
Fluoride Plant dosing performance: October to December 2021

Responsible Officer: Group Manager Operations (Adam Nesbitt)

Recommendation

That Council receive and note the Fluoride Plant dosing performance: October to December 2021.

Background

In February 2019, it was resolved (6/19) that Council would receive a fluoride performance report incorporating chemical suppliers testing data and dosing plant performance on a quarterly basis. This report is for the period 1 October to 31 December 2021; quarter (Q4).

- Fluoride plant performance

Plant performance is measured against three criteria:

1. Australian Drinking Water Guidelines (ADWG) Health guideline value upper limit of 1.5 mg/L.
2. NSW Health Code of Practice for Fluoridation of Public Water Supplies ('Code') - target over a calendar year that > 95% of **all results** (dosed water and distribution) are between 0.9 and 1.5 mg/L; and
3. The Code - consistently achieve an overall fluoride dose of between 0.95 to 1.05 mg/L.

Attachments 1 to 4 are charts presenting the results for each of the four fluoride plants, in comparison to the criteria above.

The results of the analysis of samples collected during the quarter show that:

1. None of the plants have dosed fluoride above the ADWG guideline value of 1.5 mg/L.
2. Monthly 95th Percentile results for **all results** collected (dosed water and distribution) during the quarter are shown in Charts 1, 3, 5 and 7. Results were within the Code's target range of 0.9 to 1.5 mg/L.
3. Monthly 95th Percentile results for **dosed water** at each fluoride plant is shown in charts 2, 4, 6 and 8. Results were within the Code's dosing range of 0.95 to 1.05 mg/L.

- Fluoride deliveries

The following fluoride deliveries were received in accordance with product specifications during Q4 2021. Certificates of analysis are provided in Attachments 5 and 6.

Delivery Date	Chemical Name	Quantity	Delivered To	Purchase Order Number	Batch Number
14-12-2021	Sodium Fluorosilicate	2000 Kg	Knockrow	PO 17291	2117082A
14-12-2021	Sodium Fluorosilicate	2000 Kg	Corndale	PO 17291	2117082A
01-11-2021	Sodium Fluoride	960 kg	Corndale	PO 17359	0123721

Conclusion

For the period 1 October to 31 December 2021, the four fluoride plants operated by Council have met the dosing targets prescribed in the Australian Drinking Water Guidelines and the targets range within the NSW Health Code of Practice for Fluoridation of Public Water Supplies.

Attachments 1:

- Chart 1 – Clunes Fluoride Plant Dosing Performance – Monthly 95th Percentiles - All Results
- Chart 2 – Clunes Fluoride Plant Dosing Performance – Monthly 95th Percentiles - Daily Results

Attachments 2:

- Chart 3 – Corndale Fluoride Plant Dosing Performance – Monthly 95th Percentiles - All Results
- Chart 4 – Corndale Fluoride Plant Dosing Performance – Monthly 95th Percentiles - Daily Results

Attachments 3:

- Chart 5 – Dorroughby Fluoride Plant Dosing Performance – Monthly 95th Percentiles - All Results
- Chart 6 – Dorroughby Fluoride Plant Dosing Performance – Monthly 95th Percentiles - Daily Results

Attachments 4:

