

CLIENT DETAILS

Contact **John Fox**  
 Client **NAMOI COTTON CO-OPERATIVE LTD**  
 Address **PO BOX 1333  
 TOOWOOMBA QLD 4350**

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

Project **Merah North Discharge Event Monitoring**  
 Order Number **(Not specified)**  
 Samples **2**

LABORATORY DETAILS

Manager **Andrew Tomlins**  
 Laboratory **SGS Brisbane Environmental**  
 Address **59 Bancroft Road  
 PINKENBA QLD 4008**

Telephone **+61 7 3622 4700**  
 Facsimile **+61 7 3622 4799**  
 Email **au.environmental.brisbane@sgs.com**

SGS Reference **BE015023 R0**  
 Date Received **11 Nov 2015**  
 Date Reported **19 Nov 2015**

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(20707/1706).

Specialized SVOC analytes and OC/OP subcontracted to SGS Leeder Consulting, 4-5/18 Redland Drive, Mitcham VIC, NATA Accreditation Number 14429, M152510.

SIGNATORIES



**Caroline McDermid**  
 Inorganics Supervisor

Sample Number	BE015023.001	BE015023.002
Sample Matrix	Water	Water
Sample Date	05 Nov 2015	05 Nov 2015
Sample Name	MN Site 18	MN 19
	Regulator NE	
	levee	

Parameter Units LOR  
 pH in water Method: AN101 Tested: 12/11/2015

pH**	pH Units	0.1	7.4	7.8
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Conductivity and TDS by Calculation - Water Method: AN106 Tested: 12/11/2015

Conductivity @ 25 C	µS/cm	5	220	28
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Total and Volatile Suspended Solids (TSS / VSS) Method: AN114 Tested: 16/11/2015

Total Suspended Solids Dried at 103-105°C	mg/L	1	430	650
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Calculated Nitrogen Forms - TN, organic N, inorganic N Method: AN281/292 Tested: -

Total Nitrogen (calc)	mg/L	0.05	3.3	1.1
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Total Phosphorus by Kjeldahl Digestion DA in Water Method: AN279/AN293 Tested: 17/11/2015

Total Phosphorus (Kjeldahl Digestion)	mg/L	0.01	1.6	0.92
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Sample Subcontracted Method: Tested: -

Sample Subcontracted*	No unit	-	Report attached	Report attached
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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.

Conductivity and TDS by Calculation - Water Method: ME-(AU)-[ENV]AN106

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Conductivity @ 25 C	LB022536	µS/cm	5	<5	0 - 1%	101%

pH in water Method: ME-(AU)-[ENV]AN101

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
pH**	LB022536	pH Units	0.1	5.9 - 6.2	0 - 2%	101%

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	LB022580	mg/L	1	<1	0 - 1%	98%

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

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Phosphorus (Kjeldahl Digestion)	LB022600	mg/L	0.01	<0.01 - 0.02	0 - 7%	114%	112%

METHOD

METHODOLOGY SUMMARY

AN101	pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode (glass plus reference electrode) and is calibrated against 3 buffers purchased commercially. For soils, an extract with water is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.
AN106	Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as $\mu\text{hos/cm}$ or $\mu\text{S/cm}$ @ 25°C. For soils, an extract with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Total Dissolved Salts can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. SGS use 0.6. Reference APHA 2510 B.
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
AN258	Nitrate and Nitrite by FIA: In an acidic medium, nitrate is reduced quantitatively to nitrite by cadmium metal. This nitrite plus any original nitrite is determined as an intense red-pink azo dye at 540 nm following diazotisation with sulphanilamide and subsequent coupling with N-(1-naphthyl) ethylenediamine dihydrochloride. Without the cadmium reduction only the original nitrite is determined. Reference APHA 4500-NO <sub>3</sub> - F.
AN279/AN293	The sample is digested with Sulphuric acid, K <sub>2</sub> SO <sub>4</sub> and CuSO <sub>4</sub> . 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, K <sub>2</sub> SO <sub>4</sub> and CuSO <sub>4</sub> . 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.
AN281/292	Calculation of total nitrogen and organic nitrogen.

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
		-	The sample was not analysed for this analyte
		NVL	Not Validated

Samples 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.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: [http://www.sgs.com.au/~media/Local/Australia/Documents/ Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf](http://www.sgs.com.au/~media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf)

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**Order**

Merah North Discharge Event Monitoring

**Project**

Sample Name BE015023.001 BE015023.002

Description MN Site 18 Regulat MN 19

Sample Date 5/11/2015 5/11/2015

Job Number	Method Name	Analyte Name	Units	Reporting Limit	Result	Result
BE015023	pH in water	pH**	pH Units	0.1	7.4	7.8
BE015023	Conductivity and TDS by Calculat	Conductivity @ 25 C	$\mu$ S/cm	5	220	28
BE015023	Total and Volatile Suspended Sc	Total Suspended Sol	mg/L	1	430	650
BE015023	Calculated Nitrogen Forms - TN,	Total Nitrogen (calc)	mg/L	0.05	3.3	1.1
BE015023	Total Phosphorus by Kjeldahl Di	Total Phosphorus (Kj)	mg/L	0.01	1.6	0.92
BE015023	Sample Subcontracted	Sample Subcontract	No unit	0	Report attached	Report attached