

Our Ref: 213337\_REP\_012.docx

25 September 2015

The General Manager  
Oberon Council  
PO Box 84  
OBERON NSW 2787

**Attention: Mr Gary Wallace**

**ENVIRONMENTAL MONITORING – AUGUST 2015  
OBERON WASTE FACILITY (OWF) EPL 20289**

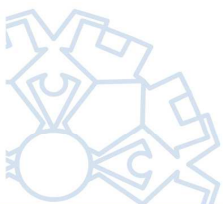
This letter summarises the results of the surface water discharge sample collected from monitoring point SW1 (EPL Point 1) on 5 August 2015, as well as routine accumulated gas monitoring conducted during the monitoring round.

***Surface Water***

The 5 August 2015 sample was collected by Geolyse staff from the rising stage sampler and was then analysed for parameters as required by the EPL. The monitoring point was observed to still be wet at the point of overflow. The location of the surface water monitoring point is depicted on **Drawing 05C\_EVO2**, sampling is required to be undertaken monthly during discharge.

Observations were as follows:

- Laboratory measured pH was 7.32 consistent with historical records, remaining within the EPL discharge limit range and was also considered suitable for livestock drinking water; being within 6.5 to 8.5 pH units (Markwick, 2007).
- Electrical conductivity (EC) was 126  $\mu\text{S}/\text{cm}$ , which was consistent with previous samples. The corresponding total dissolved solids (TDS) concentration was 84 mg/L and considered suitable for consumption by the most susceptible livestock category, poultry (<3000 mg/L, ANZECC & ARMCANZ, 2000).
- Total suspended solids were 15 mg/L, which is below the EPL limit of 50 mg/L. This result recorded a decrease from the previous concentration of 70 mg/L in July 2015, which exceeded the EPL limit.



- Oil and grease was recorded at less than the laboratory limit of reporting (LOR), below the EPL limit of 10 mg/L.

### **Landfill Gas**

No accumulated gas was detected during the routine monitoring round.

### **Conclusions**

No exceedances of EPL monitoring limits were recorded in the August 2015 discharge monitoring. No accumulated landfill gas was detected.

The subsequent round of routine surface water monitoring has been conducted in September 2015 and will be reported separately. Please do not hesitate to contact us with any questions or comments you may have regarding this report.

Yours faithfully  
**Geolyse Pty Ltd**



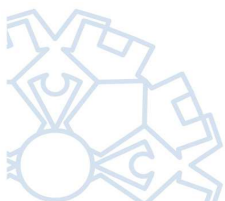
**BRENDAN STUART**  
**Environmental Scientist**

