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Shannon Town Centre, Shannon, Co.Clare, Ireland Croí Bhaile na Sionna, Sionainn, Co an Chláir, Éire

t:+353. 61. 718 300 f:+353. 61. 361 979



CONFIDENTIAL REPORT SHANNON AQUATIC TOXICITY LABORATORY

Front Cover Report Shee Dept. Toxicity Sheet no. 1 of 3 sheets	Et Tox F020 Ver. 2.2
Customer Basta Parsons Ltd Tubbercurry Co. Sligo	Title Toxicological analysis of a sample
Attn: Mr. Mark Murphy	only any other use.
Report reference: 12T056	Most Order no.: 25453
Date received: 13.06.12	Report by: Robert Hernan
Date received: 13.06.12	Approved by: Kathleen O' Rourke Toxicologist LO Routke
Copies to: R.6. Files	Date of issue: 19.06.12

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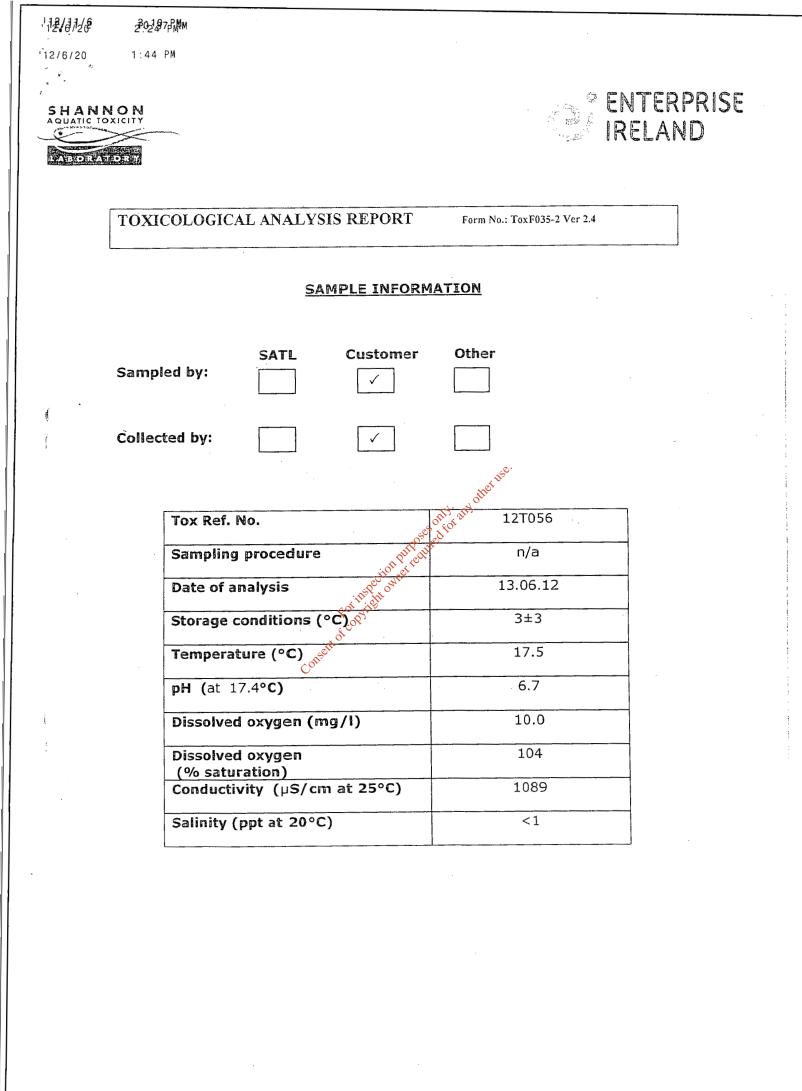
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	TOXICOLOGICA	AL ANALYSIS REP	ORT Form	No.: ToxF035-1 Ver 2.3	
		TEST	RESULTS		
	Customer:		Basta Parsons Lt	td	
	Customer sample	e description:	Basta, sample no 12.06.12	o.: 12-058, SW1	L ,
	Tox. Ref. No.:		12T056		
			the	US ^{C.}	
	Test Date:		13.06.12 ⁹ -Daphnia magna 14.06912 ⁹ Vibrio fischeri		
, T	Fest Parameter	Test R Concentration	esults	95%	Method of
		% vol./vol.		Confidence Limits % vol./vol.	Calculation
	48 h EC ₅₀ to Daphnia magna	49:8 Cons.8	2.0	42.9-58.0	Maximum Likelihood- Probit
	30 min EC ₅₀ to <i>/ibrio fischeri</i>	>45	<2.2	n/a	n/a
	Comments:				
	60% mortality occur 10% mortality occur No mortality occur 30 min EC 50 to Vi	curred at 100% vol. urred at 56% vol./vo urred at 32% vol./vo red at 18% vol./vol.	bl. bl.		

