução (RECAPE).

O plano de monitorização da água subterrânea no perímetro industrial da United Resins–Produção de Resinas, S.A., tem como principais objetivos:

- monitorizar as variações ao longo do tempo da qualidade da água subterrânea;
- identificar as tendências de variação natural da composição química da água;
- providenciar com a devida antecedência sinais que permitam identificar potenciais contaminações;
- providenciar dados hidroquímicos suficientes para permitir estabelecer relações de causa - efeito.

1.2 Âmbito do Relatório da Monitorização

O presente relatório regista o desenvolvimento ao longo de um ano do programa de monitorização. Neste contexto, o presente documento apresenta a descrição dos trabalhos desenvolvidos no período decorrente entre novembro de 2012 e outubro de 2013. Os níveis de concentração de cada parâmetro apresentados neste relatório correspondem ao período compreendido entre a data do início da monitorização e a data do resultado mais atual disponível aquando da realização deste relatório.

1.3 Enquadramento Legal

Atualmente, o regime jurídico de Avaliação de Impacte Ambiental (AIA) encontra-se instituído pelo Decreto-Lei nº 151-B/2013 de 31 de outubro.

A Portaria nº 330/2001, de 2 de abril (prevista pelo Decreto Lei nº 69/2000, de 3 de maio) regulamenta as normas relativas ao EIA, à proposta de definição do âmbito do EIA e ao conselho executivo de AIA, estipulando no seu Anexo V, a estrutura a adotar para a elaboração do relatório de monitorização

1.4 Apresentação da Estrutura do Relatório

O presente Relatório de Monitorização (RM) segue o definido no Anexo V da Portaria nº 330/2001 de 2 de abril, e encontra-se dividido nos seguintes capítulos:

1. Introdução;
2. Antecedentes;
3. Descrição do programa de monitorização;
4. Resultados do programa de monitorização;
5. Conclusões.

1.5 Autoria Técnica do Relatório

Este RM foi elaborado pelo Instituto do Ambiente e Desenvolvimento (IDAD). No Quadro 1.1 apresenta-se a composição da equipa técnica, responsável pela elaboração do RM.

Quadro 1.1 – Equipa técnica do RM.

Nome	Qualificações
Maria Teresa Condesso de Melo	Doutora em Geociências, CVRM, IST, UTL
Miguel Coutinho	Doutor em Ciências Aplicadas ao Ambiente, IDAD
Alexandra Passos Silva	Licenciada em Engenharia do Ambiente, IDAD

2. Antecedentes

2.1 Considerações Gerais

O Estudo de Impacte Ambiental (EIA) do Projeto de Ampliação da Unidade Industrial United Resins – Produção de Resinas, S.A. localizada no Parque Industrial e Empresarial da Figueira da Foz foi desenvolvido em conformidade com a legislação em vigor, tendo no entanto em atenção as especificações do projeto, as características da área de implantação do mesmo, bem como as recomendações e comentários referidos pelas diversas entidades consultadas e pela Comissão de Avaliação que analisou a Proposta de Definição do Âmbito (PDA).

Procedeu-se à avaliação da qualidade da água subterrânea tendo por base os resultados das determinações físico-químicas realizadas em uma amostra de água subterrânea recolhida no furo de captação LRS1 localizado no interior do perímetro fabril.

Em face da avaliação dos impactes ambientais, foi proposto um plano de monitorização de desempenho ambiental, com o objetivo de possibilitar a deteção de eventuais problemas ambientais associados ao funcionamento da unidade industrial.

Posteriormente, na sequência do Parecer Final da Comissão de Avaliação (CA), das Conclusões da Consulta Pública e a Proposta da Autoridade de Avaliação de Impacte Ambiental (AIA) relativo ao Procedimento de AIA em questão, foi emitida a Declaração de Impacte Ambiental (DIA) favorável condicionada, à concretização dos planos de monitorização.

Conforme apresentado no RECAPE, para a Hidrogeologia é realizado um plano de monitorização ao nível da quantidade e qualidade da água subterrânea no furo de captação (LRS1) e dois piezómetros (PZ1 e PZ2) no sistema aquífero Leirosa Monte Real e ao nível da bacia de águas pluviais.

2.1.1 Quantidade de Água

i) Parâmetros a monitorizar

- no campo: profundidade do nível freático (NHE).

ii) Frequência de amostragem

A frequência de amostragem deverá ser semestral (Abril e Setembro).

iii) Rede de monitorização

Os pontos de monitorização deveriam ser o furo de captação de água subterrânea (LRS1) e os dois piezómetros localizados no perímetro da Unidade Industrial United Resins – Produção de Resinas, S.A. No entanto, não foi possível efetuar a medição no furo LRS1 por o mesmo se encontrar completamente selado.

iv) Periodicidade dos relatórios de monitorização

Os relatórios de monitorização, os quais devem obedecer ao disposto no Anexo V da Portaria n.º 330/2001, de 2 de abril, devem ser apresentados anualmente à autoridade de AIA.

2.1.2 Qualidade de Água

i) Parâmetros a monitorizar

- no campo: pH, temperatura (T), condutividade eléctrica (CE);
- em laboratório (compostos inorgânicos e orgânicos): cloretos (Cl), nitratos (NO₃), nitritos (NO₂), sulfatos (SO₄), mercúrio (Hg), arsénio (As), cádmio (Cd), chumbo (Pb), azoto amoniacal (NH₄), carência química de oxigénio (CQO), hidrocarbonetos de petróleo totais (TPH) e compostos orgânicos aromáticos.

ii) Frequência de amostragem

A frequência de amostragem no furo e nos 2 piezómetros deverá ser semestral (Abril e Setembro) e na bacia de águas pluviais, deverá ser bi-mensal durante os meses mais chuvosos (Outubro a Abril).

iii) Métodos Analíticos

Os métodos analíticos deverão estar de acordo com as especificações para a análise dos parâmetros indicadas no Decreto-Lei n.º 236/98, de 1 de agosto.

As análises dos controlos de rotina e de inspeção deverão ser efetuadas em laboratórios que garantam a qualidade dos respetivos resultados analíticos e que sejam supervisionados regularmente pela autoridade competente ou por uma entidade independente em que esta delegue, enquanto não tiver meios próprios.

iv) Rede de monitorização

Os pontos de monitorização são o furo de captação de água subterrânea (LRS1), os dois piezómetros e a bacia de águas pluviais, todos eles localizados no perímetro da Unidade Industrial United Resins – Produção de Resinas, S.A.

v) Periodicidade dos relatórios de monitorização

Os relatórios de monitorização, os quais devem obedecer ao disposto no Anexo V da Portaria n.º 330/2001, de 2 de abril, devem ser apresentados semestralmente à autoridade de AIA.

2.2 Redações relativas ao fator ambiental objeto de monitorização

A Unidade Industrial United Resins – Produção de Resinas, S.A. não tem conhecimento de quaisquer reclamações no âmbito da qualidade da água subterrânea.

3. Descrição do programa de monitorização

3.1 Parâmetros a medir

O programa de monitorização inclui a amostragem e análise dos seguintes parâmetros físico-químicos:

- no campo: pH, temperatura (T), condutividade eléctrica (CE) e profundidade do nível freático (NHE), este último parâmetro só é medido no furo de captação e nos piezómetros;
- em laboratório (compostos inorgânicos e orgânicos): cloretos (Cl), nitratos (NO₃), nitritos (NO₂), sulfatos (SO₄), mercúrio (Hg), arsénio (As), cádmio (Cd), chumbo (Pb), azoto amoniacal (NH₄), carência química de oxigénio (CQO), hidrocarbonetos de petróleo totais (TPH) e compostos orgânicos aromáticos.

3.2 Métodos e equipamentos de recolha de dados

A medição do nível freático foi efetuada em condições de repouso, ou seja na ausência de bombagem, e utilizando uma sonda elétrica.

A amostragem foi realizada após bombagem prolongada para renovação da água e observação da estabilização dos seguintes parâmetros: temperatura (T), condutividade eléctrica (CE) e pH, medidos numa célula de fluxo em campo e em condições de ausência de contacto direto com o ar.

Uma vez estabilizados estes parâmetros, recolheram-se as correspondentes amostras de água para análise dos parâmetros analíticos indicados no ponto 3.1.

As amostras colhidas foram preservadas no local e imediatamente transferidas para o laboratório do IDAD, e enviadas para o *ALS Group* para determinação dos restantes parâmetros.

3.3 Amostragem

Os locais de amostragem incluem o furo de captação de águas subterrâneas, os dois piezómetros e bacia de águas pluviais (Figura 3.1).

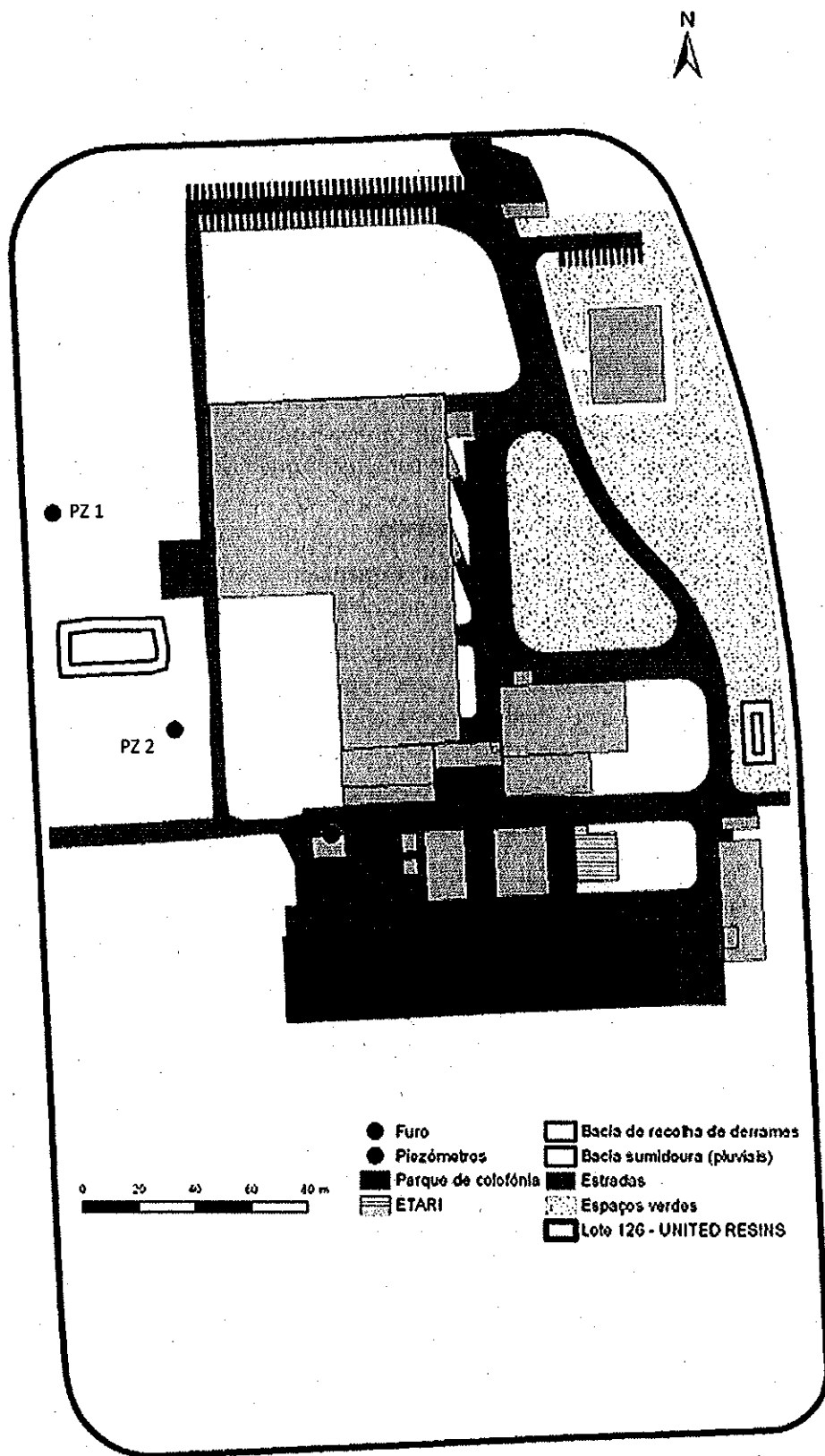


Figura 3.1 – Localização aproximada dos pontos de monitorização da qualidade da água subterrânea no perímetro da Unidade Industrial United Resins – Produção de Resinas, S.A.

3.4 Método de tratamento dos dados

Os dados da evolução temporal, quer dos parâmetros físico-químicos, quer dos dados de evolução da profundidade do nível de água (hidrogramas), foram analisados recorrendo à sua representação em Microsoft® Excel 2013 e Sigma Plot® 12.5 (Systat Software).

3.5 Relação dos dados com as características do projeto

O aquífero Leirosa – Monte Real apresenta, hoje em dia e na área de estudo, águas subterrâneas com um quimismo que revela a predominância de águas de composição essencialmente cloretada, tal como era de esperar numa zona tão próxima da costa. O sulfato é o segundo anião mais abundante embora em concentrações significativamente inferiores às de cloreto. Trata-se de um sistema aquífero com alguma capacidade de atenuação devido à existência de níveis interestratificados argilosos. Estes níveis foram identificados na zona de estudo, aquando da construção da captação, entre os 9 e os 34 m de profundidade. No entanto, devido à pouca profundidade do nível freático (-4,32 m sob o terreno) e à elevada extensão da área de recarga, deve considerar-se o sistema aquífero como bastante vulnerável.

De acordo com os dados do Estudo de Impacte Ambiental (EIA) realizado, verificou-se ainda que as águas subterrâneas apresentam:

- condutividade eléctrica moderada (710 $\mu\text{S}/\text{cm}$);
- temperatura ligeiramente acima da temperatura média anual (17,6 °C);
- pH próximo da neutralidade (7,4);
- teores de oxigénio dissolvido baixos (0,14 mg/l);
- valores de potencial redox negativo (-31 mV).

Foi ainda identificado nitrato nas águas subterrâneas embora em concentrações muito baixas (1,9 mg/l NO_3). As concentrações baixas de nitrato confirmam a existência de impactos por contaminação difusa produzida pela actividade humana.

Relativamente aos metais só se encontravam acima do limite de detecção o arsénio (3,1 $\mu\text{g}/\text{l}$), o bário (12 $\mu\text{g}/\text{l}$) e o mercúrio (0,059 $\mu\text{g}/\text{l}$), todos eles inferiores aos valores paramétricos para a água destinada ao consumo humano. Foram ainda identificadas concentrações de flúor de 0,13 mg/l.

De todos os compostos orgânicos determinados apenas foi identificado um hidrocarboneto derivado do petróleo (C10-C12) numa concentração de 15 $\mu\text{g}/\text{l}$. Este valor tanto podia indicar uma possível contaminação, ou o mais provável, é que fosse um valor anómalo, não representativo da formação aquífera mas apenas das condições no local de amostragem.

Assim, foram identificadas as seguintes acções, como potencialmente contaminadoras do sistema aquífero, durante a fase de operação da unidade industrial:

- produção de efluentes líquidos industriais e domésticos;
- águas pluviais;
- consumo de água subterrânea.

Devido ao desenvolvimento da unidade industrial e às medidas de segurança e minimização já implementadas, todas estas situações foram consideradas como impactes negativos pouco significativos, tendo-se no entanto estabelecido um programa de monitorização, de forma a identificar qualquer alteração das condições atuais naturais no aquífero e evitar novas situações de risco.

3.6 Critérios de avaliação dos dados

Foi utilizado como critério fundamental para a avaliação dos dados de monitorização obtidos, a sua comparação com a caracterização da situação de referência encontrada no âmbito do Estudo de Impacto Ambiental efetuado em 2011.

A comparação com valores de referência para a zona (PGRH, 2011) ou com a legislação atual de água para abastecimento público é feita pontualmente.

São consideradas positivas as tendências de evolução que indicam melhoria da qualidade físico-química das águas subterrâneas, e que inclui:

- a estabilização dos valores de condutividade eléctrica e pH;
- a ocorrência de temperaturas de água subterrânea próximas das temperaturas médias anuais do ar;
- o não aumento das concentrações dos principais elementos e compostos inorgânicos analisados;
- baixos valores de CQO;
- a ausência de variações espaciais significativas entre os parâmetros determinados nos piezómetros e furo de captação;
- a ausência de hidrocarbonetos de petróleo totais e compostos orgânicos aromáticos.

4. Resultados do programa de monitorização

4.1 Resultados obtidos

Realizadas as campanhas de monitorização correspondentes aos meses de novembro 2012 (dia 27), dezembro 2012 (dia 17), janeiro 2013 (dia 8), fevereiro 2013 (dia 11), março 2013 (dia 5), abril 2013 (dia 15), setembro 2013 (10) e outubro 2013 (14), procedeu-se ao tratamento dos dados e à sua representação gráfica.

Os resultados obtidos e correspondentes a este relatório de monitorização são apresentados em anexo, sob a forma de tabelas (Anexo A) e gráficos (Anexo B), sempre que houver dados acima do valor limite de deteção. São apresentados os relatórios de ensaio que apresentam os resultados analíticos referentes a todas as amostras recolhidas.

No Anexo B, os gráficos da página B1 à página B4 correspondem ao furo de captação, da página B5 à página B8 ao piezómetro P1, da página B9 à página B12 ao piezómetro P2 e da página B13 à página B15 à bacia de águas pluviais. Os gráficos relativos aos dados de monitorização correspondem à evolução temporal dos seguintes parâmetros:

- pH
- temperatura (T)
- condutividade eléctrica (CE)
- profundidade do nível freático (NHE)
- cloretos (Cl)
- nitratos (NO₃)
- nitritos (NO₂)
- sulfatos (SO₄)
- mercúrio (Hg)
- arsénio (As)
- cádmio (Cd)
- chumbo (Pb)
- azoto amoniacal (NH₄-N)
- carência química de oxigénio (CQO)
- hidrocarbonetos de petróleo totais (TPH)
- compostos orgânicos aromáticos.

4.2 Avaliação dos resultados obtidos face aos critérios definidos

4.2.1 Quantidade de água

A evolução do nível freático entre Abril e Setembro 2013 revela um rebaixamento de 0,6 m no piezómetro 1 e de 0,8m no piezómetro 2. O maior rebaixamento observado no final do verão coincide com os meses de menor precipitação e portanto, menor recarga subterrânea. Ambos os rebaixamentos observados podem ser considerados normais.

4.2.2 Qualidade de Água

4.2.2.1 Furos e piezómetros

No período de monitorização, os valores de **pH** da água subterrânea apresentaram-se bastante estáveis entre as duas campanhas. No entanto, existe uma diferença significativa dos valores de pH observados nos pontos de amostragem, uma vez que o furo e o piezómetro P1 apresentam pH próximos de 7,3 ou 7,4 enquanto o piezómetro P2 apresenta valores bastante mais básicos (pH entre 8,1 e 8,3).

Os valores de **temperatura** da água subterrânea são bastante estáveis nos três pontos de monitorização e sem uma tendência sazonal ainda marcada, variando entre 17 e 19 °C, e nos dois piezómetros aumentando entre Abril e Setembro mas não no furo. O valor de 13 °C observado no piezómetro P2 em abril não tem justificação, pelo que só novas medições poderão indicar se se trata de um erro.

Os valores de **condutividade eléctrica** da água subterrânea observados nos três pontos de monitorização variam entre 229 e 718 µS/cm, aumentando entre a campanha de Abril e Setembro no furo e no piezómetro PZ2 mas não no piezómetro PZ1.

Os valores de **cloreto** da água subterrânea observados nos três pontos de monitorização seguem a tendência dos valores de condutividade eléctrica, variando entre 14,2 e 94,3 mg/l e aumentando entre a campanha de Abril e Setembro no furo e no piezómetro PZ2 mas não no piezómetro PZ1.

Os valores de **sulfato** apresentam variações espaciais bastante significativas, com valores bastante mais elevados no piezómetro PZ2 (77,4 mg/l) do que nos outros dois pontos de monitorização. As variações sazonais também são importantes (>10 mg/l).

Os valores de **nitrato** da água subterrânea observados no furo e no piezómetro P1 são bastante baixos (<4 mg/l) e estáveis entre Abril e Setembro, mas no caso do piezómetro P2 já apresentam valores relativamente mais elevados 20 e 39,6 mg/l em Abril e Setembro, respectivamente) e com acentuado sazonalidade.

Os valores de **nitrato** e de **amónio** da água subterrânea observados nos três pontos de monitorização são valores muito baixos, na maioria dos casos próximos ou mesmo inferiores ao limite de detecção.

Os valores de **mercúrio, arsénio, cádmio e chumbo** da água subterrânea observados nos três pontos de monitorização são na maioria dos casos inferiores ao limite de detecção.

Os valores da **carência química de oxigénio (CQO)**, do total de **hidrocarbonetos aromáticos** e do total de **compostos orgânicos aromáticos** da água subterrânea observados nos três pontos de monitorização são inferiores ao limite de detecção.

4.2.2.2 Bacia Águas Pluviais

No período de monitorização, as amostras de água recolhidas na bacia de águas pluviais revelaram **pH** próximos da neutralidade ou ligeiramente básicos, e com variações dos valores entre 6,2 e 7,9.

Os valores de **temperatura** das águas pluviais são próximos da temperatura ambiente e revelam as correspondentes flutuações sazonais.

Os valores de **condutividade eléctrica** são relativamente baixos variando entre 120 e 302 µS/cm.

Os valores de **cloretos** (variam entre 4,6 e 66,2 mg/l) apresentam variações importantes, no entanto sem impacto para o aquífero, e que deverão estar relacionadas com a quantidade e frequência dos eventos de precipitação.

Os valores de **sulfatos** (variam entre 1,1 e 19,8 mg/l) são relativamente baixos e sem impacto para o aquífero.

Os valores de **nitratos, nitritos, amônia, mercúrio, arsénio, cádmio e chumbo** são na sua maioria inferiores ao limite de detecção.

Os valores da **carência química de oxigénio (CQO)** observados nas águas pluviais variam entre 7 e 80 mg/l; este último valor mais alto detectado em Dezembro 2012 coincide com a detecção também de hidrocarbonetos aromáticos. No entanto, os valores de CQO determinados em todos os outros meses são baixos (<14 mg/l) e coincidem com valores de hidrocarbonetos aromáticos e compostos orgânicos aromáticos próximos ou abaixo o limite de detecção.

Os valores do total de **hidrocarbonetos aromáticos** nas águas pluviais são na sua maioria inferiores ao limite de detecção, com excepção dos valores observados em dezembro 2012 e março 2013.

Os valores do total de **compostos orgânicos aromáticos** nas águas pluviais são inferiores ao limite de detecção.

4.3 Avaliação da eficácia das medidas adotadas

Da análise detalhada dos resultados neste primeiro ano de monitorização, verifica-se a eficácia dos processos e das medidas de minimização, uma vez que os potenciais contaminantes inorgânicos e orgânicos não estão a ser detectados nas águas subterrâneas e apenas surgem pontualmente nas amostras analisadas na bacia de águas pluviais, mas sempre em quantidades vestigiais.

Devido ao curto tempo de monitorização (1 ano) é ainda difícil identificar tendências de evolução nas concentrações ou valores dos parâmetros de monitorização.

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5. Conclusões

Neste primeiro ano de monitorização das águas subterrâneas e das águas pluviais verificou-se a eficácia dos processos e das medidas de minimização.

Nos três pontos de monitorização das águas subterrâneas não foram detectados quantidades que indicassem qualquer contaminação pelos potenciais contaminantes inorgânicos (mercúrio, arsénio, cádmio e chumbo) e orgânicos (hidrocarbonetos de petróleo totais e compostos orgânicos aromáticos). Verificaram-se algumas variações importantes na distribuição espacial e por vezes temporal de parâmetros como a condutividade eléctrica, os cloretos, os sulfatos e os nitratos mas que são difíceis de justificar com apenas duas amostragens. A identificação de amónio pode estar relacionada com as condições redox do meio aquífero. Haverá que continuar a acompanhar a evolução dos valores de todos estes parâmetros no próximo ano para poder distinguir variações naturais do meio aquífero de algum sinal indiciador de contaminação, que neste momento não é identificado.

