

HUNTER VALLEY OPERATIONS



Environment Protection Licence 640 Monitoring Data – January 2022 Published

Document Number: HVOOC-1797567310-4039

Status: Approved

Version: 1.0

Effective: 25/02/2022

Owner: Environment and Community Officer

Table of Contents

1	Overview	3
2	Definitions	3
3	Air Quality	5
4	Surface Water Monitoring Data	7
5	Blast Monitoring Data	8
6	Sewage Treatment Plant Monitoring Data	14
7	Noise Monitoring Data	15

1 Overview

Environmental Protection Licence Number:	640
Licence Holder:	HV Operations Pty Ltd (HVO)
Address of Premises:	Hunter Valley Operations, Lemington Road, Singleton, NSW, 2330
Licence Holder Postal Address:	PO Box 315, Singleton, NSW, 2330
EPA Public Register Link:	https://apps.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=640&id=640&option=licence&searchrange=licence&range=POEO%20licence&prp=no&status=Issued

The locations of each sampling or monitoring point number identified in EPL 640 are displayed in **Figure 1**.

2 Definitions

Abbreviation	Explanation
DNR	Data Not Received
mm/s	Millimetres per Second
dB	Decibels
g/m ² /month	Grams per Metre Square per Month
µg/m ³	Micrograms per Cubic Meter of Air
µS/cm	Microsiemens per Centimetre
pH	A measure of the acidity or alkalinity of a solution
mg/L	Milligrams per Litre
NTU	Nephelometric Turbidity Units
ML/day	Megalitres per Day (1ML = 1,000,000L)
KL/day	Kilolitres per Day
PM10	Particulate Matter of 11 Microns in diameter or smaller
HVAS	High Volume Air Sampler
TEOM	Tapered Element Oscillating Microbalance
TSP	Total Suspended Particles
TSS	Total Suspended Solids
t	tonnes
YTD	Year To Date - rolling 12 month average

