

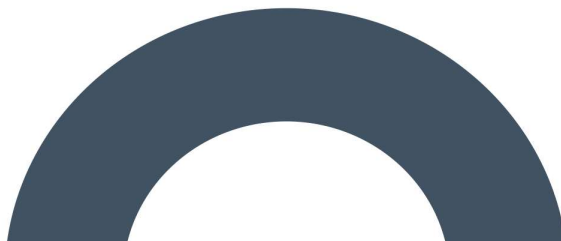
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Appendix 9-2

Carrig Renewables Wind Farm

Surface Water Quality Laboratory Reports

Tipperary Planning Authority - Inspection Purposes Only!





ALS Life Sciences Ltd trading as ALS
Carrigeen Business Park, Clonmel, Co. Tipperary
Telephone: +353 (0) 52 617 8100



Report No: HYDR-610200123
Document No: EF0011

CERTIFICATE OF ANALYSIS

Client **Hydro Environmental Services**
22 Lower Main Street
Dungarvan
Co. Waterford

Date Submitted 20/01/2023
Date Reported 28/01/2023
Order Number P1589

For the Attention of: Hydro Environmental Services
Sample Reception 6 sample(s) received in good condition.

Comments N/A

Report Authorised by:

Rosemary Thomas
Environmental Chemistry Manager

Conditions:

1. Results in this report relate only to the items tested
2. Reports may not be reproduced except in full without the approval of ALS Life Sciences Ltd
3. All queries regarding this report should be addressed to the Technical Manager at the above address
4. A * next to a method reference signifies that ALS Life Sciences Ltd is NOT INAB accredited for this method
5. Results reported as CFU/cm² are calculated based on information supplied by customer regarding area swabbed
6. SUBCON* indicates analysis subcontracted to approved subcontractors who do not hold accreditation for this test
7. SUBCON^ indicates analysis subcontracted to approved subcontractors who hold accreditation for this test
8. Where sampling is undertaken by ALS personnel, sampling activities are outside the scope of INAB accreditation
9. Dil next to a method reference indicates that a dilution of the water sample was undertaken during testing
10. Statement of conformity made against the result does not take into account the uncertainty of measurement associated with the method



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CERTIFICATE OF ANALYSIS

Date Submitted 20/01/2023
Date Reported 28/01/2023
Order Number P1589

Sample Type Water
Client ID Carrig SW1
Date Tested 20/01/2023
ALS ID 5389042

Test	Result	Unit	Method
Suspended Solids	<5	mg / l	P202
Phosphorus	<0.10	mg/l P	P207
BOD 5 day Total	2	mg/l O2	P280
Ammonia	0.24	mg/l NH3-N	P281
Chloride	20.3	mg/l Cl	P281
Nitrate	20.3	mg/l NO3	P281
Nitrite	<0.05	mg/l NO2	P281
Orthophosphate	0.04	mg/l P	P281
Total Oxidised Nitrogen	4.58	mg/L N	P281
Nitrogen (Total)	6.7	mg/L N	P285

Sample Type Water
Client ID Carrig SW2
Date Tested 20/01/2023
ALS ID 5389043

Test	Result	Unit	Method
Suspended Solids	<5	mg / l	P202
Phosphorus	<0.10	mg/l P	P207
BOD 5 day Total	1	mg/l O2	P280
Ammonia	0.07	mg/l NH3-N	P281
Chloride	30.7	mg/l Cl	P281
Nitrate	24.9	mg/l NO3	P281
Nitrite	<0.05	mg/l NO2	P281
Orthophosphate	0.23	mg/l P	P281
Total Oxidised Nitrogen	5.62	mg/L N	P281
Nitrogen (Total)	7.3	mg/L N	P285

Report Authorised by:

Rosemary Thomas



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Report No: HYDR-610200123
 Document No: EF0011

CERTIFICATE OF ANALYSIS

Date Submitted 20/01/2023
Date Reported 28/01/2023
Order Number P1589

Sample Type Water
Client ID Carrig SW3
Date Tested 20/01/2023
ALS ID 5389044

Test	Result	Unit	Method
Suspended Solids	<5	mg / l	P202
Phosphorus	<0.10	mg/l P	P207
BOD 5 day Total	1	mg/l O2	P280
Ammonia	0.03	mg/l NH3-N	P281
Chloride	21.6	mg/l Cl	P281
Nitrate	14.2	mg/l NO3	P281
Nitrite	<0.05	mg/l NO2	P281
Orthophosphate	<0.02	mg/l P	P281
Total Oxidised Nitrogen	3.22	mg/L N	P281
Nitrogen (Total)	4.2	mg/L N	P285

