
Manning Colliery Monthly Website Report – January 2023

Site:	Manning Colliery
Department:	Technical Services
Report Title:	Monthly Environmental Report – January 2023
Prepared by:	Lachlan McWha
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Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of January 2023.

Introduction

Great Southern Energy Pty Ltd (trading as Delta Coal) operates Manning Colliery, an underground coal mine at the southern end of Lake Macquarie.

Manning Colliery operates under the following regulatory instruments:

- Section 66(6) of the *Protection of the Environmental Operations Act 1997*, to make monitoring data related to an Environment Protection Licence (EPL) publicly available;
- Condition 10 & 13, Schedule 5, of Project Approval 06_0311 (as modified) to provide details of monitoring results and environmental performance;
- An Environment Protection Licence (EPL 191) issued under the *Protection of the Environment Operations Act 1997*; and
- A Water Access Licence (WAL40461), Aquifer (Sydney Basin – North Coast Groundwater Source) for 450-unit shares (megalitres).

Details of the Manning Colliery EPL 191 are provided below.

Manning Colliery Information	
Premises name	Manning Colliery
Address	Ruttleys Road, Doyalson, NSW, 2262
Licensee	Great Southern Energy Pty Ltd
EPL #	191
EPL location	EPL 0191 - 14 April 2021

The overall purpose of this monthly report is to keep stakeholders informed of the environmental monitoring results at Manning Colliery and maintain a transparent and accountable reporting system.

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Scope

This report presents the results from the various environmental monitoring programs undertaken for Manning Colliery. Results are presented monthly with annual data, averages and trends in data also shown where relevant.

Where applicable, the results of the monitoring programs are compared with the relevant criteria (from the EPL or Project Approval) to assess compliance.

Monitoring results presented include:

- Water – quality;
- Water – volume;
- Air Quality – Depositional Dust
- Air Quality – PM₁₀
- Air Quality – PM_{2.5}; and
- Meteorological data.

Definitions

g/m²/month – grams per square metre per month;

kL – kilolitre;

ML – megalitre;

mg/L – milligrams per litre;

TSS – total suspended solids;

µg/L – micrograms per litre; and

µS/cm – microSiemens per centimetre.

References

Project Approval MP06_0311 (as modified)

Environment Protection Licence 191 (Licence version date: 14 April 2021)

ALS - Dust Deposition Report **January 2023**

ALS – MC Water Analysis Reports **January 2023**

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Monitoring Results

Water – Quality

Weekly water quality results for discharge point LDP001 are presented below.

January 2023				
EPL	191			
Licensee	Great Southern Energy Pty Ltd			
Premises	Manning Colliery			
Location	LDP001 (EPA ID # 1)			
Sample Frequency	Weekly			
pH limit	6.5 - 8.5			
TSS limit (mg/L)	50			
Oil and grease limit (mg/L)	10			
Water Quality Results				
Date	pH	TSS (mg/L)	Oil and grease (mg/L)	Electrical Conductivity (µS/cm)
05/01/2023	7.73	8	<5	28,200
11/01/2023	7.65	8	<5	27,200
20/01/2023	8.20	7	<5	17,600
25/01/2023	7.77	12	<5	28,000
Average	7.84	8.75	<5	25,250

There were no exceedances of water quality criteria in January 2022 at Manning Colliery.

Monthly water quality results, primarily metals and metalloids, at LDP001 are presented below for the period.

