

HERA MONTHLY ENVIRONMENTAL MONITORING SUMMARY
JUNE 2022



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Version	1.0
Date Created	July 2022
Review Date	4 August 2022

1. Intent

This monthly environmental monitoring report is a requirement under section 66(6) of the NSW Protection of the Environment Operations Act 1997 (POEO Act), in which holders of an environment protection licence make their pollution monitoring data publicly available. This report is intended to keep the community, stakeholders, and regulators informed of the Hera mine's environmental performance and to maintain a transparent and accountable reporting system.

2. Scope

This report covers all of Hera's environmental monitoring conditions for June 2022. These conditions, where applicable, are measured against Hera's Environmental Protection Licence (EPL), development consent conditions and Australian Standards to determine Hera's compliance.

These conditions include;

- Weather Conditions
- Surface Water Monitoring results
- Ground Water Monitoring results
- Noise Monitoring results
- Blasting monitoring results
- Air Quality Monitoring results
- Gold Room Stack Monitoring
- Concentrate Transport
- Complaints

3. Definitions

Term	Definition
mm/s	The peak of the vibration in millimeters per second
Insoluble Solids	The insoluble portion of the dust deposited in dust deposition gauge
Total Lead	Including dissolved lead in the liquid portion and the lead particulates in the filter paper following laboratory analysis
g/m ² /month	Grams per square meter per month
dB (L)	Decibel (linear maximum)
dB LA _{eq} (15 minute)	Decibel (linear weighted average over 15 minutes)
CN Free	Free Cyanide (Hydrogen Cyanide and Cyanide ions in solution)
CN WAD	Weak Acid Dissociable Cyanide (includes Cyanide species liberated at moderate pH of 4.5)
TSS	Total Suspended Solids