Sample Type Water
Client ID Carrig SW4
Date Tested 20/01/2023
ALS ID 5389045

Test	Result	Unit	Method
Suspended Solids	<5	mg / l	P202
Phosphorus	<0.10	mg/l P	P207
BOD 5 day Total	2	mg/l O2	P280
Ammonia	0.04	mg/l NH3-N	P281
Chloride	25.8	mg/l Cl	P281
Nitrate	23.2	mg/l NO3	P281
Nitrite	<0.05	mg/l NO2	P281
Orthophosphate	<0.02	mg/l P	P281
Total Oxidised Nitrogen	5.24	mg/L N	P281
Nitrogen (Total)	6.6	mg/L N	P285

Report Authorised by:

Rosemary Thomas



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Report No: HYDR-610200123

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CERTIFICATE OF ANALYSIS

Date Submitted 20/01/2023
Date Reported 28/01/2023
Order Number P1589

Sample Type Water
Client ID Carrig SW5
Date Tested 20/01/2023
ALS ID 5389046

Test	Result	Unit	Method
Suspended Solids	<5	mg / l	P202
Phosphorus	<0.10	mg/l P	P207
BOD 5 day Total	1	mg/l O2	P280
Ammonia	0.03	mg/l NH3-N	P281
Chloride	24.0	mg/l Cl	P281
Nitrate	19.9	mg/l NO3	P281
Nitrite	<0.05	mg/l NO2	P281
Orthophosphate	<0.02	mg/l P	P281
Total Oxidised Nitrogen	4.50	mg/L N	P281
Nitrogen (Total)	5.4	mg/L N	P285

Sample Type Water
Client ID Carrig SW6
Date Tested 20/01/2023
ALS ID 5389047

Test	Result	Unit	Method
Suspended Solids	<5	mg / l	P202
Phosphorus	<0.10	mg/l P	P207
BOD 5 day Total	1	mg/l O2	P280
Ammonia	0.02	mg/l NH3-N	P281
Chloride	21.8	mg/l Cl	P281
Nitrate	16.2	mg/l NO3	P281
Nitrite	<0.05	mg/l NO2	P281
Orthophosphate	<0.02	mg/l P	P281
Total Oxidised Nitrogen	3.65	mg/L N	P281
Nitrogen (Total)	3.7	mg/L N	P285

Report Authorised by:

Rosemary Thomas



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Carrigeen Business Park, Clonmel, Co. Tipperary
Telephone: +353 (0) 52 617 8100



Report No: HYDR-991140423
Document No: EF0011

CERTIFICATE OF ANALYSIS

Client **Hydro Environmental Services**
22 Lower Main Street
Dungarvan
Co. Waterford

Date Submitted 14/04/2023
Date Reported 27/04/2023
Order Number P1589

For the Attention of: Hydro Environmental Services
Sample Reception 7 sample(s) received in good condition.
Comments N/A

Report Authorised by:

Rosemary Thomas
Environmental Chemistry Manager

Conditions:

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CERTIFICATE OF ANALYSIS

Date Submitted 14/04/2023
Date Reported 27/04/2023
Order Number P1589

Sample Type Surface Water
Client ID Carrig SW1
Date Tested 14/04/2023
ALS ID 5518296

Test	Result	Unit	Method
Suspended Solids	<5	mg / l	P202
Phosphorus	<0.10	mg/l P	P207
BOD 5 day Total	2	mg/l O2	P280
Ammonia	0.14	mg/l NH3-N	P281
Chloride	16.5	mg/l Cl	P281
Nitrate	7.6	mg/l NO3	P281
Nitrite	<0.05	mg/l NO2	P281
Orthophosphate	<0.02	mg/l P	P281
Total Oxidised Nitrogen	1.71	mg/L N	P281
Nitrogen (Total)	3.2	mg/L N	P285

Sample Type Surface Water
Client ID Carrig SW2
Date Tested 14/04/2023
ALS ID 5518297

Test	Result	Unit	Method
Suspended Solids	<5	mg / l	P202
Phosphorus	<0.10	mg/l P	P207
BOD 5 day Total	<1	mg/l O2	P280
Ammonia	0.04	mg/l NH3-N	P281
Chloride	26.0	mg/l Cl	P281
Nitrate	29.0	mg/l NO3	P281
Nitrite	<0.05	mg/l NO2	P281
Orthophosphate	<0.02	mg/l P	P281
Total Oxidised Nitrogen	6.56	mg/L N	P281
Nitrogen (Total)	6.8	mg/L N	P285

