



RESOURCE GROUP (WA)

21st October 2024

Jacky Jurmann

Manager Planning & Environment

Shire of Northam, PO Box 613.

Northam WA 6401

Dear Jacky,

Re: Grass Valley Quarry. Lot 150, Clydesdale Rd Grass Valley WA 6403

Amendment to the Approved Development Application – Footprint Reduction

Resource Group is seeking an amended development approval from the Shire of Northam for the reduction of its working area footprint brought about by the deletion of two of the four approved mining pits for the project.

The subject application is proposed in accordance with Clause 77 of Schedule 2 (Deemed Provisions) of the Planning and Development (Local Planning Schemes) Regulations 2015 and the provisions of the Shire of Northam Local Planning Scheme No. 6 and is in line with your correspondence of the 27th June 2024, whereby Resource Group were advised that it could either submit a fresh Development Application, or an amendment to its original application. Given the simplistic and minor changes to the original development, Resource Group has chosen the latter of the two options, being an amendment to the original application.

Site Details

Lot 150, 792 Clydesdale Rd Grass Valley (Subject Site) is located approximately 3kms to the East of the Grass Valley township.

Background

At the 20th February 2019 Ordinary Council Meeting, Council resolved to approve the application to obtain development approval to construct a quarrying facility at the Resource Groups proposed quarry site of Lot 150 Clydesdale Rd, Grass Valley.



On the same day, before the project proposal had been voted on, the project was referred to the EPA by a third party under section 38 of the Environmental Protection Act 1986. As such Council determined that the approval would not be issued to Resource Group until such time as the EPA had assessed the referral.

In due course the EPA deemed that the minor nature of the proposed quarry operations did not constitute a significant project in their view, and as such did not require any further assessment. This decision was appealed by the third party twice with the Minister for the environment ruling both times that the EPA had acted in accordance with the EP Act, and both appeals were subsequently rejected.

The decision by the Minister of the Environment to dismiss the appeals against the EPA decision not to assess was made on the proviso that Resource Group delete SE Pit 1 and SW pit 2 from the already approved development.

Amendment

Resource Group wish to advise the following changes complete with documentation, including prescribed application fee, in support of its amendments to the approved proposal.

1. A reduction in the operational footprint of 4.68ha (~15% of total disturbed area) brought about by the elimination of the SE and SW pits. An amended site map showing the remaining two pits (NE & NW) is provided.
2. A Current Certificate of Title for the proposed land to be quarried.
3. An amendment to the Acoustic Report is also provided showing the variation of any impact brought about by the deletion of the SE & SW pits and the operation of pits known as NE & NW.
4. An amended site map showing the Noise Sensitive Receivers (NSR) located adjacent to the nominated pits NE & NW. This map and its subsequent comments are part of the Acoustic Report.

Reduced Pit Numbers:

The reduction from four pits down to two pits brings a number of changes to the overall life of the proposed quarry. They are:

- a. The total length of the proposed project is reduced by several years.
- b. Due to the shortening to the overall project, it is anticipated that there will be a reduction in the total number of road trips carried out by delivery trucks.
- c. Further, the number of times the crushing plant will be mobilised to site for campaign crushing will be reduced over the total project.
- d. Due to above there will be a commensurate reduction of the number of internal truck and loader movements.
- e. The reduced vehicular movement and crushing cycles leads to less dust emissions, which in turn requires less water to control those emissions.
- f. There will be less shots fired to obtain the feed for the crushing plant. This in turn then requires less explosives usage, and water for dust control.
- g. Considerably less hydrocarbons in the form of fuel, oils and greases will be required over the life of the project due to the pit reduction.
- h. The total volume of noise over the life of the project will be less.



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Notes:

- 1) All other reports and plans as required when submitting a Development Application are as originally submitted to the Northam Shire and haven't changed, with the only changes for review by Council being those as indicated above (Amendment Items 1-4).
- 2) It should be understood that the total volume of usable rock at the Grass Valley site is currently unknown. Resource Group has early indications that there may be sufficient amounts for 2+ 10 year periods of aggregate crushing. What impact the reduction in the number of pits has on the overall tonnage is unknown due to being unable to carry out a prolonged drilling program on site. Should Resource Group be successful in obtaining a license to operate, then a clearer picture of the total in situ resource will become evident over time.