No ponto de monitorização na bacia de águas pluviais não foram detectados quaisquer valores elevados de condutividade eléctrica, cloretos, sulfatos ou nitratos. Os potenciais contaminantes inorgânicos (mercúrio, arsénio, cádmio e chumbo) estão todos abaixo do limite de deteção e os orgânicos (hidrocarbonetos de petróleo totais e compostos orgânicos aromáticos) apenas aparecem pontualmente e em concentrações vestigiais nos meses de dezembro 2012 e março 2013, sem que constituam um risco para a massa de água subterrânea por infiltração directa.

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6. Referências

Echiron, Atkins, Cenor & Agripro.ambiente 2011. Plano de Gestão das Bacias Hidrográficas dos Rios Vouga, Mondego e Lis (RH4). Parte 2. ARH Centro, I.P.

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Anexo A

A1 – Resultados das determinações analíticas efetuadas nas amostras colhidas em 1 novembro 2012

PARÂMETRO	RESULTADOS QUANTIFICADOS	UNIDADE
	1485.12 – Bacia Sumidoura	
Condutividade	149	µS/cm
pH	6,2 (12 °C)	---
Cloretos	26,6	mg/L Cl ⁻
Nitratos	0,5	mg/L NO ₃
CQO	14	mg/L O ₂
Sulfatos	13,7	mg/L SO ₄

Observações: Certificate of Analysis PR1251929 e PR1256105 – ALS Group

A2 – Resultados das determinações analíticas efetuadas nas amostras colhidas em 2 de dezembro 2012

PARÂMETRO	RESULTADOS QUANTIFICADOS	UNIDADE
	1622.12 – Bacia Sumidoura	
Condutividade	233	µS/cm
pH	7,9 (15 °C)	---
Nitratos	0,4	mg/L NO ₃
Cloretos	80	mg/L Cl ⁻
CQO	46,2	mg/L O ₂
Sulfatos	1,1	mg/L SO ₄
Hidrocarbonetos totais	0,074	mg/L
Naftaleno	0,010	µg/L
Fenantreno	0,012	µg/L
Antraceno	0,035	µg/L
TPH		
C16-C35	68	µg/L
C10-C12	7,4	µg/L
C10-C16	43	µg/L
C10-C40	179	µg/L
C12-C16	13,5	µg/L
C16-C22	107	µg/L
C22-C30	29	µg/L

Observações: Certificate of Analysis PR1255683 – ALS Group

A2 – Resultados das determinações analíticas efetuadas nas amostras colhidas em 3 janeiro de 2013

PARÂMETRO	RESULTADOS QUANTIFICADOS	UNIDADE
	40.13 – Bacia Sumidoura	
Condutividade	243	µS/cm
pH	7,2 (13 °C)	---
Cloretos	4,4	mg/L Cl ⁻
Sulfatos	3,9	mg/L SO ₄
Naftaleno	0,012	µg/L
Fenantreno	0,0120	µg/L
Antraceno	0,035	µg/L

Observações: Certificate of Analysis PR1300969 – ALS Group

A4 – Resultados das determinações analíticas efetuadas nas amostras colhidas em 15 fevereiro de 2013

PARÂMETRO	RESULTADOS QUANTIFICADOS	UNIDADE
	113.13 – Bacia Sumidoura	
Condutividade	302	µS/cm
pH	7,0 (20 °C)	—
Cloretos	62,2	mg/L Cl ⁻
CQO	14	mg/L O ₂
Sulfatos	19,8	mg/L SO ₄
Somatório de PAH	0,020	µg/L
Antraceno	0,020	µg/L
TPH		
C10-C40	56	µg/L
C22-C30	12	µg/L
C16-C35	44	µg/L
C22-C30	20	µg/L
C30-C40	23	µg/L
C30-C40	11	µg/L

Observações: Certificate of Analysis PR1306722 – ALS Group

A5 – Resultados das determinações analíticas efetuadas nas amostras colhidas em 14 março de 2013

PARÂMETRO	RESULTADOS QUANTIFICADOS	UNIDADE
	290.13 – Bacia Sumidoura	
Condutividade	120	µS/cm
pH	7,5 (13 °C)	—
Cloretos	16,4	mg/L Cl ⁻
CQO	14	mg/L O ₂
Cádmio	0,00058	mg/L Cd
Sulfatos	6,18	mg/L SO ₄
Hidrocarbonetos totais	0,152	mg/L

Observações: Certificate of Analysis PR1310902 e PR1319320 – ALS Group

A6 – Resultados das determinações analíticas efetuadas nas amostras colhidas em 22 abril de 2013

PARÂMETRO	RESULTADOS QUANTIFICADOS			UNIDADE
	419.13 Piezometro 1	420.13 Piezometro 2	421.13 Furo	
Condutividade	342	395	495	µS/cm
pH	8,3 (13 °C)	7,4 (17 °C)	7,3 (19 °C)	---
NHE	3,47	2,82	--	m
Cloretos	20,7	22,9	34,6	mg/L Cl ⁻
CQO	10,0	<LQ (LQ=5,0)	10,0	mg/L O ₂
Arsénio	<LQ (LQ=0,0050)	<LQ (LQ=0,0050)	0,0055	mg/L As
Sulfatos	7,24	34,8	26,2	mg/L SO ₄
Amónia	0,052	<LQ (LQ=0,050)	0,598	mg/L NH ₄
Nitratos	0,807	20,0	1,73	mg/L NO ₃
Nitritos	<LQ (LQ=0,040)	<LQ (LQ=0,080)	0,072	mg/L NO ₂

Observações: Certificate of Analysis PR1317187 – ALS Group

A7 – Resultados das determinações analíticas efetuadas nas amostras colhidas em 10 setembro de 2013

PARÂMETRO	RESULTADOS QUANTIFICADOS			UNIDADE
	874.13 Piezometro 1	875.13 Piezometro 2	876.13 Furo	
Condutividade	229	718	638	µS/cm
pH	8,1 (19 °C)	7,4 (19 °C)	7,5 (18 °C)	---
NHE	4,10	3,65	–	m
Amônia	<LQ (LQ=0,040)	<LQ (LQ=0,040)	2,49	mg/L NH ₄
Cloretos	14,2	36,2	94,3	mg/L Cl ⁻
Nitratos	3,87	39,6	0,054	mg/L NO ₃
Sulfatos	24,1	77,4	5,07	mg/L SO ₄
Hidrocarbonetos de Petróleo				
Fração C30-C40	<15	<15	17	µg/L

Observações: Certificate of Analysis PR1348288 – ALS Group

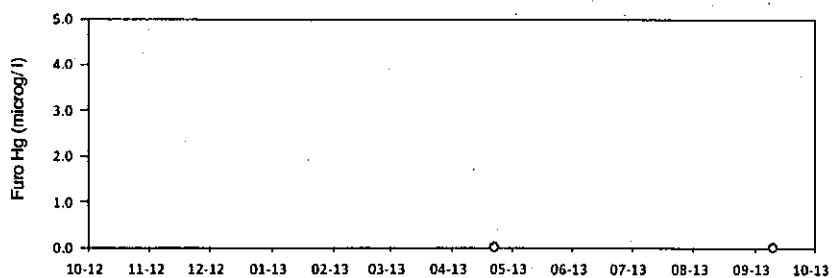
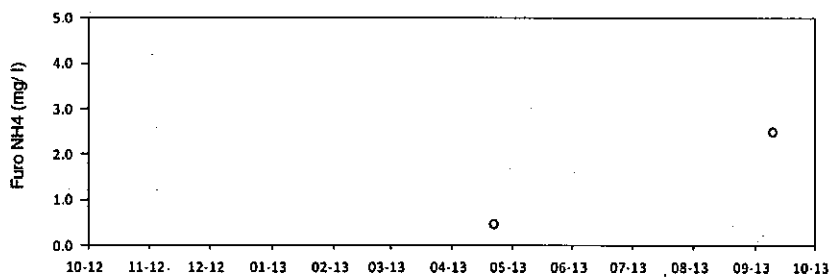
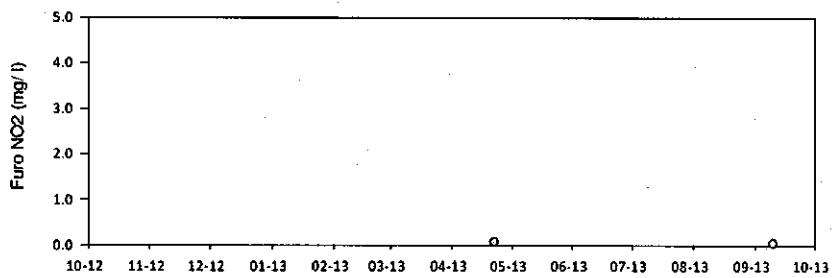
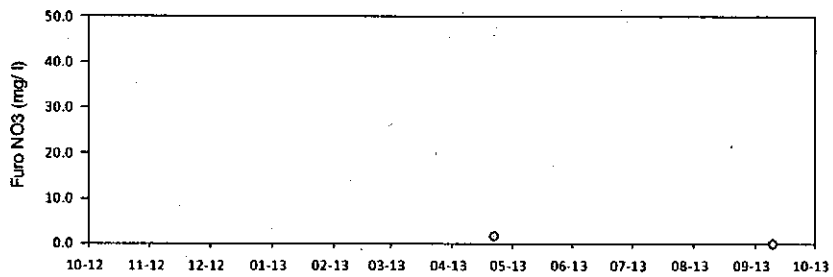
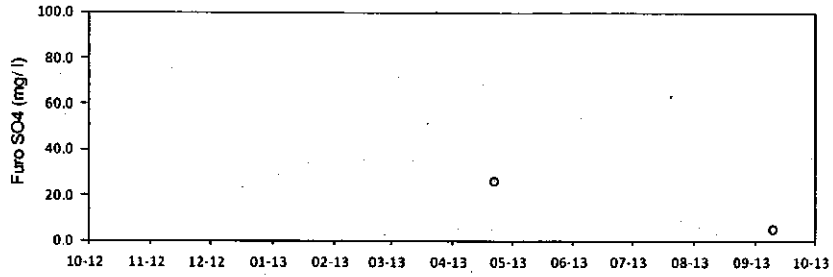
A8 – Resultados das determinações analíticas efetuadas nas amostras colhidas em 14 outubro de 2013

PARÂMETRO	RESULTADOS QUANTIFICADOS	UNIDADE
	990.13 – Bacia Sumidoura	
Condutividade	126	µS/cm
pH	7,5 (18 °C)	---
Cloretos	7,41	mg/L Cl ⁻
CQO	7,0	mg/L O ₂
Sulfatos	4,19	mg/L SO ₄
Antraceno	0,019	µg/L

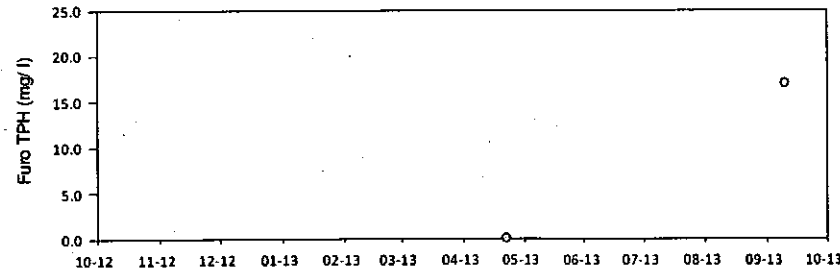
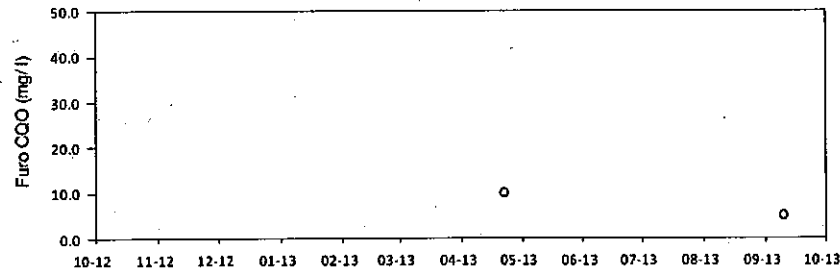
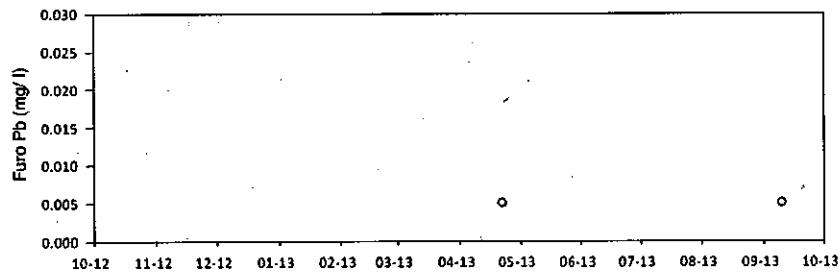
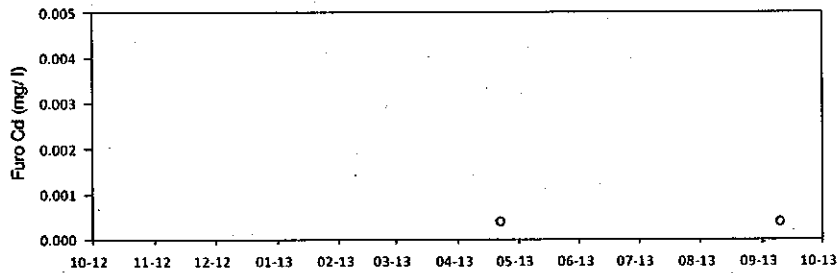
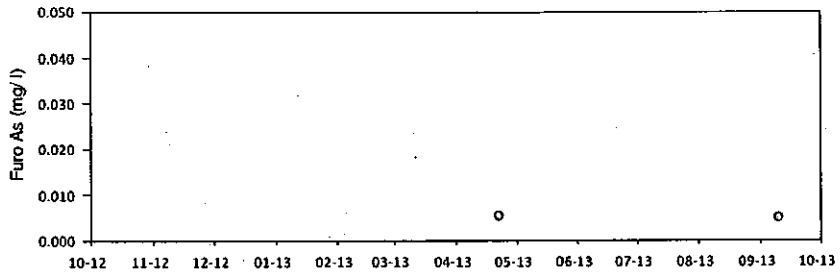
Observações: Certificate of Analysis PR1349588 – ALS Group

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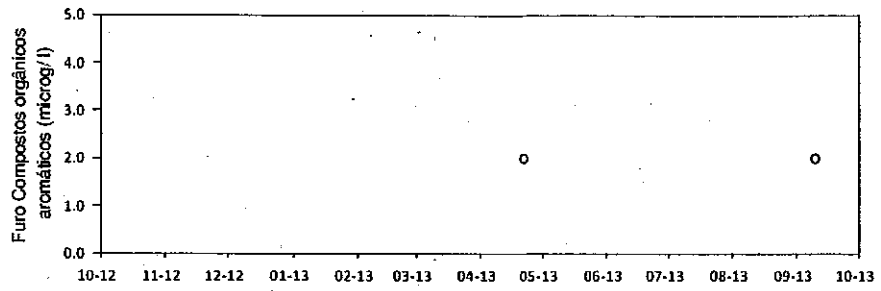
B2 - Furo (LRS1)



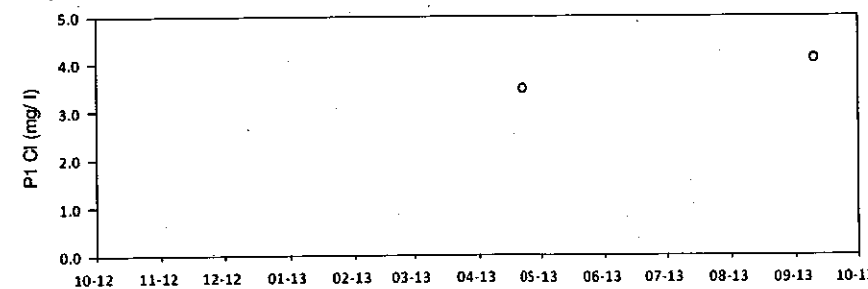
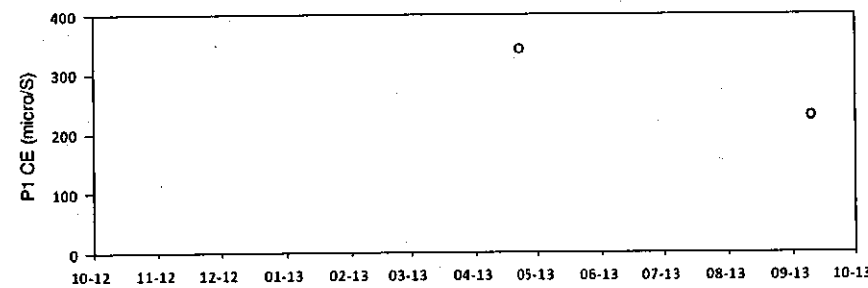
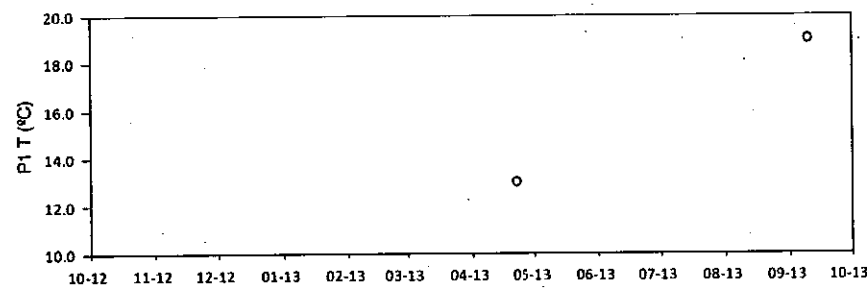
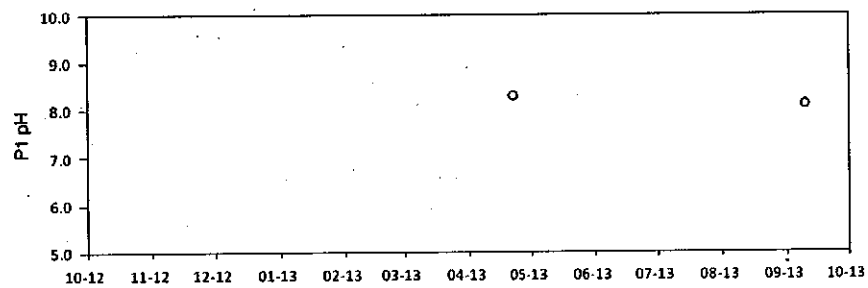
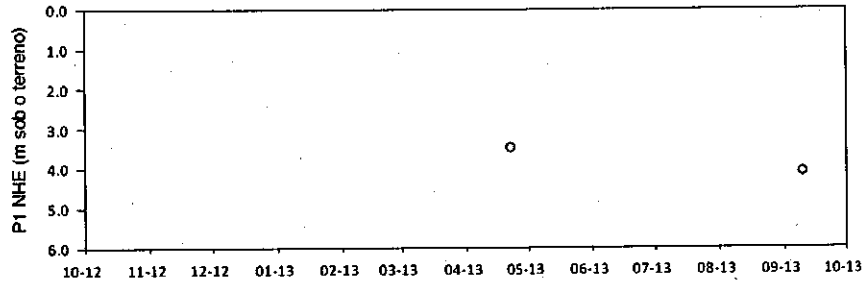
B3 - Furo (LRS1)



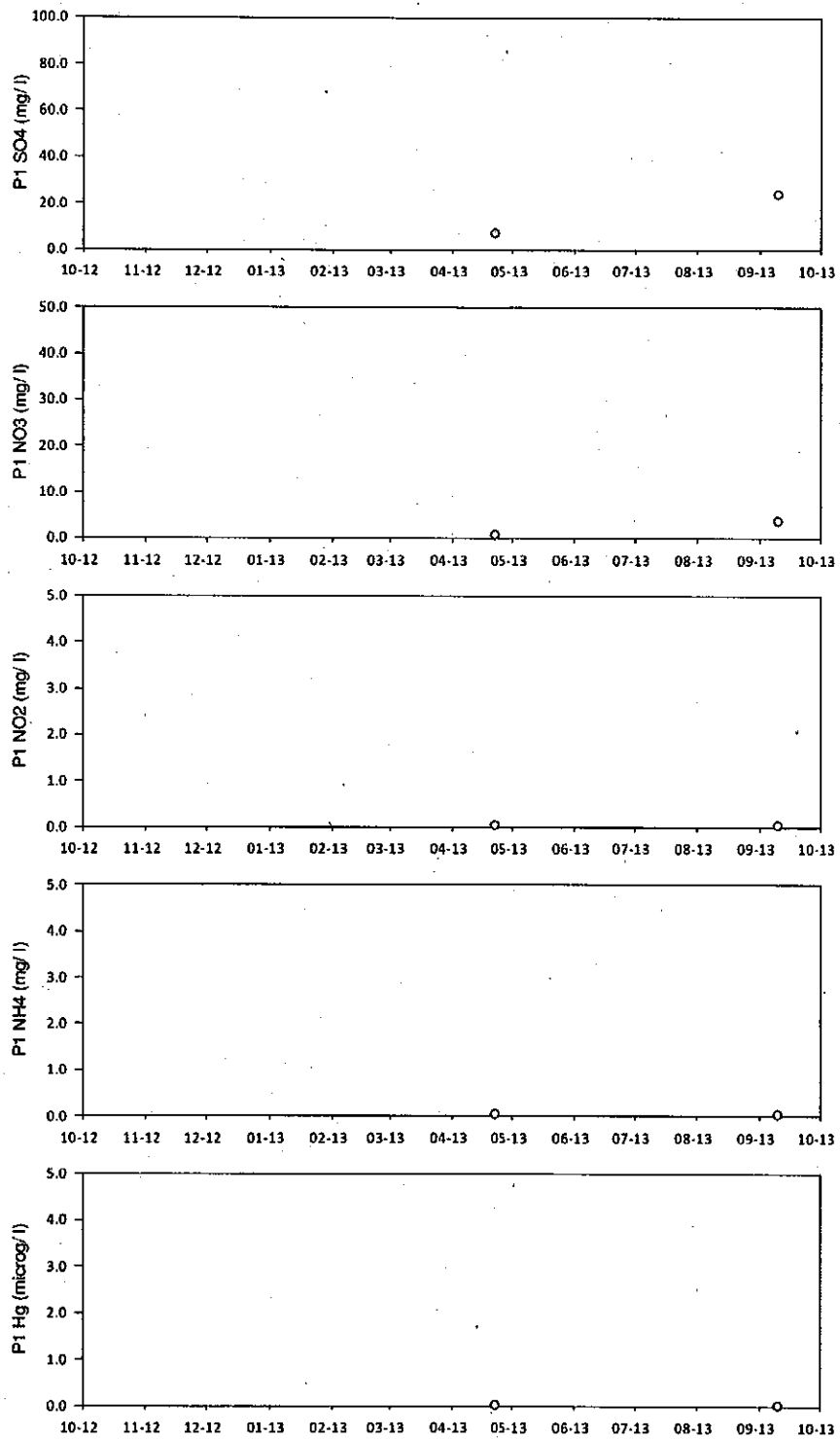
B4 - Furo (LRS1)



