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# Manning Colliery Monthly Website Report – February 2021

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<b>Site:</b>	Manning Colliery
<b>Department:</b>	Technical Services
<b>Report Title:</b>	Monthly Environmental Report – February 2021
<b>Prepared by:</b>	Lachlan McWha
<b>Report Date:</b>	12 <sup>th</sup> March 2021
<b>Distribution:</b>	Delta Coal website

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# Report

Manning Colliery Monthly Environmental Report – February 2021

## Summary

Environmental monitoring results are presented in this report for monitoring undertaken during the period of February 2021.

## 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 Environment 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).

This report provides environmental monitoring data from Manning Colliery for the month of February 2021.

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	<a href="http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=50781&amp;SYSUID=1&amp;LICID=191">http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=50781&amp;SYSUID=1&amp;LICID=191</a>

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.

# Report

Manning Colliery Monthly Environmental Report – February 2021

## 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 – PM<sub>10</sub>
- Air Quality – PM<sub>2.5</sub>; and
- Meteorological data.

## Definitions

g/m<sup>2</sup>/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 06\_0311 (as modified)

Environment Protection Licence 191 (Licence version date: 25 November 2019)

ALS - Dust Deposition Report **February 2021**

ALS – MC Water Analysis Reports **February 2021**

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## Monitoring Results

### Water – Quality

Weekly water quality results for discharge point LDP001 are presented below. Monitoring of these parameters have reverted to weekly as per EPL PRP requirements.

February 2021			
<b>EPL</b>	191		
<b>Licensee</b>	Great Southern Energy Pty Ltd		
<b>Premises</b>	Manning Colliery		
<b>Period</b>	01-Feb-21	to	28-Feb-20
<b>Location</b>	LDP001 (EPA ID # 1)		
<b>Date sampled</b>	Weekly		
<b>Date reported</b>	Refer report date		
<b>Monitoring requirement</b>	Weekly		
<b>pH limit</b>	6.5 - 8.5		
<b>TSS limit (mg/L)</b>	50		
<b>Oil and grease limit (mg/L)</b>	10		
<b>Exceedance (Yes/No)</b>	No		
Water Quality Results			
Date	pH	TSS (mg/L)	Oil and grease (mg/L)
01/02/2021	7.7	2	<5
08/02/2021	7.97	11	<6
16/02/2021	8.15	15	<8
22/02/2021	7.75	10	<5
<b>Average</b>	7.9	9.5	6
<b>Minimum</b>	7.7	2	5
<b>Maximum</b>	8.15	15	8

The water quality analytical results during the reporting period did not exceed the discharge water quality criteria within Project Approval MP06\_0311. Monthly water quality results, primarily metals, at LDP001 are presented below for the period.

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## Manning Colliery Monthly Environmental Report – February 2021

### Analytical Results

Sub-Matrix: WATER (Matrix: WATER)		Sample ID			LDP001
		Sampling date / time			16-Feb-2021 12:45
Compound	CAS Number	LOR	Unit	ES2105389-001	
					Result
<b>EA010P: Conductivity by PC Titrator</b>					
Electrical Conductivity @ 25°C	----	1	µS/cm	15900	
<b>ED040F: Dissolved Major Anions</b>					
Sulfur as S	63705-05-5	1	mg/L	90	
Silicon as SiO2	14464-46-1	0.1	mg/L	8.8	
<b>ED093T: Total Major Cations</b>					
Calcium	7440-70-2	1	mg/L	126	
Magnesium	7439-95-4	1	mg/L	171	
Potassium	7440-09-7	1	mg/L	22	
<b>EG020F: Dissolved Metals by ICP-MS</b>					
Aluminium	7429-90-5	10	µg/L	<10	
Arsenic	7440-38-2	1	µg/L	12	
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	32	
Molybdenum	7439-98-7	1	µg/L	6	
Nickel	7440-02-0	1	µg/L	2	
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	6	
<b>EG020T: Total Metals by ICP-MS</b>					
Aluminium	7429-90-5	10	µg/L	130	
Antimony	7440-36-0	1	µg/L	8	
Arsenic	7440-38-2	1	µg/L	12	
Beryllium	7440-41-7	1	µg/L	<1	
Barium	7440-39-3	1	µg/L	366	
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	
<b>EG020T: Total Metals by ICP-MS - Continued</b>					
Lead	7439-92-1	1	µg/L	<1	
Lithium	7439-93-2	1	µg/L	303	
Molybdenum	7439-98-7	1	µg/L	8	
Nickel	7440-02-0	1	µg/L	2	
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	<5	
Boron	7440-42-8	50	µg/L	220	
Iron	7439-89-6	50	µg/L	60	
<b>EG035F: Dissolved Mercury by FIMS</b>					
Mercury	7439-97-6	0.1	µg/L	<0.1	
<b>EG035T: Total Recoverable Mercury by FIMS</b>					
Mercury	7439-97-6	0.1	µg/L	<0.1	
<b>EK055G: Ammonia as N by Discrete Analyser</b>					
Ammonia as N	7664-41-7	0.01	mg/L	0.45	
<b>EK067G: Total Phosphorus as P by Discrete Analyser</b>					
Total Phosphorus as P	----	0.01	mg/L	<0.02	