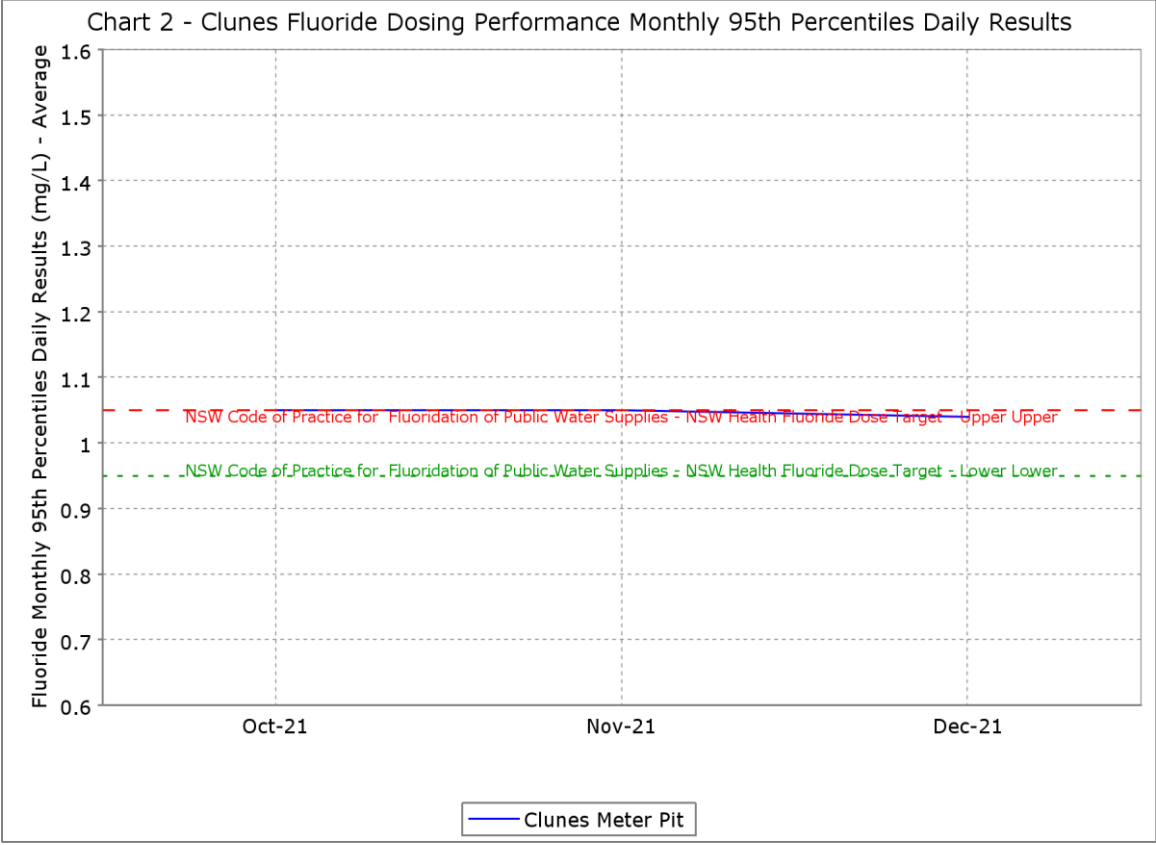
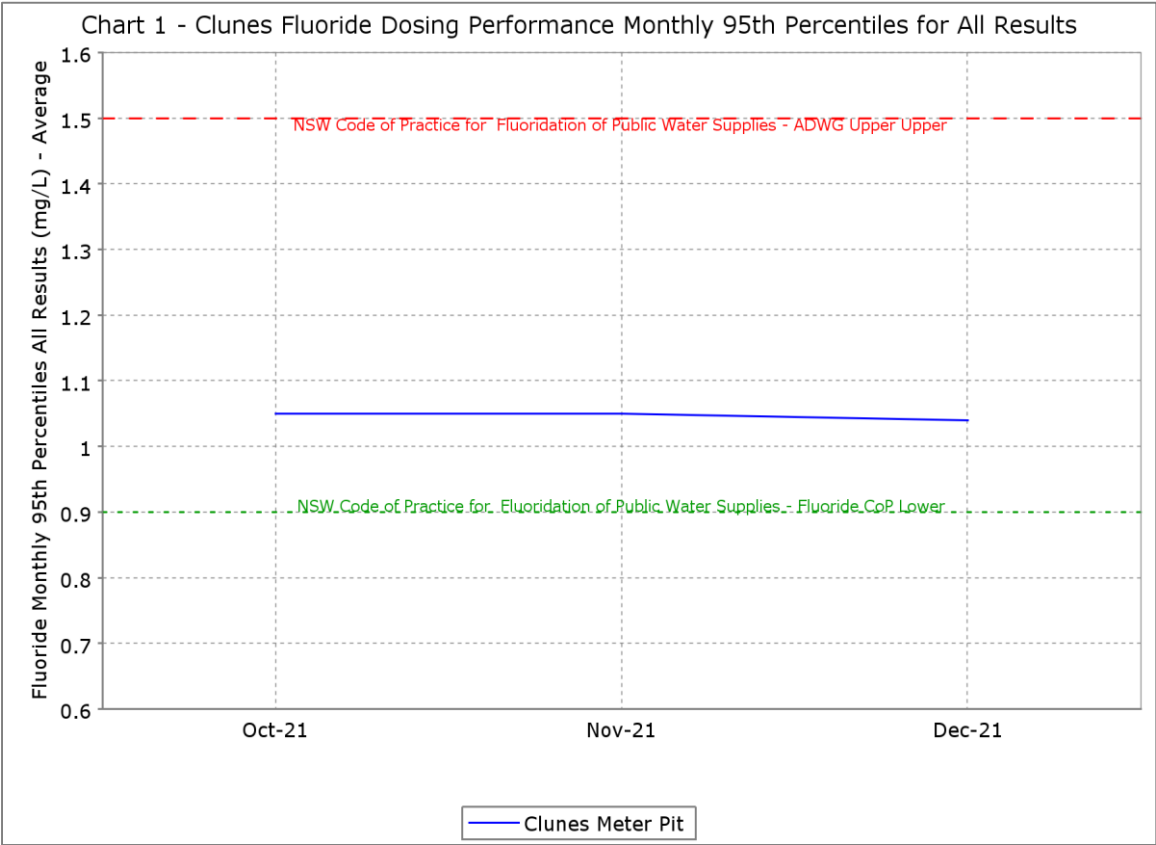
- Chart 7 – Knockrow Fluoride Plant Dosing Performance – Monthly 95th Percentiles - All Results
- Chart 8 – Knockrow Fluoride Plant Dosing Performance – Monthly 95th Percentiles - Daily Results