4. Maps

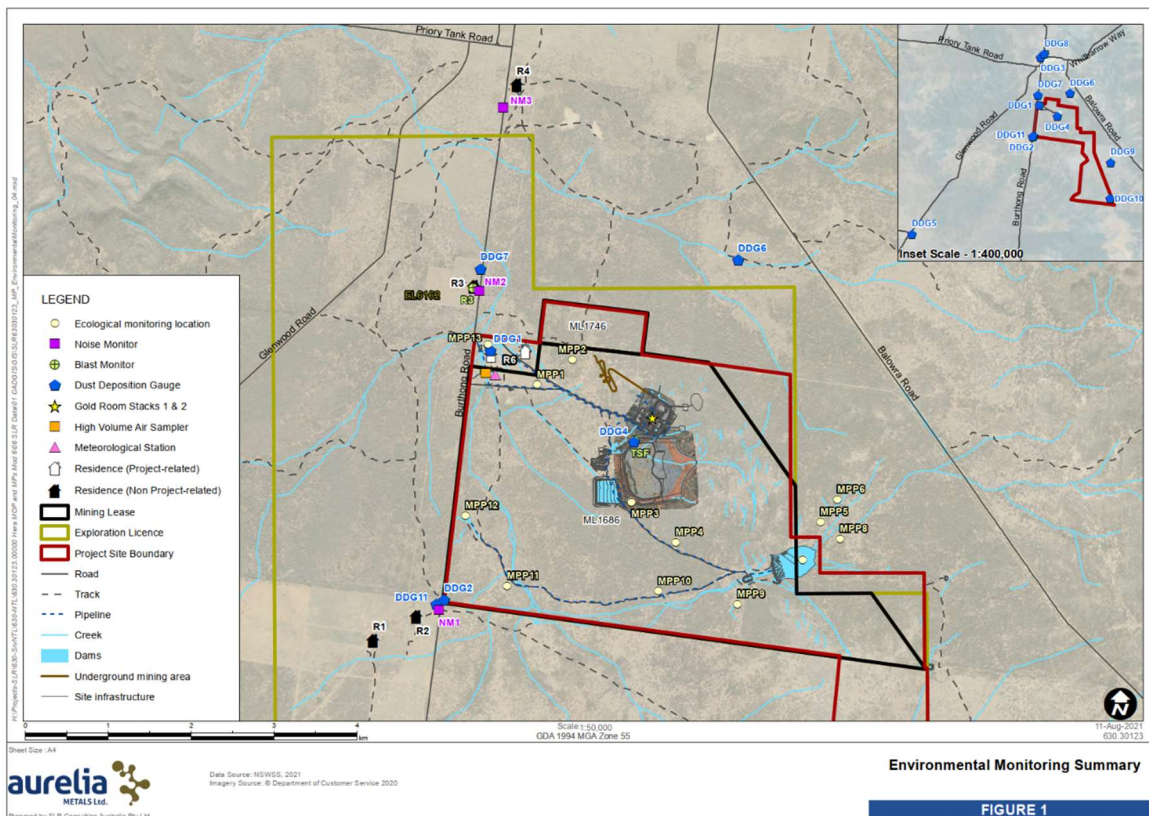


Figure 1 - Hera Environmental Monitoring Locations

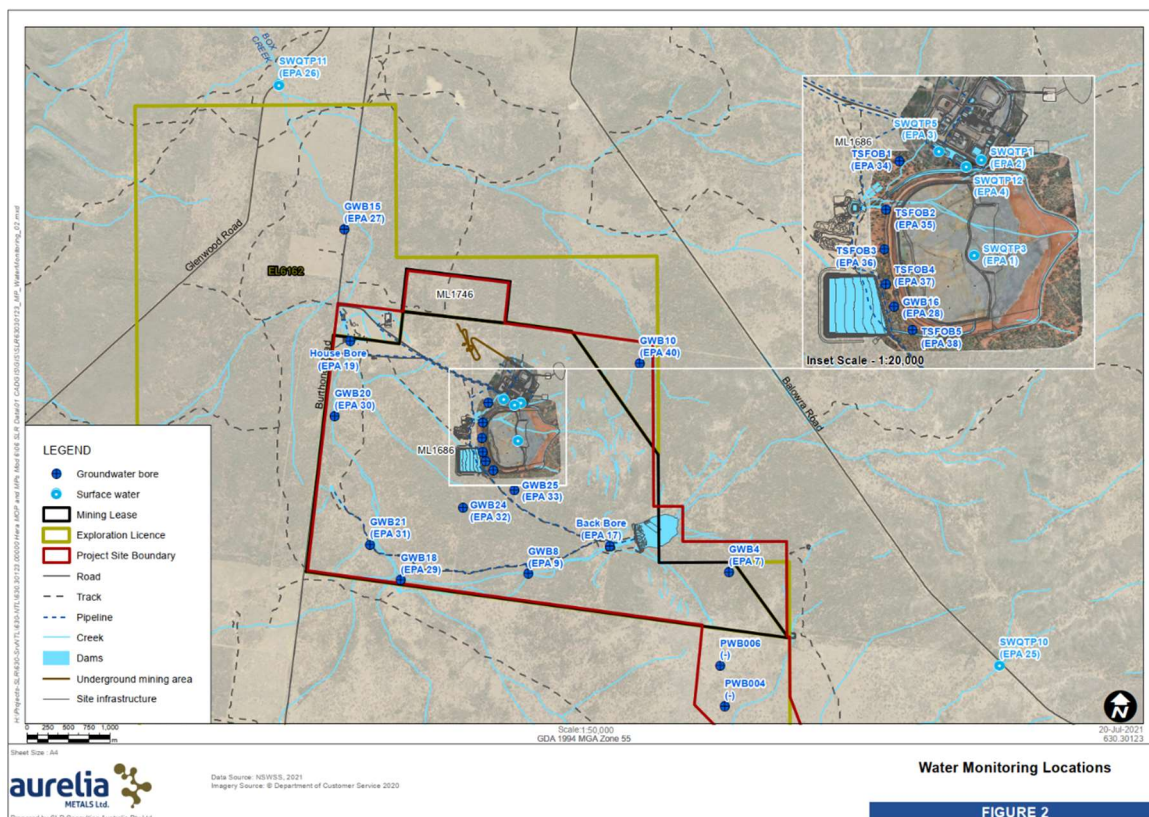


Figure 2 - Hera Water Monitoring Locations

5. Monitoring Results

5.1. Weather

The meteorology monitoring data is acquired through Hera’s weather station located on the Hera Mine site, approximately 4km south of the town of Nymagee, NSW, Refer **Figure 1**.

Meteorological monitoring is conducted on a continuous basis. **Table 1** shows a summary of the data collected by the weather station this month. **Figure 3** is the wind rose for the month of June.