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## Manninging Colliery Monthly Environmental Report – February 2021

### Water – Volume

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

February 2021		
EPL	191	
Licensee	Great Southern Energy Pty Ltd	
Premises	Manninging Colliery	
Date Sampled	Daily	
Date Reported	Refer report date	
Discharge volume limit	4000 kilolitres per day	
Sampling Point	LDP001 (EPA ID # 1)	
Day	Unit	Volume
01/02/2021	kL	1870.76
02/02/2021	kL	1281.38
03/02/2021	kL	1482.25
04/02/2021	kL	646.8
05/02/2021	kL	287.5
06/02/2021	kL	963.99
07/02/2021	kL	1283.72
08/02/2021	kL	550.55
09/02/2021	kL	827.5
10/02/2021	kL	809.15
11/02/2021	kL	988.16
12/02/2021	kL	148.9
13/02/2021	kL	569.66
14/02/2021	kL	1424.11
15/02/2021	kL	1080.69
16/02/2021	kL	434.11
17/02/2021	kL	609.08
18/02/2021	kL	1216.84
19/02/2021	kL	421.95
20/02/2021	kL	571.31
21/02/2021	kL	661.32
22/02/2021	kL	894.1
23/02/2021	kL	500.3
24/02/2021	kL	1412.45
25/02/2021	kL	1406.93
26/02/2021	kL	654.05
27/02/2021	kL	365.94
28/02/2021	kL	358.94
Average	kL	847.23
Minimum	kL	148.9
Maximum	kL	1870.76

The daily water volumes discharged from LDP001 during February 2021 did not exceed the relevant limit.

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### Water – Groundwater Discharge

Groundwater discharged from underground workings to the MCs retention Dams within the surface operational area has been detailed below. Delta Coal notes that MC does not have calibrated volume sensors on underground piping, as such, discharge from LDP001 is utilised to estimate groundwater extraction. Manning Colliery operates Water Access License permitting the extraction of 450 megalitres per financial year and reports annual use to the Water NSW, Water Accounting System (iWAS).

MC Indicative Groundwater Pumped to Surface Totals FY2020-2021		
Date (month)	Groundwater Discharge (ML)	Groundwater Discharge (Total ML Water Year to Date)
July 2020	26.83	26.83
August 2020	29.04	55.87
September 2020	17.09	72.96
October 2020	30.9	103.88
November 2020	28.03	131.91
December 2020	30.33	162.24
January 2021	25.84	188.08
February 2021	30.62	218.70
March 2021		
April 2021		
May 2021		
June 2021		

### Air Quality

Monthly depositional dust results are shown below.

February 2021		
<b>EPL</b>	191	
<b>Limits</b>	Max. total deposited dust level	4g/m <sup>2</sup> /month
	Max. increase in deposited dust level	2g/m <sup>2</sup> /month
<b>Sampling Date</b>	08/01/2021 to 08/02/2021	
EPA ID no.	Site	Insoluble Matter (g/m <sup>2</sup> /month)
3	DG1	0.5
4	DG2	0.5
5	DG3	0.5
6	DG4	0.6
7	DG5	0.8
Notes:		