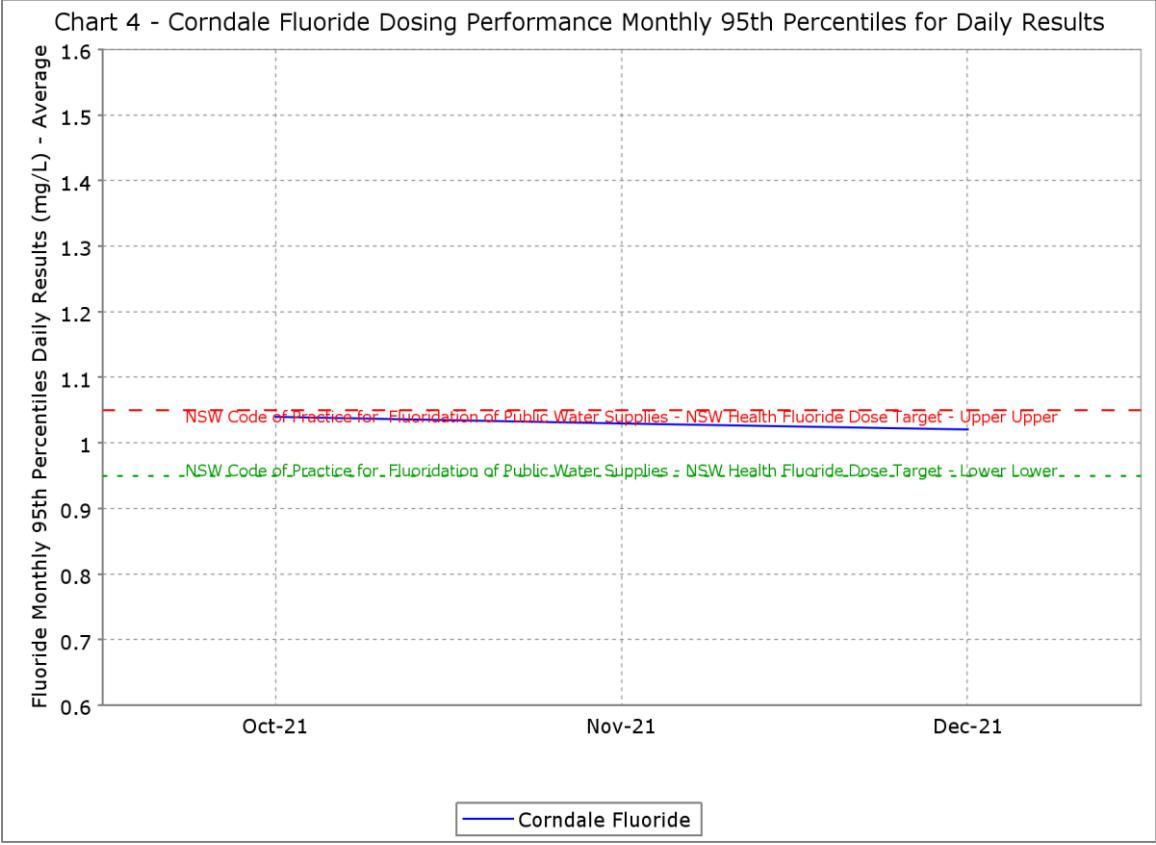
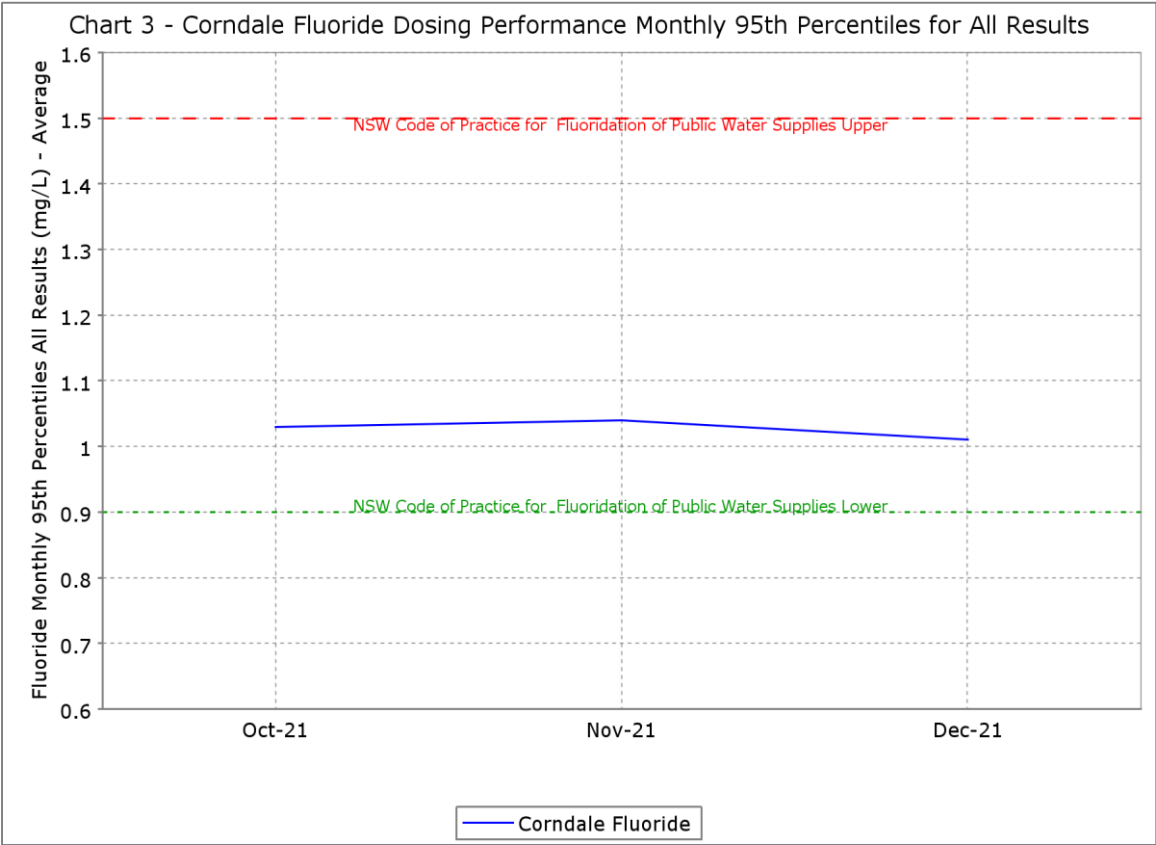
Attachment 5:

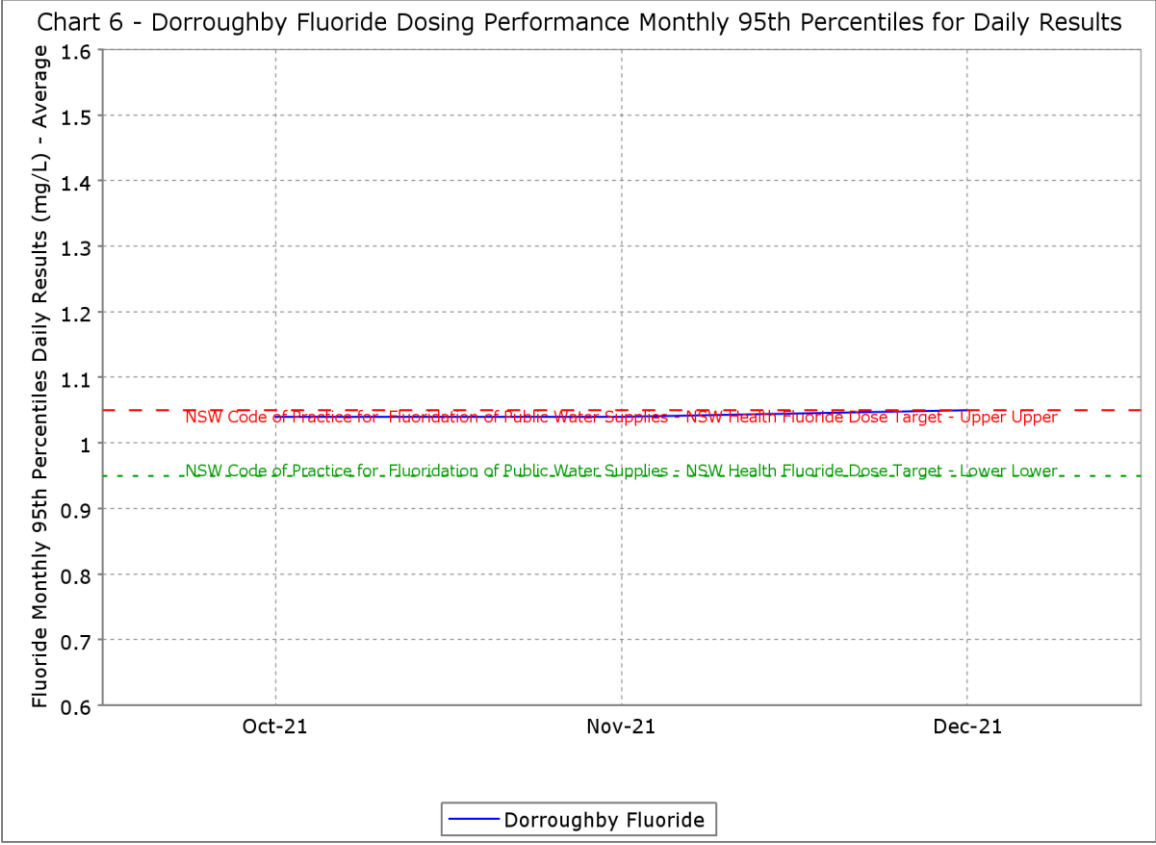
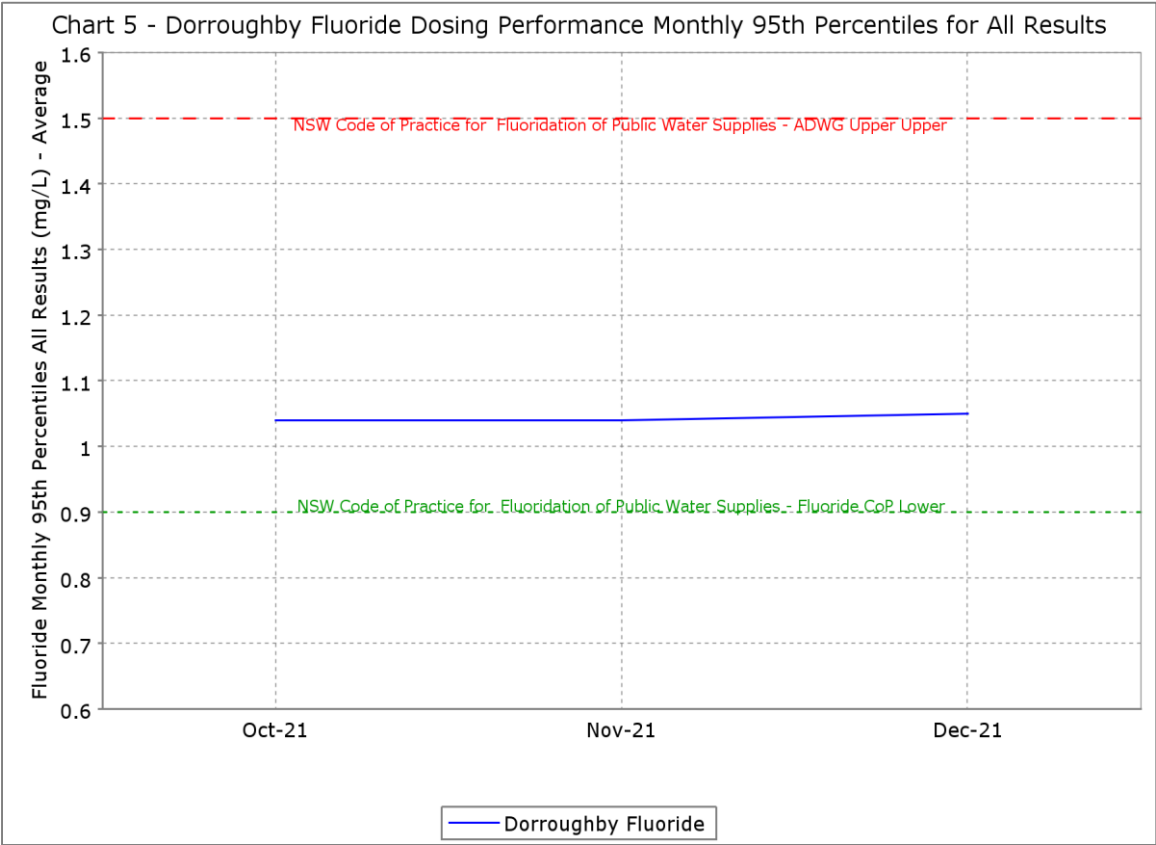
Certificate of Analysis – Sodium Fluorosilicate batch number 2117082A

