ENERGY SAVINGS ACTION PLAN

NORTHPARKES MINES

JUNE 2006

NORTHPARKES

KEWAN BOND PTY LTD

ENVIRONMENTAL ACCOUNTING
AND CONSULTING SERVICES

TABLE OF CONTENTS

APPENDICES

1. Introduction

1.1 The Company

The Northparkes Mines Joint Venture (NPM) is owned by Rio Tinto (80%) and Sumitomo (20%). Rio Tinto is responsible for management of the operation. Rio Tinto assumed control of the operation in 2000 after their acquisition of North Limited. The Northparkes copper-gold mine is located 30 kilometres north-north-west of Parkes, in central New South Wales.

1.2 Mining and Processing

The Deposit

Northparkes Mines operate an underground mine (E26) within the 1,630 hectares of mining lease, while another (E48) is currently undergoing a feasibility study. The mine is further buffered by 6,000 hectares of company owned agricultural land, which is utilised for farming.

Mining

Operations commenced in 1993 and in the mine's early production stages, gold bullion was produced from the E22 and E27 mineral deposits by open cut mining and Carbon-in-Pulp (CIP) processing of the oxide gold ore. Open cut mining of E22 and E27 was completed in June 2002. The second stage of open cut mining of E27 resumed in February 2003. Both open cut mines have now ceased operations, although further exploration is being conducted beneath and around E22.

The underground mine method is a variant of the block-caving technique. Production from the E26 ore body commenced in October 2003 with 5.6 million tonnes currently being produced annually. It is estimated that these production rates will be maintained for the remainder of the predicted mine life of 10 years (2016).

The average grade of ore recovered from Northparkes mines is 1.4% copper and 0.4g/t of gold.

Process Plant

The sulphide copper-gold ore is treated by a traditional flotation method to produce copper concentrate, containing silver and gold. In 2006, Northparkes Mines is targeting to crush and treat 5.6 Mt of sulphide ore grading 1.27% copper and 0.48 g/t gold, which will yield 178,899 t of copper concentrate containing 66,652 tonnes of copper metal and 64,593 ounces of gold.

The ore processing consists of three fundamental processes:

1. Comminution (crushing and grinding) to unlock the valuable mineral from the waste rock.
2. Separation (flotation) to remove the valuable mineral from the waste into a high quality product.
3. Dewatering (thickening and filtering) to remove water from the products for recycling back to the process.

Grinding Circuit

The grinding circuit encompasses two separate modules. Each module consists of a semi-autogenous grinding (SAG) mill, an oversize cone re-crusher, two stages of ball milling and flash flotation. Module 1 has a maximum design capacity of 250tph and operates at 95% availability for a yearly throughput rate of 2.03Mtpa. Module 2 has a maximum design capacity of 550tph and operates at 95% availability for a yearly through put rate of 3.6Mtpa.

A conveyor feeds the ore from the stockpile feeder into each SAG mill. For further size reduction the SAG mill product is then pumped to a secondary ball mill. Lastly, a tertiary ball mill completes the grinding process reducing the size of the flotation feed size to approximately 100 microns.

Flotation Circuit

The aim of the flotation process is to float a sulphide concentrate to recover the major copper and gold bearing minerals. The circuit consists of rougher, scavenger, cleaner, cleaner-scavenger and re-cleaner treatment stages.

Flotation feed is combined with reagents to augment the floatation properties of the required minerals and allows them to affix to air bubbles and be captured in the froth pastes. Air is added to cells to create bubbles, which ultimately collects the copper-gold minerals.

The feed to the flotation circuit is approximately 1-1.5% Cu. The end concentrate produced for each module is approximately 36-40% Cu and is then pumped to a concentrate thickener. The end tailings from each module are pumped into a common tailings thickener for dewatering.

Concentrate Thickening and Filtration

The concentrated slurry from the flotation circuits is thickened to 60% solids by three thickeners. The thickened concentrate is then filtered through ceramic disc filters to form the final concentrate product. Typical moisture content of this final concentrate varies between 7-9%.

Tailings Thickening and Disposal

Tailings discharged from the scavenger cells for each module are combined in a high-rate thickener to achieve a thickened underflow density of 56% solids. Water recovered from the thickener flows to the process water tank for reuse within the circuit.

Three sets of slurry pumps pump the thickened underflow tailings via two pipelines to the tailings dams, 2.2kms away from the plant. Tailings dam #1 is 141 ha and tailings dam #2 is 137 ha. Rock, sand, gravel and clay are used to construct the dam walls via the traditional upstream construction method. Water recovery from the tailings dams back to the plant averages between 39-45%.