Should you have any questions in relation to the details provided in this submission, please do not hesitate to contact Greg Kennedy on 0407.491957.

Greg Kennedy

General Manager – Resource Group (WA) Pty Ltd

m: 0407.491957

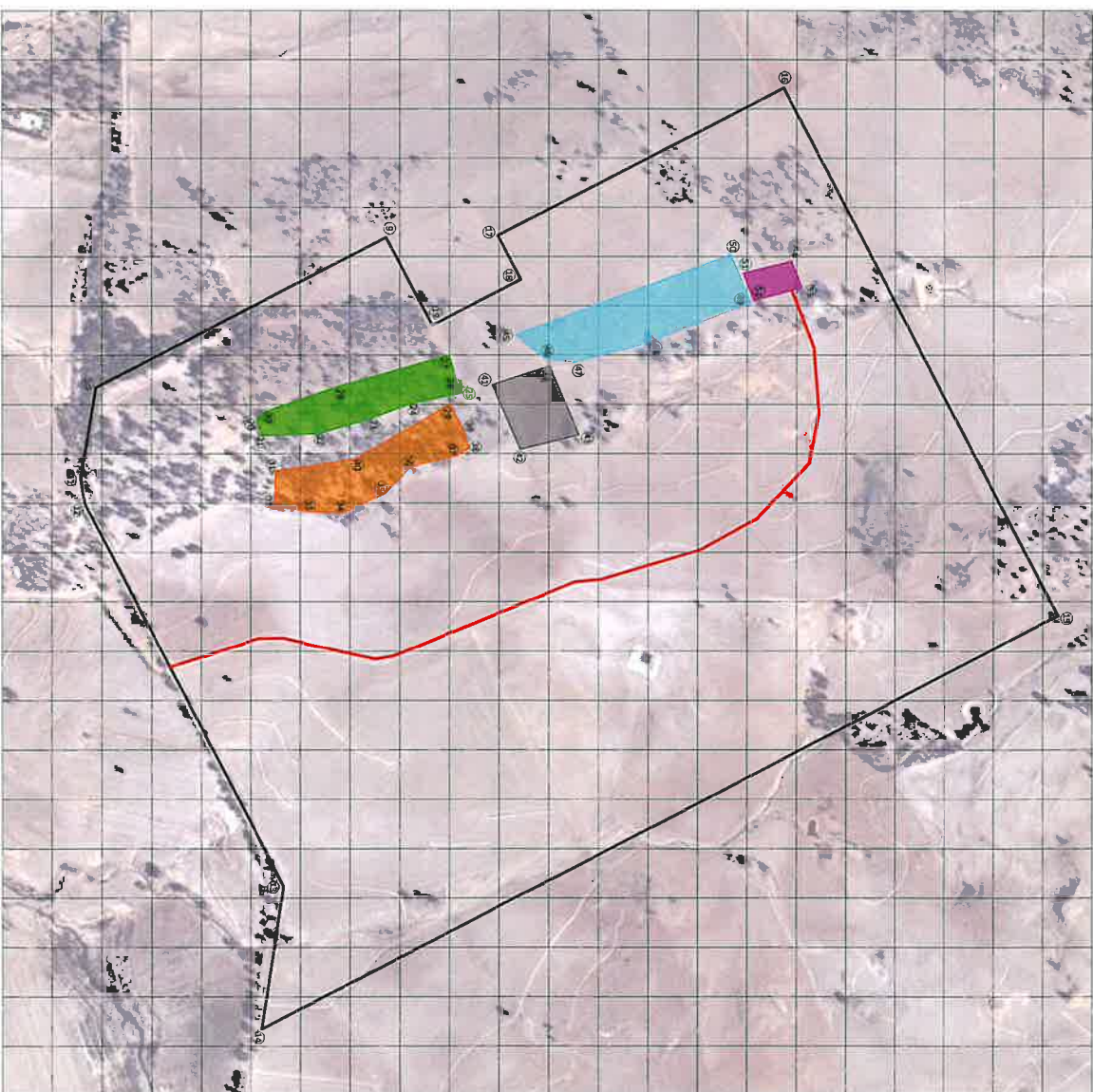
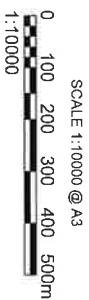
e: greg.kennedy48@outlook.com

