

LAMPIRAN

Data Perhitungan RI Limestone Crusher 2021

CIL2 Limestone Crusher Operation Report							
Time	Running Hours	Production	Rate	Rate	Load Motor BC	Stock pile	RI
	hour	t	Weighing t/h	Entry t/h	kW	t	
01.01.2021 00:00	267,9	319354,6	449	1191	53	92440	91,26%
01.02.2021 00:00	267,7	320530,7	487	1129	57	94349	86,51%
01.03.2021 00:00	276,6	357463,9	490	1240	57	644468	95,02%
01.04.2021 00:00	235	312407,9	447	1261	52	192937	96,63%
01.05.2021 00:00	124	153054,5	213	1303	25	95036	99,85%
01.06.2021 00:00	215,9	251378,7	358	1168	42	89956	89,50%
01.07.2021 00:00	292,8	321703,5	441	1147	52	105570	87,89%
01.08.2021 00:00	314,6	362521,2	496	1124	58	417331	86,13%
01.09.2021 00:00	263,3	312159,1	443	1219	52	1259808	93,41%
01.10.2021 00:00	290,4	329343,9	466	1192	55	915819	91,34%
01.11.2021 00:00	250,2	270176,6	385	1163	45	506658	89,12%
01.12.2021 00:00	0	48,1	11	0	1	168529	0,00%

Data StopLog Crusher 2021

Stopdate	Startdate	Description	Duration [h]	Major cause	Cause detail	Functional Loc	Explanation
04.04.2021 15:29:00	04.04.2021 16:56:00	Limestone crusher Running status	1,45	Production and Process	2040 Out of operational limits	CC.212-HC1	Crusher stop operasi krn hujan deras
05.09.2021 08:08:00	06.09.2021 09:38:00	Limestone crusher Running status	25,5	Production and Process	2040 Out of operational limits	CC.212-HC1	Chute inlet crusher blocking
24.03.2021 21:35:00	24.03.2021 21:39:00	Limestone crusher Running status	0,07	Production and Process	2040 Out of operational limits	CC.212-HC1	Crusher trip temp bearing panas
25.03.2021 09:22:00	25.03.2021 09:28:00	Limestone crusher Running status	0,1	Production and Process	2040 Out of operational limits	CC.212-HC1	Crusher stop ready temp bearing A high
25.03.2021 10:21:00	25.03.2021 11:05:00	Limestone crusher Running status	0,73	Production and Process	2040 Out of operational limits	CC.212-HC1	Crusher stop ready temp bearing A high
28.03.2021 12:54:00	28.03.2021 12:58:00	Limestone crusher Running status	0,07	Production and Process	2040 Out of operational limits	CC.212-BC2	212-BC2 stop ready
29.03.2021 10:21:00	29.03.2021 10:45:00	Limestone crusher Running status	0,4	Production and Process	2040 Out of operational limits	CC.212-HC1	Crusher awal start vibro
04.02.2021 08:38:00	04.02.2021 09:00:00	Limestone crusher Running status	0,37	Production and Process	2110 Product -Raw Material Quality	CC.212-BC2	MD aktif (ditemukan bolt track shoe doser)

04.03.2021 15:33:00	04.03.2021 15:44:00	Limestone crusher Running status	0,18	Production and Process	2110 Product -Raw Material Quality	CC.212- 4V1	Crusher distop krn tongkang mbentang arus surut kuat
05.02.2021 16:06:00	05.02.2021 16:12:00	Limestone crusher Running status	0,1	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	Metal detector aktif
06.01.2021 15:08:00	06.01.2021 15:12:00	Limestone crusher Running status	0,07	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	MD Aktif
08.01.2021 14:16:00	08.01.2021 14:24:00	Limestone crusher Running status	0,13	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	Metal Detector Aktif
08.02.2021 07:54:00	08.02.2021 08:50:00	Limestone crusher Running status	0,93	Production and Process	2110 Product -Raw Material Quality	CC.212- AF1	Batu mengganjal di outlet apron
08.02.2021 09:59:00	08.02.2021 11:06:00	Limestone crusher Running status	1,12	Production and Process	2110 Product -Raw Material Quality	CC.212- AF1	test run apron (apron jamming), batu mengganjal di outlet apron
08.02.2021 11:53:00	08.02.2021 15:40:00	Limestone crusher Running status	3,78	Production and Process	2110 Product -Raw Material Quality	CC.212- AF1	kosongkan hopper pasca apron jamming
08.02.2021 16:10:00	08.02.2021 22:55:00	Limestone crusher Running status	6,75	Production and Process	2110 Product -Raw Material Quality	CC.212- AF1	perbaiki bolt BP dan pasang main houl apron pasca apron jaming