Regulatory approval was granted in 2003 to dispose of tailings into the open cut voids once the ore has been removed. This will ensure open voids are not left when the mine closes and will help minimise surface disturbance. The E27 pit has already been sterilised and is earmarked for the disposal of paste thickened tailings. Further work is currently being done to evaluate the E26 pit for its potential to receive tailings.

1.3 Energy and Greenhouse Management

Energy represents a significant cost to Northparkes Mines – on average 13.5% of the total mine operating costs over the past three years. In addition, the risks associated with global climate change represent a significant risk to NPM and the community in which NPM operates. NPM is therefore committed to the continual improvement in energy efficiency and the reduction of greenhouse gas emissions – and have been for some time.

NPM, through Rio Tinto, have been participating in the Greenhouse Challenge programme since 2000. Rio Tinto has also been driving continual improvement in the areas of energy and greenhouse management at each of its operations worldwide. Rio Tinto corporate standards stipulate the systems and procedures required by each operation to ensure the ongoing effective management of energy and greenhouse gas emissions. Compliance with the Rio Tinto standards and participation in the Greenhouse Challenge programme has facilitated the development of effective systems at NPM for the management of energy and greenhouse gas emissions.

Current Systems and Integration with Business Operations

NPM's Energy and Greenhouse Management Plan provides the details of how energy and greenhouse gas emissions are managed. It includes the following elements:

- Metering and monitoring
- Risk assessment
- Energy audits and assessments
- Energy management objectives and efficiency improvement targets
- Considerations in purchasing equipment or planning projects
- Participation in carbon market schemes
- Identifying, assessing, implementing, monitoring energy projects
- Internal and external reporting
- Training and awareness
- Accountabilities and responsibilities

Detailed technical reviews of energy consumption and greenhouse gas emissions are conducted regularly at NPM as part of the Energy and Greenhouse Management Plan. These reviews aim to identify opportunities for further improvements in the management of energy and greenhouse gases as well as identify and assess potential energy-saving projects for consideration by NPM management.

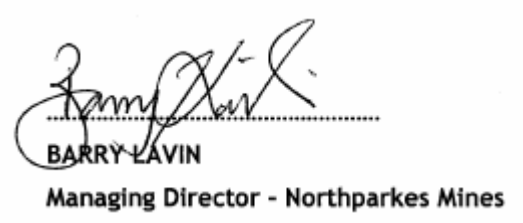
The last detailed review was conducted in December 2004. The report from this review is attached as **Appendix 2**. A follow-up assessment of energy and greenhouse management systems was conducted in November 2005. The next detailed review is scheduled for 2008/09 as part of Rio Tinto's and NPM's participation in this NSW ESAP programme and the Commonwealth Government's Energy Efficiency Opportunities (EEO) programme. NPM's compliance with the EEO programme will be structured so that NPM also continues to meet the requirements of the NSW ESAP programme.

This plan is essentially a compilation of existing systems and projects that already exist within NPM. The requirements of the NSW ESAP programme are not dissimilar to the actions already being taken by NPM. This plan has drawn largely from:

- The detailed energy review conducted in late 2004
- The review of energy and greenhouse management systems conducted in 2005; and
- NPM's existing Energy and Greenhouse Management Plan, including the current list of energy management and energy savings projects being implemented or identified for potential future implementation.

Signoff of the plan:

I certify that this Energy Savings Action Plan has been prepared in accordance with the Guidelines issued by the Minister for Utilities.



2. Baseline Energy Consumption and GHG Emissions

The baseline year chosen for NPM is from January 1, 2005 to December 31, 2005. **Appendix 1** shows the 2005 baseline data as well as historical data. This information is used to understand projected future performance and establish relevant targets for improvement. **Table 1** below summarises the baseline energy consumption and greenhouse gas emissions, which are representative of normal operating conditions.