PT	EASTING	NORTHING
9	483261.029	6501372.587
10	483365.570	6500788.330
11	483750.606	6500758.007
12	483802.054	6500766.196
13	484576.304	650167.621
14	484864.821	650122.641
15	484027.825	6502730.227
16	482957.386	6502173.076
17	483256.965	6501597.470
18	483346.318	6501644.001
19	483439.335	6501465.551
20	483629.817	650111.789
21	483662.955	650123.702
22	483659.176	6501237.607
23	483628.925	6501339.717
24	483598.112	6501423.112
25	483575.727	6501527.474
26	483555.089	6501515.270
27	483500.000	6501500.000

PT	EASTING	NORTHING
28	483564.391	6501273.222
29	483600.000	6501500.000
30	483614.994	6501128.062
31	483735.046	6501150.436
32	483804.228	6501148.992
33	483817.018	6501216.687
34	483819.925	6501285.262
35	483779.524	6501370.200
36	483725.748	6501422.503
37	483704.534	6501512.436
38	483689.128	6501539.459
39	483651.630	6501528.127
40	483710.367	6501312.148
41	483560.310	6501585.785
42	483691.117	6501643.028
43	483661.758	6501760.420
44	483521.940	6501702.305
45	483458.571	6501634.020
46	483505.661	6501691.554
47	483515.254	6501752.865
48	483471.632	6501905.319
49	483393.984	6502108.219
50	483295.733	6502066.376
51	483333.863	6502092.408
52	483389.526	6502113.320
53	483362.961	6502211.218
54	483309.480	6502189.761

LEGEND

- Pit 1
- Pit 2
- Crushing Plant Operation Area
- Stockpiles
- Office/Amenities/Workshop
- Paths
- Approx. Boundary



REV	DATE	DESCRIPTION	DRAWN	SURVEYOR	APPROVED
1	18/09/24	LAYOUT PLAN	SRS		SRS

CLIENT:
RESOURCES GROUP
(WA) Pty. Ltd.

PROJECTION:
HORIZONTAL: Approx. MGA 94
VERTICAL: Local

LIMITATIONS OF USE:
The contents of this plan are general and correct as of the date of issue. It is not intended to be used for any other purpose. It is intended to use this data should satisfy the requirements of the plan survey by producing final Project Consultants.

TPC Total Project Consultants
 P: 08 6141 3154 F: 08 6141 3101
 E: admin@totalprojectconsultants.com.au
 • project managers
 • licensed surveyors
 • town planning

LAYOUT PLAN
OVER LOT 150 ON DP 300080
CLYDESDALE ROAD,
GRASS VALLEY

J2018066
 PLAN NO: J2018066 07
 SCALE: 1:10000
 REVISION: J
 SHEET 1 OF 1

N 6502800
N 6502700
N 6502600
N 6502500
N 6502400
N 6502300
N 6502200
N 6502100
N 6502000
N 6501900
N 6501800
N 6501700
N 6501600
N 6501500
N 6501400
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N 6500900
N 6500800
N 6500700
N 6500600

Title:	Grass Valley Quarry Environmental Acoustic Assessment		
Project:	Grass Valley Quarry		
Customer:	Resource Group (WA) Pty Limited		
Wood Doc No	AU00088-1-100	Wood Job No.	AU00088

Revision	Description	Prepared	Reviewed	Date
A	Issued for Review	TW	MP	04/03/2021
0	Issued for Use	AS	MP	12/03/2021
1	Issued for Use	AS	MP	15/03/2021

1. INTRODUCTION

Wood has been commissioned by Resource Group (WA) Pty Limited to revise the noise impact assessment of the proposed quarry development at Lot 150 Clydesdale Road, Grass Valley within the Shire of Northam, Western Australia.

A previous assessment has been undertaken by SLR Consulting in 2019 of potential noise impacts, 675.11334-R01-V5.0 *Resource Group WA Quarry*, assessing noise impacts at 2 noise sensitive receivers.

A revision to the noise impact assessment is required as result of an appeal to the Environmental Protection Agency (EPA) against the decision in March 2020 to not assess the environmental effects of the proposal against Part IV of the *Environmental Protection Act 1986*.