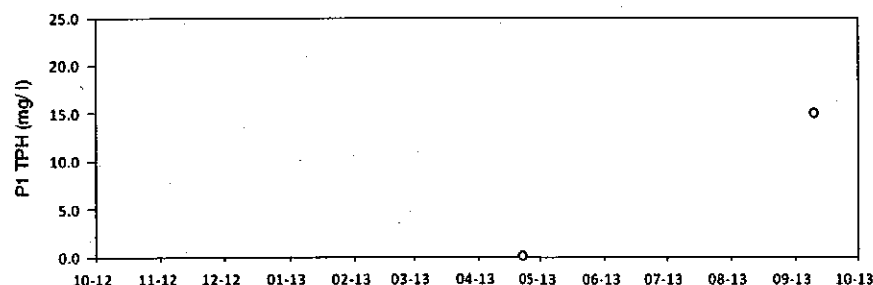
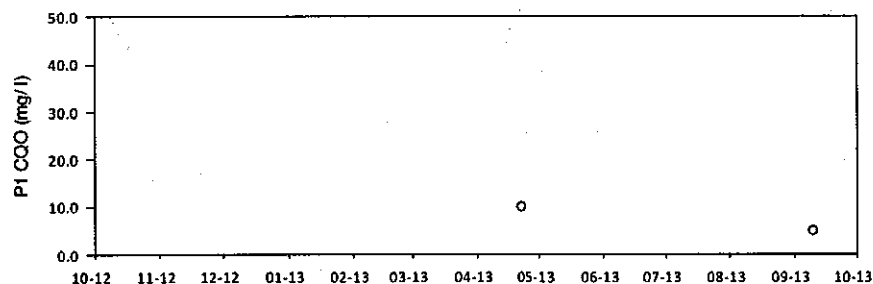
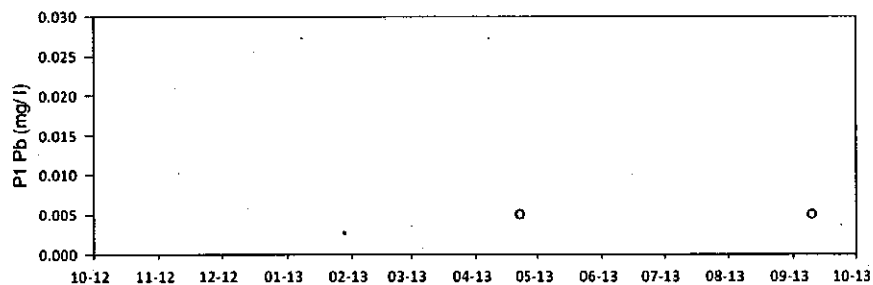
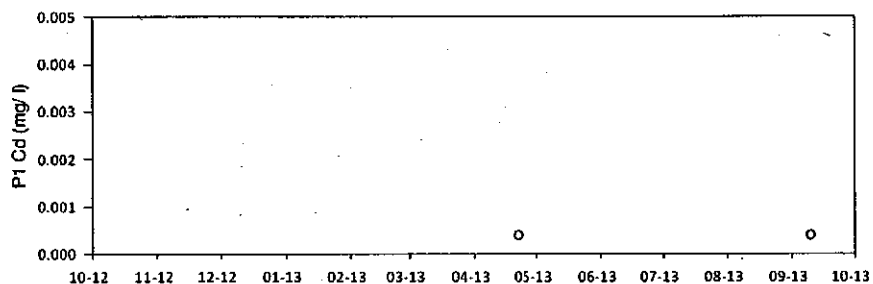
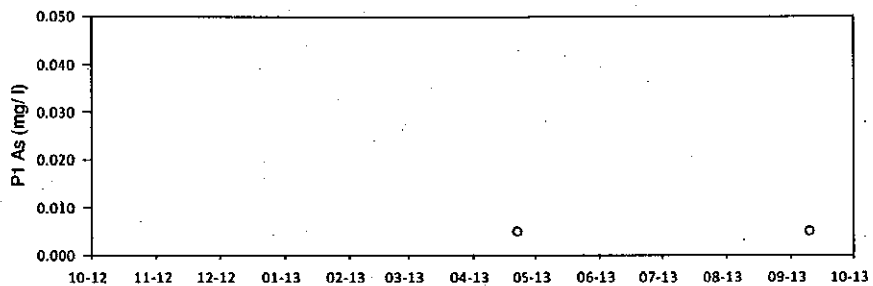
B5 - Piezômetro 1



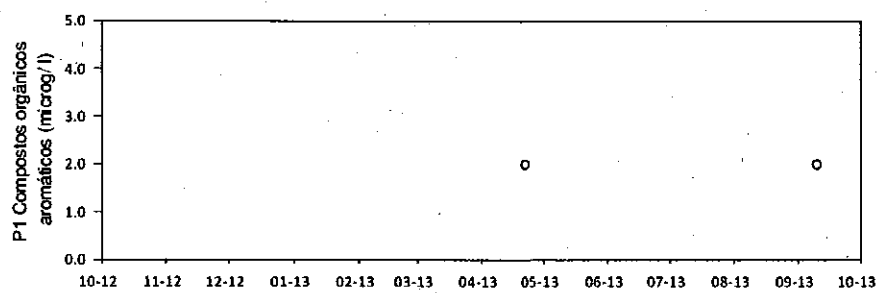
B6 - Piezómetro 1



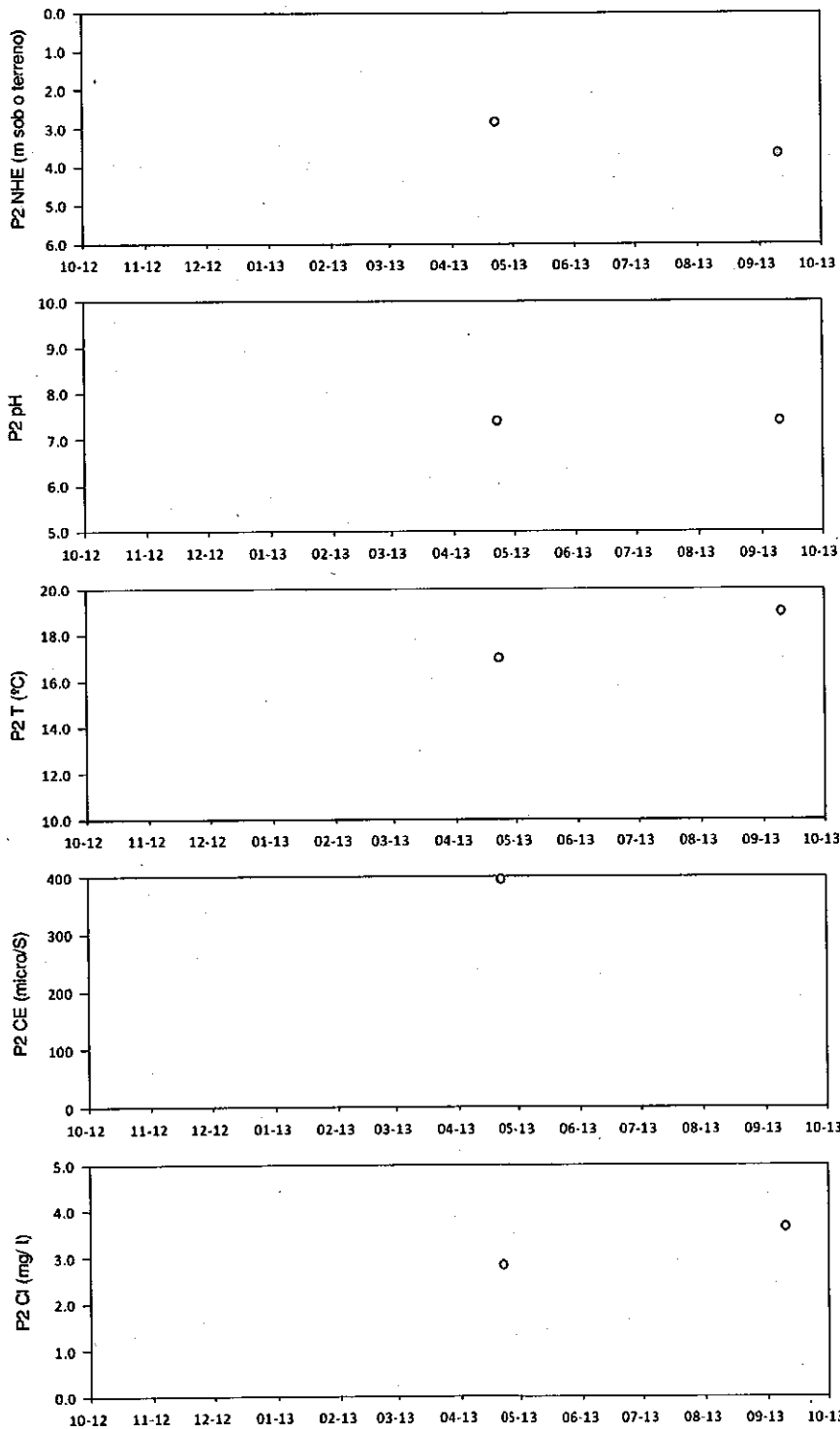
B7 - Piezómetro 1



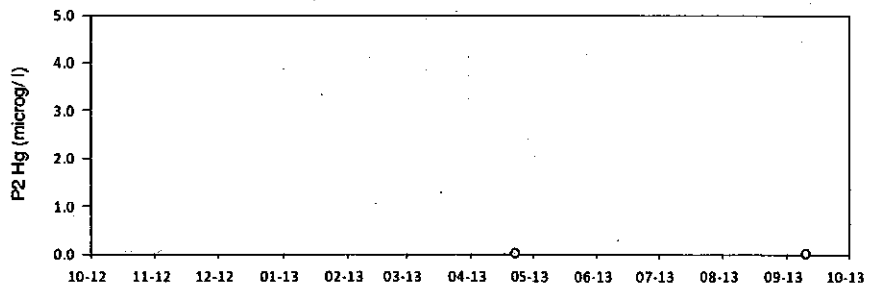
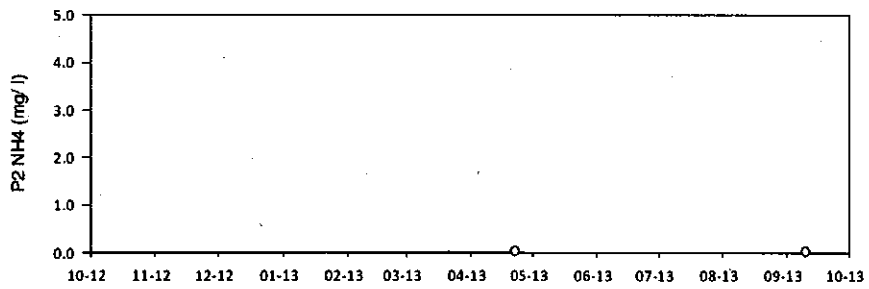
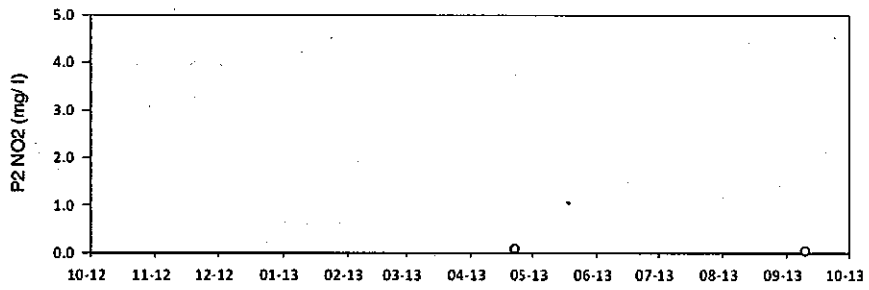
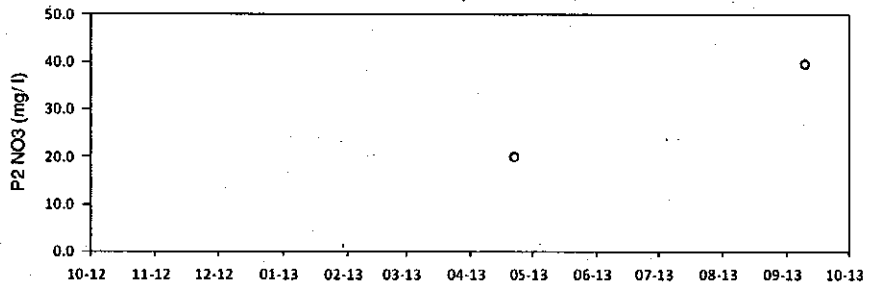
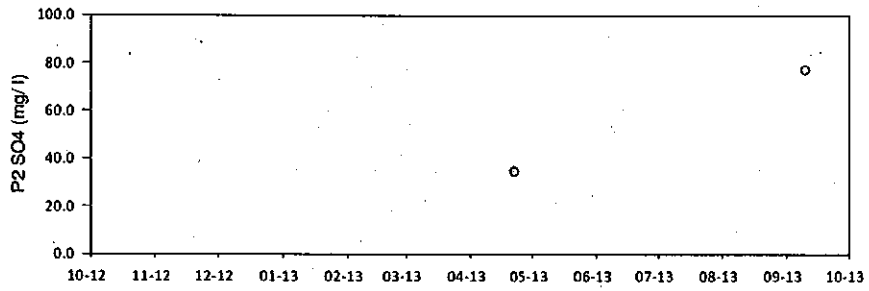
B8 - Piezómetro 1



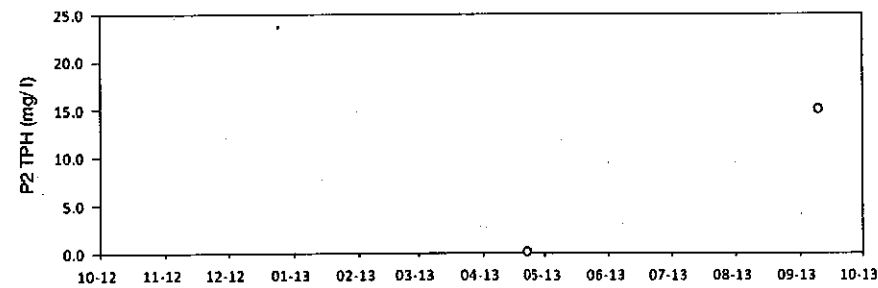
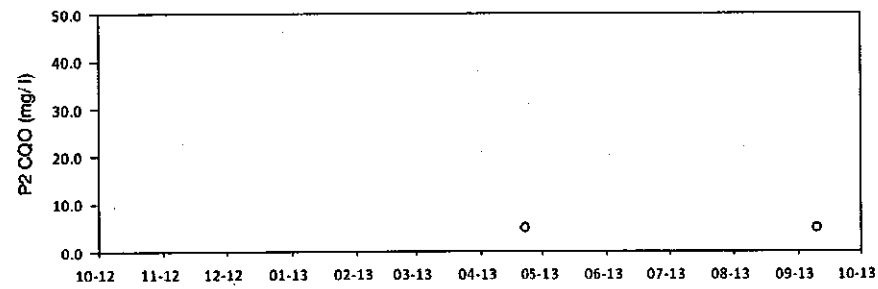
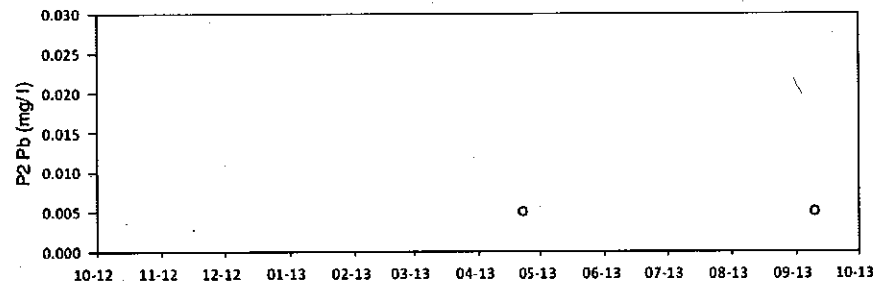
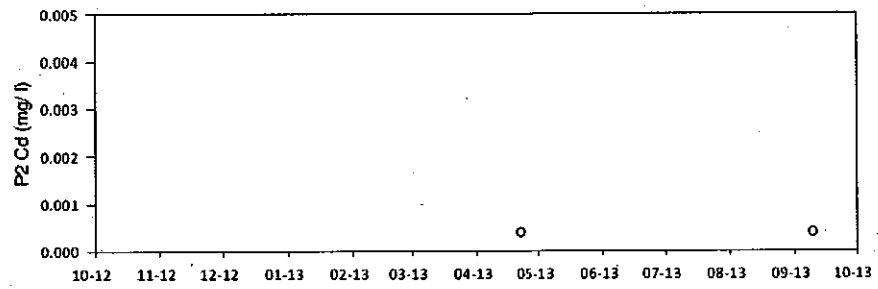
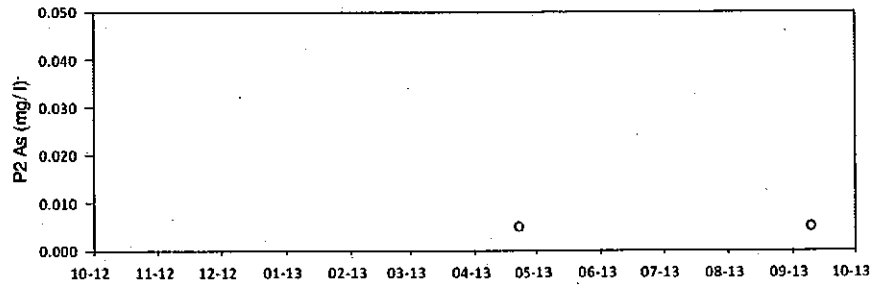
B9 - Piezômetro 2



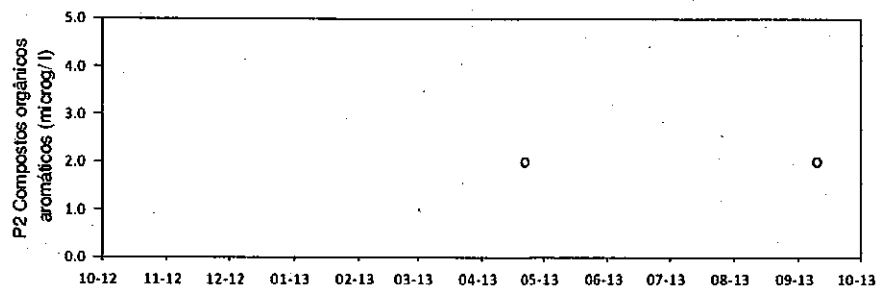
B10 - Piezómetro 2



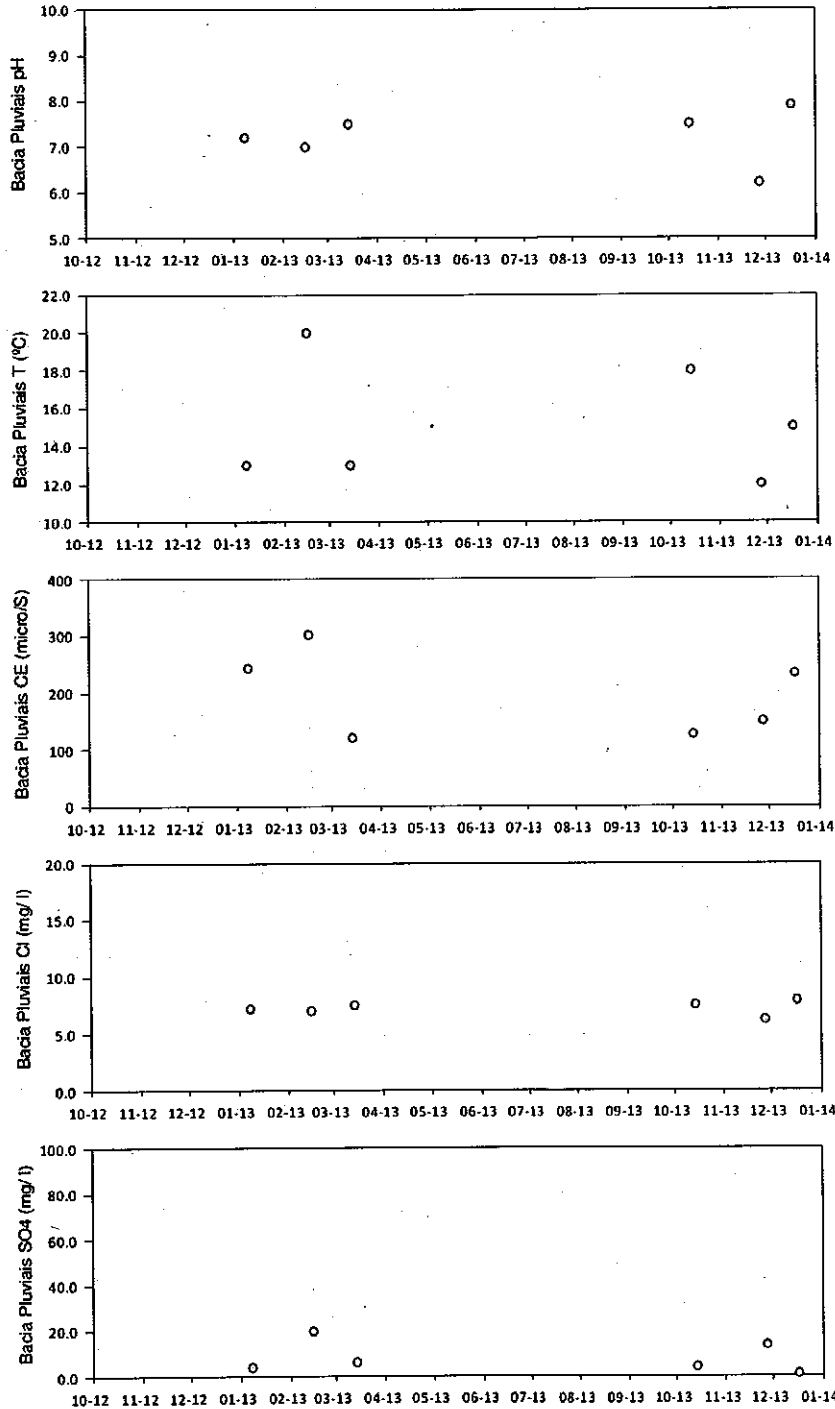
B11 - Piezómetro 2



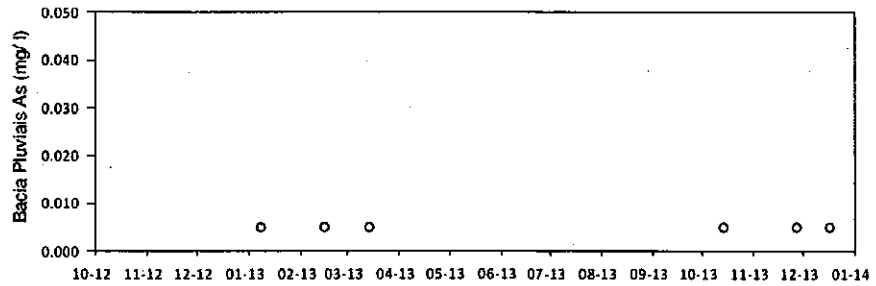
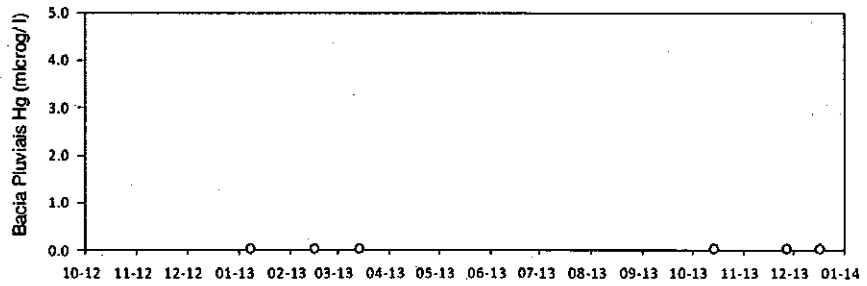
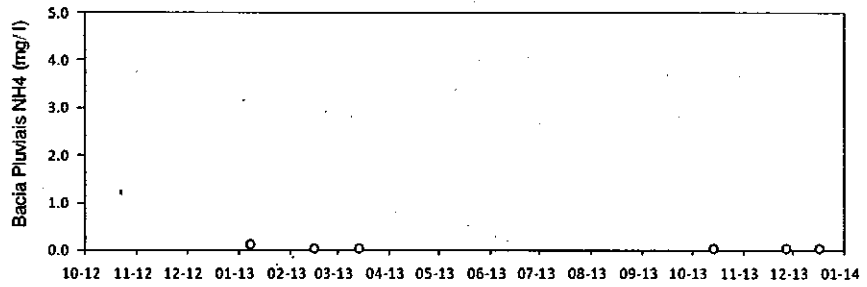
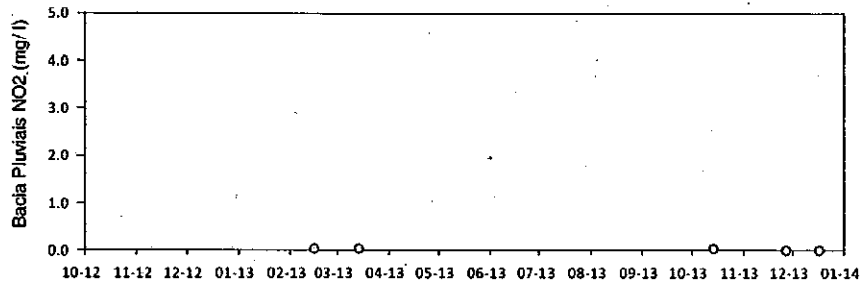
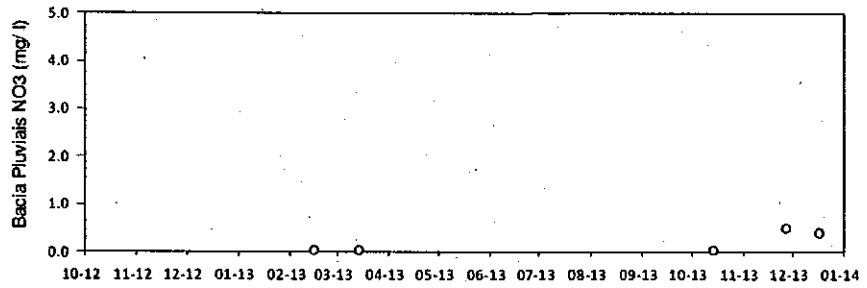
B12 - Piezómetro 2