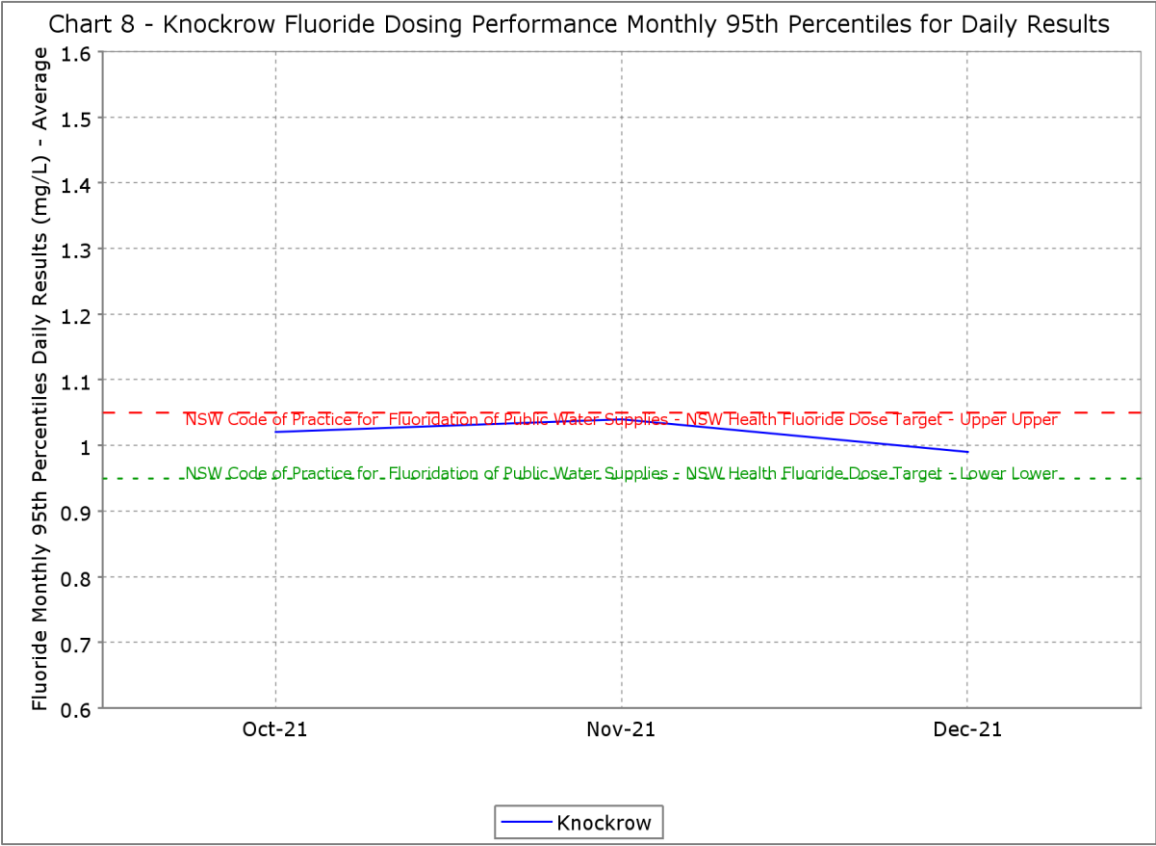
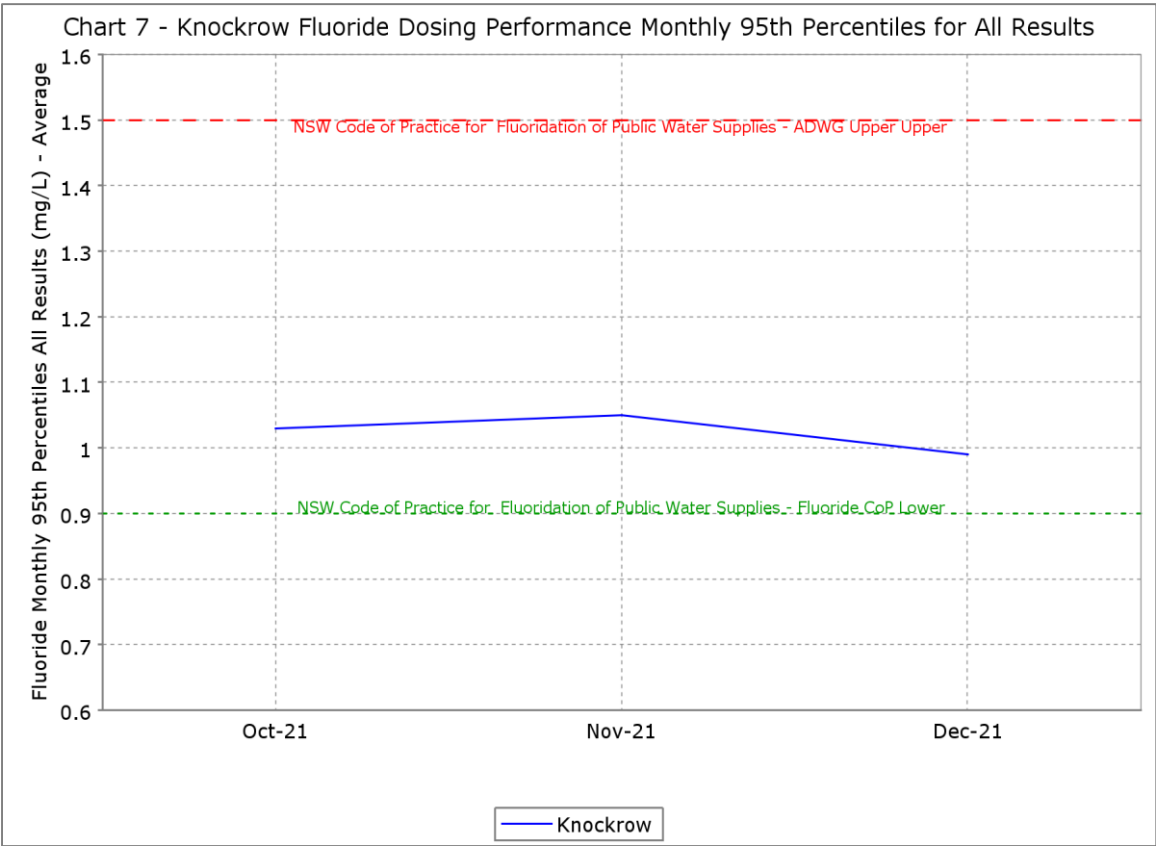
Attachment 6:

Certificate of Analysis – Sodium Fluoride batch number 0123721









Symbio LABORATORIES

CERTIFICATE OF ANALYSIS

Certificate Number	B1080377-A [R00]	Page	1/3
Client	DKSH PERFORMANCE MATERIALS AUSTRALIA PTY LIMITED	Registering Laboratory	Brisbane
Contact	Devinder Singh	Contact	Customer Service Team
Address	Level 3, 35 Cotham Road Kew VIC 3101	Address	52 Brandl Street, Eight Mile Plains, QLD 4113
Telephone	61 3 9208 6804	Email	admin@symbiolabs.com.au
Order Number	---	Telephone	1300 703 166
Project ID	Other - Sodium Fluorosilicate	Date Samples Received	05/10/2021
Sampler	Symbio	Date Analysis Commenced	05/10/2021
Client Job Reference	2117082A	Issue Date	14/10/2021
No. of Samples Registered	1 Sampler: Symbio	Receipt Temperature (°C)	Room Temperature
Priority	Normal	Storage Temperature (°C)	Ambient (25 °C)
		Quote Number	---



Accreditation No: 2455
Accredited for compliance
with ISO/IEC 17025 - Testing

This report supersedes any previous revision with this reference. This document must not be reproduced, except in full. If samples were provided by the customer, results apply only to the samples 'as received' and responsibility for representative sampling rests with the customer. Water results are reported on an 'as is' basis. Soil and sediment results are reported on a 'dry weight' basis. For other matrices the basis of reporting will be confirmed in the 'Report Comments' section. Measurement Uncertainty is available upon request. If the laboratory was authorised to conduct testing on samples received outside of the specified conditions, all test results may be impacted. Details of samples received outside of the specified conditions are mentioned in the sample description section of this test report.

Definitions

| <: Less Than | >: Greater Than | RP: Result Pending | MPN: Most Probable Number | CFU: Colony Forming Units | ---: Not Received/Not Requested | NA: Not Applicable | ND: Not Detected | LOR: Limit of Reporting | [NT]: Not Tested |
| ~: Estimated | ^ Subcontracted Analysis | TBA: To Be Advised | + Client Specified Limit | ** Potential Holding Time Concern | * Test not covered by NATA scope of accreditation | # Result derived from a calculation and includes results equal to or greater than the LOR |

Authorised By

Name	Position	Accreditation Category
Glen Rangott	Environmental Laboratory Manager, Brisbane	Environmental Chemistry
Hongmei Kuang	Chemistry Laboratory Manager, Brisbane	Environmental and Food Chemistry

Sample Information - Client/Sampler Supplied

Sample ID	B1080377-A/1
Sample Description	Sodium Fluorosilicate Batch: 2117082A

Client	DKSH PERFORMANCE MATERIALS AUSTRALIA PTY LIMITED
Certificate Number	B1080377-A [R00]
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Project ID	Other - Sodium Fluorosilicate
Sampler	Symbio
Order Number	---



Analytical Results				Sodium Fluorosilicate Batch:
Client Sample Description				2117082A
Client Sampling date/time				---
Compound/Analyte	LOR	Limit Range+	Units	B1080377-A/1
				Results
IND31.1 NaSiF for Quantum				
CF005.1 - Determination of Moisture Content by Air Oven				
Moisture (air)	0.1	<0.5	%w/w	0.3
CF065.B - Particle Size - Industrial				
Sieve (<0.425mm)*	1	>98	% w/w	99.4
Sieve (<0.045mm)*	1	<25	% w/w	12.0
CF090.1 - Water Insoluble Residue				
Water Insoluble Residue	0.1	<0.5	%w/w	0.4
IND031.1 - Fluoride in Sodium Fluorosilicate				
Sodium Fluorosilicate	0.1	>98	%w/w	101.6
Fluoride #	---	>59.4	%w/w	61.6
IND041 - Metals in Soil - ICP-AES				
Antimony (Sb)*	2	<100	mg/kg	<2.0
Arsenic (As)	5	<100	mg/kg	6.1
Barium (Ba)	1	<100	mg/kg	<1
Beryllium (Be)	1	<100	mg/kg	<1
Cadmium (Cd)	0.5	<50	mg/kg	<0.5
Chromium (Cr)	1	<100	mg/kg	1.8
Copper (Cu)	1	<100	mg/kg	<1
Lead (Pb)	2	<100	mg/kg	<2.0
Mercury (Hg)	2	<20	mg/kg	<2.0
Nickel (Ni)	1	<100	mg/kg	<1
Selenium (Se)	5	<100	mg/kg	<5.0
Thallium (Tl)*	2	<70	mg/kg	<2.0
Uranium (U)*	2	<920	mg/kg	<2