TABLE 1: Summary of meteorological data for June 2022

Parameter	No. of measurements for the month	Minimum Value	Mean Value	Median Value	Maximum value	Total
Air Temperature (°C)	Continuous	3.36	17.65	17.63	29.18	-
Wind Speed (m/s)	Continuous	0.00	7.64	7.58	25.52	-
Sigma Theta (°)	Continuous	1.90	19.90	15.30	98.98	-
Rainfall (mm)	Continuous	0.00	0.02	0.00	4.20	78.60
Relative Humidity (%)	Continuous	17.65	66.72	68.36	99.89	-

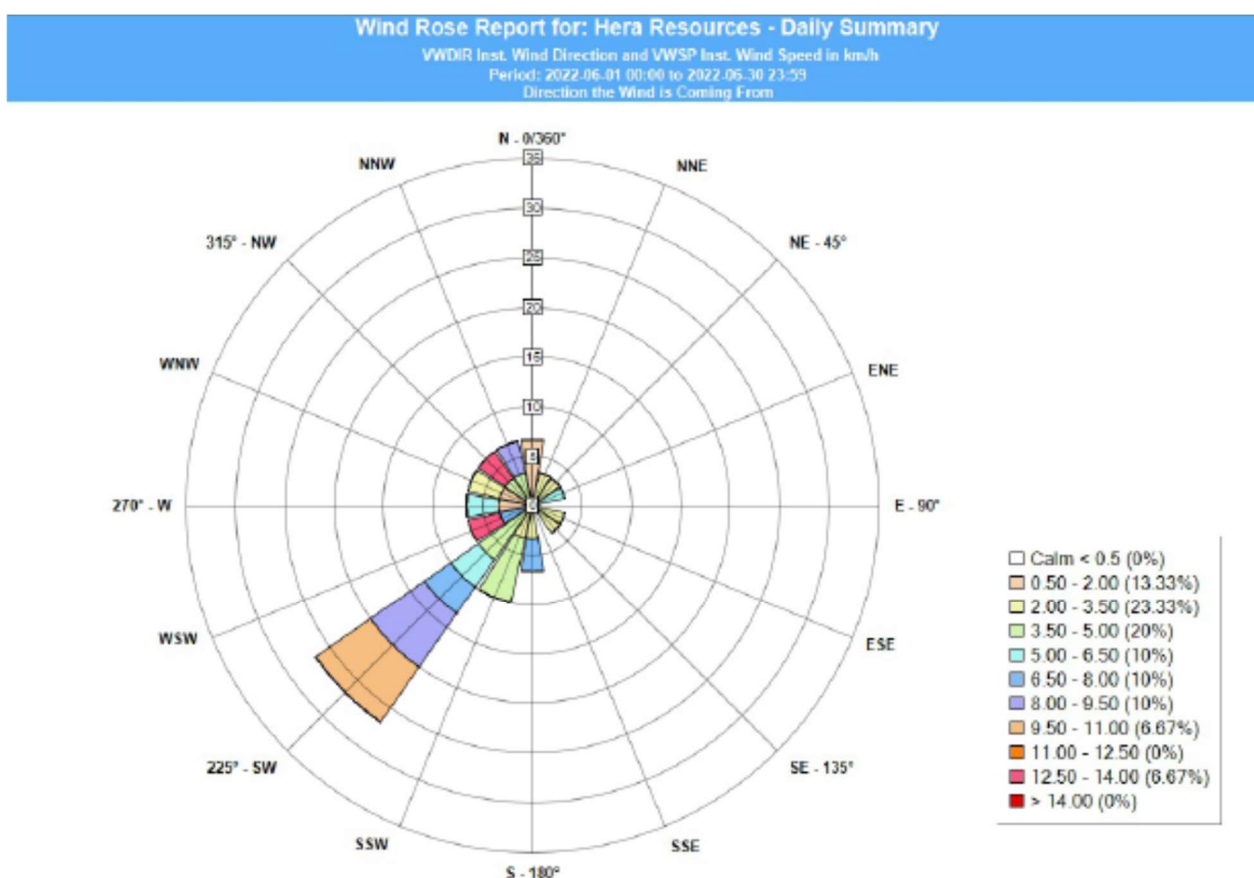


Figure 3 - Wind Rose for June 2022

5.2. Water

Water monitoring involves collecting water samples from several locations around site. The water samples are submitted to a NATA accredited laboratory for physical and chemical analysis. Analysis of pH and electrical conductivity are obtained in the field using a handheld monitor.

Surface Water

Hera has 6 licence points associated with surface water. Four of these points are located within the mining lease and two are located off the mining lease, with one upstream and another downstream of the lease, refer **Figure 2**.

Table 2 shows a summary of the surface water quality results for June 2022 for licence points 1 and 2. Licence points 3, 4, 25 and 26 did not discharge during June. No exceedances were recorded for the month.