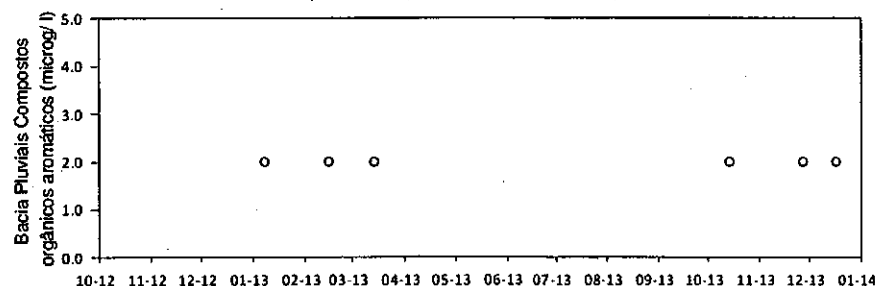
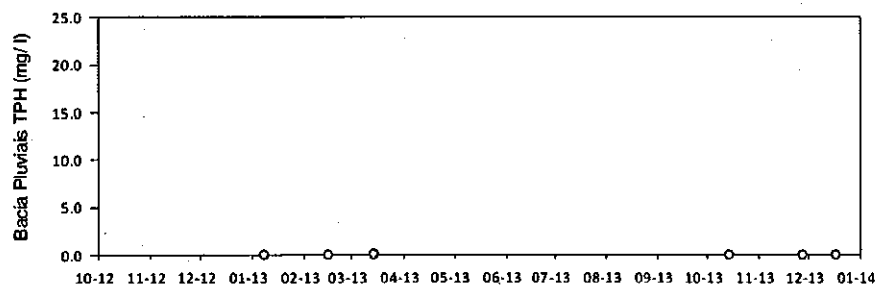
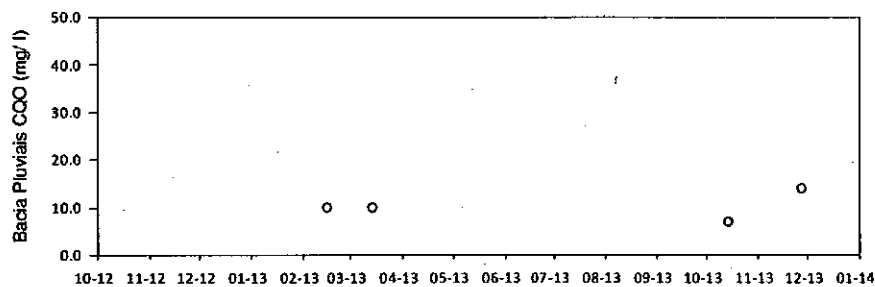
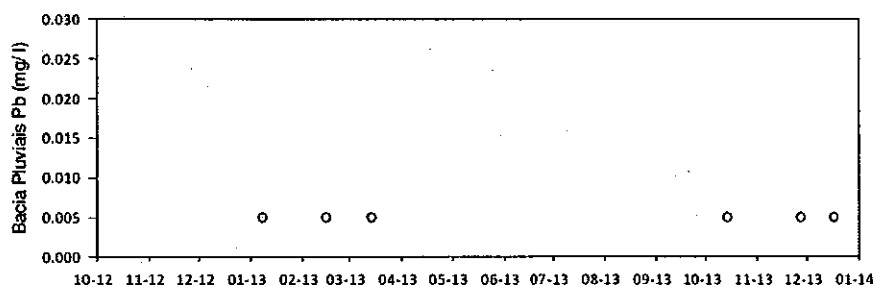
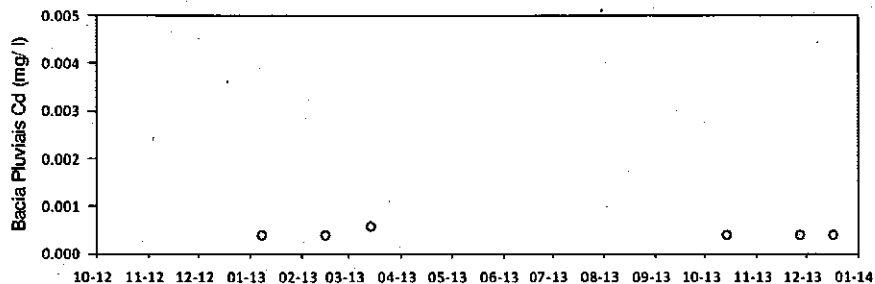
B13 - Bacia Sumidoura



B14 - Bacia Sumidoura

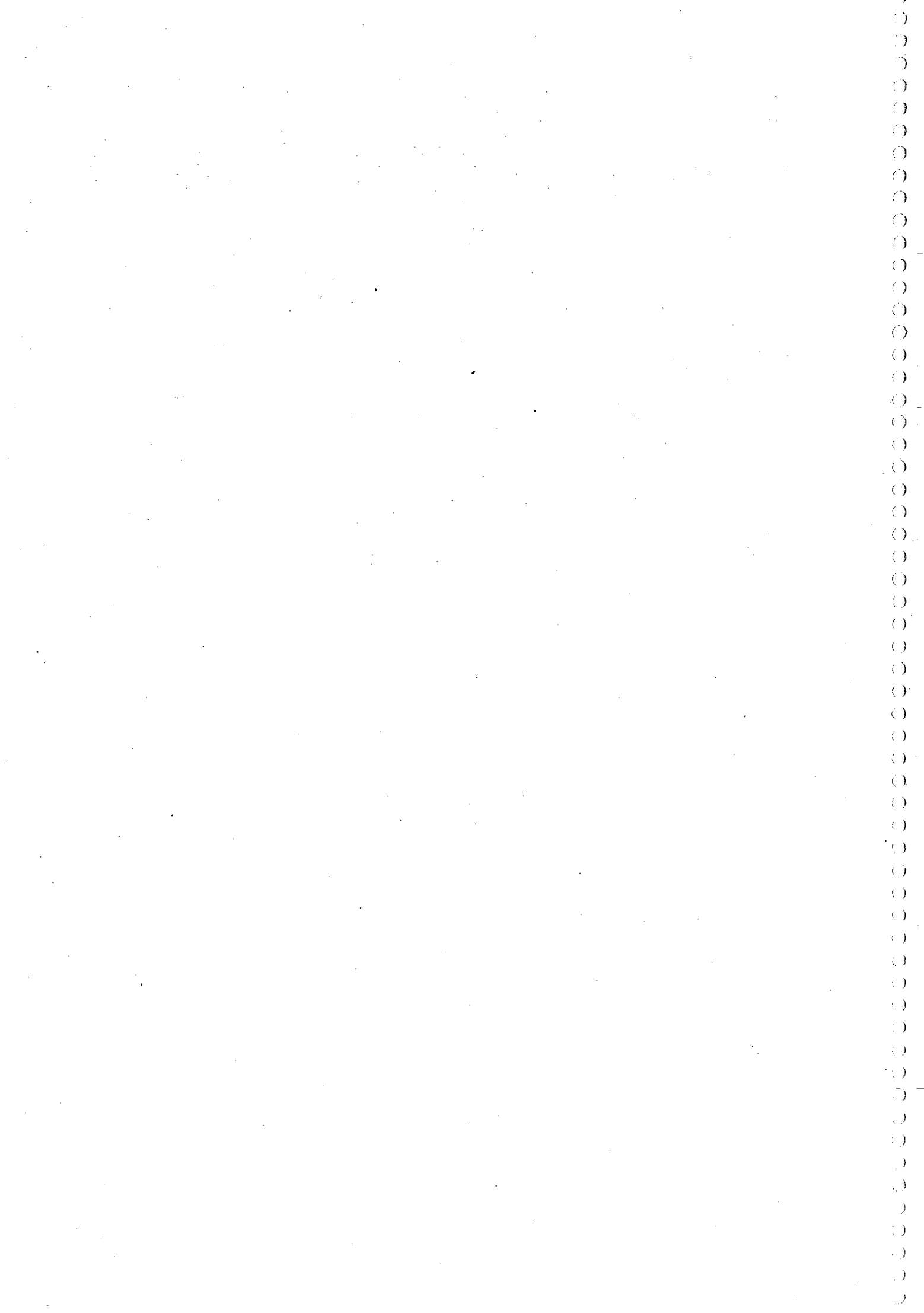


B15 - Bacia Sumidoura



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Anexo C



CERTIFICATE OF ANALYSIS

<p>Work Order : PR1251929</p> <p>Client : IDAD - Instituto do Ambiente e Desenvolvimento</p> <p>Contact : Ms. Anabela Marques</p> <p>Address : Campus Universitario Aveiro Portugal 3810-193</p> <p>E-mail : a.anjos@ua.pt</p> <p>Telephone : +351 2344 00800</p> <p>Facsimile : ----</p> <p>Project : United Resis</p> <p>Order number : ----</p> <p>C-O-C number : ----</p> <p>Site : ----</p> <p>Sampled by : client</p>	<p>Issue Date : 07-DEC-2012</p> <p>Laboratory : ALS Czech Republic, s.r.o.</p> <p>Contact : Client Service</p> <p>Address : Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00</p> <p>E-mail : customer.support@alsglobal.com</p> <p>Telephone : +420 226 226 228</p> <p>Facsimile : +420 284 081 635</p> <p>Page : 1 of 4</p> <p>Date Samples Received : 30-NOV-2012</p> <p>Quote number : PR2012IDAIN-PT0011 (PT-300-12-0388)</p> <p>Date of test : 30-NOV-2012 - 06-DEC-2012</p> <p>QC Level : ALS CR Standard Quality Control Schedule</p>
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General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory. The laboratory declares that the test results relate only to the listed samples.

Responsible for accuracy

Signatories
Zdenek Jirak



Position
Prague Laboratory Manager



Testing Laboratory
Accredited by CAI



L 1163

ALS Czech Republic, s.r.o.

Part of the **ALS Laboratory Group**

Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00
Tel. +420 226 226 228 Fax. +420 284 081 635



Analytical Results

Sub-Matrix: GROUNDWATER		Client sample ID		1485.12-12/02		---		---	
		Laboratory sample ID		PR1251929001		---		---	
		Client sampling date / time		30-NOV-2012 00:00		---		---	
Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Nonmetallic Inorganic Parameters									
Ammonia and ammonium ions	W-NH4-SPC	0.050	mg/L	<0.050	---	---	---	---	---
Ammonia as N	W-NH4-SPC	0.040	mg/L	<0.040	---	---	---	---	---
Dissolved Metals / Major Cations									
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	---	---	---	---	---
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	---	---	---	---	---
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	---	---	---	---	---
Mercury	W-HG-AFSFL	0.010	µg/L	<0.010	---	---	---	---	---
Petroleum Hydrocarbons - FTIR									
Total Petroleum Hydrocarbons	W-TPH-IR	0.050	mg/L	<0.050	---	---	---	---	---
BTEX									
Benzene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
Toluene	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
Ethylbenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
meta- & para-Xylene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
ortho-Xylene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Sum of BTEX	W-VOCGMS01	1.60	µg/L	<1.60	---	---	---	---	---
Sum of xylenes	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
Sum of TEX	W-VOCGMS01	1.40	µg/L	<1.40	---	---	---	---	---
Halogenated Volatile Organic Compounds									
Dichlorodifluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Vinyl chloride	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
Chloromethane	W-VOCGMS05	10	µg/L	<10	---	---	---	---	---
trans-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Dichloromethane	W-VOCGMS01	6.0	µg/L	<6.0	---	---	---	---	---
1,1-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Chloroethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
cis-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Trichlorofluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,1-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromochloromethane	W-VOCGMS05	2.0	µg/L	<2.0	---	---	---	---	---
2,2-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Chloroform	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
1,1-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,2-Dichloroethane	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
1,1,1-Trichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Dibromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
cis-1,3-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Tetrachloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromodichloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
trans-1,3-Dichloropropene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,3-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Trichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1,1,2-Trichloroethane	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1,2-Dibromoethane (EDB)	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,2,3-Trichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Dibromochloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromobenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Tetrachloroethene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1,1,1,2-Tetrachloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---



Sub-Matrix: GROUNDWATER

Client sample ID : 1485.12-12/02
 Laboratory sample ID : PR1251929001
 Client sampling date / time : 30-NOV-2012 00:00

Parameter	Method	LOR	Unit	Result	MU			
Halogenated Volatile Organic Compounds - Continued								
2-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
Chlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	----	---	----
4-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
Bromoform	W-VOCGMS01	0.20	µg/L	<0.20	---	----	---	----
1.1.2.2-Tetrachloroethane	W-VOCGMS01	1.0	µg/L	<1.0	---	----	---	----
1.2-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	----	---	----
1.2-Dibromo-3-chloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
1.4-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	----	---	----
1.3-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	----	---	----
1.2.4-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	----	---	----
Hexachlorobutadiene	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
1.2.3-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	----	---	----
1.3.5-Trichlorobenzene	W-VOCGMS01	0.20	µg/L	<0.20	---	----	---	----
1.2-Dichloropropane	W-VOCGMS01	1.0	µg/L	<1.0	---	----	---	----
Sum of 4 Trihalomethanes	W-VOCGMS01	0.70	µg/L	<0.70	---	----	---	----
Sum of 3 Dichlorobenzenes	W-VOCGMS01	0.30	µg/L	<0.30	---	----	---	----
Sum of 3 Trichlorobenzenes	W-VOCGMS01	0.40	µg/L	<0.40	---	----	---	----
Non-Halogenated Volatile Organic Compounds								
Isopropylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
n-Propylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
1.2.4-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
p-Isopropyltoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
1.3.5-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
Styrene	W-VOCGMS01	0.20	µg/L	<0.20	---	----	---	----
sec-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
tert-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
n-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
Methyl tert-Butyl Ether (MTBE)	W-VOCGMS01	0.20	µg/L	<0.20	---	----	---	----
tert-Butyl alcohol	W-VOCGMS01	5.0	µg/L	<5.0	---	----	---	----
Sum of BTEXS	W-VOCGMS01	1.80	µg/L	<1.80	---	----	---	----
Polycyclic Aromatics Hydrocarbons (PAHs)								
Naphthalene	W-VOCGMS05	1.0	µg/L	<1.0	---	----	---	----
Petroleum Hydrocarbons								
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	----	---	----
C10 - C16 Fraction	W-TPHFID02	10	µg/L	<10	---	----	---	----
C10 - C40 Fraction	W-TPHFID02	50	µg/L	<50	---	----	---	----
C10 - C40 Fraction	W-TPHFID01	50	µg/L	<50	---	----	---	----
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	----	---	----
C16 - C22 Fraction	W-TPHFID02	10	µg/L	<10	---	----	---	----
C16 - C35 Fraction	W-TPHFID01	30	µg/L	<30	---	----	---	----
C22 - C30 Fraction	W-TPHFID02	15	µg/L	<15	---	----	---	----
C30 - C40 Fraction	W-TPHFID02	15	µg/L	<15	---	----	---	----
C35 - C40 Fraction	W-TPHFID01	10	µg/L	<10	---	----	---	----

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis



Brief Method Summaries

Analytical Methods	Method Descriptions
<i>Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00</i>	
W-HG-AFSFL	CZ_SOP_D06_02_096 (US EPA 245.7, US EPA 1631, CSN EN ISO 17852, CSN EN 13370 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2.) Determination of Mercury by Fluorescence Spectrometry. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-METAXFL1	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, EN 12506, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma: Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cr(VI), Cu, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Se, Si, Sn, Sr, Te, Ti, V, Zn, Zr. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-NH4-SPC	CZ_SOP_D06_02_019 (CSN ISO 11732, CSN ISO 13395, M. Horakova: Analytika vody, Praha 2000) Determination of ammonium ions, nitrite nitrogen and total oxidized nitrogen by discrete spectrophotometry and calculation of nitrates and nitrogen - organic, inorganic and total.
W-TPHFID01	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1) Determination of extractable compounds in the range of hydrocarbons C5-C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPHFID02	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1) Determination of extractable compounds in the range of hydrocarbons C5-C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPH-IR	CZ_SOP_D06_02_057 Determination of nonpolar extractive substances by infrared spectrometry in drinking, surface and ground water (based on CSN 75 7505)
W-VOCGMS01	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260) Determination of volatile organic compound by gas chromatography method with MS detection
W-VOCGMS05	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260) Determination of volatile organic compound by gas chromatography method with MS detection

A ** symbol preceding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.

CERTIFICATE OF ANALYSIS

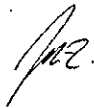
Work Order : PR1256105 Client : IDAD - Instituto do Ambiente e Desenvolvimento Contact : Ms. Anabela Marques Address : Campus Universitario Aveiro Portugal 3810-193 E-mail : a.anjos@ua.pt Telephone : +351 2344 00800 Facsimile : ---- Project : ---- Order number : ---- C-O-C number : ---- Site : ---- Sampled by : client	Issue Date : 03-JAN-2013 Laboratory : ALS Czech Republic, s.r.o. Contact : Client Service Address : Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00 E-mail : customer.support@alsglobal.com Telephone : +420 226 226 228 Facsimile : +420 284 081 635 Page : 1 of 3 Date Samples Received : 21-DEC-2012 Quote number : PR2012IDAIN-PT0010 (PT-300-12-0584) Date of test : 27-DEC-2012 - 03-JAN-2013 QC Level : ALS CR Standard Quality Control Schedule
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General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
 The laboratory declares that the test results relate only to the listed samples.

Responsible for accuracy

Signatories
 Zdenek Jirak



Position
 Prague Laboratory Manager

Testing Laboratory
 Accredited by CAI



L 1163



Analytical Results

Sub-Matrix: WATER

Client sample ID: 1485.12-12/02
 Laboratory sample ID: PR1256105001
 Client sampling date / time: 30-NOV-2012 00:00

Parameter	Method	LOR	Unit	Result	MU			
Aromatic Compounds								
1-Ethyl-2-methylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
1-Ethyl-3-methylbenzene@1-Ethyl-4-methylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---
1,3,5-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
1,2,4-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
1,2,3-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
1,2@1,4-Diethylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---
1,3-Diethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
1,2,4,5-Tetramethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
2-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
1-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
Biphenyl	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
2@1-Ethyl-naphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---
1,8-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
2-Methylanthracene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
1-Methylanthracene@1-Methylphenanthrene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---
2-Methylphenanthrene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
Isopropylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
1,2-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
n-Propylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
2,6@2,7-Dimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---
1,7@1,3@1,6-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---	---
1,4@2,3@1,5-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---	---
1,3,7-Trimethylnaphthalene	W-SPIGMS04	0.05	µg/L	<0.05	---	---	---	---
1,4,6@2,3,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---
2,3,5@1,2,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---
1,2,4@2,4,5@1,2,5-Trimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---	---
1,2,3@1,4,5-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---
1,4,6,7-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
1,2,5,6-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---
Methylpyrenes@Methylfluoranthenes	W-SPIGMS04	1.0	µg/L	<1.0	---	---	---	---
Methylchrysenes@Methylbenzanthracenes	W-SPIGMS04	1.0	µg/L	<1.0	---	---	---	---
Sum of Aromatics C16-C35	W-SPIGMS04	2.0	µg/L	<2.0	---	---	---	---
Polycyclic Aromatics Hydrocarbons (PAHs)								
Naphthalene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---
Acenaphthylene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---
Acenaphthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---
Fluorene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---
Phenanthrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---
Anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---
Fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---



Sub-Matrix: WATER				Client sample ID	1485.12-12/02	---	---
				Laboratory sample ID	PR1256105001	---	---
				Client sampling date / time	30-NOV-2012 00:00	---	---
Parameter	Method	LOR	Unit	Result	MU	---	---
Polycyclic Aromatics Hydrocarbons (PAHs) - Continued							
Pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Benz(a)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Chrysene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Benzo(b)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Benzo(k)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Benzo(a)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Indeno(1.2.3.cd)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Benzo(g,h,i)perylene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Dibenz(a,h)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
PCBs							
PCB 28	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---
PCB 52	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---
PCB 101	W-PCBECD01	0.000750	µg/L	<0.000750	---	---	---
PCB 118	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---
PCB 138	W-PCBECD01	0.00120	µg/L	<0.00120	---	---	---
PCB 153	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---
PCB 180	W-PCBECD01	0.000950	µg/L	<0.000950	---	---	---
Sum of 6 PCBs	W-PCBECD01	0.00620	µg/L	<0.00620	---	---	---
Sum of 7 PCBs	W-PCBECD01	0.00730	µg/L	<0.00730	---	---	---
Petroleum Hydrocarbons							
Allphates C10-C12	W-SPIGMS04	10	µg/L	<10	---	---	---
Allphates C12-C16	W-SPIGMS04	10	µg/L	<10	---	---	---
Allphates C16-C35	W-SPIGMS04	10	µg/L	<10	---	---	---
Sum of Allphates C10-C35	W-SPIGMS04	30	µg/L	<30	---	---	---
Sum of Aromatics C10-C16	W-SPIGMS04	1.55	µg/L	<1.55	---	---	---
Sum of Aromatics C8-C10	W-SPIGMS04	0.60	µg/L	<0.60	---	---	---

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

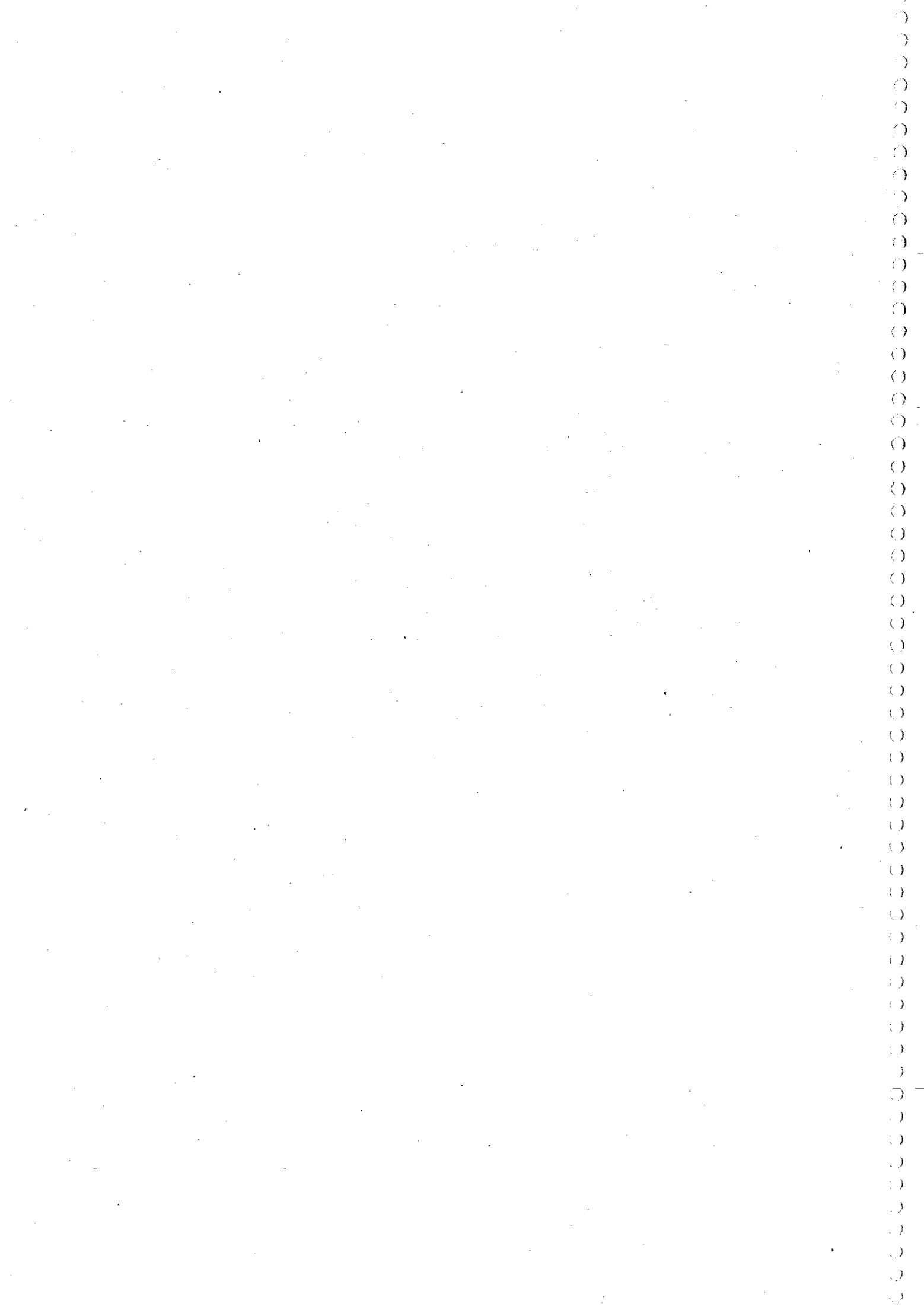
The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
W-PCBECD01	CZ_SOP_D06_03_166 (DIN 38407, part 2, US EPA 8082, samples preparation according to CZ_SOP_D06_03_P01 chap. 9.1, CZ_SOP_D06_03_P02 chap. 9.1) Determination of polychlorinated biphenyls - congener analyses by gas chromatography method with ECD detection
W-SPIGMS04	CZ_SOP_D06_03_157 except chap. 9.3 (SPIMFAB) Determination of organic contaminants by gas chromatography method with MS detection (SPIMFAB)

A "*" symbol preceding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.



