

TECHNICAL REPORT

HERA MONTHLY ENVIRONMENTAL MONITORING SUMMARY
MARCH 2022



Table of Contents

1. INTENT	3
2. SCOPE	3
3. DEFINITIONS	3
4. MAPS	4
5. MONITORING RESULTS	5
5.1. Weather	5
5.2. Water	6
Surface Water.....	6
Groundwater	6
5.3. Noise	8
5.4. Blast Monitoring	8
5.5. Air Quality	8
5.6. Gold Room Stack Monitoring	9
5.7. Concentrate Transport	9
5.8. Complaints	12

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Version	1.0
Date Created	April 2022
Review Date	12 May 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 March 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

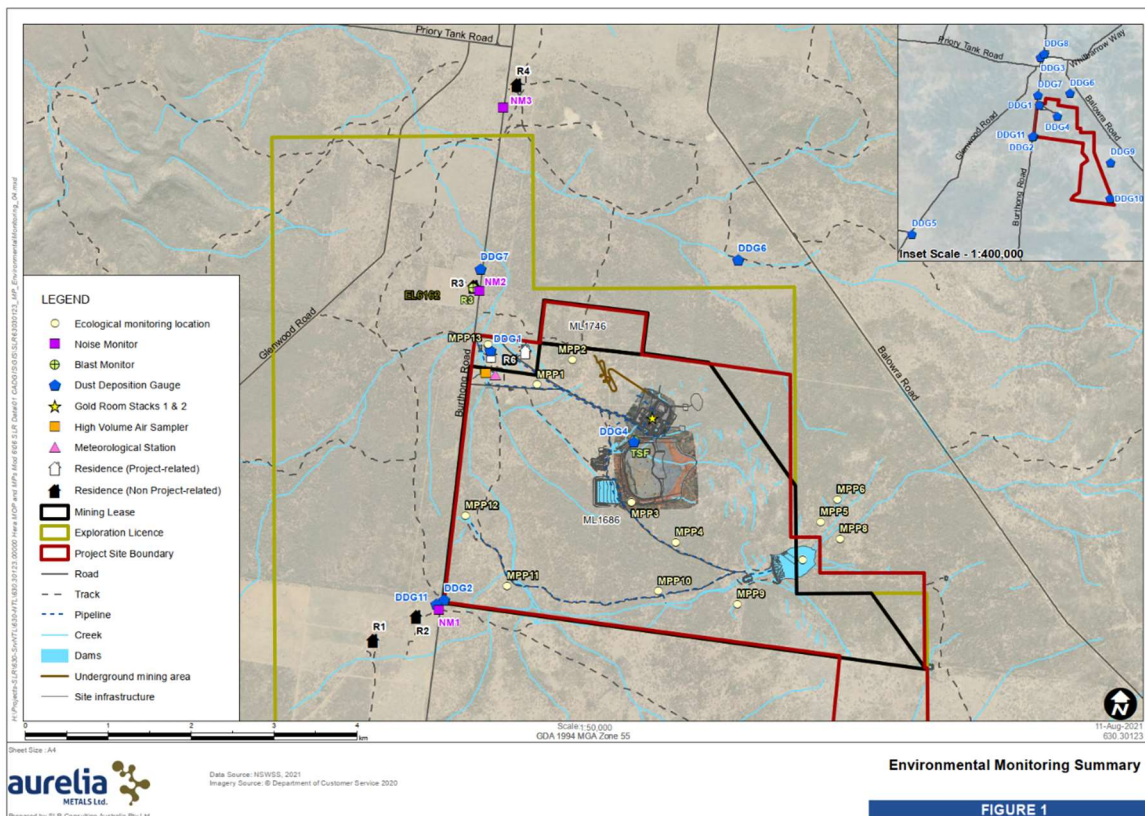