TABLE 2: Surface Water monitoring results

Monitoring Point	WAD Cyanide (mg/L)			EPL 90 th percentile concentration criteria
	Minimum	Average	Maximum	
TSF Thickener Discharge (EPA Point 1)	0.0	0.44	8	20
Proces Water Dam (EPA Point 2)	0.0	0.01	0.22	20

Groundwater

Hera has 17 licence points associated with groundwater. These points are located around the Project Area, (refer **Figure 2**) and are a combination of observation bores, productions bores and piezometers. Monitoring is conducted quarterly and was completed in June 2022 and results are presented in **Table 3**.

TABLE 3: Groundwater Monitoring Results - March 2022

Analytes														
Licence Point	Sb	As	HCO3-	B	Cd	Ca	CO3-2	Cl	Cr	Cu	CN- (Free)	CN- (Total)	CN- (WAD)	EC (mS/cm)
7	0.001	0.001	665	0.46	<0.0001	217	<1	1180	<0.001	<0.001	<0.004	<0.004	<0.004	5350
9	<0.001	<0.001	513	0.68	<0.0001	199	<1	1000	<0.001	<0.001	<0.004	<0.004	<0.004	5420
17	<0.001	<0.001	496	0.41	0.0004	142	<1	810	<0.001	<0.001	<0.004	<0.004	<0.004	3850
19	Bore out of service during monitoring period.													
27	<0.001	<0.001	450	1.24	<0.0001	72	<1	1320	<0.001	<0.001	<0.004	<0.004	<0.004	5880
28	0.052	0.002	587	0.74	0.0002	222	<1	1320	0.039	0.01	<0.004	<0.004	<0.004	6840
29	0.007	<0.001	324	0.44	<0.0001	39	<1	277	<0.001	0.003	<0.004	<0.004	<0.004	1760
30	0.002	0.004	561	1.89	<0.0001	72	<1	1370	<0.001	0.005	<0.004	<0.004	<0.004	6800
31	<0.001	0.001	351	0.9	<0.0001	104	<1	1210	<0.001	<0.001	<0.004	<0.004	<0.004	5420
32	<0.001	<0.001	620	0.9	<0.0001	210	<1	962	<0.001	<0.001	<0.004	<0.004	<0.004	5810
33	Bore out of service during monitoring period.													
34											Dry	Dry	Dry	Dry
35											Dry	Dry	Dry	Dry
36											Dry	Dry	Dry	Dry
37											Dry	Dry	Dry	Dry
38											Dry	Dry	Dry	Dry
40	Bore out of service during monitoring period.													

Analytes														
Licence Point	Fe	Pb	Mg	Hg	Mo	Ni	pH	K	Ag	Na	Sn*	TDS	Zn	SWL (m)
7	0.15	<0.001	222	<0.0001	0.001	0.002	7.1	18	<0.001	667	<0.001	3410	0.005	57.43
9	1.69	<0.001	240	<0.0001	<0.001	0.101	6.93	25	<0.001	737	0.001	3740	0.058	Tap
17	<0.05	<0.001	155	<0.0001	<0.001	0.001	6.94	13	<0.001	472	0.001	2320	0.015	Tap
19	Bore out of service during monitoring period.													
27	0.26	<0.001	158	<0.0001	<0.001	0.002	7.08	43	<0.001	1040	0.002	3590	0.01	58.82
28	<0.05	<0.001	253	0.017	0.002	0.04	7.16	30	0.001	1030	<0.001	4740	0.095	100.25
29	0.06	<0.001	49	0.0003	0.002	0.002	7.36	12	<0.001	276	0.002	956	0.009	77.07
30	<0.05	0.008	102	<0.0001	0.001	0.006	7.32	34	<0.001	1370	<0.001	4290	0.02	68.43
31	0.11	<0.001	140	<0.0001	<0.001	0.002	7.93	28	<0.001	887	0.002	3370	<0.005	Tap
32	1.85	<0.001	230	<0.0001	<0.001	0.039	7.23	27	<0.001	899	<0.001	4150	0.029	Tap
33	Bore out of service during monitoring period.													
34											Dry			
35											Dry			
36											Dry			
37											Dry			
38											Dry			
40	Bore out of service during monitoring period.													

5.3. Noise

The Company has four licenced monitoring points (R1, R2, R3 and R4) located along the Burthong Road (**Figure 1**). The locations are strategically placed near the Hera Mine's nearest neighbours. R1 and R2 are measured from the same point as both neighbours are in very close proximity to each other.