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Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Sample ID		LDP001
		Sampling date / time		11-Jan-2023 10:45
Compound	CAS Number	LOR	Unit	ES2300827-001
				Result
ED040F: Dissolved Major Anions				
Sulfur as S	63705-05-5	1	mg/L	157
Silicon as SiO2	14464-46-1	0.1	mg/L	14.7
ED093T: Total Major Cations				
Calcium	7440-70-2	1	mg/L	255
Magnesium	7439-95-4	1	mg/L	287
Potassium	7440-09-7	1	mg/L	38
EG020F: Dissolved Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	10
Arsenic	7440-38-2	1	µg/L	2
Beryllium	7440-41-7	1	µg/L	<1
Cadmium	7440-43-9	0.1	µg/L	<0.1
Chromium	7440-47-3	1	µg/L	<1
Cobalt	7440-48-4	1	µg/L	<1
Copper	7440-50-8	1	µg/L	1
Lead	7439-92-1	1	µg/L	<1
Manganese	7439-96-5	1	µg/L	88
Molybdenum	7439-98-7	1	µg/L	6
Nickel	7440-02-0	1	µg/L	4
Selenium	7782-49-2	10	µg/L	<10
Silver	7440-22-4	1	µg/L	<1
Vanadium	7440-62-2	10	µg/L	<10
Zinc	7440-66-6	5	µg/L	<5
EG020T: Total Metals by ICP-MS				
Aluminium	7429-90-5	10	µg/L	<10
Antimony	7440-36-0	1	µg/L	<1
Arsenic	7440-38-2	1	µg/L	2
Beryllium	7440-41-7	1	µg/L	<1
Barium	7440-39-3	1	µg/L	252
Cadmium	7440-43-9	0.1	µg/L	<0.1
Chromium	7440-47-3	1	µg/L	<1
Cobalt	7440-48-4	1	µg/L	<1
Copper	7440-50-8	1	µg/L	<1
Lead	7439-92-1	1	µg/L	<1
Lithium	7439-93-2	1	µg/L	597
EG020T: Total Metals by ICP-MS - Continued				
Molybdenum	7439-98-7	1	µg/L	7
Nickel	7440-02-0	1	µg/L	4
Selenium	7782-49-2	10	µg/L	<10
Silver	7440-22-4	1	µg/L	<1
Tin	7440-31-5	1	µg/L	<1
Titanium	7440-32-6	10	µg/L	<10
Vanadium	7440-62-2	10	µg/L	<10
Zinc	7440-66-6	5	µg/L	8
Boron	7440-42-8	50	µg/L	390
Iron	7439-89-6	50	µg/L	90
EG035F: Dissolved Mercury by FIMS				
Mercury	7439-97-6	0.1	µg/L	<0.1
EG035T: Total Recoverable Mercury by FIMS				
Mercury	7439-97-6	0.1	µg/L	<0.1
EK055G: Ammonia as N by Discrete Analyser				
Ammonia as N	7664-41-7	0.01	mg/L	1.14
EK067G: Total Phosphorus as P by Discrete Analyser				
Total Phosphorus as P	---	0.01	mg/L	<0.05

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Water – Volume

Monthly water volumes discharged via LDP001 at Manning Colliery are summarised below.

January 2023	
EPL	191
Licensee	Great Southern Energy Pty Ltd
Premises	Manning Colliery
Date Sampled	Daily
Date Reported	Refer report date
Discharge volume limit	4000 kilolitres per day
Sampling Point	LDP001 (EPA ID # 1)

Date (24 hour period)	LDP 1 Volume (kL/day)	Rainfall (mm)
01/01/2023	0.00	0
02/01/2023	0.00	0
03/01/2023	0.00	0
04/01/2023	0.00	5.8
05/01/2023	153.15	15.4
06/01/2023	441.59	22.2
07/01/2023	1123.10	4
08/01/2023	1746.29	0.2
09/01/2023	1692.30	0
10/01/2023	1668.24	0
11/01/2023	1669.36	0
12/01/2023	814.36	0
13/01/2023	1553.32	0
14/01/2023	1656.40	0
15/01/2023	1646.03	0
16/01/2023	1627.62	0
17/01/2023	1629.78	0.2
18/01/2023	1509.83	2.4
19/01/2023	495.09	11.2
20/01/2023	234.29	3
21/01/2023	1661.38	1.8
22/01/2023	1769.25	7.2
23/01/2023	1680.10	0.2
24/01/2023	1621.13	1.2
25/01/2023	340.82	0.2
26/01/2023	1044.78	7
27/01/2023	1688.29	0
28/01/2023	1259.91	0
29/01/2023	1017.63	4.6
30/01/2023	1393.79	24.8
31/01/2023	1578.45	0.4

Average	1119.8 kL/day	3.6 mm/day
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There were no exceedances of volumetric discharge limits at LDP1 in January 2023.