Figure 1 - Hera Environmental Monitoring Locations

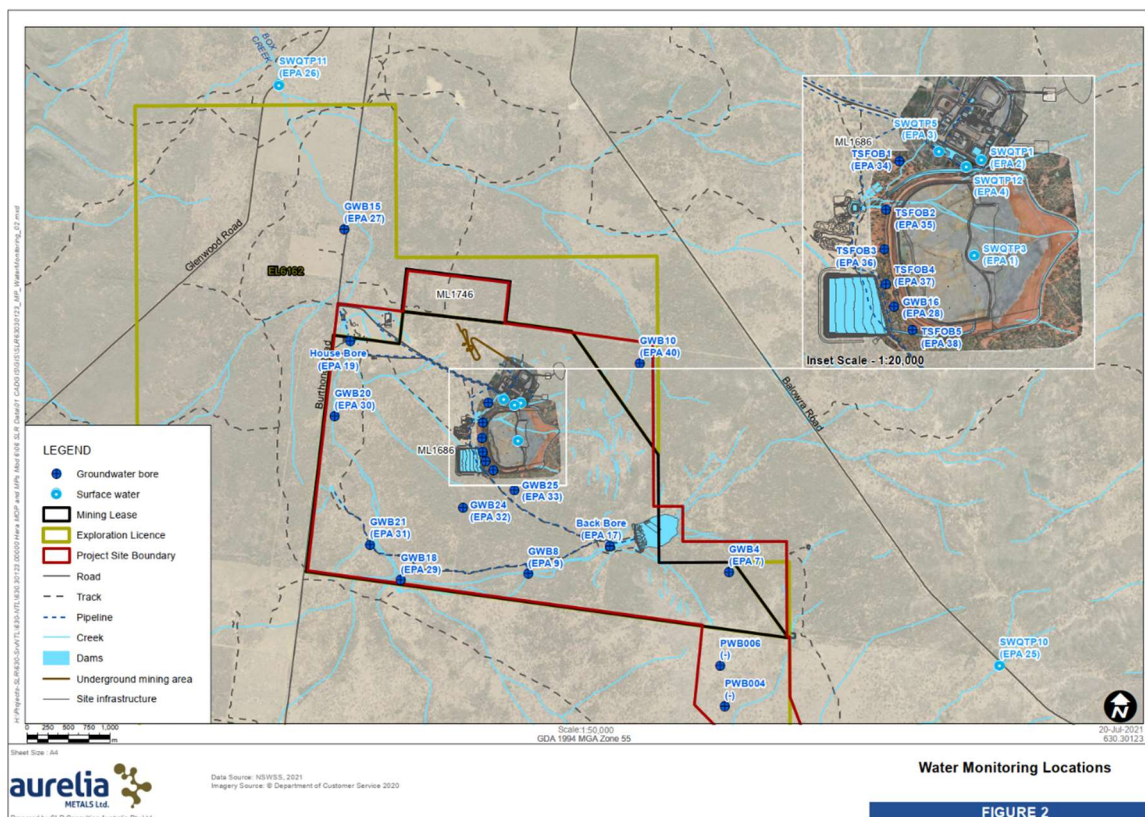


Figure 2 - Hera Water Monitoring Locations

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 March.

TABLE 1: Summary of meteorological data for March 2022

Parameter	No. of measurements for the month	Minimum Value	Mean Value	Median Value	Maximum value	Total
Air Temperature (°C)	Continuous	7.16	22.11	21.71	34.52	-
Wind Speed (m/s)	Continuous	0.00	8.45	8.43	23.65	-
Sigma Theta (°)	Continuous	3.19	19.33	15.19	98.87	-
Rainfall (mm)	Continuous	0.00	0.01	0.00	4.20	58.80
Relative Humidity (%)	Continuous	21.18	63.86	65.45	99.18	-