A noise assessment was carried out on the 11th and 12th of May 2021. Results were reported in the June Monthly report. The next annual noise monitoring is due to be undertaken in September/October 2022. Hera holds a Noise and Blast agreement with the Landholder of R3. The agreement has been provided to the EPA and the Department of Planning and Environment (DPIE).

5.4. Blast Monitoring

The blast monitor is located adjacent to the dwelling on the nearest neighbour's property (**Figure 1**).

During November a new blast monitoring system was implemented which does not trigger monitoring for every blast. There were 44 blasts during June, of which 35 triggered monitoring at R3 (Refer to **Table 4**). No exceedances were recorded for the month.

Hera holds a Noise and Blast agreement with the Landholder of R3. The agreement has been provided to the EPA and DPE.

TABLE 4: Summary of blast monitoring results for June at R3

Date	Time	Time Period	Vibration (mm/s)	Overpressure (dB)
1/06/2022	6:45 AM	Night	0.01	89.7
3/06/2022	6:45 AM	Night	0.01	79.9
3/06/2022	6:45 PM	Evening	0.04	73.3
4/06/2022	6:45 AM	Night	0.83	84.6
5/06/2022	6:45 AM	Sunday	0.05	80.2
6/06/2022	6:45 AM	Night	0.04	93.3
6/06/2022	7:00 PM	Evening	0.01	71
7/06/2022	7:00 AM	Day	0.04	82.8
7/06/2022	7:00 PM	Evening	0.02	80.5
9/06/2022	7:00 AM	Day	0.02	78.6
10/06/2022	7:00 PM	Evening	0.24	78.2
11/06/2022	6:45 AM	Night	0.06	80.8
12/06/2022	6:45 AM	Night	0.01	90.2
13/06/2022	6:45 PM	Public holiday	0.01	71
14/06/2022	6:45 PM	Evening	0.01	71.8
16/06/2022	6:45 PM	Evening	0.04	83.5
17/06/2022	6:45 PM	Evening	0.02	83.9

Date	Time	Time Period	Vibration (mm/s)	Overpressure (dB)
18/06/2022	6:45 AM	Night	0.04	75.6
18/06/2022	6:45 PM	Day	0.01	71.8
19/06/2022	6:45 AM	Night	0.04	72.6
20/06/2022	6:45 AM	Night	0.04	72.6
21/06/2022	2:30 PM	Day	0.08	95.7
21/06/2022	6:45 PM	Evening	0.01	71.8
23/06/2022	6:45 PM	Evening	0.04	71
24/06/2022	7:10 AM	Day	0.04	88.4
25/06/2022	7:10 AM	Day	0.04	95.4
25/06/2022	6:30 PM	Evening	0.04	71.8
26/06/2022	6:30 AM	Night	0.04	71.8
26/06/2022	6:30 PM	Evening	0.02	89.4
27/06/2022	6:00 PM	Evening	0.02	86.7
28/06/2022	6:00 AM	Night	0.07	96.1
28/06/2022	6:00 PM	Evening	0.02	79
29/06/2022	6:00 AM	Night	0.01	72.6
29/06/2022	6:45 PM	Evening	0.04	71.8
30/06/2022	6:45 PM	Evening	0.06	82.8

5.5. Air Quality

The Company has two High Volume Air Samplers (HVAS), designed to sample Particulate matter less than 10 µm (PM10) or Total Suspended Particulate (TSP) matter and two Dust Deposition Gauges (DDG). Refer to **Figure 1** for location of the sampling points.

Results for air quality monitoring conducted in June have been summarised in **Table 5**. No exceedances were recorded.

TABLE 5: Summary of Air Quality monitoring results for June

Pollutant	Unit	Limit	Averaging Period	Result
TSP	µg/m ³	90	Annual	35.67
PM-10	µg/m ³	25	Annual	12.59
High Volume Air Samplers (PM₁₀)				
	µg/m ³	50	24 Hour	1.7
	µg/m ³	50	24 Hour	1.6
	µg/m ³	50	24 Hour	21
	µg/m ³	50	24 Hour	10.5
	µg/m ³	50	24 Hour	8
Dust Deposition Gauges				
Deposited Dust (DDG 1)	g/m ² /month	4	24 Hour	2.14
Deposited Dust (DDG2)	g/m ² /month	4	24 Hour	2.48

5.6. Gold Room Stack Monitoring

Hera has two licenced gold room stack monitoring points (Refer to Figure 1).