CERTIFICATE OF ANALYSIS

<p>Work Order : PR1255683</p> <p>Client : IDAD - Instituto do Ambiente e Desenvolvimento</p> <p>Contact : Ms. Anabela Marques</p> <p>Address : Campus Universitario Aveiro Portugal 3810-193</p> <p>E-mail : a.anjos@ua.pt</p> <p>Telephone : +351 2344 00800</p> <p>Facsimile : ---</p> <p>Project : United Resins</p> <p>Order number : ---</p> <p>C-O-C number : ---</p> <p>Site : ---</p> <p>Sampled by : client</p>	<p>Issue Date : 10-JAN-2013</p> <p>Laboratory : ALS Czech Republic, s.r.o.</p> <p>Contact : Client Service</p> <p>Address : Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00</p> <p>E-mail : customer.support@alsglobal.com</p> <p>Telephone : +420 226 226 228</p> <p>Facsimile : +420 284 081 635</p> <p>Page : 1 of 6</p> <p>Date Samples : 20-DEC-2012</p> <p>Received :</p> <p>Quote number : PR2012IDAIN-PT0011 (PT-300-12-0388)</p> <p>Date of test : 21-DEC-2012 - 02-JAN-2013</p> <p>QC Level : ALS CR Standard Quality Control Schedule</p>
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General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
 The laboratory declares that the test results relate only to the listed samples.
 Sample PR1255683/001, method W-PCBECD01 - the limit of quantification was increased due to matrix interference

Responsible for accuracy

Signatories
 Zdenek Jirak



Position
 Prague Laboratory Manager

Testing Laboratory
 Accredited by CAI



L 1163



Analytical Results

Sub-Matrix: GROUNDWATER		Client sample ID		1622.12-12/02		---		---	
		Laboratory sample ID		PR1255683001		---		---	
		Client sampling date / time		17-DEC-2012 00:00		---		---	
Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Nonmetallic Inorganic Parameters									
Ammonia and ammonium ions	W-NH4-SPC	0.050	mg/L	<0.050	---	---	---	---	---
Ammonia as N	W-NH4-SPC	0.040	mg/L	<0.040	---	---	---	---	---
Dissolved Metals / Major Cations									
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	---	---	---	---	---
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	---	---	---	---	---
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	---	---	---	---	---
Mercury	W-HG-AFSFL	0.010	µg/L	<0.010	---	---	---	---	---
Petroleum Hydrocarbons - FTIR									
Total Petroleum Hydrocarbons	W-TPH-IR	0.050	mg/L	0.074	±20.0 %	---	---	---	---
BTEX									
Benzene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
Toluene	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
Ethylbenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
meta- & para-Xylene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
ortho-Xylene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Sum of BTEX	W-VOCGMS01	1.60	µg/L	<1.60	---	---	---	---	---
Sum of xylenes	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
Sum of TEX	W-VOCGMS01	1.40	µg/L	<1.40	---	---	---	---	---
Halogenated Volatile Organic Compounds									
Dichlorodifluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Vinyl chloride	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
Chloromethane	W-VOCGMS05	10	µg/L	<10	---	---	---	---	---
trans-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Dichloromethane	W-VOCGMS01	6.0	µg/L	<6.0	---	---	---	---	---
1,1-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Chloroethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
cis-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Trichlorofluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,1-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromochloromethane	W-VOCGMS05	2.0	µg/L	<2.0	---	---	---	---	---
2,2-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Chloroform	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
1,1-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,2-Dichloroethane	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
1,1,1-Trichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Dibromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
cis-1,3-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Tetrachloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromodichloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
trans-1,3-Dichloropropene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,3-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Trichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1,1,2-Trichloroethane	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1,2-Dibromoethane (EDB)	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,2,3-Trichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Dibromochloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromobenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Tetrachloroethene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1,1,1,2-Tetrachloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---



Sub-Matrix: GROUNDWATER

Client sample ID 1622.12-12/02
 Laboratory sample ID PR1255683001
 Client sampling date / time 17-DEC-2012 00:00

Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Halogenated Volatile Organic Compounds - Continued									
2-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Chlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
4-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Bromoform	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1.1.2.2-Tetrachloroethane	W-VOCGMS01	1.0	µg/L	<1.0	---	---	---	---	---
1.2-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1.2-Dibromo-3-chloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1.4-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1.3-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1.2.4-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Hexachlorobutadiene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1.2.3-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1.3.5-Trichlorobenzene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1.2-Dichloropropane	W-VOCGMS01	1.0	µg/L	<1.0	---	---	---	---	---
Sum of 4 Trihalomethanes	W-VOCGMS01	0.70	µg/L	<0.70	---	---	---	---	---
Sum of 3 Dichlorobenzenes	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
Sum of 3 Trichlorobenzenes	W-VOCGMS01	0.40	µg/L	<0.40	---	---	---	---	---
Non-Halogenated Volatile Organic Compounds									
Isopropylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
n-Propylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1.2.4-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
p-Isopropyltoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1.3.5-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Styrene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
sec-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
tert-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
n-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Methyl tert-Butyl Ether (MTBE)	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
tert-Butyl alcohol	W-VOCGMS01	5.0	µg/L	<5.0	---	---	---	---	---
Sum of BTEXS	W-VOCGMS01	1.80	µg/L	<1.80	---	---	---	---	---
Aromatic Compounds									
1-Ethyl-2-methylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1-Ethyl-3-methylbenzene@1-Ethyl-4-methylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1.3.5-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2.4-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2.3-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2@1.4-Diethylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1.3-Diethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2.4.5-Tetramethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
Biphenyl	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2@1-Ethyl-naphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1.8-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2-Methylantracene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1-Methylantracene@1-Methylphenanthrene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
2-Methylphenanthrene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
Isopropylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
n-Propylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---



Sub-Matrix: GROUNDWATER

Client sample ID
 Laboratory sample ID
 Client sampling date / time

1622.12-12/02

PR1255683001

17-DEC-2012 00:00

Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Aromatic Compounds - Continued									
2,6@2,7-Dimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1,7@1,3@1,6-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---	---	---
1,4@2,3@1,5-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---	---	---
1,3,7-Trimethylnaphthalene	W-SPIGMS04	0.05	µg/L	<0.05	---	---	---	---	---
1,4,8@2,3,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
2,3,5@1,2,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1,2,4@2,4,5@1,2,5-Trimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---	---	---
1,2,3@1,4,5-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1,4,6,7-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1,2,5,6-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
Methylpyrenes@Methylfluoranthenes	W-SPIGMS04	1.0	µg/L	<1.0	---	---	---	---	---
Methylchrysenes@Methylbenz(a)anthracenes	W-SPIGMS04	1.0	µg/L	<1.0	---	---	---	---	---
Sum of Aromatics C16-C35	W-SPIGMS04	2.0	µg/L	<2.0	---	---	---	---	---
Polycyclic Aromatics Hydrocarbons (PAHs)									
Naphthalene	W-SPIGMS04	0.010	µg/L	0.010	±30.0 %	---	---	---	---
Acenaphthylene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Acenaphthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Fluorene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Phenanthrene	W-SPIGMS04	0.010	µg/L	0.012	±30.0 %	---	---	---	---
Anthracene	W-SPIGMS04	0.010	µg/L	0.035	±30.0 %	---	---	---	---
Fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(a)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Chrysene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(b)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(k)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(a)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Indeno(1,2,3.cd)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(g,h,i)perylene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Dibenz(a,h)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
PCBs									
PCB 28	W-PCBECD01	0.00110	µg/L	<0.00220	---	---	---	---	---
PCB 52	W-PCBECD01	0.00110	µg/L	<0.00220	---	---	---	---	---
PCB 101	W-PCBECD01	0.000750	µg/L	<0.00150	---	---	---	---	---
PCB 118	W-PCBECD01	0.00110	µg/L	<0.00220	---	---	---	---	---
PCB 138	W-PCBECD01	0.00120	µg/L	<0.00240	---	---	---	---	---
PCB 153	W-PCBECD01	0.00110	µg/L	<0.00220	---	---	---	---	---
PCB 180	W-PCBECD01	0.000950	µg/L	<0.00190	---	---	---	---	---
Sum of 6 PCBs	W-PCBECD01	0.00620	µg/L	<0.0124	---	---	---	---	---
Sum of 7 PCBs	W-PCBECD01	0.00730	µg/L	<0.0146	---	---	---	---	---
Petroleum Hydrocarbons									
Aliphates C10-C12	W-SPIGMS04	10	µg/L	<10	---	---	---	---	---
Aliphates C12-C16	W-SPIGMS04	10	µg/L	<10	---	---	---	---	---
Aliphates C16-C35	W-SPIGMS04	10	µg/L	28	±30.0 %	---	---	---	---



Sub-Matrix: GROUNDWATER				Client sample ID	1622.12-12/02	----	----
				Laboratory sample ID	PR1255683001	----	----
				Client sampling date / time	17-DEC-2012 00:00	----	----
Parameter	Method	LOR	Unit	Result	MU	----	----
Petroleum Hydrocarbons - Continued							
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	7.4	±30.0 %	----	----
C10 - C16 Fraction	W-TPHFID02	10	µg/L	43	±30.0 %	----	----
C10 - C40 Fraction	W-TPHFID02	50	µg/L	179	±30.0 %	----	----
C10 - C40 Fraction	W-TPHFID01	50	µg/L	89	±30.0 %	----	----
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	13.5	±30.0 %	----	----
C16 - C22 Fraction	W-TPHFID02	10	µg/L	107	±30.0 %	----	----
C16 - C35 Fraction	W-TPHFID01	30	µg/L	68	±30.0 %	----	----
C22 - C30 Fraction	W-TPHFID02	15	µg/L	29	±30.0 %	----	----
C30 - C40 Fraction	W-TPHFID02	15	µg/L	<15	---	----	----
C35 - C40 Fraction	W-TPHFID01	10	µg/L	<10	---	----	----
Sum of Aliphates C10-C35	W-SPIGMS04	30	µg/L	<30	---	----	----
Sum of Aromatics C10-C16	W-SPIGMS04	1.55	µg/L	<1.55	---	----	----
Sum of Aromatics C8-C10	W-SPIGMS04	0.60	µg/L	<0.60	---	----	----

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
<i>Location of test performance: Na Harfa 336/9 Prague 9 - Vysocany Czech Republic 190 00</i>	
W-HG-AFSFL	CZ_SOP_D06_02_096 (US EPA 245.7, US EPA 1631, CSN EN ISO 17852, CSN EN 13370 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2.) Determination of Mercury by Fluorescence Spectrometry. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-METAXFL1	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, EN 12506, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma: Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cr(VI), Cu, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Se, Si, Sn, Sr, Te, Ti, Ti, V, Zn, Zr. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-NH4-SPC	CZ_SOP_D06_02_019 (CSN ISO 11732, CSN ISO 13395, M. Horakova: Analytika vody, Praha 2000) Determination of ammonium ions, nitrite nitrogen and total oxidized nitrogen by discrete spectrophotometry and calculation of nitrates and nitrogen - organic, inorganic and total.
W-PCBECD01	CZ_SOP_D06_03_166 (DIN 38407, part 2, US EPA 8082, samples preparation according to CZ_SOP_D06_03_P01 chap. 9.1, CZ_SOP_D06_03_P02 chap. 9.1) Determination of polychlorinated biphenyls - congener analyses by gas chromatography method with ECD detection
W-SPIGMS04	CZ_SOP_D06_03_157 except chap. 9.3 (SPIMFAB) Determination of organic contaminants by gas chromatography method with MS detection (SPIMFAB)
W-TPHFID01	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1) Determination of extractable compounds in the range of hydrocarbons C5-C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPHFID02	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1) Determination of extractable compounds in the range of hydrocarbons C5-C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPH-IR	CZ_SOP_D06_02_057 Determination of nonpolar extractive substances by infrared spectrometry in drinking, surface and ground water (based on CSN 75 7505)
W-VOCGMS01	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260) Determination of volatile organic compound by gas chromatography method with MS detection
W-VOCGMS05	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260) Determination of volatile organic compound by gas chromatography method with MS detection

Issue Date : 10-JAN-2013
Page : 6 of 6
Work Order : PR1255683
Client : IDAD - Instituto do Ambiente e Desenvolvimento



A "*" symbol preceding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.

CERTIFICATE OF ANALYSIS

Work Order	: PR1300969	Issue Date	: 16-JAN-2013
Client	: IDAD - Instituto do Ambiente e Desenvolvimento	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Anabela Marques	Contact	: Client Service
Address	: Campus Universitario Aveiro Portugal 3810-193	Address	: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00
E-mail	: a.anjos@ua.pt	E-mail	: customer.support@alsglobal.com
Telephone	: +351 2344 00800	Telephone	: +420 226 226 228
Facsimile	: ---	Facsimile	: +420 284 081 635
Project	: United Resins	Page	: 1 of 6
Order number	: ---	Date Samples	: 10-JAN-2013
C-O-C number	: ---	Received	: ---
Site	: ---	Quote number	: PR2013IDAIN-PT0012 (PT-300-13-0029)
Sampled by	: client	Date of test	: 10-JAN-2013 - 16-JAN-2013
		QC Level	: ALS CR Standard Quality Control Schedule

General Comments

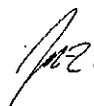
This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples.

Sample(s) PR1300969/001, method W-NH4-SPC - particular sample(s) required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.

Responsible for accuracy

Signatories
Zdenek Jirak



Position
Prague Laboratory Manager

Testing Laboratory
Accredited by CAI



L 1163



Analytical Results

Parameter	Method	LOR	Unit	Client sample ID		Laboratory sample ID		Client sampling date / time	
				Result	MU	Result	MU	Result	MU
Sub-Matrix: GROUNDWATER									
				40.13-12/02	---	---	---	---	---
				PR1300969001	---	---	---	---	---
				08-JAN-2013 00:00	---	---	---	---	---
Nonmetallic Inorganic Parameters									
Ammonia and ammonium ions	W-NH4-SPC	0.050	mg/L	<0.160	---	---	---	---	---
Ammonia as N	W-NH4-SPC	0.040	mg/L	<0.124	---	---	---	---	---
Dissolved Metals / Major Cations									
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	---	---	---	---	---
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	---	---	---	---	---
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	---	---	---	---	---
Mercury	W-HG-AFSFL	0.010	µg/L	<0.010	---	---	---	---	---
Petroleum Hydrocarbons - FTIR									
Total Petroleum Hydrocarbons	W-TPH-IR	0.050	mg/L	<0.050	---	---	---	---	---
BTEX									
Benzene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
Toluene	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
Ethylbenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
meta- & para-Xylene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
ortho-Xylene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Sum of BTEX	W-VOCGMS01	1.60	µg/L	<1.60	---	---	---	---	---
Sum of xylenes	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
Sum of TEX	W-VOCGMS01	1.40	µg/L	<1.40	---	---	---	---	---
Halogenated Volatile Organic Compounds									
Dichlorodifluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Vinyl chloride	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
Chloromethane	W-VOCGMS05	10	µg/L	<10	---	---	---	---	---
trans-1,2-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Dichloromethane	W-VOCGMS01	6.0	µg/L	<6.0	---	---	---	---	---
1,1-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Chloroethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
cis-1,2-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Trichlorofluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,1-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromochloromethane	W-VOCGMS05	2.0	µg/L	<2.0	---	---	---	---	---
2,2-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Chloroform	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
1,1-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,2-Dichloroethane	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
1,1,1-Trichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Dibromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
cis-1,3-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Tetrachloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromodichloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
trans-1,3-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,3-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Trichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1,1,2-Trichloroethane	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1,2-Dibromoethane (EDB)	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,2,3-Trichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Dibromochloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromobenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Tetrachloroethene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1,1,1,2-Tetrachloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---



Sub-Matrix: GROUNDWATER				Client sample ID	40.13-12/02	---	---
				Laboratory sample ID	PR1300969001	---	---
				Client sampling date / time	08-JAN-2013 00:00	---	---
Parameter	Method	LOR	Unit	Result	MU	---	---
Halogenated Volatile Organic Compounds - Continued							
2-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---
Chlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---
4-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---
Bromoform	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---
1.1.2.2-Tetrachloroethane	W-VOCGMS01	1.0	µg/L	<1.0	---	---	---
1.2-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---
1.2-Dibromo-3-chloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---
1.4-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---
1.3-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---
1.2.4-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---
Hexachlorobutadiene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---
1.2.3-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---
1.3.5-Trichlorobenzene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---
1.2-Dichloropropane	W-VOCGMS01	1.0	µg/L	<1.0	---	---	---
Sum of 4 Trihalomethanes	W-VOCGMS01	0.70	µg/L	<0.70	---	---	---
Sum of 3 Dichlorobenzenes	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---
Sum of 3 Trichlorobenzenes	W-VOCGMS01	0.40	µg/L	<0.40	---	---	---
Non-Halogenated Volatile Organic Compounds							
Isopropylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---
n-Propylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---
1.2.4-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---
p-Isopropyltoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---
1.3.5-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---
Styrene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---
sec-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---
tert-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---
n-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---
Methyl tert-Butyl Ether (MTBE)	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---
tert-Butyl alcohol	W-VOCGMS01	5.0	µg/L	<5.0	---	---	---
Sum of BTEXS	W-VOCGMS01	1.80	µg/L	<1.80	---	---	---
Aromatic Compounds							
1-Ethyl-2-methylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
1-Ethyl-3-methylbenzene@1-Ethyl-4-methylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---
1.3.5-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
1.2.4-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
1.2.3-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
1.2@1.4-Diethylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---
1.3-Diethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
1.2.4.5-Tetramethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
2-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
1-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
Biphenyl	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
2@1-Ethyl-naphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---
1.8-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
2-Methylanthracene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
1-Methylanthracene@1-Methylphenanthrene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---
2-Methylphenanthrene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
Isopropylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
1.2-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
n-Propylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---



Sub-Matrix: GROUNDWATER

Client sample ID
Laboratory sample ID
Client sampling date / time

40.13-12/02	----	----
PR1300969001	----	----
08-JAN-2013 00:00	----	----

Parameter	Method	LOR	Unit	Result	MU	----	----	----
Aromatic Compounds - Continued								
2.6@2.7-Dimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	----	----	----
1.7@1.3@1.6-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	----	----	----
1.4@2.3@1.5-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	----	----	----
1.3.7-Trimethylnaphthalene	W-SPIGMS04	0.05	µg/L	<0.05	---	----	----	----
1.4.6@2.3.6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	----	----	----
2.3.5@1.2.6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	----	----	----
1.2.4@2.4.5@1.2.5-Trimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	----	----	----	----
1.2.3@1.4.5-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	----	----	----
1.4.6.7-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	----	----	----
1.2.5.6-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	----	----	----
Methylpyrenes@Methylfluoranthones	W-SPIGMS04	1.0	µg/L	<1.0	---	----	----	----
Methylchrysenes@Methylbenz(a)anthracenes	W-SPIGMS04	1.0	µg/L	<1.0	---	----	----	----
Sum of Aromatics C16-C35	W-SPIGMS04	2.0	µg/L	<2.0	---	----	----	----
Polycyclic Aromatics Hydrocarbons (PAHs)								
Naphthalene	W-SPIGMS04	0.010	µg/L	0.012	±30.0 %	----	----	----
Acenaphthylene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Acenaphthene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Fluorene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Phenanthrene	W-SPIGMS04	0.010	µg/L	0.010	±30.0 %	----	----	----
Anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Benz(a)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Chrysene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Benzo(b)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Benzo(k)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Benzo(a)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Indeno(1.2.3.cd)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Benzo(g,h,i)perylene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
Dibenz(a,h)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	----	----	----
PCBs								
PCB 28	W-PCBECD01	0.00110	µg/L	<0.00110	---	----	----	----
PCB 52	W-PCBECD01	0.00110	µg/L	<0.00110	---	----	----	----
PCB 101	W-PCBECD01	0.000750	µg/L	<0.000750	---	----	----	----
PCB 118	W-PCBECD01	0.00110	µg/L	<0.00110	---	----	----	----
PCB 138	W-PCBECD01	0.00120	µg/L	<0.00120	---	----	----	----
PCB 153	W-PCBECD01	0.00110	µg/L	<0.00110	---	----	----	----
PCB 180	W-PCBECD01	0.000950	µg/L	<0.000950	---	----	----	----
Sum of 6 PCBs	W-PCBECD01	0.00620	µg/L	<0.00620	---	----	----	----
Sum of 7 PCBs	W-PCBECD01	0.00730	µg/L	<0.00730	---	----	----	----
Petroleum Hydrocarbons								
Aliphates C10-C12	W-SPIGMS04	10	µg/L	<10	---	----	----	----
Aliphates C12-C16	W-SPIGMS04	10	µg/L	<10	---	----	----	----
Aliphates C16-C35	W-SPIGMS04	10	µg/L	<10	---	----	----	----



Sub-Matrix: GROUNDWATER

Client sample ID

40.13-12/02

Laboratory sample ID

PR1300969001

Client sampling date / time

08-JAN-2013 00:00

Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Petroleum Hydrocarbons - Continued									
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	---	---	---	---
C10 - C16 Fraction	W-TPHFID02	10	µg/L	<10	---	---	---	---	---
C10 - C40 Fraction	W-TPHFID01	50	µg/L	<50	---	---	---	---	---
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	---	---	---	---
C16 - C22 Fraction	W-TPHFID02	10	µg/L	<10	---	---	---	---	---
C16 - C35 Fraction	W-TPHFID01	30	µg/L	<30	---	---	---	---	---
C22 - C30 Fraction	W-TPHFID02	15	µg/L	<15	---	---	---	---	---
C30 - C40 Fraction	W-TPHFID02	15	µg/L	<15	---	---	---	---	---
C35 - C40 Fraction	W-TPHFID01	10	µg/L	<10	---	---	---	---	---
Sum of Aliphates C10-C35	W-SPIGMS04	30	µg/L	<30	---	---	---	---	---
Sum of Aromatics C10-C16	W-SPIGMS04	1.55	µg/L	<1.55	---	---	---	---	---
Sum of Aromatics C8-C10	W-SPIGMS04	0.60	µg/L	<0.60	---	---	---	---	---

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
W-HG-AFSFL	CZ_SOP_D06_02_096 (US EPA 245.7, US EPA 1631, CSN EN ISO 17852, CSN EN 13370 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2.) Determination of Mercury by Fluorescence Spectrometry. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-METAXFL1	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, EN 12506, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma: Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cr(VI), Cu, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Se, Si, Sn, Sr, Te, Ti, Tl, V, Zn, Zr. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-NH4-SPC	CZ_SOP_D06_02_019 (CSN ISO 11732, CSN ISO 13395, M. Horakova: Analytika vody, Praha 2000) Determination of ammonium ions, nitrite nitrogen and total oxidized nitrogen by discrete spectrophotometry and calculation of nitrates and nitrogen - organic, inorganic and total.
W-PCBECD01	CZ_SOP_D06_03_166 (DIN 38407, part 2, US EPA 8082, samples preparation according to CZ_SOP_D06_03_P01 chap. 9.1, CZ_SOP_D06_03_P02 chap. 9.1) Determination of polychlorinated biphenyls - congener analyses by gas chromatography method with ECD detection
W-SPIGMS04	CZ_SOP_D06_03_157 except chap. 9.3 (SPIMFAB) Determination of organic contaminants by gas chromatography method with MS detection (SPIMFAB)
W-TPHFID01	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1) Determination of extractable compounds in the range of hydrocarbons C5 - C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPHFID02	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1) Determination of extractable compounds in the range of hydrocarbons C5 - C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPH-IR	CZ_SOP_D06_02_057 Determination of nonpolar extractive substances by infrared spectrometry in drinking, surface and ground water (based on CSN 75 7505)
W-VOCGMS01	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260) Determination of volatile organic compound by gas chromatography method with MS detection
W-VOCGMS05	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260) Determination of volatile organic compound by gas chromatography method with MS detection

A ** symbol preceding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.