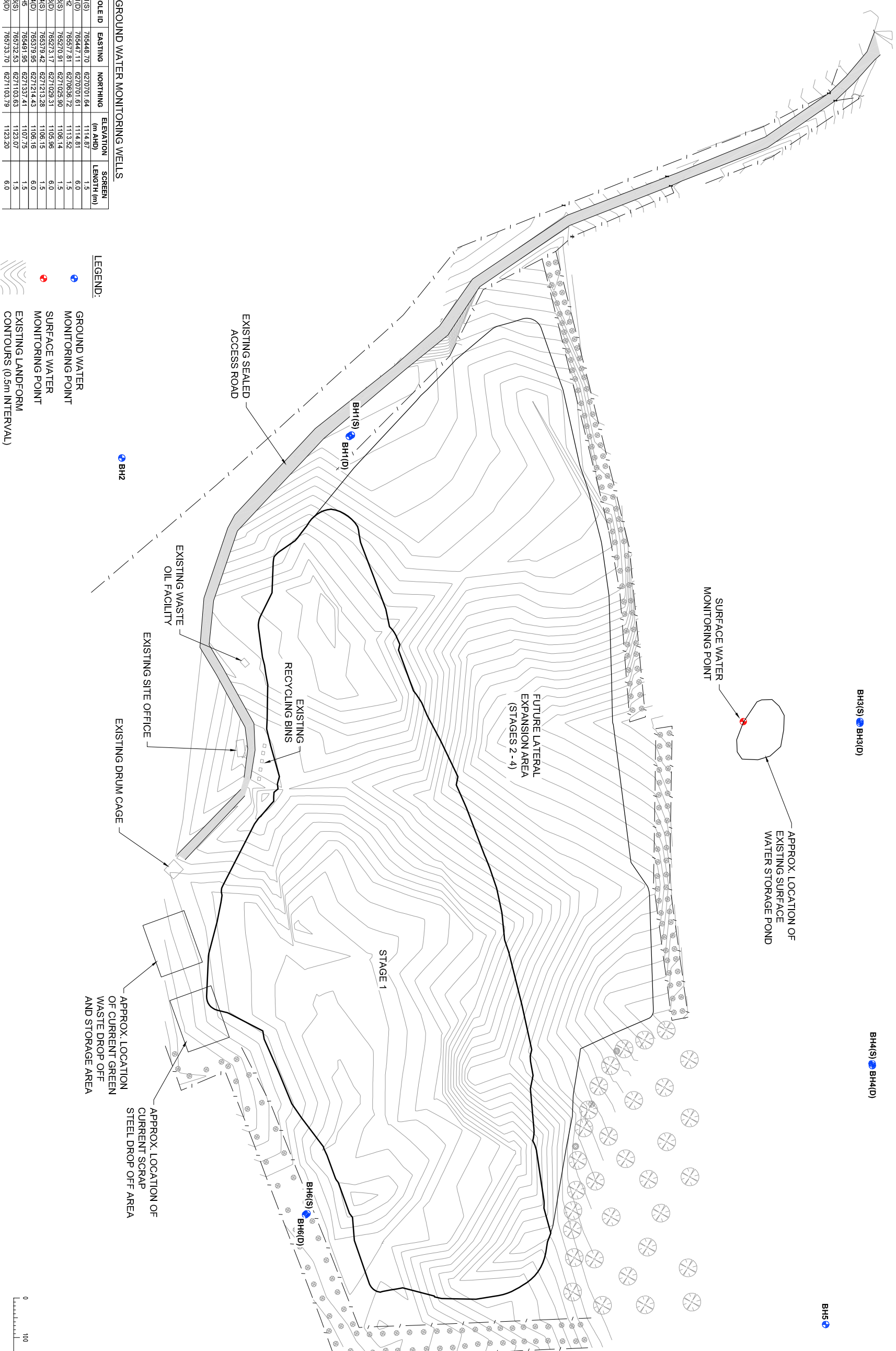
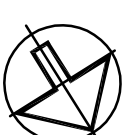
No. of Attachments – 3: Monitoring Locations  
Results of Laboratory Analysis – August 2015  
ALS Environmental Laboratory Report – August 2015

### **References:**

Australian and New Zealand Environment and Conservation Council and the Agriculture and Resource Management Council of Australia and New Zealand (ANZECC & ARMCANZ), 2000, '*Australian and New Zealand Guidelines for Fresh and Marine Water Quality*'.

Markwick, G 2007, '*Water requirements for sheep and cattle*', Primefact 326, New South Wales Department of Primary Industries, Australia.

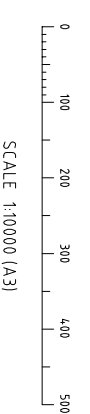




**GROUND WATER MONITORING WELLS**

BOREHOLE ID	EASTING	NORTHING	ELEVATION (m AHD)	SCREEN LENGTH (m)
BH1(S)	705448.70	6270701.84	1114.87	1.5
BH1(D)	705447.11	6270701.81	1114.81	6.0
BH2	705577.81	6270636.72	1113.52	1.5
BH3(S)	705270.91	6271023.90	1106.14	1.5
BH3(D)	705273.17	6271023.31	1105.96	6.0
BH4(S)	705379.42	6271213.28	1106.15	1.5
BH4(D)	705379.95	6271214.43	1106.16	6.0
BH5	705491.95	6271337.41	1107.75	1.5
BH6(S)	705732.53	6271103.83	1123.07	1.5
BH6(D)	705733.70	6271103.79	1123.20	6.0