1.1 Project Overview

The development is located at Lot 150 Clydesdale Road, which will be comprised of the following noise emitting localities:

- 2 quarry pits (prior assessment was undertaken for 4 pits); and
- One crushing plant operation area.

The surrounding lands are comprised of agricultural and undeveloped land, with 3 noise sensitive receivers (NSR1, 2 and 3), all located within 2km of the proposed site. Figure 1-1 overleaf outlines the nearby residences and site localities.





Figure 1-1: Critical Site Locations and Nearby Noise Sensitive Receivers

The proposed quarry is planned to operate as follows:

- Dump truck (sales truck) movement 7:00 am to 5:00 pm Monday to Friday;
- Crushing Operations 7:00 am to 5:00 pm Monday to Friday for 3 - 4 months per year (Winter)
- Non-Production Sales Period 8-9 months per year (Spring through Autumn);
- Other onsite operations 7:00 am to 5:00 pm Monday to Saturday; and
- No operations on Sunday or public holidays.



2. ASSESSMENT CRITERIA

2.1 Assigned Levels

Regulation 7 of the Western Australia *Environmental Protection Regulations (Noise) 1997* stipulates that noise emitted from any premises when received at other premises must:

- 1) not cause, or significantly contribute to, a level of noise which exceeds the Assigned Level in respect of noise received at premises of that kind; and,
- 2) be free of noise characteristics such as tonality, impulsiveness and modulation when assessed under Regulation 9.

The Assigned Levels depend on the nature of the premises receiving the noise and the surrounding land use. The default night-time assigned noise levels at residential premises are presented in Table 2-1. Only night-time levels are presented as these are the most stringent. Where results exceed the night-time Assigned Levels by more than 5 dB there is potential for exceedance of the evening time Assigned Levels. This has been noted in the assessment where applicable.

Table 2-1 Day-Time Regulatory Assigned Levels

Type of premises receiving noise	Time of day	Assigned Level (dB)		
		L _{A10}	L _{A1}	L _{A max}
Noise sensitive premises at locations within 15 metres of a building directly associated with a noise sensitive use	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays	45 + influencing factor	55 + influencing factor	65 + influencing factor

The Assigned Levels are determined from a base (or default) Assigned Level which varies with receiver type and time of day, and an influencing factor. Influencing factors vary from premises to premises depending on the surrounding land use.

Based on the Assigned Levels presented above and the calculated influencing factor, the Assigned Levels at each of the premises is presented in Table 2-2. The L_{A10} noise level is used in the assessment of continuous noise emissions and will be used throughout this report.



Table 2-2 Day-Time Assigned Levels for Individual Noise Sensitive Receivers

Time of day	Premises receiving noise	Assigned Level (dBA)		
		LA10	L _A 1	LA max
0700 hours to 1900 hours Monday to Saturday; and 0900 hours to 1900 hours Sunday and public holidays	NSR 1	45	55	65
	NSR 2	45	55	65
	NSR 3	45	55	65

2.2 Intrusive Noise Characteristics

Noise levels measured at the nearby sensitive receivers are required to be adjusted if the noise exhibits impulsive, tonal, or modulating characteristics. If the noise is assessed as having tonal, modulating or impulsive characteristics, then the measured noise levels are adjusted, by the amounts given in Table 2-3 . The adjusted noise levels must now comply with the assigned noise levels.

Table 2-3 Adjustments for Intrusive or Dominant Noise Characteristics

Situation	Adjustment to Measured Level
Where tonality is present	+5 dB
Where modulation is present	+5 dB
Where impulsiveness is present	+10 dB

Based upon the types of noise sources proposed to operate at the quarry, intrusive characteristics have not been considered within this assessment.

3. NOISE MODELLING METHODOLOGY

The environmental noise model has been built using the sound modelling software SoundPlan 8.2.

This program calculates predicted sound pressure levels at nominated receiver locations or produces noise contours over a defined area of interest around the noise sources. SoundPlan can be used to model different sources of environmental noise such as industrial noise, road traffic and rail noise and aircraft noise. It has been accepted by WA Department of Water and Environment Regulation as appropriate for environmental noise prediction.