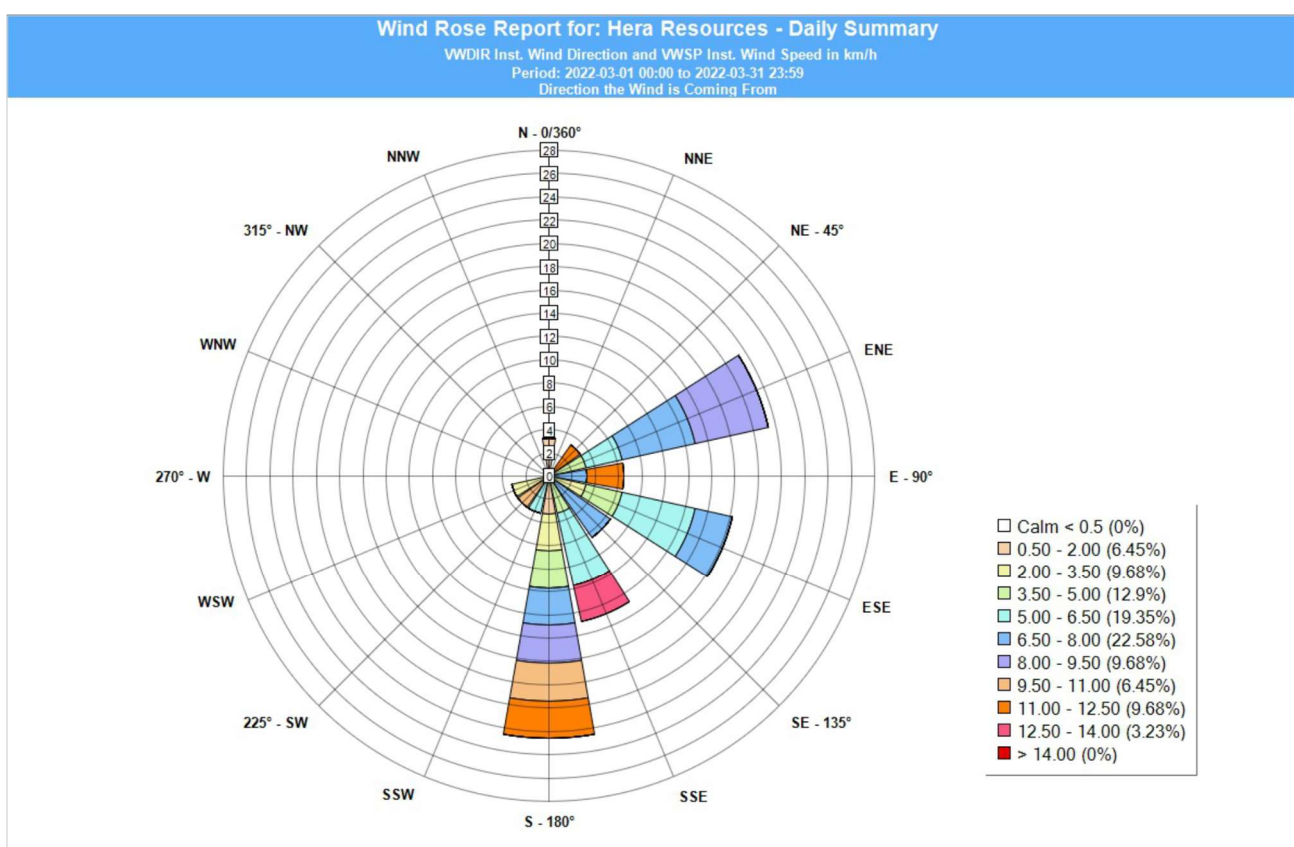


Figure 3 - Wind Rose for March

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 March 2022 for licence points 1 and 2. Licence points 3, 4, 25 and 26 did not discharge during March. 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	0.0	0	20
Proces Water Dam (EPA Point 2)	0.0	0.06	1	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 March 2022 (Refer to **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	536	0.37	<0.0001	208	<1	1250	<0.001	<0.001	<0.004	<0.004	<0.004	5.68
9	<0.001	<0.001	544	0.67	<0.0001	182	<1	1030	<0.001	<0.001	<0.004	<0.004	<0.004	5.75
17	<0.001	<0.001	574	0.38	0.0004	147	<1	896	<0.001	<0.001	<0.004	<0.004	<0.004	4.28
19	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service
27	<0.001	<0.001	473	1.32	<0.0001	62	<1	1420	<0.001	<0.001	<0.004	<0.004	<0.004	6.39
28	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked
29	0.007	0.003	342	0.44	<0.0001	44	<1	323	<0.001	<0.001	<0.004	<0.004	<0.004	2.03
30	0.002	0.003	612	1.75	<0.0001	69	<1	1500	<0.001	0.002	<0.004	<0.004	<0.004	7.41
31	0.002	<0.001	342	0.75	<0.0001	92	<1	1210	0.005	<0.001	<0.004	<0.004	<0.004	5.61
32	0.002	<0.001	589	0.78	<0.0001	201	<1	994	<0.001	<0.001	<0.004	<0.004	<0.004	6.24
33	<0.001	0.018	232	0.52	<0.0001	311	<1	936	<0.001	<0.001	<0.004	<0.004	<0.004	6.13
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	<0.001	<0.001	481	0.4	<0.0001	141	<1	1210	<0.001	<0.001	<0.004	<0.004	<0.004	5.28
Licence Point	Fe	Pb	Mg	Hg	Mo	Ni	pH	K	Ag	Na	Sn*	TDS	Zn	SWL (m)
7	0.13	<0.001	215	<0.0001	<0.001	0.002	7.16	21	<0.001	637	<0.001	4010	0.006	57.12
9	0.72	<0.001	237	<0.0001	<0.001	0.04	7.13	30	<0.001	761	<0.001	4270	0.014	Tap