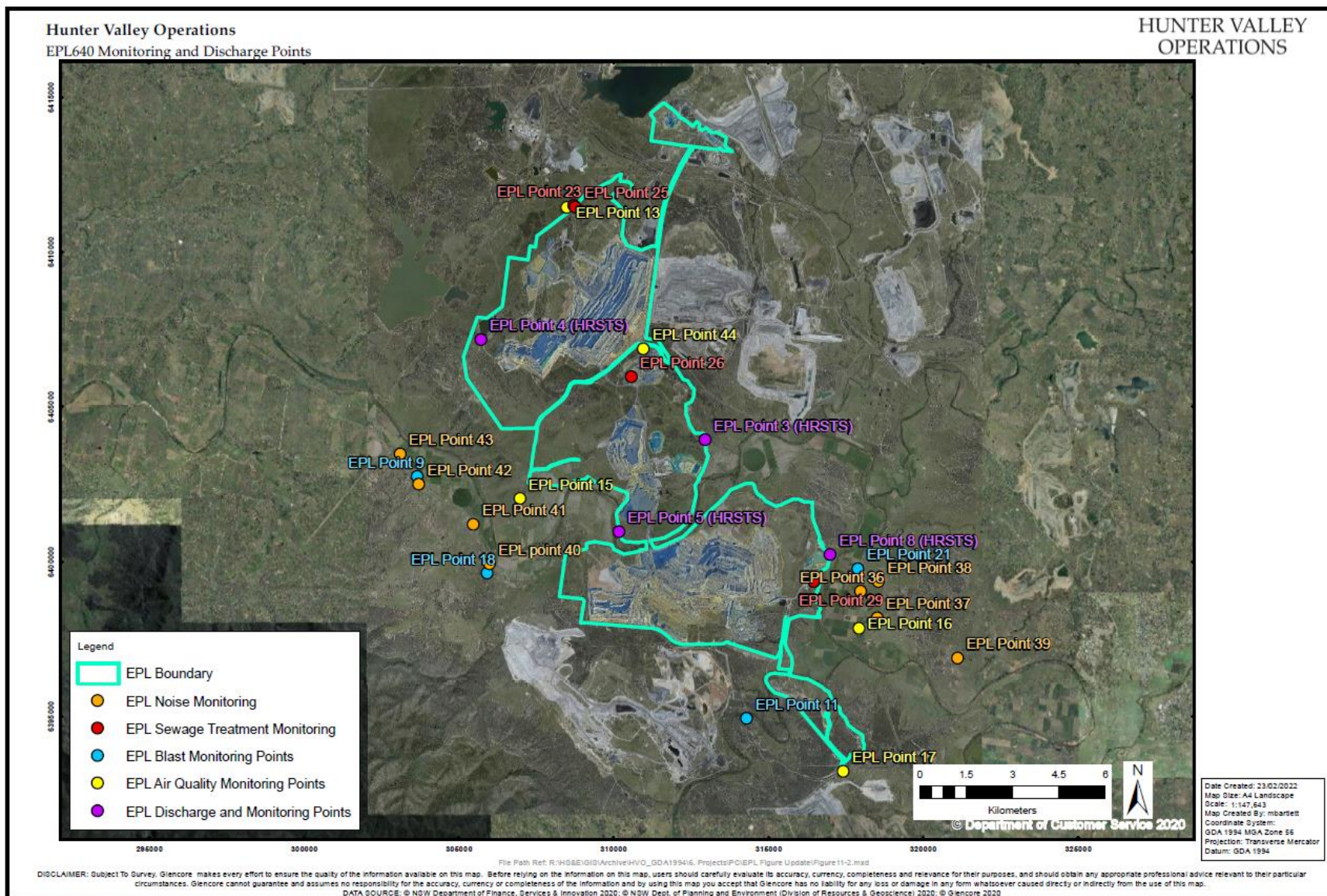


Figure 1 - EPL 640 Monitoring Locations

3 Air Quality

Date Last Sampled: 31/01/2022

Date Obtained: 1/02/2022

Table 1- Particulate Matter Monitoring (<10µm)

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			EPL ID 13 (Howick)	EPL ID 15 (Wandewoi)	EPL ID 16 (Knodlers Lane)	EPL ID 17 (Golden Highway)	EPL ID 44 (North CHPP)
1/1/2022	µg/m ³	Continuous	28.9	16.1	15.5	15.9	15.6
2/1/2022	µg/m ³		26.3	20.6	15.9	11.0	16.8
3/1/2022	µg/m ³		34.0	25.1	19.1	17.3	19.1
4/1/2022	µg/m ³		31.7	21.0	22.6	20.2	23.0
5/1/2022	µg/m ³		14.4	12.2	12.4	17.9	20.3
6/1/2022	µg/m ³		54.9	15.3	12.3	13.6	21.3
7/1/2022	µg/m ³		63.0	14.0	11.0	11.7	17.0
8/1/2022	µg/m ³		18.4	10.8	12.1	17.3	7.3
9/1/2022	µg/m ³		23.6	14.9	14.2	19.2	20.5
11/1/2022	µg/m ³		23.6	22.1	17.4	29.6	38.0
11/1/2022	µg/m ³		23.3	19.2	19.4	30.4	46.1
12/1/2022	µg/m ³		22.1	20.2	14.0	21.5	26.1
13/1/2022	µg/m ³		20.0	17.5	11.5	16.8	18.0
14/1/2022	µg/m ³		22.1	19.1	15.1	19.2	28.3
15/1/2022	µg/m ³		25.3	20.6	19.1	23.5	28.2
16/1/2022	µg/m ³		29.2	21.3	20.1	30.3	29.1
17/1/2022	µg/m ³		39.4	33.4	27.4	36.5	56.7
18/1/2022	µg/m ³		24.5	19.0	17.2	23.6	36.9
19/1/2022	µg/m ³		10.8	9.5	8.8	11.9	18.4
20/1/2022	µg/m ³		26.5	21.0	16.5	28.9	33.0
21/1/2022	µg/m ³		33.8	20.6	15.0	23.1	27.9
22/1/2022	µg/m ³		21.9	14.6	10.2	19.5	17.8

Date	Unit of Measure	Monitoring Frequency & Capture	Monitoring Point				
			EPL ID 13 (Howick)	EPL ID 15 (Wandewoi)	EPL ID 16 (Knodlers Lane)	EPL ID 17 (Golden Highway)	EPL ID 44 (North CHPP)
23/1/2022	µg/m ³		24.8	17.0	10.4	17.9	11.9
24/1/2022	µg/m ³		21.4	15.4	10.0	15.0	10.0
25/1/2022	µg/m ³		26.7	20.7	14.6	21.7	21.1
26/1/2022	µg/m ³		22.7	21.1	14.3	15.9	19.8
27/1/2022	µg/m ³		26.9	18.8	15.8	19.4	13.7
28/1/2022	µg/m ³		35.6	21.7	15.7	23.0	15.5
29/1/2022	µg/m ³		40.6	79.0	15.4	23.1	19.1
30/1/2022	µg/m ³		30.5	19.7	14.1	20.0	22.1
31/1/2022	µg/m ³		30.9	21.6	16.6	21.1	23.0
Monthly Meaningful Data							
January	µg/m ³	Minimum	10.8	9.5	8.8	11.0	10.0
	µg/m ³	Mean	28.3	20.7	15.3	20.5	23.8
	µg/m ³	Maximum	63.0	79.0	27.4	36.5	56.7
	µg/m ³	Median	26.3	19.7	15.1	19.5	20.8