The CONCAWE algorithms has been selected as it is recommended by the WA Department of Water and Environment *Draft Guideline on Environmental Noise for Prescribed Premises*¹.

The inputs required in SoundPlan are noise source data, barriers/screens, ground topographical and absorption type data, assessed meteorological conditions and receiver point locations.

3.1 Ground Absorption

The acoustic properties of the ground surface can have a considerable effect on the propagation of noise. Flat non-porous surfaces such as concrete, asphalt, and calm water reflect noise, while porous surfaces such as loam and soft grass absorb noise.

The surrounding lands of the proposed quarry is farmland and native bushland which has been modelled relatively absorbent ground (ground factor 0.8).

3.2 Meteorological Conditions

Predictions have been calculated for both the worst-case noise levels as suggested by the WA DER Draft Guideline as the Worst Case conditions² and for 'neutral' meteorological conditions (no enhancement on received noise levels). These are shown in Table 3-1 below:

Table 3-1: Noise Modelling Day-time Meteorological Conditions

Scenario	Temperature	Relative Humidity	Wind Speed	Wind Direction	Pasquil Stability Class
Worst Case	20°C	50%	4 m/s	Source to Receiver	E
Neutral			0 m/s		D

3.3 Modelled Scenarios

Noise levels have been assessed based upon the worst-case plant and machine locations, with all equipment operating simultaneously. Thus, equipment is modelled operating in the Southern corner of Pit 3. Table 3-2 outlines operating equipment locations.

¹ Draft Guideline on Environmental Noise for Prescribed Premises, May 2016, DER2015/001319, Department of Environment Regulation



3.4 Source Inputs

Source sound power levels have been taken from 675.11334-R01-V5.0 Resource Group WA_Quarry and equipment quantities have been altered as correspondence with Resource Group (WA) accounting for the change in the proposed quarry. Modelled source levels are shown in Table 3-2. Equipment sound power spectra are presented in Appendix A.

Table 3-2: Modelled Source Equipment Sound Power Levels, Quantity and Location

Noise Source	Location	Quantity	Sound Power Level, dBA
CAT 980 Wheel Loader	Pit 3	1	110
	Crushing Plant Operations Area	1	
Water Cart	Crushing Plant Operations Area	1	85
Cone Crusher	Crushing Plant Operations Area	2	114
Primary Crusher	Crushing Plant Operations Area	1	116
Deck Screen	Crushing Plant Operations Area	2	112
Drill Rig	Pit 3	1	113
Dump Trucks	Pit 3	1	108
	Crushing Plant Operations Area	1	



4. RESULTS & DISCUSSION

The predicted noise levels at the nearest 3 noise sensitive receivers with no mitigation is shown below in Table 4-1, where exceedances of the Assigned Level are shown in **bold red**.

Table 4-1: Predicted Noise Levels at Noise Sensitive Receivers with No Mitigation

Receiver	Assigned Noise Level, dBA	Overall Noise Level, dBA	
		Neutral Meteorological Conditions	Worst Case Meteorological Conditions
NSR 1	45	44.5	49.8
NSR 2		39.2	44.7
NSR 3		39.4	45.0

Under worst case meteorological conditions, the noise model predicts an exceedance at only NSR1 of 4.8 dB. The following noise sources dominate noise levels at nearby receivers:

- Drill Rig;
- Primary Crusher;
- Cone crushers; and
- Wheel Loaders.

Meteorological conditions will not usually fall within the parameters of 'Worst Case' conditions. Neutral meteorological conditions have been predicted to determine the normal received levels. The noise levels modelled for neutral conditions fall below the noise limit for all three noise sensitive receivers.

4.1 Noise Controls

4.1.1 Current Noise Controls

Wood has assessed noise controls as per recommendations made in the previous assessment, 675.11334-R01-V5.0 Resource Group WA_Quarry, as below:

- 3m+ bunding at the edges of the mining pit; and
- 3m+ bunding surrounding the Crushing Plant Operations Area.

Noise levels at the receiver with the inclusion of bunding predicts exceedances at only NSR 1, as presented in Table 4-2.