Issue Date : 16-JAN-2013
Page : 6 of 6
Work Order : PR1300969
Client : IDAD - Instituto do Ambiente e Desenvolvimento



CERTIFICATE OF ANALYSIS

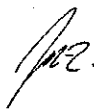
Work Order	: PR1306722	Issue Date	: 01-MAR-2013
Client	: IDAD - Instituto do Ambiente e Desenvolvimento	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Ms. Anabela Marques	Contact	: Client Service
Address	: Campus Universitario Aveiro Portugal 3810-193	Address	: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00
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Telephone	: +351 2344 00800	Telephone	: +420 226 226 228
Facsimile	: ---	Facsimile	: +420 284 081 635
Project	: United Resins	Page	: 1 of 6
Order number	: ---	Date Samples Received	: 22-FEB-2013
C-O-C number	: ---	Quote number	: PR2013IDAIN-PT0012 (PT-300-13-0029)
Site	: ---	Date of test	: 22-FEB-2013 - 28-FEB-2013
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.

Responsible for accuracy

Signatories
Zdenek Jirak



Position
Prague Laboratory Manager



Testing Laboratory
Accredited by CAI



L 1163



Analytical Results

Sub-Matrix: GROUNDWATER		Client sample ID		113.13-12/02		---		---	
		Laboratory sample ID		PR1306722001		---		---	
		Client sampling date / time		08-FEB-2013 00:00		---		---	
Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Nonmetallic Inorganic Parameters									
Ammonia and ammonium ions	W-NH4-SPC	0.050	mg/L	<0.050	---	---	---	---	---
Ammonia as N	W-NH4-SPC	0.040	mg/L	<0.040	---	---	---	---	---
Chloride	W-ANI-ENV	0.500	mg/L	66.2	±15.0 %	---	---	---	---
Nitrates	W-ANI-ENV	0.040	mg/L	<0.040	---	---	---	---	---
Nitrites	W-ANI-ENV	0.040	mg/L	<0.040	---	---	---	---	---
Sulphate as SO4 2-	W-ANI-ENV	0.500	mg/L	19.8	±15.0 %	---	---	---	---
Dissolved Metals / Major Cations									
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	---	---	---	---	---
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	---	---	---	---	---
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	---	---	---	---	---
Mercury	W-HG-AFSFL	0.010	µg/L	<0.010	---	---	---	---	---
Petroleum Hydrocarbons - FTIR									
Total Petroleum Hydrocarbons	W-TPH-IR	0.050	mg/L	<0.050	---	---	---	---	---
BTEX									
Benzene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
Toluene	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
Ethylbenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
meta- & para-Xylene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
ortho-Xylene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Sum of BTEX	W-VOCGMS01	1.60	µg/L	<1.60	---	---	---	---	---
Sum of xylenes	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
Sum of TEX	W-VOCGMS01	1.40	µg/L	<1.40	---	---	---	---	---
Halogenated Volatile Organic Compounds									
Dichlorodifluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Vinyl chloride	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
Chloromethane	W-VOCGMS05	10	µg/L	<10	---	---	---	---	---
trans-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Dichloromethane	W-VOCGMS01	6.0	µg/L	<6.0	---	---	---	---	---
1,1-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Chloroethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
cis-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Trichlorofluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,1-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromochloromethane	W-VOCGMS05	2.0	µg/L	<2.0	---	---	---	---	---
2,2-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Chloroform	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
1,1-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,2-Dichloroethane	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
1,1,1-Trichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Dibromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
cis-1,3-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Tetrachloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromodichloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
trans-1,3-Dichloropropene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,3-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Trichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1,1,2-Trichloroethane	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1,2-Dibromoethane (EDB)	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,2,3-Trichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---



Sub-Matrix: GROUNDWATER		Client sample ID		113.13-12/02		---		---	
		Laboratory sample ID		PR1306722001		---		---	
		Client sampling date / time		08-FEB-2013 00:00		---		---	
Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Halogenated Volatile Organic Compounds - Continued									
Dibromochloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromobenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Tetrachloroethene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1.1.1.2-Tetrachloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
2-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Chlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
4-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Bromoform	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1.1.2.2-Tetrachloroethane	W-VOCGMS01	1.0	µg/L	<1.0	---	---	---	---	---
1.2-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1.2-Dibromo-3-chloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1.4-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1.3-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1.2.4-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Hexachlorobutadiene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1.2.3-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1.3.5-Trichlorobenzene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1.2-Dichloropropane	W-VOCGMS01	1.0	µg/L	<1.0	---	---	---	---	---
Sum of 4 Trihalomethanes	W-VOCGMS01	0.70	µg/L	<0.70	---	---	---	---	---
Sum of 3 Dichlorobenzenes	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
Sum of 3 Trichlorobenzenes	W-VOCGMS01	0.40	µg/L	<0.40	---	---	---	---	---
Non-Halogenated Volatile Organic Compounds									
Isopropylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
n-Propylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1.2.4-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
p-Isopropyltoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1.3.5-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Styrene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
sec-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
tert-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
n-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Methyl tert-Butyl Ether (MTBE)	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
tert-Butyl alcohol	W-VOCGMS01	5.0	µg/L	<5.0	---	---	---	---	---
Sum of BTEXS	W-VOCGMS01	1.80	µg/L	<1.80	---	---	---	---	---
Aromatic Compounds									
1-Ethyl-2-methylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1-Ethyl-3-methylbenzene@1-Ethyl-4-methylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1.3.5-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2.4-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2.3-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2@1.4-Diethylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1.3-Diethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2.4.5-Tetramethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
Biphenyl	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2@1-Ethyl-naphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1.8-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2-Methylantracene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1-Methylantracene@1-Methylphenanthrene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---



Sub-Matrix: GROUNDWATER

Client sample ID	113.13-12/02	---	---
Laboratory sample ID	PR1306722001	---	---
Client sampling date / time	08-FEB-2013 00:00	---	---

Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Aromatic Compounds - Continued									
2-Methylphenanthrene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
Isopropylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1,2-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
n-Propylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2,6@2,7-Dimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1,7@1,3@1,6-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---	---	---
1,4@2,3@1,5-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---	---	---
1,3,7-Trimethylnaphthalene	W-SPIGMS04	0.05	µg/L	<0.05	---	---	---	---	---
1,4,6@2,3,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
2,3,5@1,2,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1,2,4@2,4,5@1,2,5-Trimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---	---	---
1,2,3@1,4,5-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1,4,6,7-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1,2,5,6-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
Methylpyrenes@Methylfluoranthenes	W-SPIGMS04	1.0	µg/L	<1.0	---	---	---	---	---
Methylchrysenes@Methylbenz(a)anthracenes	W-SPIGMS04	1.0	µg/L	<1.0	---	---	---	---	---
Sum of Aromatics C16-C35	W-SPIGMS04	2.0	µg/L	<2.0	---	---	---	---	---
Polycyclic Aromatics Hydrocarbons (PAHs)									
Naphthalene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Acenaphthylene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Acenaphthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Fluorene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Phenanthrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Anthracene	W-SPIGMS04	0.010	µg/L	0.020	±30.0 %	---	---	---	---
Fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benz(a)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Chrysene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(b)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(k)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(a)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Indeno(1,2,3,cd)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(g,h,i)perylene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Dibenz(a,h)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Sum of 16 PAH (M1)	W-SPIGMS04	0.080	µg/L	0.020	±30.0 %	---	---	---	---
PCBs									
PCB 28	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---	---	---
PCB 52	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---	---	---
PCB 101	W-PCBECD01	0.000750	µg/L	<0.000750	---	---	---	---	---
PCB 118	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---	---	---
PCB 138	W-PCBECD01	0.00120	µg/L	<0.00120	---	---	---	---	---
PCB 153	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---	---	---
PCB 180	W-PCBECD01	0.000950	µg/L	<0.000950	---	---	---	---	---
Sum of 6 PCBs	W-PCBECD01	0.00620	µg/L	<0.00620	---	---	---	---	---
Sum of 7 PCBs	W-PCBECD01	0.00730	µg/L	<0.00730	---	---	---	---	---



Sub-Matrix: GROUNDWATER

Client sample ID	113.13-12/02	---	---
Laboratory sample ID	PR1306722001	---	---
Client sampling date / time	08-FEB-2013 00:00	---	---

Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Petroleum Hydrocarbons									
Allphates C10-C12	W-SPIGMS04	10	µg/L	<10	---	---	---	---	---
Allphates C12-C16	W-SPIGMS04	10	µg/L	<10	---	---	---	---	---
Allphates C16-C35	W-SPIGMS04	10	µg/L	<10	---	---	---	---	---
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	---	---	---	---
C10 - C16 Fraction	W-TPHFID02	10	µg/L	<10	---	---	---	---	---
C10 - C40 Fraction	W-TPHFID02	50	µg/L	56	±30.0 %	---	---	---	---
C10 - C40 Fraction	W-TPHFID01	50	µg/L	56	±30.0 %	---	---	---	---
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	---	---	---	---
C16 - C22 Fraction	W-TPHFID02	10	µg/L	12	±30.0 %	---	---	---	---
C16 - C35 Fraction	W-TPHFID01	30	µg/L	44	±30.0 %	---	---	---	---
C22 - C30 Fraction	W-TPHFID02	15	µg/L	20	±30.0 %	---	---	---	---
C30 - C40 Fraction	W-TPHFID02	15	µg/L	23	±30.0 %	---	---	---	---
C35 - C40 Fraction	W-TPHFID01	10	µg/L	11	±30.0 %	---	---	---	---
Sum of Allphates C10-C35	W-SPIGMS04	30	µg/L	<30	---	---	---	---	---
Sum of Aromatics C10-C16	W-SPIGMS04	1.55	µg/L	<1.55	---	---	---	---	---
Sum of Aromatics C8-C10	W-SPIGMS04	0.60	µg/L	<0.60	---	---	---	---	---

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor $k = 2$, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
W-ANI-ENV	CZ_SOP_D06_02_068 Determination of dissolved fluoride, chloride, bromide, nitrite, nitrate and sulphate ions in water matrix by liquid chromatography of ions (based on CSN EN ISO 10304-1).
W-HG-AFSFL	CZ_SOP_D06_02_096 (US EPA 245.7, US EPA 1631, CSN EN ISO 17852, CSN EN 13370 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2.) Determination of Mercury by Fluorescence Spectrometry. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-METAXFL1	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, EN 12506, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma: Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cr(VI), Cu, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Se, Si, Sn, Sr, Te, Ti, Tl, V, Zn, Zr. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-NH4-SPC	CZ_SOP_D06_02_019 (CSN ISO 11732, CSN ISO 13395, M. Horakova: Analytika vody, Praha 2000) Determination of ammonium ions, nitrite nitrogen and total oxidized nitrogen by discrete spectrophotometry and calculation of nitrates and nitrogen - organic, inorganic and total.
W-PCBECD01	CZ_SOP_D06_03_166 (DIN 38407, part 2, US EPA 8082, samples preparation according to CZ_SOP_D06_03_P01 chap. 9.1, CZ_SOP_D06_03_P02 chap. 9.1) Determination of polychlorinated biphenyls - congener analyses by gas chromatography method with ECD detection
W-SPIGMS04	CZ_SOP_D06_03_157 except chap. 9.3 (SPIMFAB) Determination of organic contaminants by gas chromatography method with MS detection (SPIMFAB)
W-TPHFID01	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1) Determination of extractable compounds in the range of hydrocarbons C5 - C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPHFID02	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1) Determination of extractable compounds in the range of hydrocarbons C5 - C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPH-IR	CZ_SOP_D06_02_057 Determination of nonpolar extractive substances by infrared spectrometry in drinking, surface and ground water (based on CSN 75 7505)
W-VOCGMS01	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260) Determination of volatile organic compound by gas chromatography method with MS detection

Issue Date : 01-MAR-2013
Page : 6 of 6
Work Order : PR1306722
Client : IDAD - Instituto do Ambiente e Desenvolvimento



Analytical Methods	Method Descriptions
W-VOCGMS05	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260) Determination of volatile organic compound by gas chromatography method with MS detection

A "*" symbol preceding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.

CERTIFICATE OF ANALYSIS

Work Order	: PR1310902	Issue Date	: 27-MAR-2013
Client	: IDAD - Instituto do Ambiente e Desenvolvimento	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Mrs. Alexandra Passos Silva	Contact	: Client Service
Address	: Campus Universitario Aveiro Portugal 3810-193	Address	: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00
E-mail	: a.passosilva@ua.pt	E-mail	: customer.support@alsglobal.com
Telephone	: +351 2344 00800	Telephone	: +420 226 226 228
Facsimile	: ---	Facsimile	: +420 284 081 635
Project	: IMA 12 02 13	Page	: 1 of 6
Order number	: ---	Date Samples Received	: 19-MAR-2013
C-O-C number	: ---	Quote number	: PR2013IDAIN-PT0012 (PT-300-13-0029)
Site	: ---	Date of test	: 20-MAR-2013 - 27-MAR-2013
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.

Responsible for accuracy

Signatories
Zdenek Jirak



Position
Prague Laboratory Manager

Testing Laboratory
Accredited by CAI



L 1163

ALS Czech Republic, s.r.o.

Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00



Analytical Results

Sub-Matrix: GROUNDWATER		Client sample ID		290.13-12/02		---		---	
		Laboratory sample ID		PR1310902001		---		---	
		Client sampling date / time		14-MAR-2013 00:00		---		---	
Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Nonmetallic Inorganic Parameters									
Ammonia and ammonium ions	W-NH4-SPC	0.050	mg/L	<0.050	---	---	---	---	---
Ammonia as N	W-NH4-SPC	0.040	mg/L	<0.040	---	---	---	---	---
Chloride	W-ANI-ENV	0.500	mg/L	16.4	±15.0 %	---	---	---	---
Nitrates	W-ANI-ENV	0.040	mg/L	<0.040	---	---	---	---	---
Nitrites	W-ANI-ENV	0.040	mg/L	<0.040	---	---	---	---	---
Sulphate as SO4 2-	W-ANI-ENV	0.500	mg/L	6.18	±15.0 %	---	---	---	---
Dissolved Metals / Major Cations									
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	---	---	---	---	---
Cadmium	W-METAXFL1	0.00040	mg/L	0.00058	±9.9 %	---	---	---	---
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	---	---	---	---	---
Mercury	W-HG-AFSFL	0.010	µg/L	<0.010	---	---	---	---	---
Petroleum Hydrocarbons - FTIR									
Total Petroleum Hydrocarbons	W-TPH-IR	0.050	mg/L	0.152	±20.0 %	---	---	---	---
BTEX									
Benzene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
Toluene	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
Ethylbenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
meta- & para-Xylene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
ortho-Xylene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Sum of BTEX	W-VOCGMS01	1.60	µg/L	<1.60	---	---	---	---	---
Sum of xylenes	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
Sum of TEX	W-VOCGMS01	1.40	µg/L	<1.40	---	---	---	---	---
Halogenated Volatile Organic Compounds									
Dichlorodifluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Vinyl chloride	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
Chloromethane	W-VOCGMS05	10	µg/L	<10	---	---	---	---	---
trans-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Dichloromethane	W-VOCGMS01	6.0	µg/L	<6.0	---	---	---	---	---
1,1-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Chloroethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
cis-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Trichlorofluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,1-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromochloromethane	W-VOCGMS05	2.0	µg/L	<2.0	---	---	---	---	---
2,2-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Chloroform	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
1,1-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,2-Dichloroethane	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
1,1,1-Trichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Dibromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
cis-1,3-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Tetrachloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromodichloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
trans-1,3-Dichloropropene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,3-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Trichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1,1,2-Trichloroethane	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1,2-Dibromoethane (EDB)	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,2,3-Trichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---



Sub-Matrix: GROUNDWATER

Client sample ID
 Laboratory sample ID
 Client sampling date / time

290.13-12/02	---	---
PR1310902001	---	---
14-MAR-2013 00:00	---	---

Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Halogenated Volatile Organic Compounds - Continued									
Dibromochloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromobenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Tetrachloroethene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1.1.1.2-Tetrachloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
2-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Chlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
4-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Bromoform	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1.1.2.2-Tetrachloroethane	W-VOCGMS01	1.0	µg/L	<1.0	---	---	---	---	---
1.2-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1.2-Dibromo-3-chloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1.4-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1.3-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1.2.4-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Hexachlorobutadiene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1.2.3-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1.3.5-Trichlorobenzene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1.2-Dichloropropane	W-VOCGMS01	1.0	µg/L	<1.0	---	---	---	---	---
Sum of 4 Trihalomethanes	W-VOCGMS01	0.70	µg/L	<0.70	---	---	---	---	---
Sum of 3 Dichlorobenzenes	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
Sum of 3 Trichlorobenzenes	W-VOCGMS01	0.40	µg/L	<0.40	---	---	---	---	---
Non-Halogenated Volatile Organic Compounds									
Isopropylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
n-Propylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1.2.4-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
p-Isopropyltoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1.3.5-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Styrene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
sec-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
tert-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
n-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Methyl tert-Butyl Ether (MTBE)	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
tert-Butyl alcohol	W-VOCGMS01	5.0	µg/L	<5.0	---	---	---	---	---
Sum of BTEXS	W-VOCGMS01	1.80	µg/L	<1.80	---	---	---	---	---
Aromatic Compounds									
1-Ethyl-2-methylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1-Ethyl-3-methylbenzene@1-Ethyl-4-methylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1.3.5-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2.4-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2.3-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2@1.4-Diethylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1.3-Diethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1.2.4.5-Tetramethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
Biphenyl	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2@1-Ethyl-naphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1.8-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2-Methylantracene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1-Methylantracene@1-Methylphenanthrene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---



Sub-Matrix: GROUNDWATER				Client sample ID	290.13-12/02	---	---
				Laboratory sample ID	PR1310902001	---	---
				Client sampling date / time	14-MAR-2013 00:00	---	---
Parameter	Method	LOR	Unit	Result	MU	---	---
Aromatic Compounds - Continued							
2-Methylphenanthrene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
Isopropylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
1,2-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
n-Propylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
2,6@2,7-Dimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---
1,7@1,3@1,6-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---
1,4@2,3@1,5-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---
1,3,7-Trimethylnaphthalene	W-SPIGMS04	0.05	µg/L	<0.05	---	---	---
1,4,6@2,3,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---
2,3,5@1,2,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---
1,2,4@2,4,5@1,2,5-Trimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---
1,2,3@1,4,5-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---
1,4,6,7-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
1,2,5,6-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---
Methylpyrenes@Methylfluoranthenes	W-SPIGMS04	1.0	µg/L	<1.0	---	---	---
Methylchrysenes@Methylbenz(a)anthracenes	W-SPIGMS04	1.0	µg/L	<1.0	---	---	---
Sum of Aromatics C16-C35	W-SPIGMS04	2.0	µg/L	<2.0	---	---	---
Polycyclic Aromatics Hydrocarbons (PAHs)							
Naphthalene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Acenaphthylene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Acenaphthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Fluorene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Phenanthrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Benz(a)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Chrysene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Benzo(b)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Benzo(k)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Benzo(a)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Indeno(1,2,3,cd)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Benzo(g,h,i)perylene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
Dibenz(a,h)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---
PCBs							
PCB 28	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---
PCB 52	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---
PCB 101	W-PCBECD01	0.000750	µg/L	<0.000750	---	---	---
PCB 118	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---
PCB 138	W-PCBECD01	0.00120	µg/L	<0.00120	---	---	---
PCB 153	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---
PCB 180	W-PCBECD01	0.000950	µg/L	<0.000950	---	---	---
Sum of 6 PCBs	W-PCBECD01	0.00620	µg/L	<0.00620	---	---	---
Sum of 7 PCBs	W-PCBECD01	0.00730	µg/L	<0.00730	---	---	---
Petroleum Hydrocarbons							



Sub-Matrix: GROUNDWATER		Client sample ID		290.13-12/02	---	---
		Laboratory sample ID		PR1310902001	---	---
		Client sampling date / time		14-MAR-2013 00:00	---	---
Parameter	Method	LOR	Unit	Result	MU	---
Petroleum Hydrocarbons - Continued						
Allphates C10-C12	W-SPIGMS04	10	µg/L	<10	---	---
Allphates C16-C35	W-SPIGMS04	10	µg/L	<10	---	---
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	---
C10 - C16 Fraction	W-TPHFID02	10	µg/L	<10	---	---
C10 - C40 Fraction	W-TPHFID02	50	µg/L	<50	---	---
C10 - C40 Fraction	W-TPHFID01	50	µg/L	<50	---	---
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	---
C16 - C22 Fraction	W-TPHFID02	10	µg/L	<10	---	---
C16 - C35 Fraction	W-TPHFID01	30	µg/L	<30	---	---
C22 - C30 Fraction	W-TPHFID02	15	µg/L	<15	---	---
C30 - C40 Fraction	W-TPHFID02	15	µg/L	<15	---	---
C35 - C40 Fraction	W-TPHFID01	10	µg/L	<10	---	---
Sum of Allphates C10-C35	W-SPIGMS04	30	µg/L	<30	---	---
Sum of Allphates C12-C35	W-SPIGMS04	20	µg/L	<20	---	---
Sum of Aromatics C10-C16	W-SPIGMS04	1.55	µg/L	<1.55	---	---
Sum of Aromatics C8-C10	W-SPIGMS04	0.60	µg/L	<0.60	---	---

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
W-ANI-ENV	CZ_SOP_D06_02_068 Determination of dissolved fluoride, chloride, bromide, nitrite, nitrate and sulphate ions in water matrix by liquid chromatography of ions (based on CSN EN ISO 10304-1).
W-HG-AFSFL	CZ_SOP_D06_02_096 (US EPA 245.7, US EPA 1631, CSN EN ISO 17852, CSN EN 13370 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2.) Determination of Mercury by Fluorescence Spectrometry. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-METAXFL1	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, EN 12506, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma: Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cr(VI), Cu, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Se, Si, Sn, Sr, Te, Ti, Tl, V, Zn, Zr. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-NH4-SPC	CZ_SOP_D06_02_019 (CSN ISO 11732, CSN ISO 13395, M. Horakova: Analytika vody, Praha 2000) Determination of ammonium ions, nitrite nitrogen and total oxidized nitrogen by discrete spectrophotometry and calculation of nitrates and nitrogen - organic, inorganic and total.
W-PCBECD01	CZ_SOP_D06_03_166 (DIN 38407, part 2, US EPA 8082, samples preparation according to CZ_SOP_D06_03_P01 chap. 9.1, CZ_SOP_D06_03_P02 chap. 9.1) Determination of polychlorinated biphenyls - congener analyses by gas chromatography method with ECD detection
W-SPIGMS04	CZ_SOP_D06_03_157 except chap. 9.3 (SPIMFAB) Determination of organic contaminants by gas chromatography method with MS detection (SPIMFAB)
W-TPHFID01	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1) Determination of extractable compounds in the range of hydrocarbons C5-C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPHFID02	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1) Determination of extractable compounds in the range of hydrocarbons C5-C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPH-IR	CZ_SOP_D06_02_057 Determination of nonpolar extractive substances by infrared spectrometry in drinking, surface and ground water (based on CSN 75 7505)
W-VOCGMS01	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260) Determination of volatile organic compound by gas chromatography method with MS detection

Issue Date : 27-MAR-2013
Page : 6 of 6
Work Order : PR1310902
Client : IDAD - Instituto do Ambiente e Desenvolvimento



Analytical Methods	Method Descriptions
W-VOCGMS05	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260) Determination of volatile organic compound by gas chromatography method with MS detection

A "*" symbol preceding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.