- LEGEND:**
- + GROUND WATER MONITORING POINT
  - + SURFACE WATER MONITORING POINT
  - EXISTING LANDFORM CONTOURS (0.5m INTERVAL)



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 154 PERSEY STREET  
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 orange@geolyse.com  
 www.geolyse.com

No	DATE	DRAWING CHECK	APPROVED BY	DETAILS
A	02/05/13	LP	KH	DRAFT
B	16/05/13	LP	KH	ISSUED
C	01/10/14	MY	MH	UPDATE PIEZO BH3(D) DATA

**PROJECT**

**OBERON LANDFILL EXTENSION  
 LANDFILL ENVIRONMENTAL MANAGEMENT PLAN**

FILE REFERENCE: 211129\_AOC\_EV02\_EV02.dwg

**APPROVAL AUTHORITY**

**OBERON COUNCIL  
 ENVIRONMENT PROTECTION AUTHORITY**

**CLIENT**

**OBERON COUNCIL**

**DRAWING**

**EXPANSION STAGES AND  
 MONITORING POINTS**

PROJECT NUMBER: 211129  
 DRAWING NUMBER: 05C\_EV02  
 SOURCE: INTERNAL  
 REV: C

TABLE 2. EPL 20289 OBERON WASTE FACILITY- RESULTS OF LABORATORY ANALYSIS- AUGUST 2015																	
Analyte	Units	EPL SW 100 Percentile Discharge Limit	Surface Water	Groundwater Boreholes											Quality Control		
			SW1 (5 Aug 2015)	OWF ID											Building Gas	W9001	W9003 (BH2)
				BH1S	BH1D	BH2	BH3S	BH3D	BH4S	BH4D	BH5	BH6S	BH6D	EPL Point			
1	2	3	4	5	6	7	8	9	10	11	12	-	-				
Temperature (field)	°C		4.6														
pH (lab)	pH units	6.5-8.5	7.32														
pH (field)	pH units		7.99														
Sodium Adsorption Ratio																	
Elect. Cond (lab)	µS/cm		126														
Elect. Cond (field)	µS/cm																
Suspended Solids	mg/L	50	15														
Oil and Grease	mg/L	10	<5														
Total Dissolved Solids	mg/L																
Total Hardness	mgCaCO <sub>3</sub> /L																
Hydride Alkalinity	mgCaCO <sub>3</sub> /L																
Carbonate Alkalinity	mgCaCO <sub>3</sub> /L																
Bicarbonate Alkalinity	mgCaCO <sub>3</sub> /L																
Total Alkalinity	mgCaCO <sub>3</sub> /L																
Sulfate	mg/L																
Chloride	mg/L																
Calcium	mg/L																
Magnesium	mg/L																
Sodium	mg/L																
Potassium	mg/L																
Aluminium	mg/L																
Arsenic	mg/L																
Barium	mg/L																
Cadmium	mg/L																
Chromium	mg/L																
Copper	mg/L																
Cobalt	mg/L																
Nickel	mg/L																
Lead	mg/L																
Zinc	mg/L																
Manganese	mg/L																
Iron	mg/L																
Mercury	mg/L																
Fluoride	mg/L																
Ammonia (as N)	mg/L																
Nitrite (as N)	mg/L																
Nitrate (as N)	mg/L																
Nitrite + Nitrate (as N)	mg/L																
Total Kjeldahl Nitrogen (as N)	mg/L																
Total Nitrogen (as N)	mg/L																
Total Phosphorus	mg/L																
Reactive Phosphorus	mg/L																
Total Anions	meq/L																
Total Cations	meq/L																
Ionic Balance	%																
Total Organic Carbon	mg/L																
Polychlorinated Biphenyls (PCBs)	mg/L																
Organochlorine Pesticides (OCPs)	mg/L																
Organophosphorus Pesticides (OPPs)	mg/L																
Phenolic Compounds	mg/L																
Polynuclear Aromatic Hydrocarbons (PAHs)	mg/L																
Total Petroleum Hydrocarbons (TPHs)	mg/L																
C <sub>7</sub> -C <sub>7</sub>	mg/L																
C <sub>12</sub> -C <sub>14</sub>	mg/L																
C <sub>15</sub> -C <sub>21</sub>	mg/L																
C <sub>22</sub> -C <sub>28</sub>	mg/L																
C <sub>12</sub> -C <sub>28</sub> sum	mg/L																
C <sub>7</sub> -C <sub>28</sub> sum	mg/L																
Total Recoverable Hydrocarbons (TRHs) (NEPM 2013)	mg/L																
C <sub>9</sub> -C <sub>10</sub>	mg/L																
C <sub>9</sub> -C <sub>10</sub> minus BTEX	mg/L																
C <sub>11</sub> -C <sub>18</sub>	mg/L																
C <sub>17</sub> -C <sub>21</sub>	mg/L																
C <sub>22</sub> -C <sub>28</sub>	mg/L																
C <sub>12</sub> -C <sub>18</sub> sum	mg/L																
C <sub>12</sub> -C <sub>18</sub> minus Naphthalene	mg/L																
C <sub>7</sub> -C <sub>28</sub> sum	mg/L																
BTEXN	mg/L																
Benzene	mg/L																
Toluene	mg/L																
Ethylbenzene	mg/L																
Total Xylenes	mg/L																
Sum of BTEX	mg/L																
Naphthalene	mg/L																