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Water – Groundwater Discharge

Groundwater discharged from underground workings to the MCs surface retention Dams has been detailed below. Manning Colliery operates Water Access License 40461 permitting the extraction of 450 megalitres per financial year and reports annual use to the Water NSW, Water Accounting System (iWAS).

MC Groundwater Pumped to Surface Totals FY2022-2023		
Date (month)	Groundwater Discharge (ML)	Groundwater Discharge (Total ML Water Year to Date)
Jul-22	23.88	24
Aug-22	21.7	46
Sep-22	23.9	69
Oct-22	18.4	88
Nov-22	25.9	114
Dec-22	16.69	130
Jan-23	33.25	164
Feb-23		
Mar-23		
Apr-23		
May-23		
Jun-23		

Air Quality – Depositional Dust

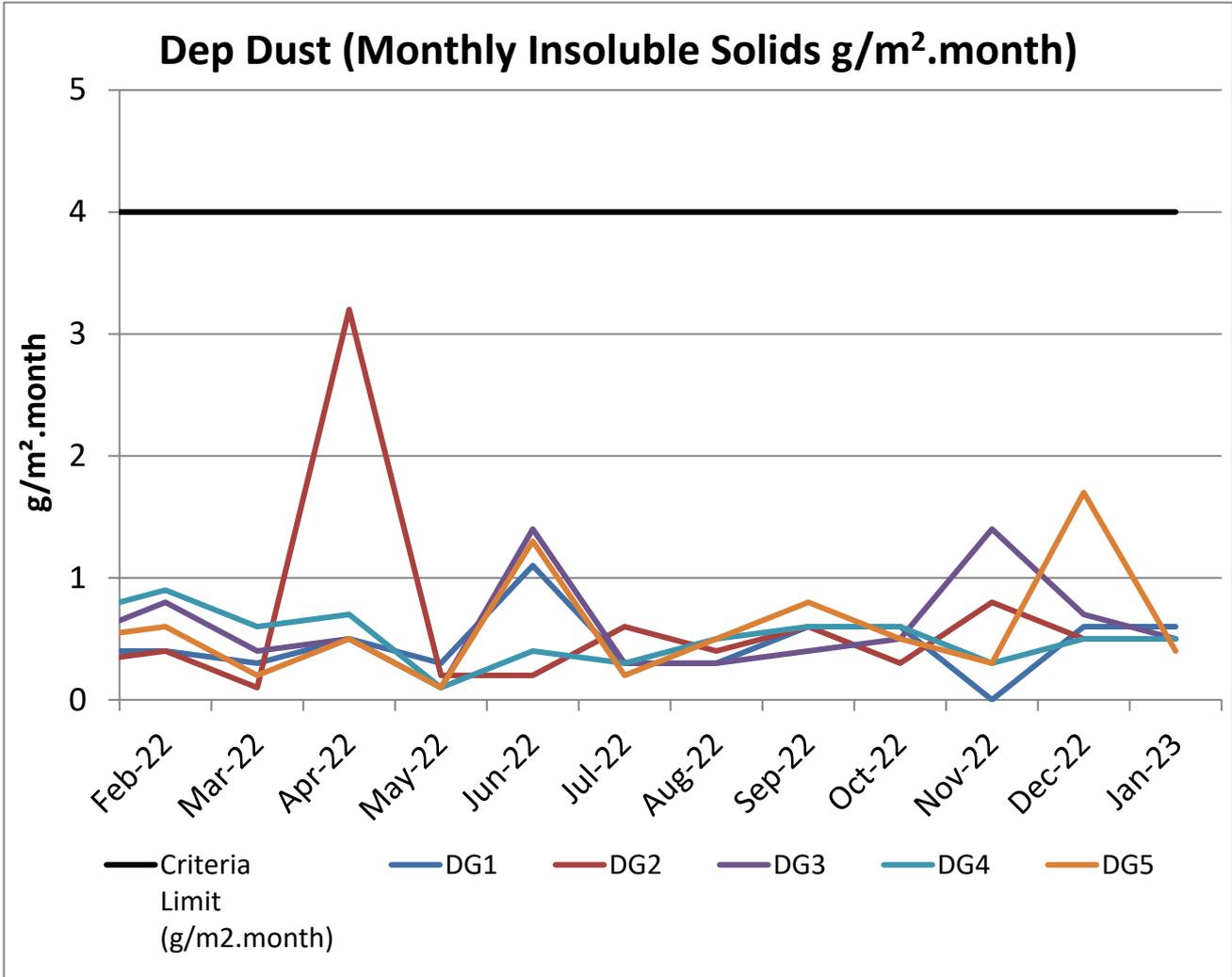
Monthly depositional dust results are shown below.