4 Surface Water Monitoring Data

Date Sampled: 10/1/22, 11/1/22, 20/1/22, 21/1/22

Date Obtained: 11/1/22, 13/1/22, 21/1/22, 24/1/22

Table 2 – Mine Water Discharge Monitoring

Discharge Point	Pollutant	Unit of Measure	Licence Limits	No. Samples Required by Licence	No. Samples Collected and Analysed
EPL ID 3 (Dam 11N)	pH	pH	6.5-9.5	0	0
	Total Suspended Solids	Milligrams per Litre	120	0	0
EPL ID 4 (Dam 9W)	pH	pH	6.5-9.5	0	0
	Total Suspended Solids	Milligrams per Litre	120	0	0
EPL ID 8 (Dam 15S)	pH	pH	6.5-9.5	4	4
	Total Suspended Solids	Milligrams per Litre	120	4	4

5 Blast Monitoring Data

Date Last Sampled: 31/1/2022

Date Obtained: 1/02/2022

Table 3 – Blast Monitoring (Air Blast Overpressure and Ground Vibration))

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	Moses Crossing EPL ID 18	Jerrys Plains EPL ID 9	Maison Dieu EPL ID 12	Warkworth EPL ID 11
WS44LLP01A	4/01/2022 13:38	dB(L)	All blasts 100%	115	120	103.57	90.25	98.01	84.18
WN45BAR01C	4/01/2022 13:39	dB(L)		115	120	106.39	97.43	102.72	87.61
P208FCL09B	5/01/2022 13:06	dB(L)		115	120	106.35	108.39	92.53	89.19
WS45LLD03A	6/01/2022 12:56	dB(L)		115	120	97.76	107.79	103.09	101.07
P208B5P01A	8/01/2022 13:02	dB(L)		115	120	90.91	91.66	94.25	94.23
WS44LLD03A	10/01/2022 13:06	dB(L)		115	120	84.1	85.61	81.27	80.68
P208PF101A	13/01/2022 12:58	dB(L)		115	120	92.38	101.36	84.99	85.94

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	Moses Crossing EPL ID 18	Jerrys Plains EPL ID 9	Maison Dieu EPL ID 12	Warkworth EPL ID 11
P208BR101A	14/01/2022 13:31	dB(L)	All blasts 100%	115	120	86.14	85.25	96.48	94.44
P208B5P01B	17/01/2022 12:10	dB(L)		115	120	87.96	86.03	87.03	86.22
P208FCL10A	17/01/2022 12:11	dB(L)		115	120	87.18	83.51	92.05	93.35
WN47UPG02A_WN47LPG01A	17/01/2022 13:32	dB(L)		115	120	83.8	85.92	86.01	89.61
WS45LLD04A_WS45BAP04D	18/01/2022 13:01	dB(L)		115	120	79.99	87.07	81.77	82.04
P125W3P01A	19/01/2022 9:19	dB(L)		115	120	92.6	91.2	101.68	83.27
P124W9P01A	21/01/2022 15:24	dB(L)		115	120	104.79	103.92	107.62	93.74
WN47LEB02A Misfire	25/01/2022 8:20	dB(L)		115	120	89.83	89.46	83.54	83.53
WN47LEB02A	25/01/2022 9:35	dB(L)		115	120	97.23	93.35	86.41	83.78
WN49BAY05A	27/01/2022 13:10	dB(L)		115	120	96.81	98.34	94.82	94.18