17	<0.05	<0.001	166	<0.0001	<0.001	<0.001	7.09	16	<0.001	484	<0.001	2930	0.016	Tap
19	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service	Out of Service
27	0.38	<0.001	155	<0.0001	<0.001	0.002	7.04	46	<0.001	1060	<0.001	4080	0.017	58.73
28	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked	Blocked
29	1.13	<0.001	60	<0.0001	0.002	0.002	7.23	16	<0.001	303	<0.001	1330	0.01	76.19
30	<0.05	0.007	104	<0.0001	<0.001	0.005	7.2	37	<0.001	1420	<0.001	4900	0.013	68.20
31	<0.05	<0.001	146	<0.0001	<0.001	<0.001	7.72	34	<0.001	901	<0.001	3690	<0.005	Tap
32	<0.05	<0.001	218	<0.0001	<0.001	0.034	7.53	32	<0.001	847	<0.001	4710	0.025	Tap
33	64.8	<0.001	334	<0.0001	<0.001	0.957	6.22	28	<0.001	627	<0.001	5350	0.376	Tap
34											Dry			
35											Dry			
36											Dry			
37											Dry			
38											Dry			
40	<0.05	<0.001	202	<0.0001	0.003	0.012	7.59	18	<0.001	633	<0.001	3650	0.024	Tap

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 May 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, Industry 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 19 blasts during March, of which 7 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 DPIE.

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

Date	Time	Time Period	Vibration (mm/s)	Overpressure (dB)
1/03/2022	7:02 AM	Day	0.47	79
7/03/2022	8:36 AM	Day	0.34	98.6
10/03/2022	7:00 AM	Night	0.37	78.6
13/03/2022	8:18 PM	Evening	0.47	87
24/03/2022	6:40 PM	Evening	0.52	87.1
25/03/2022	6:53 PM	Evening	0.51	100.7
29/03/2022	7:08 AM	Day	0.24	77.8

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 March have been summarised in **Table 5**. No exceedances were recorded.