January 2023		
EPL	191	
Limits	Max. total deposited dust level	4g/m ² /month
	Max. increase in deposited dust level	2g/m ² /month
Sampling Date	05/12/2022 – 04/01/2023	
EPA ID no.	Site	Insoluble Matter (g/m ² /month)
3	DG1	0.6
4	DG2	0.5
5	DG3	0.5
6	DG4	0.5
7	DG5	0.4
Notes:	Sampling locations provided in Manning Colliery Air Quality Management Plan available on the Delta Coal website.	

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A 12-month rolling average of depositional dust concentrations has been presented below. Manning Colliery's dust gauges are located around the perimeter of the Manning Colliery site boundary.

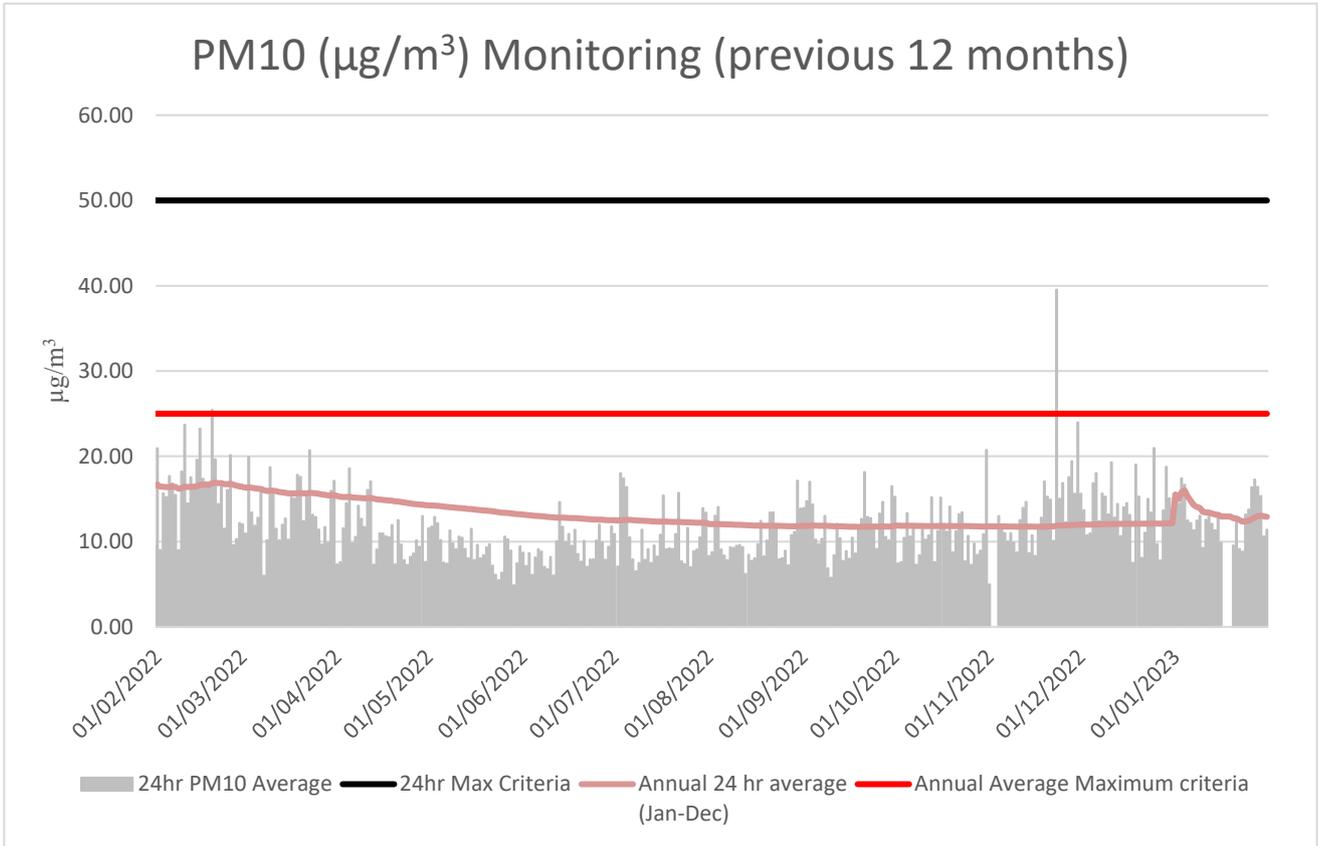


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Air Quality – PM₁₀

The 24hr PM₁₀ average from Delta Coal’s Tapered Element Oscillating Microbalance (TEOM), located at the Manning Park Sewage Treatment Plant, is presented below for the previous 12 months.