P22

Method 2: Marine bacterium, Vibrio fischeri

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Appendix

Toxicity Test Methods and Procedures

1. Freshwater Crustacean

Method 6.1 based on ISO 6341:1996/Cor.1:1998: 'Water quality – Determination of the inhibition of the mobility of *Daphnia magna* Straus (Cladocera, Crustacea) – Acute toxicity test'

2. Marine Bacterium

Method 6.2 based on ISO 11348-3:2007: 'Water quality - Determination of the inhibitory effect of water samples on the light emission of *Vibrio fischeri* (Luminescent bacteria test) – Part 3: Method using freeze-dried bacteria'

3. Marine Copepod

Method 6.3 based on ISO 14669:1999: 'Water quality – Determination of acute lethal toxicity to marine copepods (*Copepoda, Crustacea*)'

4. Marine Algae

Method 6.4 based on ISO 10253:2006: 'Water quality - Marine algal growth inhibition test with Skeletonema costatum and Phaeodactylum tricornutum'

5. Freshwater Algae

Method 6.5 based on ISO 8692:2004 : 'Water quality - Freshwater algal growth inhibition test with unicellular green algae' of the second secon

6. Freshwater Plant

Method 6.6 based on ISO 20079:2005: Water quality – Determination of the toxic effect of water constituents and waste water to duckweed (*Lemna minor*) – Duckweed growth inhibition test

7. Marine Fish

Method 6.7 based on OECD 1992: Guideline 203: - 'Fish, acute toxicity test'

8. Freshwater Fish

Method 6.8 based on OECD 1992: Guideline 203: - 'Fish, acute toxicity test'

9. Estuarine Crustacean

Method 6.9 based on MAFF SOP No. BEG/030:1996: 'Brown Shrimp (Crangon crangon) 96 h acute toxicity for liquid effluents and wastes'

10. Sampling

Method based on ISO 5667-16:1998: 'Water quality – Sampling - Part 16: Guidance on biotesting of samples'

