

CLIENT DETAILS

Contact **John Fox**
 Client **NAMOI COTTON LIMITED**
 Address **PO BOX 1333
 TOOWOOMBA QLD 4350**

Telephone **0429 903 079**
 Facsimile **61 7 46316184**
 Email **jfox@namoicotton.com.au**

Project **Yarraman gin storm water discharge**
 Order Number **(Not specified)**
 Samples **3**

LABORATORY DETAILS

Manager **Huong Crawford**
 Laboratory **SGS Alexandria Environmental**
 Address **Unit 16, 33 Maddox St
 Alexandria NSW 2015**

Telephone **+61 2 8594 0400**
 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**

SGS Reference **SE218185 R0**
 Date Received **30 Mar 2021**
 Date Reported **08 Apr 2021**

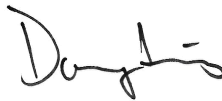
COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



Akheevar BENIAMEEN
 Chemist



Dong LIANG
 Metals/Inorganics Team Leader



Ly Kim HA
 Organic Section Head

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE218185.001 Water 24/3/21 8:30 Point 23	SE218185.002 Water 24/3/21 8:30 Point 24	SE218185.003 Water 24/3/21 8:30 Point 25
-----------	-------	-----	--	---	---	---

OC Pesticides in Water Method: AN420 Tested: 1/4/2021

Hexachlorobenzene (HCB)	µg/L	0.1	<0.1	<0.1	<0.1
Alpha BHC	µg/L	0.1	<0.1	<0.1	<0.1
Lindane (gamma BHC)	µg/L	0.1	<0.1	<0.1	<0.1
Heptachlor	µg/L	0.1	<0.1	<0.1	<0.1
Aldrin	µg/L	0.1	<0.1	<0.1	<0.1
Beta BHC	µg/L	0.1	<0.1	<0.1	<0.1
Delta BHC	µg/L	0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	µg/L	0.1	<0.1	<0.1	<0.1
o,p'-DDE	µg/L	0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	µg/L	0.1	<0.1	<0.1	<0.1
Gamma Chlordane	µg/L	0.1	<0.1	<0.1	<0.1
Alpha Chlordane	µg/L	0.1	<0.1	<0.1	<0.1
trans-Nonachlor	µg/L	0.1	<0.1	<0.1	<0.1
p,p'-DDE	µg/L	0.1	<0.1	<0.1	<0.1
Dieldrin	µg/L	0.1	<0.1	<0.1	<0.1
Endrin	µg/L	0.1	<0.1	<0.1	<0.1
o,p'-DDD	µg/L	0.1	<0.1	<0.1	<0.1
o,p'-DDT	µg/L	0.1	<0.1	<0.1	<0.1
Beta Endosulfan	µg/L	0.1	<0.1	<0.1	<0.1
p,p'-DDD	µg/L	0.1	<0.1	<0.1	<0.1
p,p'-DDT	µg/L	0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	µg/L	0.1	<0.1	<0.1	<0.1
Endrin aldehyde	µg/L	0.1	<0.1	<0.1	<0.1
Methoxychlor	µg/L	0.1	<0.1	<0.1	<0.1
Endrin ketone	µg/L	0.1	<0.1	<0.1	<0.1
Isodrin	µg/L	0.1	<0.1	<0.1	<0.1
Mirex	µg/L	0.1	<0.1	<0.1	<0.1

Surrogates

Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	95	82	71
---	---	---	-----------	-----------	-----------

OP Pesticides in Water Method: AN420 Tested: 1/4/2021

Dichlorvos	µg/L	0.5	<0.5	<0.5	<0.5
Dimethoate	µg/L	0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	µg/L	0.5	<0.5	<0.5	<0.5
Fenitrothion	µg/L	0.2	<0.2	<0.2	<0.2
Malathion	µg/L	0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	µg/L	0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	µg/L	0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	µg/L	0.2	<0.2	<0.2	<0.2
Methodathion	µg/L	0.5	<0.5	<0.5	<0.5
Ethion	µg/L	0.2	<0.2	<0.2	<0.2
Azinphos-methyl	µg/L	0.2	<0.2	<0.2	<0.2