Notes:

## CERTIFICATE OF ANALYSIS

<b>Work Order</b> : <b>ES1527825</b> <b>Client</b> : <b>OBERON COUNCIL</b> <b>Contact</b> : BRENDON STUART <b>Address</b> : 137-139 OBERON STREET OBERON NSW,AUSTRALIA 2787  <b>E-mail</b> : bstuart@geolyse.com <b>Telephone</b> : +61 02 6393 5000 <b>Facsimile</b> : +61 02 6393 5050 <b>Project</b> : 213337 <b>Order number</b> : ---- <b>C-O-C number</b> : ---- <b>Sampler</b> : ---- <b>Site</b> : ----  <b>Quote number</b> : ----	<b>Page</b> : 1 of 2 <b>Laboratory</b> : Environmental Division Sydney <b>Contact</b> : <b>Address</b> : 277-289 Woodpark Road Smithfield NSW Australia 2164  <b>E-mail</b> : <b>Telephone</b> : +61-2-8784 8555 <b>Facsimile</b> : +61-2-8784 8500 <b>QC Level</b> : NEPM 2013 Schedule B(3) and ALS QCS3 requirement <b>Date Samples Received</b> : 07-Aug-2015 09:30 <b>Date Analysis Commenced</b> : 07-Aug-2015 <b>Issue Date</b> : 14-Aug-2015 14:01  <b>No. of samples received</b> : 1 <b>No. of samples analysed</b> : 1
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



WORLD RECOGNISED  
**ACCREDITATION**

NATA Accredited Laboratory 825

Accredited for compliance with  
ISO/IEC 17025.

### *Signatories*

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Ankit Joshi	Inorganic Chemist	Sydney Inorganics



## General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
 LOR = Limit of reporting  
 ^ = This result is computed from individual analyte detections at or above the level of reporting  
 ø = ALS is not NATA accredited for these tests.

## Analytical Results

Sub-Matrix: **WATER**  
 (Matrix: **WATER**)

Client sample ID

				SW1	----	----	----	----
Client sampling date / time				05-Aug-2015 12:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1527825-001	-----	-----	-----	-----
				Result	Result	Result	Result	Result
<b>EA005P: pH by PC Titrator</b>								
pH Value	----	0.01	pH Unit	7.32	----	----	----	----
<b>EA010P: Conductivity by PC Titrator</b>								
Electrical Conductivity @ 25°C	----	1	µS/cm	126	----	----	----	----
<b>EA025: Suspended Solids</b>								
^ Suspended Solids (SS)	----	5	mg/L	15	----	----	----	----
<b>EP020: Oil and Grease (O&amp;G)</b>								
^ Oil & Grease	----	5	mg/L	<5	----	----	----	----