Client	DKSH PERFORMANCE MATERIALS AUSTRALIA PTY LIMITED
Certificate Number	B1080377-A [R00]
Page	3/3

Project ID	Other - Sodium Fluorosilicate
Sampler	Symbio
Order Number	---



Analysis Location

All in-house analysis was completed by Symbio Laboratories - Brisbane.

Report Comments

Methodologies employed to analyse sodium fluorosilicate comply with the requirements of the American Water Works Association (AWWA) B702-11.

Thomas Hedger



Sodium Fluoride DELIVERIES - CERTIFICATE OF ANALYSIS

Powder Lot Number: 20-247-01
 Profill Batch number: 0123721

Delivery Docket: 4505718689.....
 Customer Site: Fluorosafe NSF grade 5kg bottles (37).....

Parameter	Specification	Unit	Testing Performed By	Test Result
NaF purity	98.5% min	%	Prayon	100.3
Alkalinity	0.1% max	%	Prayon	< 0.01
Loss on Drying	0.10% max	%	Prayon	< 0.01
As	0.5 max	ppm	Prayon	< 0.10
Cl	100 max	ppm	Prayon	34.0
Fe	50 max	ppm	Prayon	6.96
Heavy Metals	50 max	ppm	Prayon	< 10
Insoluble	0.6 max	%	Prayon	< 0.05
Na ₂ SiF ₆	0.2 max	%	Prayon	< 0.01
Pb	1 max	ppm	Prayon	< 1
SO ₄	250 max	ppm	Prayon	< 20

Product meets AWWA standard B701-99. Material is certified to NSF / ANSI Std. 60 (Drinking Water Treatment Chemicals)

Authorised by: Ixom Product Manager

Signature :

Chris Howard Date: 01/09/2021

Ixom Operations Pty Ltd
 ACN 600546512
 1 Nicholson St,
 East Melbourne VIC, 3002 Australia
 www.ixom.com

hrl:

Result Sheet

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HRL Technology Group Pty Ltd
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AUSTRALIA

Date: **1st December 2021** File No. **67210025** Report No. **21-1402-21 VER2**

To: Name **Chris Howard**
Company **IXOM Chemicals**
Address **Level 10, 1 Nicholson Street,
East Melbourne, Vic 3002
Australia**

Tel No. **03 9906 3128**

From: Name **Andrew Curry**

Tel No. **03 9565 9862**

Number of pages including this page: 2

ANALYSIS OF SODIUM FLUORIDE POWDER

Background: A sample of Sodium Fluoride with Batch # 0123721 was sampled by IXOM, then forwarded to the HRL laboratories, for analysis.


Analysis : The analysis for purity, % moisture, sizing and trace element impurity levels were determined in accordance with ANSI/AWWA B701-18. The mercury level was determined by cold vapour generation atomic absorption spectrometry.


Results:

Table 1 presents results for the chemical and physical analysis.

Table 2 presents results for particle size.

Table 3 presents results for the regulated metals in accordance with AWWA B701-18.

Signed: 
Andrew Curry
Analytical Chemist

Approved: 
Nick Miller
Business Unit Leader – LATS

Distribution: Copy 1: Client. Copy 2: HRL Project File.

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The results presented in this report relate exclusively to the samples selected by the client for the purpose of testing. No responsibility is taken for the representativeness of these samples.

QA741H

21-1402-21 VER2 (continued)

Table 1: – Chemical & Physical Analysis.

Parameter	Unit	Batch # 0123721
Sodium Fluoride Content	%	99.3
Moisture	%	0.01

Table 2:-Particle Size.

Mesh Size	Unit	Batch # 0123721
-20 mesh	%	99.99
+100 mesh	%	13.37
-325 mesh	%	6.62

Table 3: Trace Element Analysis.

Element	Unit	Batch # 0123721
As	mg/kg	<2
Ba	mg/kg	2
Be	mg/kg	<1
Cd	mg/kg	<1
Cr	mg/kg	5
Cu	mg/kg	<1
Fe	mg/kg	14
Pb	mg/kg	<2
Ni	mg/kg	7
Sb	mg/kg	<3
Se	mg/kg	<9
Tl	mg/kg	3
Hg	mg/kg	<0.01