CERTIFICATE OF ANALYSIS

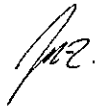
Work Order	: PR1319320	Issue Date	: 15-MAY-2013
Client	: IDAD - Instituto do Ambiente e Desenvolvimento	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Mrs. Alexandra Passos Silva	Contact	: Client Service
Address	: Campus Universitario Aveiro Portugal 3810-193	Address	: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00
E-mail	: a.passosilva@ua.pt	E-mail	: customer.support@alsglobal.com
Telephone	: +351 2344 00800	Telephone	: +420 226 226 228
Facsimile	: ---	Facsimile	: +420 284 081 635
Project	: IMA 12 02 13	Page	: 1 of 2
Order number	: ---	Date Samples Received	: 09-MAY-2013
C-O-C number	: ---	Quote number	: PR2013IDAIN-PT0012 (PT-300-13-0029)
Site	: ---	Date of test	: 09-MAY-2013 - 15-MAY-2013
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.

Responsible for accuracy

Signatories
Zdenek Jirak



Position
Prague Laboratory Manager

Testing Laboratory
Accredited by CAI



L 1163



Analytical Results

Sub-Matrix: GROUNDWATER		Client sample ID		290.13-12/02.13	---	---
		Laboratory sample ID		PR1319320001	---	---
		Client sampling date / time		14-MAR-2013 00:00	---	---
Parameter	Method	LOR	Unit	Result	MU	
Nonmetallic Inorganic Parameters						
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	5.0	mg/L	10.0	±20.0 %	---

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.
 Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
W-COD-SPC	CZ_SOP_D06_02_076 Determination of chemical oxygen demand using dichromate (COD-Cr) by photometry or titration (based on CSN ISO 6060, CSN ISO 15705) / CZ_SOP_D06_07_040 Determination of chemical oxygen demand using dichromate (COD-Cr) (based on CSN ISO 6060).

A ** symbol preceding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.

CERTIFICATE OF ANALYSIS

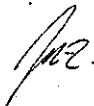
Work Order : PR1317187 Client : IDAD - Instituto do Ambiente e Desenvolvimento Contact : Mrs. Alexandra Passos Silva Address : Campus Universitario Aveiro Portugal 3810-193 E-mail : a.passossilva@ua.pt Telephone : +351 2344 00800 Facsimile : --- Project : IMA 12 02 13 Order number : --- C-O-C number : --- Site : --- Sampled by : Cleint	Issue Date : 30-APR-2013 Laboratory : ALS Czech Republic, s.r.o. Contact : Client Service Address : Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00 E-mail : customer.support@alsglobal.com Telephone : +420 226 226 228 Facsimile : +420 284 081 635 Page : 1 of 6 Date Samples : 25-APR-2013 Received : Quote number : PR2013IDAIN-PT0012 (PT-300-13-0029) Date of test : 25-APR-2013 - 30-APR-2013 QC Level : ALS CR Standard Quality Control Schedule
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General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
 The laboratory declares that the test results relate only to the listed samples.
 Sample(s) PR1317187/002, method WANI-ENV (nitrites) - particular sample(s) required dilution due to the presence of high level contaminants. LOR values have been adjusted accordingly.
 Sample(s) PR1317187/001-003, method W-ANI-ENV was/were filtered prior to analysis (filter porosity 0.45 µm).

Responsible for accuracy

Signatories
Zdenek Jirak



Position
Prague Laboratory Manager

Testing Laboratory
Accredited by CAI



L 1163



Analytical Results

Sub-Matrix: GROUNDWATER				Client sample ID		419.13-13/02.13		420.13-13/02.13		421.13-13/02.13	
				Laboratory sample ID		PR1317187001		PR1317187002		PR1317187003	
				Client sampling date / time		22-APR-2013 00:00		22-APR-2013 00:00		22-APR-2013 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Nonmetallic Inorganic Parameters											
Ammonia and ammonium ions	W-NH4-SPC	0.050	mg/L	0.052	±20.0 %	<0.050	---	0.598	±20.0 %		
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	5.0	mg/L	10.0	±20.0 %	<5.0	---	10.0	±20.0 %		
Ammonia as N	W-NH4-SPC	0.040	mg/L	0.040	±20.0 %	<0.040	---	0.464	±20.0 %		
Chloride	W-ANI-ENV	0.500	mg/L	20.7	±15.0 %	22.9	±15.0 %	34.6	±15.0 %		
Nitrates	W-ANI-ENV	0.040	mg/L	0.807	±15.0 %	20.0	±15.0 %	1.73	±15.0 %		
Nitrites	W-ANI-ENV	0.040	mg/L	<0.040	---	<0.080	---	0.072	±25.0 %		
Sulphate as SO4 2-	W-ANI-ENV	0.500	mg/L	7.24	±15.0 %	34.8	±15.0 %	26.2	±15.0 %		
Dissolved Metals / Major Cations											
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	---	<0.0050	---	0.0055	±10.0 %		
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	---	<0.00040	---	<0.00040	---		
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	---	<0.0050	---	<0.0050	---		
Mercury	W-HG-AFSFL	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---		

Sub-Matrix: GROUNDWATER				Client sample ID		419.13-13/02.13		420.13-13/02.13		421.13-13/02.13	
				Laboratory sample ID		PR1317187004		PR1317187005		PR1317187006	
				Client sampling date / time		22-APR-2013 00:00		22-APR-2013 00:00		22-APR-2013 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU	Result	MU
Petroleum Hydrocarbons - FTIR											
Total Petroleum Hydrocarbons	W-TPH-IR	0.050	mg/L	<0.050	---	<0.050	---	<0.050	---		
BTEX											
Benzene	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---		
Toluene	W-VOCGMS01	1.00	µg/L	<1.00	---	<1.00	---	<1.00	---		
Ethylbenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
meta- & para-Xylene	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---		
ortho-Xylene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Sum of BTEX	W-VOCGMS01	1.60	µg/L	<1.60	---	<1.60	---	<1.60	---		
Sum of xylenes	W-VOCGMS01	0.30	µg/L	<0.30	---	<0.30	---	<0.30	---		
Sum of TEX	W-VOCGMS01	1.40	µg/L	<1.40	---	<1.40	---	<1.40	---		
Halogenated Volatile Organic Compounds											
Dichlorodifluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Vinyl chloride	W-VOCGMS01	1.00	µg/L	<1.00	---	<1.00	---	<1.00	---		
Chloromethane	W-VOCGMS05	10	µg/L	<10	---	<10	---	<10	---		
trans-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Bromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Dichloromethane	W-VOCGMS01	6.0	µg/L	<6.0	---	<6.0	---	<6.0	---		
1,1-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Chloroethane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
cis-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Trichlorofluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
1,1-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Bromochloromethane	W-VOCGMS05	2.0	µg/L	<2.0	---	<2.0	---	<2.0	---		
2,2-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Chloroform	W-VOCGMS01	0.30	µg/L	<0.30	---	<0.30	---	<0.30	---		
1,1-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
1,2-Dichloroethane	W-VOCGMS01	1.00	µg/L	<1.00	---	<1.00	---	<1.00	---		
1,1,1-Trichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Dibromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
cis-1,3-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		



Sub-Matrix: GROUNDWATER				Client sample ID		419.13-13/02.13		420.13-13/02.13		421.13-13/02.13	
				Laboratory sample ID		PR1317187004		PR1317187005		PR1317187006	
				Client sampling date / time		22-APR-2013 00:00		22-APR-2013 00:00		22-APR-2013 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU		
Halogenated Volatile Organic Compounds - Continued											
Tetrachloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Bromodichloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
trans-1,3-Dichloropropene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
1,3-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Trichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
1,1,2-Trichloroethane	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---		
1,2-Dibromoethane (EDB)	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
1,2,3-Trichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Dibromochloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Bromobenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Tetrachloroethene	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---		
1,1,1,2-Tetrachloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
2-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Chlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
4-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Bromoform	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---		
1,1,1,2,2-Tetrachloroethane	W-VOCGMS01	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
1,2-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
1,2-Dibromo-3-chloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
1,4-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
1,3-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
1,2,4-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Hexachlorobutadiene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
1,2,3-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
1,3,5-Trichlorobenzene	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---		
1,2-Dichloropropane	W-VOCGMS01	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Sum of 4 Trihalomethanes	W-VOCGMS01	0.70	µg/L	<0.70	---	<0.70	---	<0.70	---		
Sum of 3 Dichlorobenzenes	W-VOCGMS01	0.30	µg/L	<0.30	---	<0.30	---	<0.30	---		
Sum of 3 Trichlorobenzenes	W-VOCGMS01	0.40	µg/L	<0.40	---	<0.40	---	<0.40	---		
Non-Halogenated Volatile Organic Compounds											
Isopropylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
n-Propylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
1,2,4-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
p-Isopropyltoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
1,3,5-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Styrene	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---		
sec-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
tert-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
n-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Methyl tert-Butyl Ether (MTBE)	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---		
tert-Butyl alcohol	W-VOCGMS01	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---		
Sum of BTEXS	W-VOCGMS01	1.80	µg/L	<1.80	---	<1.80	---	<1.80	---		
Aromatic Compounds											
1-Ethyl-2-methylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---		
1-Ethyl-3-methylbenzene@1-Ethyl-4-methylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
1,3,5-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---		
1,2,4-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---		
1,2,3-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---		
1,2@1,4-Diethylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
1,3-Diethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---		
1,2,4,5-Tetramethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---		



Sub-Matrix: GROUNDWATER

Client sample ID
Laboratory sample ID
Client sampling date / time

419.13-13/02.13	420.13-13/02.13	421.13-13/02.13
PR1317187004	PR1317187005	PR1317187006
22-APR-2013 00:00	22-APR-2013 00:00	22-APR-2013 00:00

Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Aromatic Compounds - Continued									
2-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
1-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
Biphenyl	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
2@1-Ethyl-naphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,8-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
2-Methylanthracene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
1-Methylanthracene@1-Methylphenanthrene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
2-Methylphenanthrene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
Isopropylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
1,2-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
n-Propylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
2,6@2,7-Dimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,7@1,3@1,6-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	<0.15	---	<0.15	---
1,4@2,3@1,5-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	<0.15	---	<0.15	---
1,3,7-Trimethylnaphthalene	W-SPIGMS04	0.05	µg/L	<0.05	---	<0.05	---	<0.05	---
1,4,6@2,3,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
2,3,5@1,2,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,2,4@2,4,5@1,2,5-Trimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	<0.15	---	<0.15	---
1,2,3@1,4,5-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,4,6,7-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
1,2,5,6-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
Methylpyrenes@Methylfluoranthenes	W-SPIGMS04	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Methylchrysenes@Methylbenz(a)anthracenes	W-SPIGMS04	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Sum of Aromatics C16-C35	W-SPIGMS04	2.0	µg/L	<2.0	---	<2.0	---	<2.0	---
Polycyclic Aromatic Hydrocarbons (PAHs)									
Naphthalene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Acenaphthylene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Acenaphthene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Fluorene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Phenanthrene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Benz(a)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Chrysene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Benzo(b)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Benzo(k)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Benzo(a)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Indeno(1,2,3,cd)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Benzo(g,h,i)perylene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Dibenz(a,h)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
PCBs									
PCB 28	W-PCBECD01	0.00110	µg/L	<0.00110	---	<0.00110	---	<0.00110	---
PCB 52	W-PCBECD01	0.00110	µg/L	<0.00110	---	<0.00110	---	<0.00110	---



Sub-Matrix: GROUNDWATER				Client sample ID	419.13-13/02.13	420.13-13/02.13	421.13-13/02.13		
				Laboratory sample ID	PR1317187004	PR1317187005	PR1317187006		
				Client sampling date / time	22-APR-2013 00:00	22-APR-2013 00:00	22-APR-2013 00:00		
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
PCBs - Continued									
PCB 101	W-PCBECD01	0.000750	µg/L	<0.000750	---	<0.000750	---	<0.000750	---
PCB 118	W-PCBECD01	0.00110	µg/L	<0.00110	---	<0.00110	---	<0.00110	---
PCB 138	W-PCBECD01	0.00120	µg/L	<0.00120	---	<0.00120	---	<0.00120	---
PCB 153	W-PCBECD01	0.00110	µg/L	<0.00110	---	<0.00110	---	<0.00110	---
PCB 180	W-PCBECD01	0.000950	µg/L	<0.000950	---	<0.000950	---	<0.000950	---
Sum of 6 PCBs	W-PCBECD01	0.00620	µg/L	<0.00620	---	<0.00620	---	<0.00620	---
Sum of 7 PCBs	W-PCBECD01	0.00730	µg/L	<0.00730	---	<0.00730	---	<0.00730	---
Petroleum Hydrocarbons									
Allphates C10-C12	W-SPIGMS04	10	µg/L	<10	---	<10	---	<10	---
Allphates C12-C16	W-SPIGMS04	10	µg/L	<10	---	<10	---	<10	---
Allphates C16-C35	W-SPIGMS04	10	µg/L	<10	---	<10	---	<10	---
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---
C10 - C16 Fraction	W-TPHFID02	10	µg/L	<10	---	<10	---	<10	---
C10 - C40 Fraction	W-TPHFID01	50	µg/L	<50	---	<50	---	<50	---
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---
C16 - C22 Fraction	W-TPHFID02	10	µg/L	<10	---	<10	---	<10	---
C16 - C35 Fraction	W-TPHFID01	30	µg/L	<30	---	<30	---	<30	---
C22 - C30 Fraction	W-TPHFID02	15	µg/L	<15	---	<15	---	<15	---
C30 - C40 Fraction	W-TPHFID02	15	µg/L	<15	---	<15	---	<15	---
C35 - C40 Fraction	W-TPHFID01	10	µg/L	<10	---	<10	---	<10	---
Sum of Allphates C10-C35	W-SPIGMS04	30	µg/L	<30	---	<30	---	<30	---
Sum of Aromatics C10-C16	W-SPIGMS04	1.55	µg/L	<1.55	---	<1.55	---	<1.55	---
Sum of Aromatics C8-C10	W-SPIGMS04	0.60	µg/L	<0.60	---	<0.60	---	<0.60	---

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
<i>Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00</i>	
W-ANI-ENV	CZ_SOP_D06_02_068 Determination of dissolved fluoride, chloride, bromide, nitrite, nitrate and sulphate ions in water matrix by liquid chromatography of ions (based on CSN EN ISO 10304-1).
W-COD-SPC	CZ_SOP_D06_02_076 Determination of chemical oxygen demand using dichromate (COD-Cr) by photometry or titration (based on CSN ISO 6060, CSN ISO 15705) / CZ_SOP_D06_07_040 Determination of chemical oxygen demand using dichromate (COD-Cr) (based on CSN ISO 6060).
W-HG-AFSFL	CZ_SOP_D06_02_096 (US EPA 245.7, US EPA 1631, CSN EN ISO 17852, CSN EN 13370 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2.) Determination of Mercury by Fluorescence Spectrometry. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-METAXFL1	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, EN 12506, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma: Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cr(VI), Cu, Fe, Hg, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Se, Si, Sn, Sr, Te, Ti, Tl, V, Zn, Zr. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-NH4-SPC	CZ_SOP_D06_02_019 (CSN ISO 11732, CSN ISO 13395, M. Horakova: Analytika vody, Praha 2000) Determination of ammonium ions, nitrite nitrogen and total oxidized nitrogen by discrete spectrophotometry and calculation of nitrates and nitrogen - organic, inorganic and total.
W-PCBECD01	CZ_SOP_D06_03_166 (DIN 38407, part 2, US EPA 8082, samples preparation according to CZ_SOP_D06_03_P01 chap. 9.1, CZ_SOP_D06_03_P02 chap. 9.1) Determination of polychlorinated biphenyls - congener analyses by gas chromatography method with ECD detection

Issue Date : 30-APR-2013
Page : 6 of 6
Work Order : PR1317187
Client : IDAD - Instituto do Ambiente e Desenvolvimento



Analytical Methods	Method Descriptions
W-SPIGMS04	CZ_SOP_D06_03_157 except chap. 9.3 (SPIMFAB) Determination of organic contaminants by gas chromatography method with MS detection (SPIMFAB)
W-TPHFID01	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1) Determination of extractable compounds in the range of hydrocarbons C5-C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPHFID02	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1) Determination of extractable compounds in the range of hydrocarbons C5-C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPH-IR	CZ_SOP_D06_02_057 Determination of nonpolar extractive substances by infrared spectrometry in drinking, surface and ground water (based on CSN 75 7505)
W-VOCGMS01	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260) Determination of volatile organic compound by gas chromatography method with MS detection
W-VOCGMS05	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260) Determination of volatile organic compound by gas chromatography method with MS detection

A ** symbol preceding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.

CERTIFICATE OF ANALYSIS

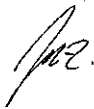
Work Order	: PR1348288	Issue Date	: 29-OCT-2013
Client	: IDAD - Instituto do Ambiente e Desenvolvimento	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Mrs. Alexandra Passos Silva	Contact	: Client Service
Address	: Campus Universitario Aveiro Portugal 3810-193	Address	: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00
E-mail	: a.passosilva@ua.pt	E-mail	: customer.support@alsglobal.com
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Project	: IMA 12 02 13	Page	: 1 of 6
Order number	: ---	Date Samples Received	: 15-OCT-2013
C-O-C number	: ---	Quote number	: PR2013IDAIN-PT0012 (PT-300-13-0029)
Site	: ---	Date of test	: 15-OCT-2013 - 25-OCT-2013
Sampled by	: client	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.
Sample(s) PR1348288/001-003, method was/were filtered prior to analysis.

Responsible for accuracy

Signatories
Zdenek Jirak



Position
Environmental Business Unit
Manager

Testing Laboratory
Accredited by CAI



L 1163



Analytical Results

Parameter	Method	LOR	Unit	Client sample ID		874.13-13/02.13		875.13-12/02.13		876.13-12/02.13	
				Laboratory sample ID		PR1348288001		PR1348288002		PR1348288003	
				Client sampling date / time		10-SEP-2013 00:00		10-SEP-2013 00:00		10-SEP-2013 00:00	
				Result	MU	Result	MU	Result	MU		
Nonmetallic Inorganic Parameters											
Ammonia and ammonium ions	W-NH4-SPC	0.050	mg/L	<0.050	---	<0.050	---	3.21	±20.0 %		
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	5.0	mg/L	<5.0	---	<5.0	---	<5.0	---		
Ammonia as N	W-NH4-SPC	0.040	mg/L	<0.040	---	<0.040	---	2.49	±20.0 %		
Chloride	W-ANI-ENV	0.500	mg/L	14.2	±15.0 %	36.2	±15.0 %	94.3	±15.0 %		
Nitrates	W-ANI-ENV	0.040	mg/L	3.87	±15.0 %	39.6	±15.0 %	0.054	±15.0 %		
Nitrites	W-ANI-ENV	0.040	mg/L	<0.040	---	<0.040	---	<0.040	---		
Sulphate as SO4 2-	W-ANI-ENV	0.500	mg/L	24.1	±15.0 %	77.4	±15.0 %	5.07	±15.0 %		
Dissolved Metals / Major Cations											
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	---	<0.0050	---	<0.0050	---		
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	---	<0.00040	---	<0.00040	---		
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	---	<0.0050	---	<0.0050	---		
Mercury	W-HG-AFSFL	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---		
Petroleum Hydrocarbons - FTIR											
Total Petroleum Hydrocarbons	W-TPH-IR	0.050	mg/L	<0.050	---	<0.050	---	<0.050	---		
BTEX											
Benzene	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---		
Toluene	W-VOCGMS01	1.00	µg/L	<1.00	---	<1.00	---	<1.00	---		
Ethylbenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
meta- & para-Xylene	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---		
ortho-Xylene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Sum of BTEX	W-VOCGMS01	1.60	µg/L	<1.60	---	<1.60	---	<1.60	---		
Sum of xylenes	W-VOCGMS01	0.30	µg/L	<0.30	---	<0.30	---	<0.30	---		
Sum of TEX	W-VOCGMS01	1.40	µg/L	<1.40	---	<1.40	---	<1.40	---		
Halogenated Volatile Organic Compounds											
Dichlorodifluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Vinyl chloride	W-VOCGMS01	1.00	µg/L	<1.00	---	<1.00	---	<1.00	---		
Chloromethane	W-VOCGMS05	10	µg/L	<10	---	<10	---	<10	---		
trans-1,2-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Bromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Dichloromethane	W-VOCGMS01	6.0	µg/L	<6.0	---	<6.0	---	<6.0	---		
1,1-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Chloroethane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
cis-1,2-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Trichlorofluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
1,1-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Bromochloromethane	W-VOCGMS05	2.0	µg/L	<2.0	---	<2.0	---	<2.0	---		
2,2-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Chloroform	W-VOCGMS01	0.30	µg/L	<0.30	---	<0.30	---	<0.30	---		
1,1-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
1,2-Dichloroethane	W-VOCGMS01	1.00	µg/L	<1.00	---	<1.00	---	<1.00	---		
1,1,1-Trichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Dibromomethane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
cis-1,3-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Tetrachloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
Bromodichloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
trans-1,3-Dichloropropene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
1,3-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		
Trichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---		
1,1,2-Trichloroethane	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---		
1,2-Dibromoethane (EDB)	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---		



Sub-Matrix: GROUNDWATER

Client sample ID	874.13-13/02.13	875.13-12/02.13	876.13-12/02.13
Laboratory sample ID	PR1348288001	PR1348288002	PR1348288003
Client sampling date / time	10-SEP-2013 00:00	10-SEP-2013 00:00	10-SEP-2013 00:00

Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Halogenated Volatile Organic Compounds - Continued									
1,2,3-Trichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Dibromochloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
Bromobenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Tetrachloroethene	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---
1,1,1,2-Tetrachloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
2-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Chlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
4-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Bromoform	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---
1,1,2,2-Tetrachloroethane	W-VOCGMS01	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
1,2-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,2-Dibromo-3-chloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
1,4-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,3-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,2,4-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
Hexachlorobutadiene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
1,2,3-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,3,5-Trichlorobenzene	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---
1,2-Dichloropropane	W-VOCGMS01	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Sum of 4 Trihalomethanes	W-VOCGMS01	0.70	µg/L	<0.70	---	<0.70	---	<0.70	---
Sum of 3 Dichlorobenzenes	W-VOCGMS01	0.30	µg/L	<0.30	---	<0.30	---	<0.30	---
Sum of 3 Trichlorobenzenes	W-VOCGMS01	0.40	µg/L	<0.40	---	<0.40	---	<0.40	---
Non-Halogenated Volatile Organic Compounds									
Isopropylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
n-Propylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
1,2,4-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
p-Isopropyltoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
1,3,5-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Styrene	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---
sec-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
tert-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
n-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Methyl tert-Butyl Ether (MTBE)	W-VOCGMS01	0.20	µg/L	<0.20	---	<0.20	---	<0.20	---
tert-Butyl alcohol	W-VOCGMS01	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---
Sum of BTEXS	W-VOCGMS01	1.80	µg/L	<1.80	---	<1.80	---	<1.80	---
Aromatic Compounds									
1-Ethyl-2-methylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
1-Ethyl-3-methylbenzene@1-Ethyl-4-methylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,3,5-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
1,2,4-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
1,2,3-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
1,2@1,4-Diethylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,3-Diethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
1,2,4,5-Tetramethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
2-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
1-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
Biphenyl	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
2@1-Ethyl-naphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,8-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
2-Methylantracene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---