Table 4-2: Predicted Noise Levels at Noise Sensitive Receivers with Bunding

Receiver	Assigned Noise Level, dBA	Overall Noise Level, dBA	
		Neutral Meteorological Conditions	Worst Case Meteorological Conditions
NSR 1	45	44.4	49.6
NSR 2		38.7	44.2
NSR 3		38.4	44.0

4.1.2 Additional Noise Controls

To achieve compliance at all receivers during the worst-case meteorological conditions requires additional controls, including:

- Sound power level of 6 dB below the level stated in Appendix A for the drill rig;
- Sound power level reduction of 10 dB below the level stated in Appendix A for the Primary Crusher and Cone Crushers; and
- 5 dB below the level stated in Appendix A for the Wheel Loaders.

Noise controls required may include:

Drill Rig:

- High-spec muffler;
- Radiator Silencer;
- Upgraded Cooling fan; and
- Acoustically treated enclosure of the top drive or acoustically treated shroud over the derrick.

Crushers:

- Additional noise barriers close to the equipment; or
- Acoustic cladding.

Wheel Loaders:

- High-spec muffler.

Noise monitoring should be undertaken after start-up of the quarry operation to determine the actual level noise emissions relative to the Assigned Levels, and additional noise controls implemented if exceedances are identified.



Table 4-3 outlines the predicted noise levels at the nearest 3 noise sensitive receivers with the implementation of additional noise controls. These controls include:

- Acoustically treated drill rig;
- Noise barriers near the primary and cone crushers; and
- Low noise wheel loader.

Table 4-3 Predicted Noise Levels at Noise Sensitive Receivers with Additional Noise Controls

Receiver	Assigned Noise Level, dBA	Overall Noise Level, dBA	
		Neutral Meteorological Conditions	Worst Case Meteorological Conditions
NSR 1	45	39.7	44.9
NSR 2		33.6	38.9
NSR 3		32.8	38.3



5. CONCLUSIONS & RECOMMENDATIONS

Wood has been commissioned by Resource Group (WA) Pty Limited to revise the noise impact assessment of the proposed quarry development at Lot 150 Clydesdale Road, Grass Valley within the Shire of Northam, Western Australia.

Several changes to the mining methods/plan have now been implemented from previous iterations of the environmental acoustic assessment. These include:

- Moving mining operations to pits further away from noise sensitive receivers;
- Installation and increasing the height of temporary noise bunds;
- Use of quieter equipment; and
- Limiting the number of equipment in operation.

The updated modelling and analysis presented in this File Note show that, under worst-case meteorological conditions noise levels exceeded the Assigned Level at NSR2 by 4.8 dB. For worst-case meteorological conditions, the following noise sources were found to dominate noise emissions:

- Drill Rig;
- Primary Crusher; and
- Wheel Loaders.

It is demonstrated that the proposed quarry can operate its crushing operations in compliance with the *Environmental Protection Regulations (Noise) 1997* by implementing the following noise controls as advised by Wood:

- As proposed, implement 3m+ Bunding around the edges of the mining pit and crushing plant operations area;

Implement noise controls that result in the following:

- Sound power level reduction of 6 dB below the level stated in Appendix A for the drill rig;
- Sound power level reduction of 10 dB below the level stated in Appendix A for the Primary Crusher and Cone Crushers; and
- 5 dB below the level stated in Appendix A for the Wheel Loaders.

It is recommended that Resource Group WA conduct noise monitoring at the commencement of operations to validate noise modelled results and to determine if further mitigation is to be required.



APPENDIX A EQUIPMENT SOUND POWER LEVELS

Equipment Item	Overall SWL, dBA	Octave Band Sound Power Level, dBL							
		63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz	8kHz
Cat 980 Wheel Loaders	110.3	99.0	109.0	104.0	105.0	106.0	105.0	95.0	89.0
Cone Crushers	114.1	115.0	115.0	112.0	111.0	109.0	107.0	102.0	92.0
Deck Screens	111.6	94.0	95.0	104.0	106.0	104.0	105.0	104.0	105.0
Drill Rig	113.1	83.0	99.0	99.0	108.0	107.0	107.0	102.0	99.0
Dump Trucks	107.5	106.0	99.0	99.0	99.0	99.0	104.0	99.0	80.0
Primary Crusher	116.1	117.0	117.0	114.0	113.0	111.0	109.0	104.0	94.0
Water Cart	84.6	88.0	83.0	85.0	80.0	80.0	77.0	73.0	64.0