Table 1 Baseline Energy Data - 2005

NPM Energy Profile	Units	2005
Production and Energy Use		
Ore milled	t	5,452,794
Concentrate produced	t	149,584
Electricity consumption	MWh	204,228
Diesel consumption	kL	4,055
Petrol consumption	kL	30
LPG consumption	kL	3
Explosive use	t	576
Total energy	GJ	892,845
Greenhouse Gas Emissions	t of CO_2-e	213,515
Performance Indicators		
Energy per tonne ore milled	GJ/t ore milled	0.16
CO_2/tonne ore milled	kg CO_2-e/t ore milled	39.16
Energy per tonne concentrate	GJ/t conc.	5.97
CO_2/tonne concentrate	t CO_2-e/t conc.	1.43

Figure 1 presents NPM's energy profile for 2005. Electricity is the largest energy type consumed, representing 82% of total energy consumption. Grid electricity is supplied by Energy Australia for NPM's mining and milling activities (NMI reference number NTTTW0RU20 and account number 832 939 566). Other electricity (e.g. for company houses in Parkes) is supplied by Country Energy (NMI reference number 40011154329 and customer reference number 294572-4).

Diesel use comprises most of the remaining energy consumption, representing 18% of total energy. NPM has subsequently concentrated effort in the identification of opportunities to improve the efficiency of electricity consumption and, to a lesser extent, diesel consumption. NPM's profile of electricity consumption is presented in **Figure 2** and **Figure 3**.

Significant improvements in energy efficiency have been experienced at NPM in recent years, as shown in **Figure 4**. The reasons for these improvements can be attributed to a combination of:

- Production improvements (e.g., improvements in recovery);
- Production changes (e.g., the cessation of open cut mining); and
- Energy savings (e.g., improved control over grinding circuit that reduces mill energy consumption)

Figure 5 shows the combination of increasing concentrate production and decreasing energy consumption, which results in the significant improvement in energy consumption per tonne of concentrate produced. The improvements in energy efficiency translate to comparable reductions in greenhouse intensity, as shown in **Figure 6**.