11. Eluate Generation

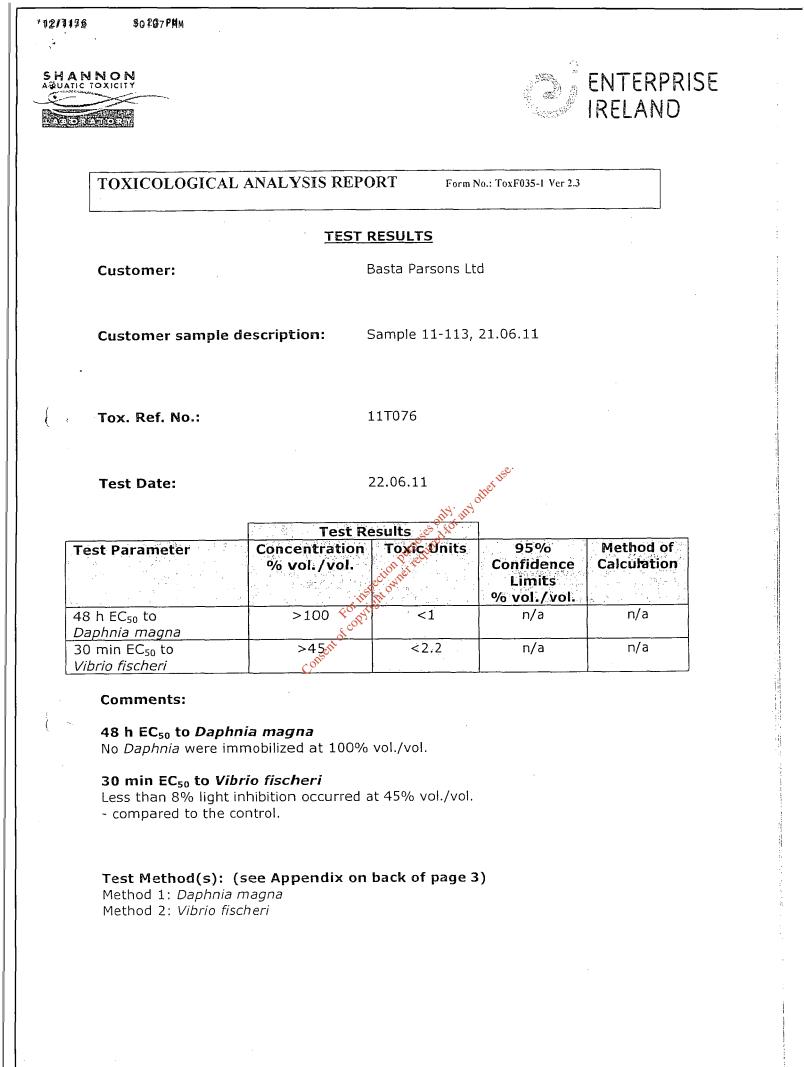
Procedure 4.7.8. "Eluate Generation" based on DIN 38 414 part 4, 1984: ~ 'Sludge and Sediments (Group S) ~ Determination of leachability by water (S4)' P1

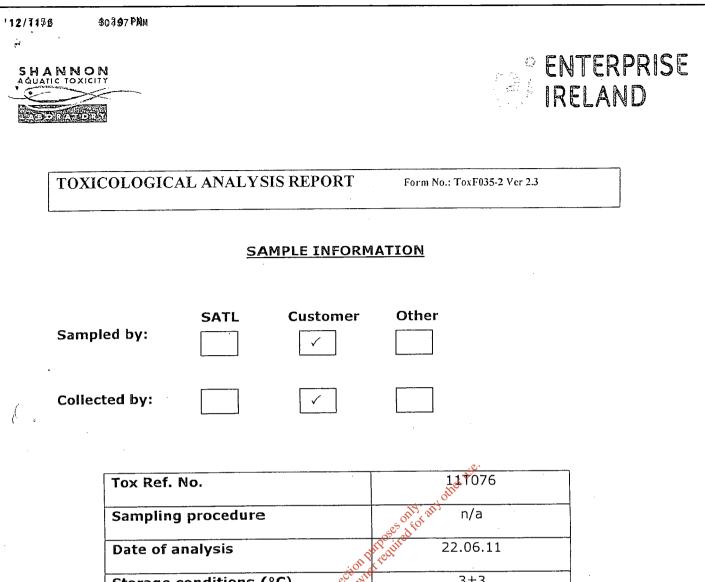
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CONFIDENTIAL REPORT SHANNON AQUATIC TOXICITY LA	BORATORY
Front Cover Report S	heet
Dept. Toxicity Sheet no. 1 of 3 sheets	Tox F020 Ver. 2.2
Customer	Ťitle
Basta Parsons Ltd	Toxicological analysis of a
Tubbercurry Sligo	sample
Attn: Mr. Mark Murphy	
Report reference: 11T076	order no.: 24766
,,,,,,	Robert Hernan
Date received: 22.06.11	Approved by: Ann Harte Han Ha. Quality Manager
Date received: 22.06.11	
Copies to: R.6. Files	Date of issue: 30.06.11

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Date of analysis	22.06.11
Storage conditions (°C)	3±3
Temperature (°C)	19.6
pH (at 19.5°C)	7.4
Dissolved oxygen (mg/l)	9.3
Dissolved oxygen (% saturation)	100
Conductivity (µS/cm at 25°C)	1728
Salinity (ppt at 20°C)	<1