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits		Monitoring Point			
				95% of Blasts	100% of Blasts	Moses Crossing EPL ID 18	Jerrys Plains EPL ID 9	Maison Dieu EPL ID 12	Warkworth EPL ID 11
P208MA307A	27/01/2022 15:08	dB(L)		115	120	81.09	80.44	93.76	96.44
P209WK306A	28/01/2022 13:01	dB(L)		115	120	85.5	90.59	87.01	91.91
P124WK903A	29/01/2022 13:05	dB(L)		115	120	99.2	91.08	87.58	91.87
P125BF402A	29/01/2022 13:06	dB(L)		115	120	94.11	88.46	88.72	95.59
P207BAC05A	31/01/2022 13:27	dB(L)		115	120	93.65	93.71	93.13	97.35
P208FCL11A	31/01/2022 13:28	dB(L)		115	120	90.49	84.49	93.95	101.8
P20906501A	31/01/2022 13:30	dB(L)		115	120	89.77	85.62	99.35	95.71
Monthly Meaningful Data									
January		dB(L)	Minimum	115	120	79.99	80.44	81.27	80.68
		dB(L)	Mean	115	120	92.57	91.71	92.41	90.74
		dB(L)	Maximum	115	120	106.39	108.39	107.62	101.80
		dB(L)	Median	115	120	91.65	90.42	92.83	91.89

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits			Monitoring Point		
				95% of Blasts	100% of Blasts	Moses Crossing EPL ID 18	Jerrys Plains EPL ID 9	Maison Dieu EPL ID 12	Warkworth EPL ID 11
WS44LLP01A	4/01/2022 13:38	mm/s	All Blasts 100%	5	10	0.17	0.26	0.08	0.19
WN45BAR01C	4/01/2022 13:39	mm/s		5	10	0.11	0.06	0.05	0.2
P208FCL09B	5/01/2022 13:06	mm/s		5	10	0.15	0.04	0.04	0.12
WS45LLD03A	6/01/2022 12:56	mm/s		5	10	0.18	0.08	0.09	0.16
P208B5P01A	8/01/2022 13:02	mm/s		5	10	0.13	0.04	0.48	0.47
WS44LLD03A	10/01/2022 13:06	mm/s		5	10	0.19	0.29	0.12	0.13
P208PF101A	13/01/2022 12:58	mm/s		5	10	0.09	0.02	0.04	0.37
P208BR101A	14/01/2022 13:31	mm/s		5	10	0.16	0.05	0.38	0.83
P208B5P01B	17/01/2022 12:10	mm/s		5	10	0.12	0.03	0.18	0.29
P208FCL10A	17/01/2022 12:11	mm/s		5	10	0.1	0.02	0.04	0.79
WN47UPG02A_WN47LPG01A	17/01/2022 13:32	mm/s		5	10	0.11	0.04	0.04	0.13

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits			Monitoring Point		
				95% of Blasts	100% of Blasts	Moses Crossing EPL ID 18	Jerrys Plains EPL ID 9	Maison Dieu EPL ID 12	Warkworth EPL ID 11
WS45LLD04A_WS45BAP04D	18/01/2022 13:01	mm/s		5	10	0.15	0.12	0.08	0.1
P125W3P01A	19/01/2022 9:19	mm/s		5	10	0.14	0.03	0.07	0.14
P124W9P01A	21/01/2022 15:24	mm/s		5	10	0.11	0.03	0.06	0.21
WN47LEB02A Misfire	25/01/2022 8:20	mm/s		5	10	0.09	0.02	0.05	0.07
WN47LEB02A	25/01/2022 9:35	mm/s		5	10	0.11	0.03	0.05	0.23
WN49BAY05A	27/01/2022 13:10	mm/s		5	10	0.1	0.03	0.04	0.95
P208MA307A	27/01/2022 15:08	mm/s		5	10	0.1	0.02	0.05	0.23
P209WK306A	28/01/2022 13:01	mm/s		5	10	0.11	0.02	0.03	0.11
P124WK903A	29/01/2022 13:05	mm/s		5	10	0.17	0.06	0.09	0.29
P125BF402A	29/01/2022 13:06	mm/s		5	10	0.1	0.03	0.04	0.26
P207BAC05A	31/01/2022 13:27	mm/s		5	10	0.11	0.04	0.17	0.67

Blast ID	Date & Time	Unit of Measure	Monitoring Frequency & Capture	EPL Limits			Monitoring Point		
				95% of Blasts	100% of Blasts	Moses Crossing EPL ID 18	Jerrys Plains EPL ID 9	Maison Dieu EPL ID 12	Warkworth EPL ID 11
P208FCL11A	31/01/2022 13:28	mm/s		5	10	0.1	0.02	0.04	0.64
P20906501A	31/01/2022 13:30	mm/s		5	10	0.17	0.05	0.38	0.63
Monthly Meaningful Data									
January		mm/s	Minimum	5	10	0.09	0.02	0.03	0.07
		mm/s	Mean	5	10	0.13	0.06	0.11	0.43
		mm/s	Maximum	5	10	0.19	0.29	0.48	0.95
		mm/s	Median	5	10	0.11	0.04	0.06	0.23