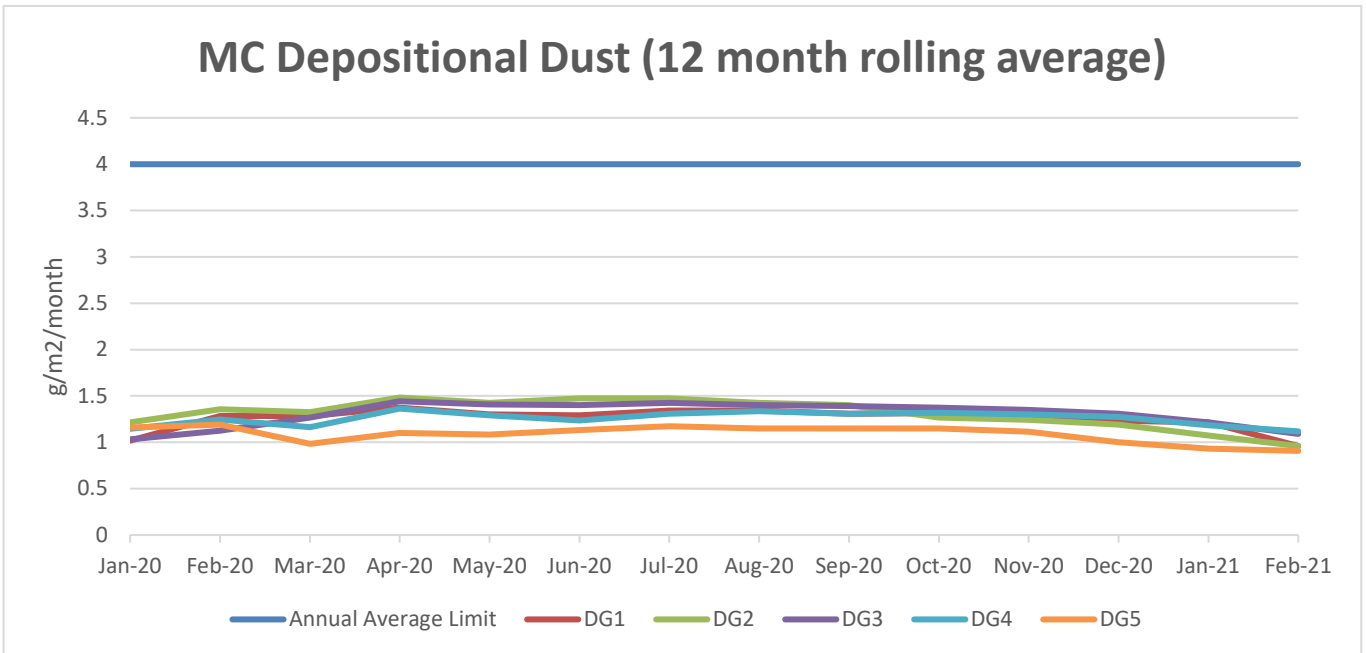
There were no exceedances of the annual average air quality limits during the reporting period.



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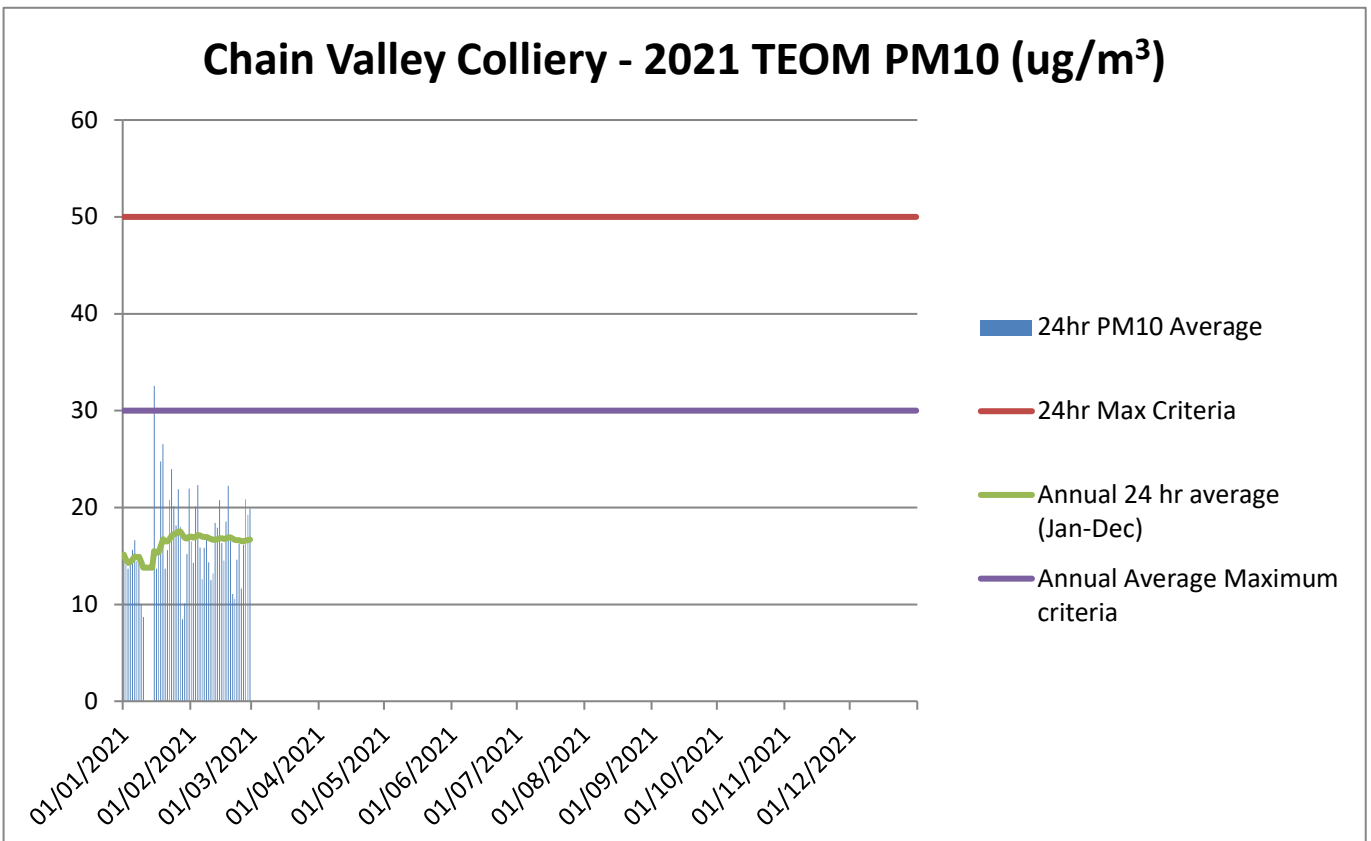
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## Rolling annual average depositional dust results