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Toxicity Test Methods and Procedures

1. Freshwater Crustacean

Method 6.1 based on ISO 6341:1996/Cor.1:1998: 'Water quality – Determination of the inhibition of the mobility of *Daphnia magna* Straus (Cladocera, Crustacea) – Acute toxicity test'

2. Marine Bacterium

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5. Freshwater Algae

Method 6.5 based on ISO 8692:2004 : 'Water quality – Freshwater algal growth inhibition test with unicellular green algae' [Pseudokirchneriella subcapitata]

6. Freshwater Plant

Method 6.6 based on ISO 20079;2005: 'Water quality – Determination of the toxic effect of water constituents and waste water to duckweed (*Lemna minor*) – Duckweed growth inhibition test'

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9. Estuarine Crustacean

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Method 6.9 based on MAFF SOP No. BEG/030:1996: 'Brown Shrimp (*Crangon*) 96 h acute toxicity for liquid effluents and wastes'

10. Marine Amphipod

Method 6.10 based on ICES, No. 28, 2001: 'Biological effects of contaminants: *Corophium* sp. sediment bioassay and toxicity test'

11. Eluate Generation

Procedure 4.7.8. "Eluate Generation" based on DIN 38 414 part 4, 1984: -'Sludge and Sediments (Group S) - Determination of leachability by water (S4)' 

CONFIDENTIAL REPORT SHANNON AQUATIC TOXICITY LABORATORY

Front Cover Report Sheet

Dept. Toxicity Sheet no. 1 of 3 sheets

Tox F020 Ver. 2.2

Customer Basta Parsons Ltd Tubbercurry Co. Sligo Title Toxicological analysis of a sample

Attn: Mr. Mark	(Murphy			
Report referen	nce: 10T064		Ofder no.: 24045	-
		Duposes of	Report by: Kathleen O' Rourke	- L C Rourte
Date received	: 16.06.10	tor insectories	Approved by: Robert Hernan Toxicologist	- Afferica
Copies to:	R.6. Files	attofcop	Date of issue: 30.06.10	ĩ

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TOXICOL	OGICAL	ANALYSIS	REPORT

Form No.: ToxF035-1 Ver 2.1

TEST RESULTS

Customer:

Basta Parsons Ltd

Customer sample description:

Basta sample, 10-113, 15.06.10

Tox. Ref. No.:

10T064

Test Date:

16.06.10 – Daphnia magna 21.06.10 – Vibrio fischeri

	Test Re	esults		
Test Parameter	Concentration % vol./vol.	Toxic Units	95% Confidence Limits % vol./vol.	Method of Calculation
48 h EC ₅₀ to Daphnia magna	80.5	1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2	74.2-87.2	Trimmed Spearman- Karber
5 min EC ₅₀ to Vibrio fischeri	>45	10 ⁵ if ^e 2.2	n/a	n/a
15 min EC ₅₀ to <i>Vibrio fischeri</i>	>45	r ^{eq} <2.2	n/a	n/a

Comments:

48 h EC50 to Daphnia magna

80% of the Daphnia magna were immobilized at 100% vol./vol.

5,15 min EC₅₀ to Vibrio fischeri

No light inhibition occurred at 45% vol./vol. - compared to the control.

Test Method(s): (see Appendix on back of page 3)

Method 1: *Daphnia magna* Method 2: *Vibrio fischeri*

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TOXICOLOGICAL ANALYSIS REPORT

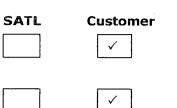
Form No.: ToxF035-2 Ver 2.2

Other

SAMPLE INFORMATION

Sampled by:

Collected by:



T D-6 N-	107064
Tox Ref. No.	10T064
Sampling procedure	n/a
Date of analysis	16.06.10
Storage conditions (°C)	3±3 – D.magna ≲∻20 – V.fischeri
Temperature (°C)	N any 18.3
pH (at 18.5°C)	به 7.3
Dissolved oxygen (mg/l)	10.1
Dissolved oxygen (% saturation)	109
Conductivity (µS/cm at 25°C)	679
Salinity (ppt at 20°C)	<1

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