Gold Room stack monitoring is conducted on an annual basis. Annual monitoring was conducted and reported on in January 2022.

5.7. Concentrate Transport

The Company is licenced to transport 60,000 tonnes of lead/zinc concentrate from the Hera site to Hermidale rail siding during daylight hours only. Hera is limited to eight truck movements per day averaged over a calendar month (two truck movements to Hermidale rail is defined as entering and leaving the site). A summary of concentrate haulage operations is presented in **Table 6**.

TABLE 6: Summary of concentrate truck movements for June

Date	Load Time	Truck Dry Tonnes
1/06/2022	12:40 PM	48,192
3/06/2022	8:05 AM	47,997
3/06/2022	9:30 AM	47,709
3/06/2022	11:00 AM	47,953
7/06/2022	7:50 AM	46,943
7/06/2022	8:00 AM	46,605
7/06/2022	1:40 PM	47,085
7/06/2022	4:50 PM	46,959
8/06/2022	10:30 AM	47,122
11/06/2022	11:20 AM	48,052
12/06/2022	9:30 AM	49,867
12/06/2022	12:30 PM	46,935
13/06/2022	7:55 AM	46,732
13/06/2022	9:45 AM	47,961
13/06/2022	11:15 AM	46,745
13/06/2022	1:00 PM	47,499
13/06/2022	2:05 PM	47,133
13/06/2022	4:20 PM	48,275
14/06/2022	7:10 AM	47,251
14/06/2022	8:10 AM	46,582
14/06/2022	10:25 AM	47,928
14/06/2022	11:30 AM	46,238
14/06/2022	1:40 PM	46,964
14/06/2022	2:35 PM	48,586
15/06/2022	7:35 AM	48,543
15/06/2022	10:00 AM	48,762
15/06/2022	11:15 AM	49,214
16/06/2022	1:10 PM	46,998
16/06/2022	4:00 PM	46,682

Date	Load Time	Truck Dry Tonnes
17/06/2022	9:15 AM	46,542
17/06/2022	10:00 AM	51,390
17/06/2022	12:15 PM	47,069
17/06/2022	2:00 PM	48,567
19/06/2022	8:00 AM	46,707
19/06/2022	11:30 AM	46,697
19/06/2022	12:15 PM	46,767
19/06/2022	2:45 PM	46,487
19/06/2022	2:50 PM	47,765
20/06/2022	6:40 AM	46,775
20/06/2022	10:15 AM	47,000
20/06/2022	10:35 AM	46,948
20/06/2022	11:30 AM	46,194
20/06/2022	12:50 PM	46,639
20/06/2022	1:20 PM	47,665
20/06/2022	2:40 PM	48,207
20/06/2022	2:45 PM	46,888
20/06/2022	3:10 PM	47,571
20/06/2022	3:30 PM	48,328
20/06/2022	4:30 PM	48,125
21/06/2022	7:00 AM	47,874
21/06/2022	7:05 AM	48,269
21/06/2022	8:10 AM	47,410
21/06/2022	8:10 AM	47,416
21/06/2022	10:55 AM	48,392
21/06/2022	11:30 AM	47,492
21/06/2022	11:40 AM	47,578
21/06/2022	12:00 PM	48,903
21/06/2022	12:30 PM	48,786

Date	Load Time	Truck Dry Tonnes
22/06/2022	8:30 AM	47,551
22/06/2022	12:00 PM	46,645
22/06/2022	3:30 PM	46,475
23/06/2022	7:00 AM	46,729
23/06/2022	10:15 AM	47,930
23/06/2022	12:40 PM	48,321
23/06/2022	1:30 PM	48,106
24/06/2022	7:00 AM	48,109
24/06/2022	7:20 AM	47,562
24/06/2022	10:00 AM	48,122
24/06/2022	1:00 PM	48,200
25/06/2022	7:25 AM	45,060
27/06/2022	7:00 AM	47,024
27/06/2022	10:25 AM	47,331
27/06/2022	2:40 PM	47,826
28/06/2022	7:30 AM	46,917
28/06/2022	4:15 PM	47,717
30/06/2022	7:40 AM	47,437
30/06/2022	11:10 AM	48,603
30/06/2022	3:00 PM	47,639
Total Tonnes		3709.27
Average truck movements per day		5.20

5.8. Complaints

No complaints were received this month as presented in **Table 7**.

TABLE 7: Summary of complaints received In June.

Date	Complaint Category
-	-