Annual 24hr PM₁₀ average maximum criteria for January 2023 was below the annual average maximum criteria limit. A summary of data availability for Delta Coal’s TEOM is presented below for the reporting period. Delta Coals TEOM had a data availability of **91.6%** for the month of January 2023.

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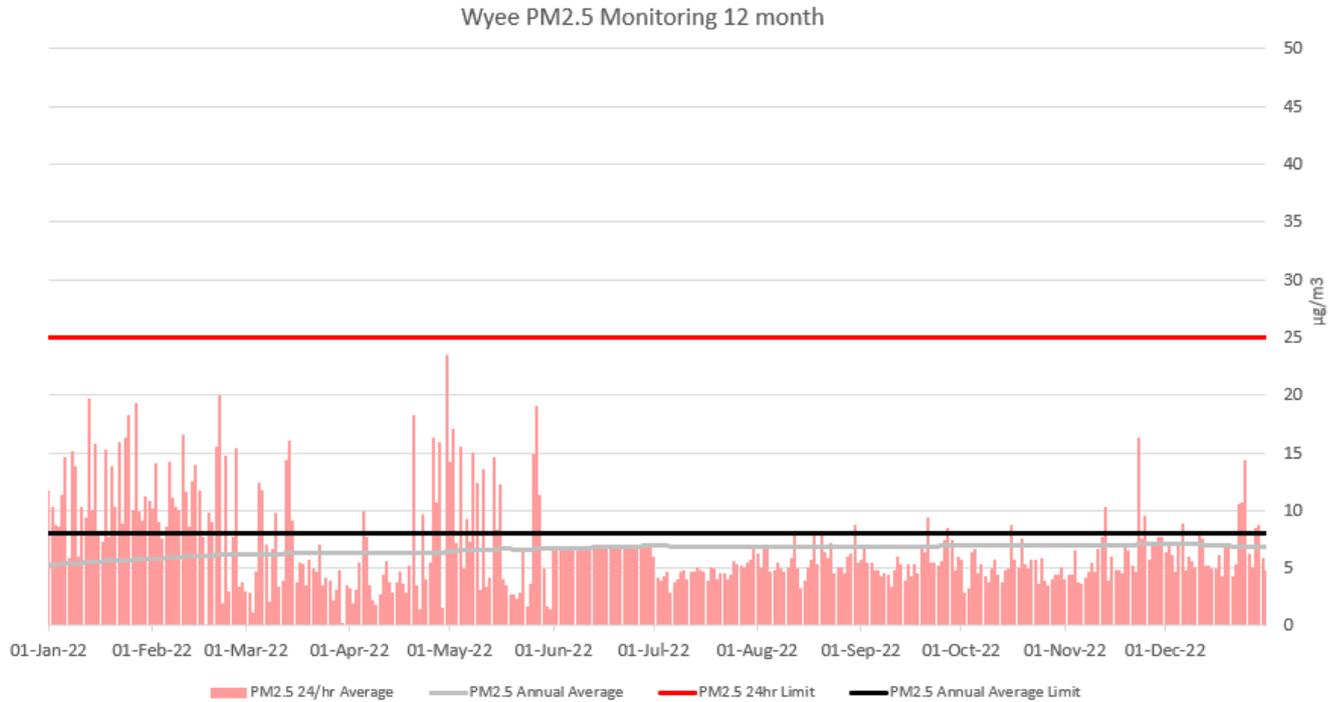
Variable	January	Total	Valid
A/C Temp	91.6%	8928	8174
A1	91.6%	8928	8174
A1_Scaled	91.6%	8928	8174
Bypass Flow	91.6%	8928	8174
Cap Temp	91.6%	8928	8174
Case Temp	91.6%	8928	8174
Config	91.6%	8928	8174
Dew Point	91.6%	8928	8174
Dig-In	91.6%	8928	8174
Dig-Latch	91.6%	8928	8174
ESN	91.6%	8928	8174
Filter Freq	91.6%	8928	8174
Filter Load	91.6%	8928	8174
Humidity	91.6%	8928	8174
MC	91.6%	8928	8174
MC 12Hr	91.6%	8928	8174
MC 1Hr	91.6%	8928	8174
MC 24Hr	91.6%	8928	8174
MC 30min	91.6%	8928	8174
MC 8Hr	91.6%	8928	8174
MC Total	91.6%	8928	8174
Mobile Signal	91.6%	8928	8174
Noise	91.6%	8928	8174
PM10 Flow	91.6%	8928	8174
Pressure	91.6%	8928	8174
Site	0.0%	8928	0
Temperature	91.6%	8928	8174
Tube Temp	91.6%	8928	8174
Vac Pressure	91.6%	8928	8174
Volts	91.6%	8928	8174