Surrogates

2-fluorobiphenyl (Surrogate)	%	-	47	41	48
d14-p-terphenyl (Surrogate)	%	-	73	68	88

Anions by Ion Chromatography in Water Method: AN245 Tested: 1/4/2021

Nitrate Nitrogen, NO3-N	mg/L	0.005	0.20	0.17	0.87
-------------------------	------	-------	-------------	-------------	-------------

Parameter	Units	LOR	SE218185.001	SE218185.002	SE218185.003
Sample Number			SE218185.001	SE218185.002	SE218185.003
Sample Matrix			Water	Water	Water
Sample Date			24/3/21 8:30	24/3/21 8:30	24/3/21 8:30
Sample Name			Point 23	Point 24	Point 25

Nitrite in Water Method: AN277 Tested: 31/3/2021

Nitrite Nitrogen, NO ₂ as N	mg/L	0.005	0.007	0.014	0.055
Total Oxidised Nitrogen, NO _x -N	mg/L	0.005	0.21	0.18	0.93

TKN Kjeldahl Digestion by Discrete Analyser Method: AN292 Tested: 31/3/2021

Total Kjeldahl Nitrogen	mg/L	0.05	0.55	0.73	0.92
Total Nitrogen (calc)	mg/L	0.05	0.76	0.91	1.8

Total Phosphorus by Kjeldahl Digestion DA in Water Method: AN279/AN293(Sydney only) Tested: 31/3/2021

Total Phosphorus (Kjeldahl Digestion) as P	mg/L	0.02	0.56	0.87	1.2
--	------	------	-------------	-------------	------------

Total and Volatile Suspended Solids (TSS / VSS) Method: AN114 Tested: 31/3/2021

Total Suspended Solids Dried at 103-105°C	mg/L	5	180	170	100
---	------	---	------------	------------	------------

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Anions by Ion Chromatography in Water Method: ME-(AU)-[ENV]AN245

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Nitrate Nitrogen, NO3-N	LB221870	mg/L	0.005	<0.005	4%	100%	100%

Nitrite in Water Method: ME-(AU)-[ENV]AN277

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Nitrite Nitrogen, NO2 as N	LB221778	mg/L	0.005	<0.005	0%	92%

OC Pesticides in Water Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Hexachlorobenzene (HCB)	LB221854	µg/L	0.1	<0.1	NA
Alpha BHC	LB221854	µg/L	0.1	<0.1	NA
Lindane (gamma BHC)	LB221854	µg/L	0.1	<0.1	NA
Heptachlor	LB221854	µg/L	0.1	<0.1	84%
Aldrin	LB221854	µg/L	0.1	<0.1	86%
Beta BHC	LB221854	µg/L	0.1	<0.1	NA
Delta BHC	LB221854	µg/L	0.1	<0.1	104%
Heptachlor epoxide	LB221854	µg/L	0.1	<0.1	NA
o,p'-DDE	LB221854	µg/L	0.1	<0.1	NA
Alpha Endosulfan	LB221854	µg/L	0.1	<0.1	NA
Gamma Chlordane	LB221854	µg/L	0.1	<0.1	NA
Alpha Chlordane	LB221854	µg/L	0.1	<0.1	NA
trans-Nonachlor	LB221854	µg/L	0.1	<0.1	NA
p,p'-DDE	LB221854	µg/L	0.1	<0.1	NA
Dieldrin	LB221854	µg/L	0.1	<0.1	94%
Endrin	LB221854	µg/L	0.1	<0.1	98%
o,p'-DDD	LB221854	µg/L	0.1	<0.1	NA
o,p'-DDT	LB221854	µg/L	0.1	<0.1	NA
Beta Endosulfan	LB221854	µg/L	0.1	<0.1	NA
p,p'-DDD	LB221854	µg/L	0.1	<0.1	NA
p,p'-DDT	LB221854	µg/L	0.1	<0.1	75%
Endosulfan sulphate	LB221854	µg/L	0.1	<0.1	NA
Endrin aldehyde	LB221854	µg/L	0.1	<0.1	NA
Methoxychlor	LB221854	µg/L	0.1	<0.1	NA
Endrin ketone	LB221854	µg/L	0.1	<0.1	NA
Isodrin	LB221854	µg/L	0.1	<0.1	NA
Mirex	LB221854	µg/L	0.1	<0.1	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB221854	%	-	97%	98%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