Report Authorised by:

Rosemary Thomas



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Report No: HYDR-991140423
 Document No: EF0011

CERTIFICATE OF ANALYSIS

Date Submitted 14/04/2023
Date Reported 27/04/2023
Order Number P1589

Sample Type Surface Water
Client ID Carrig SW3
Date Tested 14/04/2023
ALS ID 5518298

Test	Result	Unit	Method
Suspended Solids	<5	mg / l	P202
Phosphorus	0.10	mg/l P	P207
BOD 5 day Total	1	mg/l O2	P280
Ammonia	0.04	mg/l NH3-N	P281
Chloride	23.5	mg/l Cl	P281
Nitrate	20.6	mg/l NO3	P281
Nitrite	<0.05	mg/l NO2	P281
Orthophosphate	<0.02	mg/l P	P281
Total Oxidised Nitrogen	4.65	mg/L N	P281
Nitrogen (Total)	5.0	mg/L N	P285

Sample Type Surface Water
Client ID Carrig SW4
Date Tested 14/04/2023
ALS ID 5518299

Test	Result	Unit	Method
Suspended Solids	<5	mg / l	P202
Phosphorus	0.10	mg/l P	P207
BOD 5 day Total	1	mg/l O2	P280
Ammonia	0.03	mg/l NH3-N	P281
Chloride	19.6	mg/l Cl	P281
Nitrate	14.1	mg/l NO3	P281
Nitrite	<0.05	mg/l NO2	P281
Orthophosphate	<0.02	mg/l P	P281
Total Oxidised Nitrogen	3.18	mg/L N	P281
Nitrogen (Total)	3.4	mg/L N	P285

Report Authorised by:

Rosemary Thomas



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Report No: HYDR-991140423
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CERTIFICATE OF ANALYSIS

Date Submitted 14/04/2023
Date Reported 27/04/2023
Order Number P1589

Sample Type Surface Water
Client ID Carrig SW5
Date Tested 14/04/2023
ALS ID 5518300

Test	Result	Unit	Method
Suspended Solids	<5	mg / l	P202
Phosphorus	0.10	mg/l P	P207
BOD 5 day Total	<1	mg/l O2	P280
Ammonia	0.05	mg/l NH3-N	P281
Chloride	21.3	mg/l Cl	P281
Nitrate	16.8	mg/l NO3	P281
Nitrite	0.05	mg/l NO2	P281
Orthophosphate	<0.02	mg/l P	P281
Total Oxidised Nitrogen	3.8	mg/L N	P281
Nitrogen (Total)	4.1	mg/L N	P285

Sample Type Surface Water
Client ID Carrig SW6
Date Tested 14/04/2023
ALS ID 5518301

Test	Result	Unit	Method
Suspended Solids	<5	mg / l	P202
Phosphorus	<0.10	mg/l P	P207
BOD 5 day Total	<1	mg/l O2	P280
Ammonia	0.04	mg/l NH3-N	P281
Chloride	21.2	mg/l Cl	P281
Nitrate	16.6	mg/l NO3	P281
Nitrite	<0.05	mg/l NO2	P281
Orthophosphate	<0.02	mg/l P	P281
Total Oxidised Nitrogen	3.77	mg/L N	P281
Nitrogen (Total)	3.9	mg/L N	P285

Report Authorised by:

Rosemary Thomas



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Telephone: +353 (0) 52 617 8100



Report No: HYDR-991140423

Document No: EF0011

CERTIFICATE OF ANALYSIS

Date Submitted 14/04/2023
Date Reported 27/04/2023
Order Number P1589

Sample Type Surface Water
Client ID Carrig SW7
Date Tested 14/04/2023
ALS ID 5518302

<u>Test</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>
Suspended Solids	6	mg / l	P202
Phosphorus	<0.10	mg/l P	P207
BOD 5 day Total	<1	mg/l O2	P280
Ammonia	0.04	mg/l NH3-N	P281
Chloride	21.4	mg/l Cl	P281
Nitrate	17.3	mg/l NO3	P281
Nitrite	<0.05	mg/l NO2	P281
Orthophosphate	<0.02	mg/l P	P281
Total Oxidised Nitrogen	3.92	mg/L N	P281
Nitrogen (Total)	4.3	mg/L N	P285

Report Authorised by:

Rosemary Thomas