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Air Quality – PM_{2.5}

Delta Coal utilises PM_{2.5} data obtained from Delta Electricity owned and operated beta attenuation monitor (BAM). The PM_{2.5} monitor is located on Tingley Road, Wyee.



There were no exceedances of the PM_{2.5} daily average limit in December 2022. The 12-month rolling average PM_{2.5} value on 31 December 2022 was 6.8 µg/m³. PM_{2.5} data availability for December 2022 was 100%. The 2022 year to date PM_{2.5} data availability was 92%.

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Weather Data

A summary of weather data recorded by a meteorological monitoring station at the adjacent Manning Colliery is presented below for the year to date. (EPA ID no. 26).

Monthly Weather Data 2022			
Licensee	Great Southern Energy Pty Ltd		
Location	Manning Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	31 January 2023		
Month	Total Rainfall/Month (mm)	Min Temp	Max Temp
Jan-23	111.8	14.4	31.7

Variable	January	Total	Valid
Baro (Corrected)	100%	2976	2976
10m Temp	100%	2976	2976
2m Temp	100%	2976	2976
A1	100%	2976	2976
A1_Scaled	100%	2976	2976
Assumed Temp	100%	2976	2976
Barometric	100%	2976	2976
Config	100%	2976	2976
Daily Evap	100%	2976	2976
Daily Rain	100%	2976	2976
Delta T	100%	2976	2976
Dew Point	100%	2976	2976
Dig-In	100%	2976	2976
Dig-Latch	100%	2976	2976
ESN	100%	2976	2976
FDI	100%	2976	2976
Heat Index	100%	2976	2976
Humidity	100%	2976	2976
Mobile Signal	100%	2976	2976
Rain	100%	2976	2976
Raw Evap	100%	2976	2976
S Class	100%	2976	2976
Scalar WS	100%	2976	2976
Sigma	100%	2976	2976
Site	0.0%	2976	0
Solar Radiation	100%	2976	2976
Vector WD	100%	2976	2976
Vector WS	100%	2976	2976
Volts	100%	2976	2976
Wind Chill	100%	2976	2976
Wind Direction	100%	2976	2976
Wind Speed	100%	2976	2976
WS Avg	100%	2976	2976
WS Gust	100%	2976	2976