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Preliminary Report Number : 19-42098

Project / Site name:	Bellow ASP GI	Samples received on:	21/05/2019
Your job number:	CN2226	Samples instructed on:	21/05/2019
Your order number:	32405-2226	Analysis completed by:	Not complete
Report Issue Number:	0	Report issued on:	22/05/2019
Samples Analysed:	1 water sample		

Signed: 

Rexona Rahman
Head of Customer Services
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Preliminary reports provided at the request of the client should be considered as incomplete and have not been through the complete quality control procedure.

Results contained in preliminary reports may be subject to change and therefore should not be used as a basis for decision making, except at the risk of the client.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 19-42098

Project / Site name: Bellow ASP GI

Your Order No: 32405-2226

Lab Sample Number				1226329				
Sample Reference				Pump				
Sample Number				None Supplied				
Depth (m)				None Supplied				
Date Sampled				20/05/2019				
Time Taken				0945				
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	8.7				
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	600				
Total Cyanide	µg/l	10	ISO 17025	< 10				
Complex Cyanide	µg/l	10	ISO 17025	< 10				
Free Cyanide	µg/l	10	ISO 17025	< 10				
Thiocyanate as SCN	µg/l	200	ISO 17025	< 200				
Sulphate as SO ₄	µg/l	45	ISO 17025	71000				
Sulphate as SO ₄	mg/l	0.045	ISO 17025	71.0				
Elemental Sulphur	mg/l	0.02	NONE	< 0.02				
Sulphide	µg/l	5	NONE	< 5.0				
Chloride	mg/l	0.15	ISO 17025	87				
Ammonium as NH ₄	µg/l	15	ISO 17025	75				
Total Organic Carbon (TOC)	mg/l	0.1	ISO 17025	2.24				
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	11				
BOD (Biochemical Oxygen Demand) (Total) - PL	mg/l	1	ISO 17025	To follow				
Total Suspended Solids	mg/l	2	ISO 17025	15				
Settleable Solids - Total (1 hour)	mg/l	2	NONE	5.0				
Dissolved Oxygen	mg/l	1	NONE	13				

Phenols by GC-MS

Phenol	µg/l	0.05	NONE	< 0.05				
2,4,5-Trichlorophenol	µg/l	0.05	NONE	< 0.05				
2,4,6-Trichlorophenol	µg/l	0.05	NONE	< 0.05				
2,4-Dichlorophenol	µg/l	0.05	NONE	< 0.05				
2,4-Dimethylphenol	µg/l	0.05	NONE	< 0.05				
2-Chlorophenol	µg/l	0.05	NONE	< 0.05				
2-Methylphenol	µg/l	0.05	NONE	< 0.05				
2-Nitrophenol	µg/l	0.05	NONE	< 0.05				
4-Chloro-3-methylphenol	µg/l	0.05	NONE	< 0.05				
4-Methylphenol	µg/l	0.05	NONE	< 0.05				

Total Phenols

Total Phenols (GC-MS)	µg/l	0.5	NONE	< 0.5				
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Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status				

Speciated PAHs

Compound	Units	Limit of detection	Accreditation Status	Result			
Naphthalene	µg/l	0.01	ISO 17025	< 0.01			
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01			
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01			
Fluorene	µg/l	0.01	ISO 17025	< 0.01			
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01			
Anthracene	µg/l	0.01	ISO 17025	< 0.01			
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01			
Pyrene	µg/l	0.01	ISO 17025	< 0.01			
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01			
Chrysene	µg/l	0.01	ISO 17025	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01			
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01			

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16			
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Heavy Metals / Metalloids

Compound	Units	Limit of detection	Accreditation Status	Result			
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.76			
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.05			
Chromium (dissolved)	µg/l	0.2	ISO 17025	3.2			
Copper (dissolved)	µg/l	0.5	ISO 17025	1.6			
Iron (dissolved)	mg/l	0.004	ISO 17025	0.007			
Lead (dissolved)	µg/l	0.2	ISO 17025	0.2			
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05			
Nickel (dissolved)	µg/l	0.5	ISO 17025	< 0.5			
Selenium (dissolved)	µg/l	0.6	ISO 17025	1.4			
Zinc (dissolved)	µg/l	0.5	ISO 17025	11			

Petroleum Hydrocarbons

Diesel Range Organics (C10 - C25)	µg/l	10	NONE	< 10			
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U/S = Unsuitable Sample I/S = Insufficient Sample



Preliminary Report Number : 19-42098

Project / Site name: Bellow ASP GI

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Biological oxygen demand (total) of water	Determination of biochemical oxygen demand in water (5 days). Accredited matrices: SW, PW, GW.	In-house method based on standard method 5210B.	L086-PL	W	ISO 17025
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Complex cyanide in water	Determination of complex cyanide by calculation. Accredited matrices SW, PW, GW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Dissolved Oxygen in water	Determination of dissolved oxygen.	In-house method	L086-PL	W	NONE
DRO (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	W	NONE
Electrical conductivity at 20°C of water	Determination of electrical conductivity in water by electrometric measurement. Accredited Matrices SW, GW, PW	In-house method	L031-PL	W	ISO 17025
Elemental sulphur in water	Determination of elemental sulphur in water by extraction in dichloromethane followed by HPLC.	In-house method based on Secondsite Property Holdings Guidance for Assessing and Managing Potential	L021-PL	W	NONE
Free cyanide in water	Determination of free cyanide by distillation followed by colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW, GW, Hg=SW, PW, Al=SW, PW.	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW. (Al, Cu, Fe, Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
pH at 20°C in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
Phenols, speciated, in water, by GCMS	Determination of speciated phenols in water by extraction in hexane followed by GC-MS.	In-house method based on USEPA 8270	L070-PL	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphide in water	Determination of sulphide in water by ion selective electrode.	In-house method	L029-PL	W	NONE

Iss No 19-42098-0 Bellow ASP GI CN2226

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The results included within the report are representative of the samples submitted for analysis.



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Project / Site name: Bellow ASP GI

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Thiocyanate in water	Determination of thiocyanate in water by discrete analyser (colorimetry). Accredited matrices SW, GW, PW.	In house method based on SMWW 4500-CN-M. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total organic carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR analyser. Accredited matrices: SW PW GW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
Total Settleable Solids in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Sample Deviation Report



Sample ID	Other ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
Pump		W	19-42098	1226329	c			