OP Pesticides in Water Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Dichlorvos	LB221854	µg/L	0.5	<0.5	96%
Dimethoate	LB221854	µg/L	0.5	<0.5	NA
Diazinon (Dimpylate)	LB221854	µg/L	0.5	<0.5	111%
Fenitrothion	LB221854	µg/L	0.2	<0.2	NA
Malathion	LB221854	µg/L	0.2	<0.2	NA
Chlorpyrifos (Chlorpyrifos Ethyl)	LB221854	µg/L	0.2	<0.2	104%
Parathion-ethyl (Parathion)	LB221854	µg/L	0.2	<0.2	NA
Bromophos Ethyl	LB221854	µg/L	0.2	<0.2	NA
Methidathion	LB221854	µg/L	0.5	<0.5	NA
Ethion	LB221854	µg/L	0.2	<0.2	91%
Azinphos-methyl	LB221854	µg/L	0.2	<0.2	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
2-fluorobiphenyl (Surrogate)	LB221854	%	-	68%	62%
d14-p-terphenyl (Surrogate)	LB221854	%	-	88%	72%

TKN Kjeldahl Digestion by Discrete Analyser Method: ME-(AU)-[ENV]AN292

Parameter	QC Reference	Units	LOR	DUP %RPD
Total Kjeldahl Nitrogen	LB221797	mg/L	0.05	1 - 5%

Total and Volatile Suspended Solids (TSS / VSS) Method: ME-(AU)-[ENV]AN114

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Total Suspended Solids Dried at 103-105°C	LB221767	mg/L	5	<5	3 - 15%	91%

MB blank results are compared to the Limit of Reporting

LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.

DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula : *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Total Phosphorus by Kjeldahl Digestion DA in Water Method: ME-(AU)-[ENV]AN279/AN293(Sydney only)

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Total Phosphorus (Kjeldahl Digestion) as P	LB221797	mg/L	0.02	<0.02	1 - 5%	101%

METHOD

METHODOLOGY SUMMARY

AN114

Total Suspended and Volatile Suspended Solids: The sample is homogenised by shaking and a known volume is filtered through a pre-weighed GF/C filter paper and washed well with deionised water. The filter paper is dried and reweighed. The TSS is the residue retained by the filter per unit volume of sample. Reference APHA 2540 D. Internal Reference AN114

AN245

Anions by Ion Chromatography: A water sample is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO₂, NO₃ and SO₄ are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV-visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B

AN277/WC250.312

Nitrite ions, when reacted with a reagent containing sulphanilamide and N-(1-naphthyl)-ethylenediamine dihydrochloride produce a highly coloured azo dye that is measured photometrically at 540nm.

AN279/AN293(Sydney)

The sample is digested with Sulphuric acid, K₂SO₄ and CuSO₄. All forms of phosphorus are converted into orthophosphate. The digest is cooled and placed on the discrete analyser for colorimetric analysis.

AN281

An unfiltered water or soil sample is first digested in a block digester with sulfuric acid, K₂SO₄ and CuSO₄. The ammonia produced following digestion is then measured colourimetrically using the Aquakem 250 Discrete Analyser. A portion of the digested sample is buffered to an alkaline pH, and interfering cations are complexed. The ammonia then reacts with salicylate and hypochlorite to give a blue colour whose absorbance is measured at 660nm and compared with calibration standards. This is proportional to the concentration of Total Kjeldahl Nitrogen in the original sample.

AN420

SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	NATA accreditation does not cover the performance of this service.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
***	Indicates that both * and ** apply.	-	The sample was not analysed for this analyte
		NVL	Not Validated

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received. Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- a. 1 Bq is equivalent to 27 pCi
- b. 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This report must not be reproduced, except in full.