## Air Quality – PM<sub>10</sub>

The 24hr PM<sub>10</sub> average from Delta Coal’s Tapered Element Oscillating Microbalance (TEOM) is presented below for the year to date.



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Annual 24hr PM<sub>10</sub> average maximum criteria for the month was below the annual average maximum criteria limit. A summary of data availability for Delta Coal's TEOM is presented below for the year to date.

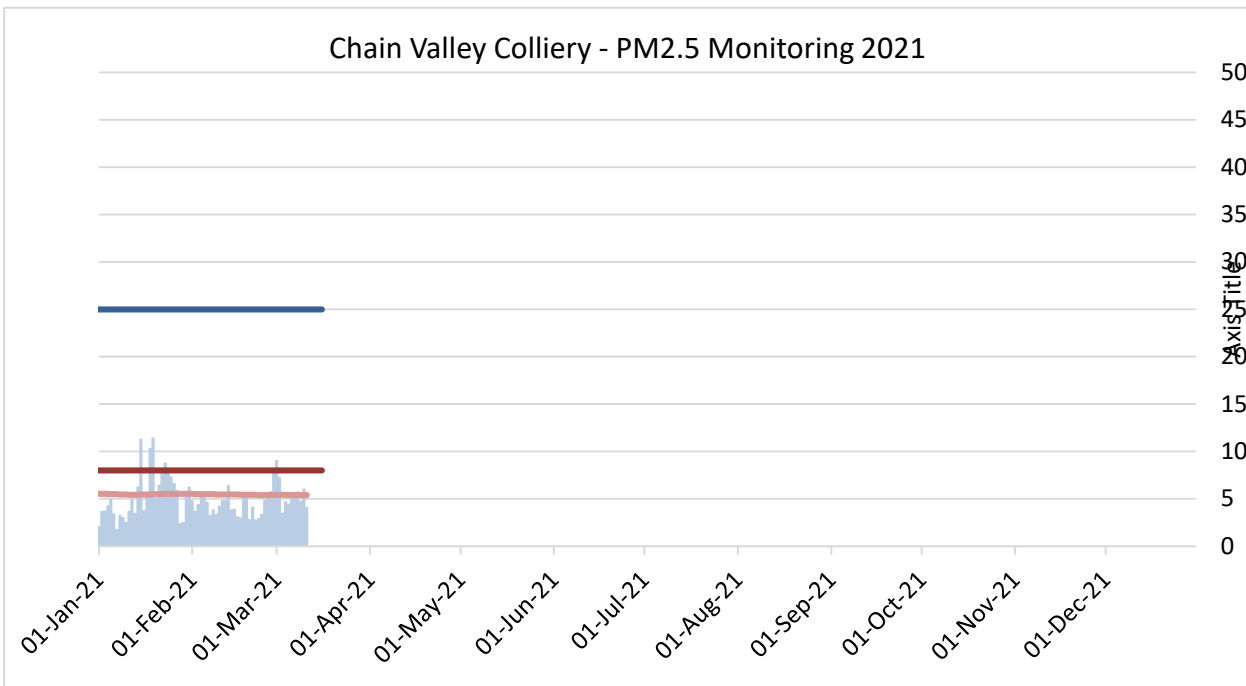
Variable	February	Total	Valid
A/C Temp	100%	8064	8064
A1	100%	8064	8064
A1_Scaled	100%	8064	8064
Bypass Flow	100%	8064	8064
Cap Temp	100%	8064	8064
Case Temp	100%	8064	8064
Config	100%	8064	8064
Dew Point	100%	8064	8064
Dig-In	100%	8064	8064
Dig-Latch	100%	8064	8064
ESN	100%	8064	8064
Filter Freq	100%	8064	8064
Filter Load	100%	8064	8064
Humidity	100%	8064	8064
MC	100%	8064	8064
MC 12Hr	100%	8064	8064
MC 1Hr	100%	8064	8064
MC 24Hr	100%	8064	8064
MC 30min	100%	8064	8064
MC 8Hr	100%	8064	8064
MC Total	100%	8064	8064
Mobile Signal	100%	8064	8064
Noise	100%	8064	8064
PM10 Flow	100%	8064	8064
Pressure	100%	8064	8064
Site	0.0%	8064	0
Temperature	100%	8064	8064
Tube Temp	100%	8064	8064
Vac Pressure	100%	8064	8064
Volts	100%	8064	8064