08.06.2021 09:58:00	08.06.2021 10:04:00	Limestone crusher Running status	0,1	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	Metal Detector Aktif
08.11.2021 14:36:00	08.11.2021 15:29:00	Limestone crusher Running status	0,88	Production and Process	2110 Product -Raw Material Quality	CC.212- AF1	Mengatasi batu nyelip di appron 212-AF1
10.02.2021 05:49:00	10.02.2021 06:05:00	Limestone crusher Running status	0,27	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	MD aktif
12.06.2021 05:17:00	12.06.2021 05:24:00	Limestone crusher Running status	0,12	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	MD aktif
13.05.2021 22:34:00	13.05.2021 22:46:00	Limestone crusher Running status	0,2	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	Metal Detector Aktif
15.01.2021 18:30:00	15.01.2021 18:36:00	Limestone crusher Running status	0,1	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	Metal detektor aktif
16.03.2021 14:25:00	16.03.2021 14:30:00	Limestone crusher Running status	0,08	Production and Process	2110 Product -Raw Material Quality	CC.212- MS1	MS trip menangkap besi ex alat berat
16.06.2021 21:32:00	16.06.2021 21:44:00	Limestone crusher Running status	0,2	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	Metal Detector Aktif
16.07.2021 11:34:00	16.07.2021 13:06:00	Limestone crusher Running status	1,53	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	Mengatasi besi nyangkut di MS BC2

17.06.2021 16:34:00	17.06.2021 16:47:00	Limestone crusher Running status	0,22	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	Metal Detector Aktif
18.01.2021 09:18:00	18.01.2021 09:22:00	Limestone crusher Running status	0,07	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	MD aktif
20.06.2021 11:22:00	20.06.2021 11:28:00	Limestone crusher Running status	0,1	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	MD aktif
21.07.2021 04:05:00	21.07.2021 04:30:00	Limestone crusher Running status	0,42	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	Mengatasi besi nyelip di MS BC2 & ganti v-belt
22.02.2021 08:13:00	22.02.2021 08:18:00	Limestone crusher Running status	0,08	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	COS BC2 aktif
25.01.2021 10:27:00	25.01.2021 10:43:00	Limestone crusher Running status	0,27	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	MD aktif
26.02.2021 21:30:00	26.02.2021 21:52:00	Limestone crusher Running status	0,37	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	Metal detector aktif
26.07.2021 18:00:00	26.07.2021 18:21:00	Limestone crusher Running status	0,35	Production and Process	2110 Product -Raw Material Quality	CC.212- BC1	Mengatasi bolt bar grizzly tertangkap MS BC1
26.02.2021 23:38:00	27.02.2021 06:03:00	Limestone crusher Running status	6,42	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	212-BC2 blocking

28.07.2021 08:46:00	28.07.2021 09:10:00	Limestone crusher Running status	0,4	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	Metal Detector Aktif
28.07.2021 13:31:00	28.07.2021 13:37:00	Limestone crusher Running status	0,1	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	Metal Detector Aktif
29.01.2021 06:58:00	29.01.2021 07:30:00	Limestone crusher Running status	0,53	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	MD aktif
29.01.2021 18:08:00	29.01.2021 18:45:00	Limestone crusher Running status	0,62	Production and Process	2110 Product -Raw Material Quality	CC.212- BC2	MD aktif
02.07.2021 14:00:00	02.07.2021 14:06:00	Limestone crusher Running status	0,1	Production and Process	2310 Lack of Raw Material for Operation	CC.212- BC2	MD aktif
02.08.2021 23:06:00	02.08.2021 23:38:00	Limestone crusher Running status	0,53	Production and Process	2310 Lack of Raw Material for Operation	CC.212- BC2	MD aktif
05.08.2021 10:10:00	05.08.2021 11:06:00	Limestone crusher Running status	0,93	Production and Process	2310 Lack of Raw Material for Operation	CC.212- AF1	batu ngganjal di outlet apron
05.08.2021 11:15:00	05.08.2021 11:50:00	Limestone crusher Running status	0,58	Production and Process	2310 Lack of Raw Material for Operation	CC.212- AF1	kosongkan hopper
10.03.2021 13:39:00	10.03.2021 13:46:00	Limestone crusher Running status	0,12	Production and Process	2310 Lack of Raw Material for Operation	CC.212- BC2	MD aktif

10.03.2021 17:40:00	10.03.2021 17:48:00	Limestone crusher Running status	0,13	Production and Process	2310 Lack of Raw Material for Operation	CC.212- BC2	MD aktif
17.02.2021 09:14:00	17.02.2021 09:18:00	Limestone crusher Running status	0,07	Production and Process	2310 Lack of Raw Material for Operation	CC.212- BC2	Mengatasi batu nyelip di skirt chute BC2
16.04.2021 13:39:00	17.04.2021 15:36:00	Limestone crusher Running status	25,95	Production and Process	2310 Lack of Raw Material for Operation	CC.212- BC1	Mengatasi blocking di 212-BC1 krn material coating jatuh
14.04.2021 20:16:00	14.04.2021 20:26:00	Limestone crusher Running status	0,17	Production and Process	2310 Lack of Raw Material for Operation	CC.212- BC3	212 BC 3 stop ready , material coating jatuh (load bc tinggi)
22.11.2021 06:25:00	23.11.2021 01:08:00	Limestone crusher Running status	18,72	Production and Process	2310 Lack of Raw Material for Operation	CC.212- AF1	Apron terganjal batu , WP 278 bar
25.04.2021 06:38:00	25.04.2021 06:48:00	Limestone crusher Running status	0,17	Production and Process	2310 Lack of Raw Material for Operation	CC.212- BC2	MD aktif
26.03.2021 20:54:00	26.03.2021 21:06:00	Limestone crusher Running status	0,2	Production and Process	2310 Lack of Raw Material for Operation	CC.212- BC2	MD aktif
28.06.2021 06:04:00	28.06.2021 06:11:00	Limestone crusher Running status	0,12	Production and Process	2310 Lack of Raw Material for Operation	CC.212- BC2	Ganti V-Belt MS BC2 Putus