Sub-Matrix: GROUNDWATER

Client sample ID	874.13-13/02.13	875.13-12/02.13	876.13-12/02.13
Laboratory sample ID	PR1348288001	PR1348288002	PR1348288003
Client sampling date / time	10-SEP-2013 00:00	10-SEP-2013 00:00	10-SEP-2013 00:00

Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Aromatic Compounds - Continued									
1-Methylanthracene@1-Methylphenanthrene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
2-Methylphenanthrene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
Isopropylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
1,2-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
n-Propylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
2,6@2,7-Dimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,7@1,3@1,6-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	<0.15	---	<0.15	---
1,4@2,3@1,5-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	<0.15	---	<0.15	---
1,3,7-Trimethylnaphthalene	W-SPIGMS04	0.05	µg/L	<0.05	---	<0.05	---	<0.05	---
1,4,6@2,3,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
2,3,5@1,2,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,2,4@2,4,5@1,2,5-Trimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	<0.15	---	<0.15	---
1,2,3@1,4,5-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	<0.10	---	<0.10	---
1,4,6,7-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
1,2,5,6-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	<0.050	---	<0.050	---
Methylpyrenes@Methylfluoranthenes	W-SPIGMS04	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Methylchrysenes@Methylbenz(a)anthracenes	W-SPIGMS04	1.0	µg/L	<1.0	---	<1.0	---	<1.0	---
Sum of Aromatics C16-C35	W-SPIGMS04	2.0	µg/L	<2.0	---	<2.0	---	<2.0	---
Polycyclic Aromatics Hydrocarbons (PAHs)									
Naphthalene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Acenaphthylene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Acenaphthene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Fluorene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Phenanthrene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Benz(a)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Chrysene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Benzo(b)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Benzo(k)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Benzo(a)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Indeno(1,2,3,cd)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Benzo(g,h,i)perylene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
Dibenz(a,h)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	<0.010	---	<0.010	---
PCBs									
PCB 28	W-PCBECD01	0.00110	µg/L	<0.00110	---	<0.00110	---	<0.00110	---
PCB 52	W-PCBECD01	0.00110	µg/L	<0.00110	---	<0.00110	---	<0.00110	---
PCB 101	W-PCBECD01	0.000750	µg/L	<0.000750	---	<0.000750	---	<0.000750	---
PCB 118	W-PCBECD01	0.00110	µg/L	<0.00110	---	<0.00110	---	<0.00110	---
PCB 138	W-PCBECD01	0.00120	µg/L	<0.00120	---	<0.00120	---	<0.00120	---
PCB 153	W-PCBECD01	0.00110	µg/L	<0.00110	---	<0.00110	---	<0.00110	---
PCB 180	W-PCBECD01	0.000950	µg/L	<0.000950	---	<0.000950	---	<0.000950	---
Sum of 6 PCBs	W-PCBECD01	0.00620	µg/L	<0.00620	---	<0.00620	---	<0.00620	---



Sub-Matrix: GROUNDWATER				Client sample ID		874.13-13/02.13		875.13-12/02.13		876.13-12/02.13	
				Laboratory sample ID		PR1348288001		PR1348288002		PR1348288003	
				Client sampling date / time		10-SEP-2013 00:00		10-SEP-2013 00:00		10-SEP-2013 00:00	
Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU		
PCBs - Continued											
Sum of 7 PCBs	W-PCBECD01	0.00730	µg/L	<0.00730	---	<0.00730	---	<0.00730	---		
Petroleum Hydrocarbons											
Alliphates C10-C12	W-SPIGMS04	10	µg/L	<10	---	<10	---	<10	---		
Alliphates C12-C16	W-SPIGMS04	10	µg/L	<10	---	<10	---	<10	---		
Alliphates C16-C35	W-SPIGMS04	10	µg/L	<10	---	<10	---	<10	---		
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---		
C10 - C16 Fraction	W-TPHFID02	10	µg/L	<10	---	<10	---	<10	---		
C10 - C40 Fraction	W-TPHFID01	50	µg/L	<50	---	<50	---	<50	---		
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	<5.0	---	<5.0	---		
C16 - C22 Fraction	W-TPHFID02	10	µg/L	<10	---	<10	---	<10	---		
C16 - C35 Fraction	W-TPHFID01	30	µg/L	<30	---	<30	---	<30	---		
C22 - C30 Fraction	W-TPHFID02	15	µg/L	<15	---	<15	---	<15	---		
C30 - C40 Fraction	W-TPHFID02	15	µg/L	<15	---	<15	---	17	±30.0 %		
C35 - C40 Fraction	W-TPHFID01	10	µg/L	<10	---	<10	---	<10	---		
Sum of Alliphates C10-C35	W-SPIGMS04	30	µg/L	<30	---	<30	---	<30	---		
Sum of Aromatics C10-C16	W-SPIGMS04	1.55	µg/L	<1.55	---	<1.55	---	<1.55	---		
Sum of Aromatics C8-C10	W-SPIGMS04	0.60	µg/L	<0.60	---	<0.60	---	<0.60	---		

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00	
W-ANI-ENV	CZ_SOP_D06_02_068 (CSN ISO 10304-1, CSN EN 12506) Determination of dissolved fluoride, chloride, nitrite, bromide, nitrate and sulphate by ion liquid chromatography and determination of nitrite nitrogen and nitrate nitrogen by calculation from measured values.
W-COD-SPC	CZ_SOP_D06_02_076 Determination of chemical oxygen demand using dichromate (COD-Cr) by photometry (based on CSN ISO 15705) / CZ_SOP_D06_02_076A / CZ_SOP_D06_07_040 Determination of chemical oxygen demand using dichromate (COD-Cr) by titration (based on CSN ISO 6060 and CSN ISO 15705).
W-HG-AFSFL	CZ_SOP_D06_02_096 (US EPA 245.7, US EPA 1631, CSN EN ISO 17852, CSN EN 13370 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2.) Determination of Mercury by Fluorescence Spectrometry. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-METAXFL1	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, EN 12506, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-NH4-SPC	CZ_SOP_D06_02_019 (CSN EN ISO 11732, CSN EN ISO 13395, CSN EN 13370, CSN EN 12506) Determination of ammonium, nitrite and the sum of nitrite and nitrate ions by discrete spectrophotometry and determination of nitrite, nitrate, ammonia, inorganic, organic, total nitrogen and free ammonia by calculation from measured values.
W-PCBECD01	CZ_SOP_D06_03_166 (DIN 38407, part 2, US EPA 8082, samples preparation according to CZ_SOP_D06_03_P01 chap. 9.1, CZ_SOP_D06_03_P02 chap. 9.1) Determination of polychlorinated biphenyls - congener analyses by gas chromatography method with ECD detection and calculation of polychlorinated biphenyls sums from measured values
W-SPIGMS04	CZ_SOP_D06_03_157 except chap. 9.3 (SPIMFAB) Determination of organic contaminants by gas chromatography method with MS detection (SPIMFAB) and calculation of organic contaminants sums from measured values
W-TPHFID01	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1, TNRCC Method 1006) Determination of extractable compounds in the range of hydrocarbons C5 - C50, their fractions calculated from the measured values by gas chromatography method with FID detection



Analytical Methods	Method Descriptions
W-TPHFID02	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1, TNRCC Method 1006) Determination of extractable compounds in the range of hydrocarbons C5 - C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPH-IR	CZ_SOP_D06_02_057 Determination of nonpolar extractives by infrared spectrometry (based on CSN 75.7505:2006, CSN 830540-4)
W-VOCGMS01	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260, EN ISO 10301, MADEP 2004, rev. 1.1) Determination of volatile organic compounds by gas chromatography method with FID and MS detection and calculation of volatile organic compounds sums from measured values
W-VOCGMS05	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624, US EPA 8260, EN ISO 10301, MADEP 2004, rev. 1.1) Determination of volatile organic compounds by gas chromatography method with FID and MS detection and calculation of volatile organic compounds sums from measured values

A ** symbol preceding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.

CERTIFICATE OF ANALYSIS


Work Order	: PR1349588	Issue Date	: 29-OCT-2013
Client	: IDAD - Instituto do Ambiente e Desenvolvimento	Laboratory	: ALS Czech Republic, s.r.o.
Contact	: Mrs. Alexandra Passos Silva	Contact	: Client Service
Address	: Campus Universitario Aveiro Portugal 3810-193	Address	: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00
E-mail	: a.passosilva@ua.pt	E-mail	: customer.support@alsglobal.com
Telephone	: +351 2344 00800	Telephone	: +420 226 226 228
Facsimile	: ---	Facsimile	: +420 284 081 635
Project	: IMA 12 02 13	Page	: 1 of 6
Order number	: ---	Date Samples	: 22-OCT-2013
C-O-C number	: ---	Received	
Site	: ---	Quote number	: PR2013IDAIN-PT0012 (PT-300-13-0029)
Sampled by	: Client	Date of test	: 22-OCT-2013 - 29-OCT-2013
		QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.
The laboratory declares that the test results relate only to the listed samples.

Responsible for accuracy

Signatories
Zdenek Jirak



Position
Environmental Business Unit
Manager

Testing Laboratory
Accredited by CAI



L 1163



Analytical Results

Sub-Matrix: GROUNDWATER

Client sample ID
Laboratory sample ID
Client sampling date / time

990.13-12/02.13	----	----
PR1349588001	----	----
14-OCT-2013 00:00	----	----

Parameter	Method	LOR	Unit	Result	MU	----	----	----
Nonmetallic Inorganic Parameters								
Ammonia and ammonium ions	W-NH4-SPC	0.050	mg/L	<0.050	—	----	----	----
Chemical Oxygen Demand (COD-Cr)	W-COD-SPC	5.0	mg/L	7.0	±22.1%	----	----	----
Ammonia as N	W-NH4-SPC	0.040	mg/L	<0.040	—	----	----	----
Chloride	W-ANI-ENV	0.500	mg/L	7.41	±15.0%	----	----	----
Nitrates	W-ANI-ENV	0.040	mg/L	<0.040	—	----	----	----
Nitrites	W-ANI-ENV	0.040	mg/L	<0.040	—	----	----	----
Sulphate as SO4 2-	W-ANI-ENV	0.500	mg/L	4.19	±15.0%	----	----	----
Dissolved Metals / Major Cations								
Arsenic	W-METAXFL1	0.0050	mg/L	<0.0050	—	----	----	----
Cadmium	W-METAXFL1	0.00040	mg/L	<0.00040	—	----	----	----
Lead	W-METAXFL1	0.0050	mg/L	<0.0050	—	----	----	----
Mercury	W-HG-AFSFL	0.010	µg/L	<0.010	—	----	----	----
Petroleum Hydrocarbons - FTIR								
Total Petroleum Hydrocarbons	W-TPH-IR	0.050	mg/L	<0.050	—	----	----	----
BTEX								
Benzene	W-VOCGMS01	0.20	µg/L	<0.20	—	----	----	----
Toluene	W-VOCGMS01	1.00	µg/L	<1.00	—	----	----	----
Ethylbenzene	W-VOCGMS01	0.10	µg/L	<0.10	—	----	----	----
meta- & para-Xylene	W-VOCGMS01	0.20	µg/L	<0.20	—	----	----	----
ortho-Xylene	W-VOCGMS01	0.10	µg/L	<0.10	—	----	----	----
Sum of BTEX	W-VOCGMS01	1.60	µg/L	<1.60	—	----	----	----
Sum of xylenes	W-VOCGMS01	0.30	µg/L	<0.30	—	----	----	----
Sum of TEX	W-VOCGMS01	1.40	µg/L	<1.40	—	----	----	----
Halogenated Volatile Organic Compounds								
Dichlorodifluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	—	----	----	----
Vinyl chloride	W-VOCGMS01	1.00	µg/L	<1.00	—	----	----	----
Chloromethane	W-VOCGMS05	10	µg/L	<10	—	----	----	----
trans-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	—	----	----	----
Bromomethane	W-VOCGMS05	1.0	µg/L	<1.0	—	----	----	----
Dichloromethane	W-VOCGMS01	6.0	µg/L	<6.0	—	----	----	----
1,1-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	—	----	----	----
Chloroethane	W-VOCGMS05	1.0	µg/L	<1.0	—	----	----	----
cis-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	—	----	----	----
Trichlorofluoromethane	W-VOCGMS05	1.0	µg/L	<1.0	—	----	----	----
1,1-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	—	----	----	----
Bromochloromethane	W-VOCGMS05	2.0	µg/L	<2.0	—	----	----	----
2,2-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	—	----	----	----
Chloroform	W-VOCGMS01	0.30	µg/L	<0.30	—	----	----	----
1,1-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	—	----	----	----
1,2-Dichloroethane	W-VOCGMS01	1.00	µg/L	<1.00	—	----	----	----
1,1,1-Trichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	—	----	----	----
Dibromomethane	W-VOCGMS05	1.0	µg/L	<1.0	—	----	----	----
cis-1,3-Dichloropropylene	W-VOCGMS05	1.0	µg/L	<1.0	—	----	----	----
Tetrachloromethane	W-VOCGMS01	0.10	µg/L	<0.10	—	----	----	----
Bromodichloromethane	W-VOCGMS01	0.10	µg/L	<0.10	—	----	----	----
trans-1,3-Dichloropropene	W-VOCGMS05	1.0	µg/L	<1.0	—	----	----	----
1,3-Dichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	—	----	----	----
Trichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	—	----	----	----
1,1,2-Trichloroethane	W-VOCGMS01	0.20	µg/L	<0.20	—	----	----	----
1,2-Dibromoethane (EDB)	W-VOCGMS05	1.0	µg/L	<1.0	—	----	----	----



Sub-Matrix: GROUNDWATER

Client sample ID
 Laboratory sample ID
 Client sampling date / time

990.13-12/02.13	---	---
PR1349588001	---	---
14-OCT-2013 00:00	---	---

Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Halogenated Volatile Organic Compounds - Continued									
1,2,3-Trichloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Dibromochloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromobenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Tetrachloroethene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1,1,1,2-Tetrachloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
2-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Chlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
4-Chlorotoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Bromoform	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1,1,2,2-Tetrachloroethane	W-VOCGMS01	1.0	µg/L	<1.0	---	---	---	---	---
1,2-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1,2-Dibromo-3-chloropropane	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,4-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1,3-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1,2,4-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Hexachlorobutadiene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,2,3-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1,3,5-Trichlorobenzene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
1,2-Dichloropropane	W-VOCGMS01	1.0	µg/L	<1.0	---	---	---	---	---
Sum of 4 Trihalomethanes	W-VOCGMS01	0.70	µg/L	<0.70	---	---	---	---	---
Sum of 3 Dichlorobenzenes	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
Sum of 3 Trichlorobenzenes	W-VOCGMS01	0.40	µg/L	<0.40	---	---	---	---	---
Non-Halogenated Volatile Organic Compounds									
Isopropylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
n-Propylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,2,4-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
p-Isopropyltoluene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
1,3,5-Trimethylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Styrene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
sec-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
tert-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
n-Butylbenzene	W-VOCGMS05	1.0	µg/L	<1.0	---	---	---	---	---
Methyl tert-Butyl Ether (MTBE)	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
tert-Butyl alcohol	W-VOCGMS01	5.0	µg/L	<5.0	---	---	---	---	---
Sum of BTEXS	W-VOCGMS01	1.80	µg/L	<1.80	---	---	---	---	---
Aromatic Compounds									
1-Ethyl-2-methylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1-Ethyl-3-methylbenzene@1-Ethyl-4-methylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1,3,5-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1,2,4-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1,2,3-Trimethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1,2@1,4-Diethylbenzene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1,3-Diethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1,2,4,5-Tetramethylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1-Methylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
Biphenyl	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2@1-Ethyl-naphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1,8-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2-Methylantracene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---



Sub-Matrix: GROUNDWATER

Client sample ID : 990.13-12/02.13
Laboratory sample ID : PR1349588001
Client sampling date / time : 14-OCT-2013 00:00

Parameter	Method	LOR	Unit	Result	MU	---	---	---	---
Aromatic Compounds - Continued									
1-Methylanthracene@1-Methylphenanthrene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
2-Methylphenanthrene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
Isopropylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1,2-Dimethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
n-Propylbenzene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
2,6@2,7-Dimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1,7@1,3@1,6-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---	---	---
1,4@2,3@1,5-Dimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---	---	---
1,3,7-Trimethylnaphthalene	W-SPIGMS04	0.05	µg/L	<0.05	---	---	---	---	---
1,4,6@2,3,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
2,3,5@1,2,6-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1,2,4@2,4,5@1,2,5-Trimethylnaphthalene	W-SPIGMS04	0.15	µg/L	<0.15	---	---	---	---	---
1,2,3@1,4,5-Trimethylnaphthalene	W-SPIGMS04	0.10	µg/L	<0.10	---	---	---	---	---
1,4,6,7-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
1,2,5,6-Tetramethylnaphthalene	W-SPIGMS04	0.050	µg/L	<0.050	---	---	---	---	---
Methylpyrenes@Methylfluoranthenes	W-SPIGMS04	1.0	µg/L	<1.0	---	---	---	---	---
Methylchrysenes@Methylbenz(a)anthracenes	W-SPIGMS04	1.0	µg/L	<1.0	---	---	---	---	---
Sum of Aromatics C16-C35	W-SPIGMS04	2.0	µg/L	<2.0	---	---	---	---	---
Polycyclic Aromatics Hydrocarbons (PAHs)									
Naphthalene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Acenaphthylene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Acenaphthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Fluorene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Phenanthrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Anthracene	W-SPIGMS04	0.010	µg/L	0.011	±30.0 %	---	---	---	---
Fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(a)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Chrysene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(b)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(k)fluoranthene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(a)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Indeno(1,2,3,cd)pyrene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Benzo(g,h,i)perylene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
Dibenz(a,h)anthracene	W-SPIGMS04	0.010	µg/L	<0.010	---	---	---	---	---
PCBs									
PCB 28	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---	---	---
PCB 52	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---	---	---
PCB 101	W-PCBECD01	0.000750	µg/L	<0.000750	---	---	---	---	---
PCB 118	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---	---	---
PCB 138	W-PCBECD01	0.00120	µg/L	<0.00120	---	---	---	---	---
PCB 153	W-PCBECD01	0.00110	µg/L	<0.00110	---	---	---	---	---
PCB 180	W-PCBECD01	0.000950	µg/L	<0.000950	---	---	---	---	---
Sum of 6 PCBs	W-PCBECD01	0.00620	µg/L	<0.00620	---	---	---	---	---



Sub-Matrix: GROUNDWATER		Client sample ID		990.13-12/02.13	---	---
		Laboratory sample ID		PR1349588001	---	---
		Client sampling date / time		14-OCT-2013 00:00	---	---
Parameter	Method	LOR	Unit	Result	MU	---
PCBs - Continued						
Sum of 7 PCBs	W-PCBECD01	0.00730	µg/L	<0.00730	---	---
Petroleum Hydrocarbons						
Aliphates C10-C12	W-SPIGMS04	10	µg/L	<10	---	---
Aliphates C12-C16	W-SPIGMS04	10	µg/L	<10	---	---
Aliphates C16-C35	W-SPIGMS04	10	µg/L	<10	---	---
C10 - C12 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	---
C10 - C16 Fraction	W-TPHFID02	10	µg/L	<10	---	---
C10 - C40 Fraction	W-TPHFID02	50	µg/L	<50	---	---
C10 - C40 Fraction	W-TPHFID01	50	µg/L	<50	---	---
C12 - C16 Fraction	W-TPHFID01	5.0	µg/L	<5.0	---	---
C16 - C22 Fraction	W-TPHFID02	10	µg/L	<10	---	---
C16 - C35 Fraction	W-TPHFID01	30	µg/L	<30	---	---
C22 - C30 Fraction	W-TPHFID02	15	µg/L	<15	---	---
C30 - C40 Fraction	W-TPHFID02	15	µg/L	<15	---	---
C35 - C40 Fraction	W-TPHFID01	10	µg/L	<10	---	---
Sum of Aliphates C10-C35	W-SPIGMS04	30	µg/L	<30	---	---
Sum of Aromatics C10-C16	W-SPIGMS04	1.55	µg/L	<1.55	---	---
Sum of Aromatics C8-C10	W-SPIGMS04	0.60	µg/L	<0.60	---	---

If the client does not specify the date and time of sample collection, the laboratory will specify the date on sample delivery in parentheses, instead. If the time of sample collection is specified as 0:00 it means that the client did specify the date but not the time. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty

The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
<i>Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00</i>	
W-ANI-ENV	CZ_SOP_D06_02_068 (CSN ISO 10304-1, CSN EN 12506) Determination of dissolved fluoride, chloride, nitrite, bromide, nitrate and sulphate by ion liquid chromatography and determination of nitrite nitrogen and nitrate nitrogen by calculation from measured values.
W-COD-SPC	CZ_SOP_D06_02_076 Determination of chemical oxygen demand using dichromate (COD-Cr) by photometry (based on CSN ISO 15705) / CZ_SOP_D06_02_076A / CZ_SOP_D06_07_040 Determination of chemical oxygen demand using dichromate (COD-Cr) by titration (based on CSN ISO 6060 and CSN ISO 15705).
W-HG-AFSFL	CZ_SOP_D06_02_096 (US EPA 245.7, US EPA 1631, CSN EN ISO 17852, CSN EN 13370 samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2.) Determination of Mercury by Fluorescence Spectrometry. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-METAXFL1	CZ_SOP_D06_02_001 (US EPA 200.7, ISO 11885, EN 12506, samples prepared as per CZ_SOP_D06_02_J02 chap. 10.1 and 10.2) Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values. Sample was filtered by microfilter with porosity 0.45 µm followed by nitric acid addition prior to analysis.
W-NH4-SPC	CZ_SOP_D06_02_019 (CSN EN ISO 11732, CSN EN ISO 13395, CSN EN 13370, CSN EN 12506) Determination of ammonium, nitrite and the sum of nitrite and nitrate ions by discrete spectrophotometry and determination of nitrite, nitrate, ammonia, inorganic, organic, total nitrogen and free ammonia by calculation from measured values.
W-PCBECD01	CZ_SOP_D06_03_166 (DIN 38407, part 2, US EPA 8082, samples preparation according to CZ_SOP_D06_03_P01 chap. 9.1, CZ_SOP_D06_03_P02 chap. 9.1) Determination of polychlorinated biphenyls - congener analyses by gas chromatography method with ECD detection and calculation of polychlorinated biphenyls sums from measured values
W-SPIGMS04	CZ_SOP_D06_03_157 except chap. 9.3 (SPIMFAB) Determination of organic contaminants by gas chromatography method with MS detection (SPIMFAB) and calculation of organic contaminants sums from measured values



Analytical Methods	Method Descriptions
W-TPHFID01	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1, TNRCC Method 1006) Determination of extractable compounds in the range of hydrocarbons C5- C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPHFID02	CZ_SOP_D06_03_151 (CSN EN ISO 9377-2, Z1, TNRCC Method 1006) Determination of extractable compounds in the range of hydrocarbons C5- C50, their fractions calculated from the measured values by gas chromatography method with FID detection
W-TPH-IR	CZ_SOP_D06_02_057 Determination of nonpolar extractives by infrared spectrometry (based on CSN 75 7505:2006, CSN 830540-4)
W-VOCGMS01	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624,US EPA 8260, EN ISO 10301, MADEP 2004, rev. 1.1) Determination of volatile organic compounds by gas chromatography method with FID and MS detection and calculation of volatile organic compounds sums from measured values
W-VOCGMS05	CZ_SOP_D06_03_155 except chap. 9.2 (US EPA 624,US EPA 8260, EN ISO 10301, MADEP 2004, rev. 1.1) Determination of volatile organic compounds by gas chromatography method with FID and MS detection and calculation of volatile organic compounds sums from measured values

A ** symbol preceding any method indicates non-accredited test. In the case when a procedure belonging to an accredited method was used for non-accredited matrix, would apply that the reported results are non-accredited. Please refer to General Comment section on front page for information.

The calculation methods of summation parameters are available on request in the client service.