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### Air Quality – PM<sub>2.5</sub>

Delta Coal utilises PM<sub>2.5</sub> data obtained from Vales Point Power Station owned and operated beta attenuation monitor (BAM). The PM<sub>2.5</sub> monitor is located on Tingley Road, Wyee. Delta Coal is required to monitor PM<sub>2.5</sub> concentration following the approval of Development Consent SSD-5465 Modification 3 and Project Approval MP06\_0311 Modification 5 on the 26<sup>th</sup> June 2020.



For the period of February 2021, the daily PM<sub>2.5</sub> average concentration and annual average PM<sub>2.5</sub> concentration did not exceed limits of 25 µg/m<sup>3</sup> and 8 µg/m<sup>3</sup> respectively.

PM<sub>2.5</sub> data availability for the:

- February data availability was 98%; and
- 2021 year to date data availability has been 99.1%.

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### Weather Data

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

Monthly Weather Data 2021			
Licensee	Great Southern Energy Pty Ltd		
Location	Manning Colliery Meteorological station		
Date published	Refer report date		
Date sampled	Daily		
Date obtained	12 <sup>th</sup> March 2021		
Month	Total Rainfall/Month mm	Min Temp	Max Temp
Jan-21	108.4	13.9	37.3
Feb-21	108.8	13.9	33.1

Variable	February	Total	Valid
10m Temp	100%	2688	2688
2m Temp	100%	2688	2688
A1	100%	2688	2688
A1_Scaled	100%	2688	2688
Assumed Temp	100%	2688	2688
Barometric	100%	2688	2688
Config	100%	2688	2688
Daily Evap	100%	2688	2688
Daily Rain	100%	2688	2688
Delta T	100%	2688	2688
Dew Point	100%	2688	2688
Dig-In	100%	2688	2688
Dig-Latch	100%	2688	2688
ESN	100%	2688	2688
FDI	100%	2688	2688
Heat Index	100%	2688	2688
Humidity	100%	2688	2688
Mobile Signal	100%	2688	2688
Rain	100%	2688	2688
Raw Evap	100%	2688	2688
S Class	100%	2688	2688
Scalar WS	100%	2688	2688
Sigma	100%	2688	2688
Site	0.0%	2688	0
Solar Radiation	100%	2688	2688
Vector WD	100%	2688	2688
Vector WS	100%	2688	2688
Volts	100%	2688	2688
Wind Chill	100%	2688	2688
Wind Direction	100%	2688	2688
Wind Speed	100%	2688	2688
WS Avg	100%	2688	2688
WS Gust	100%	2688	2688