30.04.2021 07:55:00	30.04.2021 08:16:00	Limestone crusher Running status	0,35	Production and Process	2310 Lack of Raw Material for Operation	CC.11X	Dump Truck ready 2 unit, DT 773B No.20 & 22 trouble tggg selesai perbaikan
05.11.2021 09:13:00	07.11.2021 18:03:00	Limestone crusher Running status	56,83	Mechanical	2010 Wear / Tear / Fatigue	CC.212- 4V1	TN II stand by isi di NK, Comar satu trouble main engine kanan
09.01.2021 03:28:00	10.01.2021 00:50:00	Limestone crusher Running status	21,37	Mechanical	2010 Wear / Tear / Fatigue	CC.212- BC2	212-BC2 Penggantian bend pulley rusak
19.02.2021 14:06:00	19.02.2021 18:30:00	Limestone crusher Running status	4,4	Mechanical	2010 Wear / Tear / Fatigue	CC.212- VS1	Perbaikan plug drum grizzly B lepas
19.06.2021 00:40:00	19.06.2021 05:18:00	Limestone crusher Running status	4,63	Mechanical	2010 Wear / Tear / Fatigue	CC.212- VS1	Penggantian bar grizzly ada yg lepas lepas 1 ea dan pengencangan bolt grizzly
20.09.2021 04:17:00	20.09.2021 09:44:00	Limestone crusher Running status	5,45	Mechanical	2010 Wear / Tear / Fatigue	CC.11X- 4F1	Alat muat WL 990B No.16 & 17 trouble tggg selesai perbaikan
22.09.2021 13:11:00	22.09.2021 15:32:00	Limestone crusher Running status	2,35	Mechanical	2010 Wear / Tear / Fatigue	CC.11X- 4F2	Alat muat WL 990B No.16 & 17 trouble tggg selesai perbaikan

25.08.2021 06:30:00	25.08.2021 06:47:00	Limestone crusher Running status	0,28	Mechanical	2010 Wear / Tear / Fatigue	CC.212- BC2	Mengatasi roller apron lepas nyangkut di MS BC2
29.06.2021 07:31:00	29.06.2021 10:29:00	Limestone crusher Running status	2,97	Mechanical	2010 Wear / Tear / Fatigue		bolt bar grizzly putus 2 buah
29.10.2021 19:51:00	30.10.2021 04:22:00	Limestone crusher Running status	8,52	Mechanical	2010 Wear / Tear / Fatigue	CC.11X	Alat muat WL990B No.16 & 17 trouble, menunggu alat muat selesai perbaikan
14.01.2021 06:22:00	14.01.2021 09:18:00	Limestone crusher Running status	2,93	Electrical/ Instrumentation	2340 Improper Installation/Spare/Material	CC.212- HC1	Motor Crusher trip dari winding temp connection ada yg kendor
05.06.2021 19:03:00	06.06.2021 10:38:00	Limestone crusher Running status	15,58	Idle Time	2290 External logistical Constraints	CC.212- HC1	Test run crusher, grizzly, apron & BC1 - BC3 pasca OH 2021
18.05.2021 20:27:00	05.06.2021 18:50:00	Limestone crusher Running status	430,38	Idle Time	2290 External logistical Constraints	CC.212- HC1	Kosongkan hopper persiapan OH Crusher

Perhitungan Six Big Loss

a. *Equipment Failure (Breakdown)*

$$\text{Equipment Failure} = \frac{\text{Break down}}{\text{Calendar}} \times 100\%$$

$$\text{Equipment Failure} = \frac{213}{8760} \times 100\%$$

$$\text{Equipment Failure} = 2,43\%$$

b. *Setup and adjustment Losses*

$$\text{Setup and Adjustment Losses} = \frac{\text{Set up}}{\text{Calendar}} \times 100\%$$

$$\text{Setup and Adjustment Losses} = \frac{446}{8760} \times 100\%$$

$$\text{setup and Adjustment Losses} = 5,09\%$$

c. *Idling and Minor Stoppage* = $\frac{\text{Downtime}}{\text{Calendar}} \times 100\%$

$$\text{Idling and Minor Stoppage} = \frac{237}{8760} \times 100\%$$

$$\text{Idling and Minor Stoppage} = 2,71\%$$

d. *Reduce Speed Loss*

Reduce Speed Losses

$$= \frac{\text{Operasional Time} - (\text{Production Rate})}{\text{calender}} \times 100\%$$

$$= \frac{1305 - 1095}{8760} \times 100\%$$

$$= 2\%$$

e. *Yield and scrap loss* = 0

f. *Quality Loss* = 0