TABLE 5: Summary of Air Quality monitoring results for March

Pollutant	Unit	Limit	Averaging Period	Result
TSP	µg/m ³	90	Annual	37.58
PM-10	µg/m ³	25	Annual	13.57
High Volume Air Samplers (PM₁₀)				
5/03/2022	µg/m ³	50	24 Hour	18.7
11/03/2022	µg/m ³	50	24 Hour	23.8
17/03/2022	µg/m ³	50	24 Hour	9.7
23/03/2022	µg/m ³	50	24 Hour	24.1
29/03/2022	µg/m ³	50	24 Hour	11
Dust Deposition Gauges				
Deposited Dust (DDG 1)	g/m ² /month	4	24 Hour	2.24
Deposited Dust (DDG2)	g/m ² /month	4	24 Hour	2.33

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 March

Date	Load Time	Truck Dry Tonnes
01-Mar-22	16:40:00	49.00
01-Mar-22	15:10:00	48.62
01-Mar-22	13:40:00	49.32
01-Mar-22	10:15:00	49.03
01-Mar-22	09:45:00	48.62
01-Mar-22	07:10:00	48.78
01-Mar-22	06:45:00	48.62

Date	Load Time	Truck Dry Tonnes
01-Mar-22	07:10:00	48.78
01-Mar-22	09:45:00	48.62
01-Mar-22	10:15:00	49.03
01-Mar-22	13:40:00	49.32
01-Mar-22	15:10:00	48.62
01-Mar-22	16:40:00	49.00
02-Mar-22	07:05:00	48.60
02-Mar-22	07:45:00	48.98
02-Mar-22	09:15:00	48.58
02-Mar-22	10:15:00	48.60
02-Mar-22	11:00:00	48.83
02-Mar-22	13:30:00	48.62
02-Mar-22	16:00:00	48.96
02-Mar-22	16:30:00	48.62
02-Mar-22	19:00:00	49.25
03-Mar-22	12:40:00	48.67
03-Mar-22	11:00:00	48.91
03-Mar-22	09:40:00	48.74
04-Mar-22	08:00:00	48.64
04-Mar-22	09:00:00	48.87
04-Mar-22	13:00:00	48.67
04-Mar-22	14:00:00	42.34
04-Mar-22	17:15:00	48.17
04-Mar-22	17:30:00	48.69
09-Mar-22	07:30:00	48.60
09-Mar-22	07:45:00	48.37
09-Mar-22	10:35:00	48.60
09-Mar-22	11:40:00	49.10
09-Mar-22	11:45:00	48.89

Date	Load Time	Truck Dry Tonnes
09-Mar-22	14:15:00	48.56
09-Mar-22	13:00:00	48.98
09-Mar-22	14:10:00	48.60
09-Mar-22	16:40:00	49.25
09-Mar-22	17:15:00	48.62
10-Mar-22	08:30:00	48.87
10-Mar-22	09:00:00	48.65
10-Mar-22	09:05:00	48.67
10-Mar-22	11:30:00	48.87
10-Mar-22	12:00:00	48.65
10-Mar-22	12:15:00	48.62
10-Mar-22	14:30:00	48.78
10-Mar-22	15:30:00	49.21
11-Mar-22	06:45:00	49.10
11-Mar-22	08:30:00	48.73
11-Mar-22	10:30:00	49.03
11-Mar-22	14:40:00	50.09
11-Mar-22	18:10:00	49.37
12-Mar-22	11:00:00	49.30
12-Mar-22	11:00:00	49.47
12-Mar-22	14:55:00	49.14
13-Mar-22	07:00:00	49.25
22-Mar-22	07:10:00	49.12
22-Mar-22	11:15:00	48.73
22-Mar-22	15:05:00	49.73
23-Mar-22	07:30:00	48.85
23-Mar-22	11:10:00	48.83
23-Mar-22	15:25:00	48.89
23-Mar-22	16:00:00	48.60

Date	Load Time	Truck Dry Tonnes
24-Mar-22	08:30:00	48.71
24-Mar-22	09:10:00	48.22
Total Tonnes		3608.89
Average truck movements per day		4.77

5.8. Complaints

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

TABLE 7: Summary of complaints received In March.

Date	Complaint Category
-	-