6 Sewage Treatment Plant Monitoring Data

Date Sampled: 17 January 2022

Date Obtained: 15 February 2022

Table 4 Sewage Treatment Plant Monitoring

Monitoring Site	Date & Time	Pollutant	Unit of Measure	Monitoring Result
EPA ID 23	17/01/2022 10:15:00	Faecal Coliforms	Colony forming units/100ml	~600,000
		pH	pH	6.88
EPA ID 25	17/01/2022 10:25:00	Faecal Coliforms	Colony forming units/100ml	Unable to sample - maintenance required
		pH	pH	
EPA ID 26	17/01/2022 09:30:00	Faecal Coliforms	Colony forming units/100ml	420,000
		pH	pH	7.71
EPA ID 29	17/01/2022 09:30:00	Faecal Coliforms	Colony forming units/100ml	~<9
		pH	pH	7.54

7 Noise Monitoring Data

Date Sampled: 17/1/2022

Date Obtained: 10/02/2022

Table 5 Night LAeq,15minute Generated by HVO Against EPL Criteria

Location	Date & Time	Wind Speed (m/s) ¹	Stability Class ¹	Criterion dB	Criterion Applies? ²	HVO LAeq dB ^{3,4}	Exceedance dB ^{4,5}
EPA ID 36	17/01/2022 21:00	3	E	41	No	IA	NA
EPA ID 37	17/01/2022 22:26	0.5	D	40	Yes	<25	Nil
EPA ID 38	17/01/2022 21:27	2.3	E	39	Yes	IA	Nil
EPA ID 39	17/01/2022 23:59	1.1	F	37	Yes	IA	Nil
EPA ID 40	17/01/2022 23:30	1.3	E	39	Yes	<30	Nil
EPA ID 41	17/01/2022 23:06	0.5	E	39	Yes	26	Nil
EPA ID 42	17/01/2022 21:44	1.9	E	40	Yes	<30	Yes
EPA ID 43	17/01/2022 21:01	3	E	40	No	IA	NA

Notes:

1. Atmospheric data is sourced from the HVO Cheshunt AWS using logged meteorological data;
2. Noise criteria apply under all meteorological conditions except during periods of rain or hail, wind speeds greater than 3 m/s measured at 10 metres above ground level, stability category F conditions and wind speeds greater than 2 m/s measured at 10m above ground level, or stability category G conditions;
3. Site-only LAeq, 15minute attributed to HVO, including modifying factors if applicable;
4. Bold results in red indicate exceedance of criterion; and
5. NA in exceedance column means atmospheric conditions outside specified in approval, therefore criterion was not applicable.

Table 6 Night LA1,1minute Generated by HVO Against EPL Criteria

Location	Date & Time	Wind Speed (m/s) ¹	Stability Class ¹	Criterion dB	Criterion Applies? ²	HVO L _{Aeq} dB ^{3,4}	Exceedance dB ^{4,5}
EPA ID 36	17/01/2022 21:00	3	E	46	No	IA	NA
EPA ID 37	17/01/2022 22:26	0.5	D	46	Yes	37	Nil
EPA ID 38	17/01/2022 21:27	2.3	E	46	Yes	IA	Nil
EPA ID 39	17/01/2022 23:59	1.1	F	46	Yes	IA	Nil
EPA ID 40	17/01/2022 23:30	1.3	E	46	Yes	<30	Nil
EPA ID 41	17/01/2022 23:06	0.5	E	46	Yes	30	Nil
EPA ID 42	17/01/2022 21:44	1.9	E	46	Yes	35	Yes
EPA ID 43	17/01/2022 21:01	3	E	46	No	IA	NA

Notes:

1. Atmospheric data is sourced from the HVO Cheshunt AWS using logged meteorological data;
2. Noise criteria apply under all meteorological conditions except during periods of rain or hail, wind speeds greater than 3 m/s measured at 10 metres above ground level, stability category F conditions and wind speeds greater than 2 m/s measured at 10m above ground level, or stability category G conditions;
3. Site-only LA1,1minute attributed to HVO;
4. Bold results in red indicate exceedance of criterion; and
5. NA in criterion column indicates no criterion is applicable at this location. NA in exceedance column means atmospheric conditions outside specified in approval, therefore criterion was not applicable.