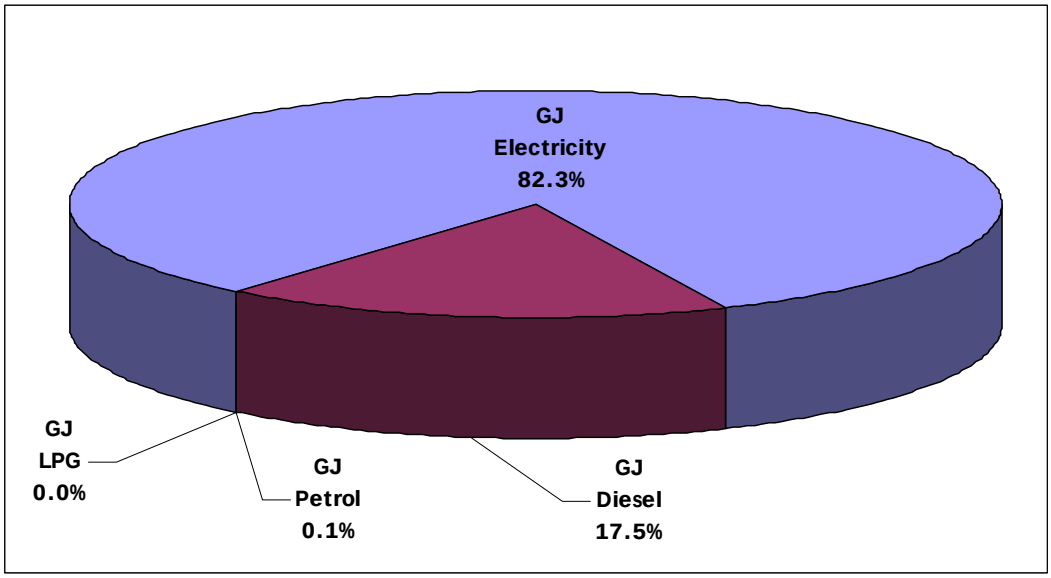


Figure 1: Energy Profile – 2005

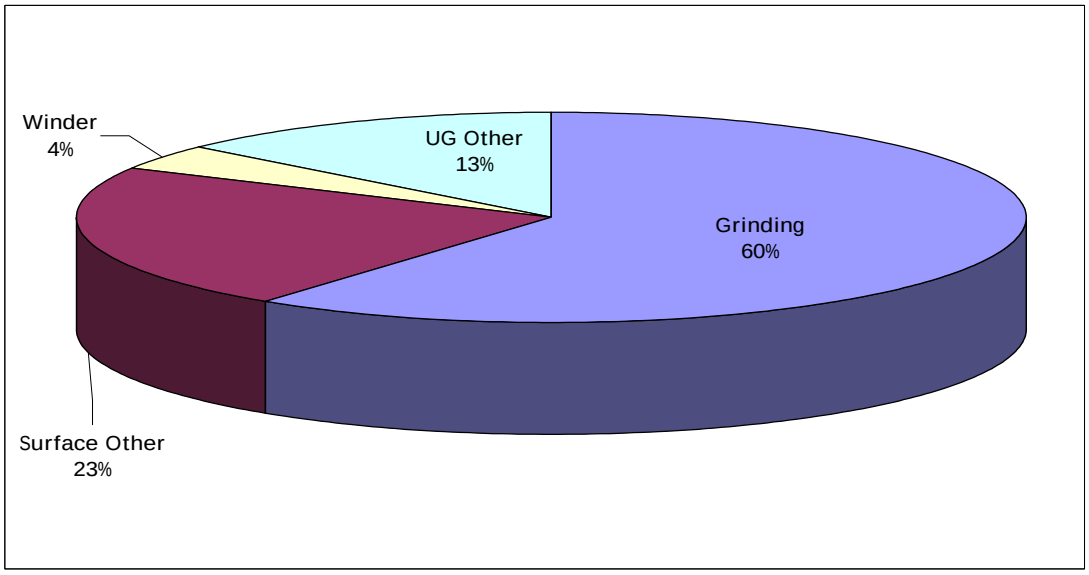


Figure 2: Electricity Profile – 2005

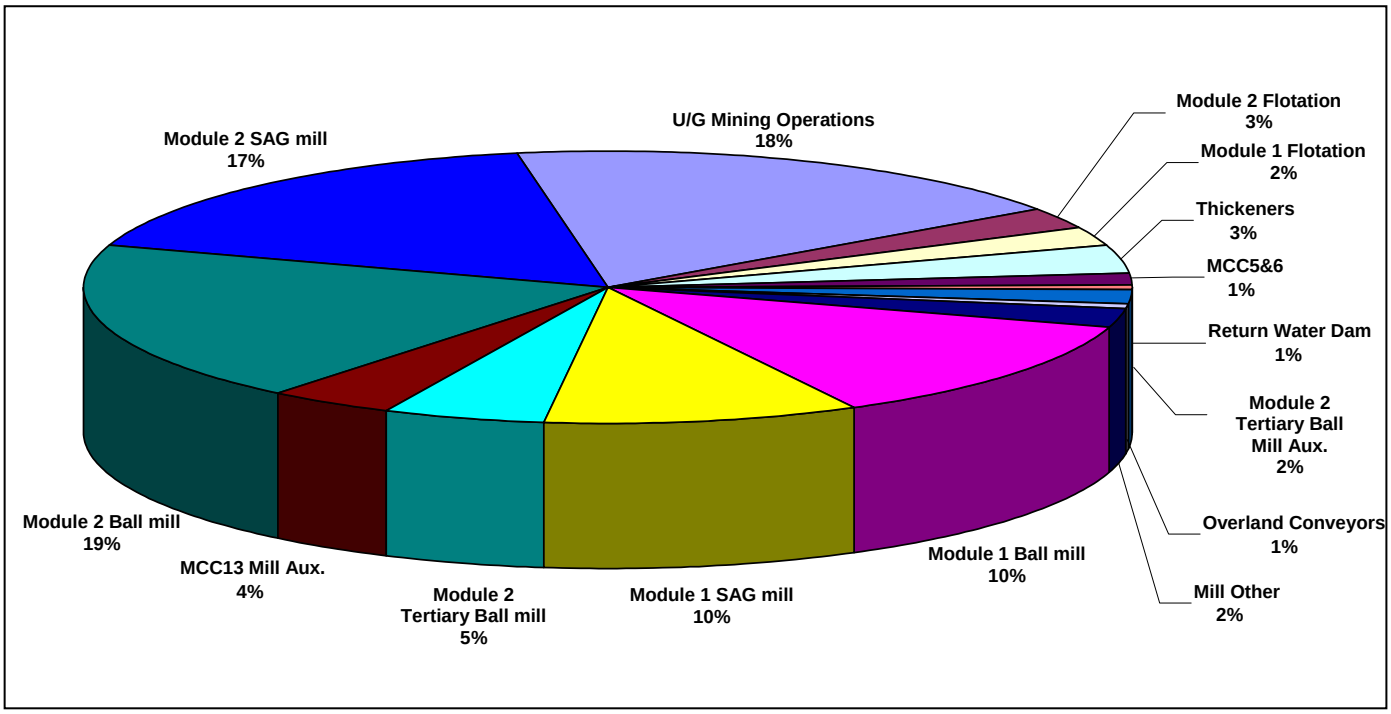


Figure 3: Detailed Electricity Profile – 2005

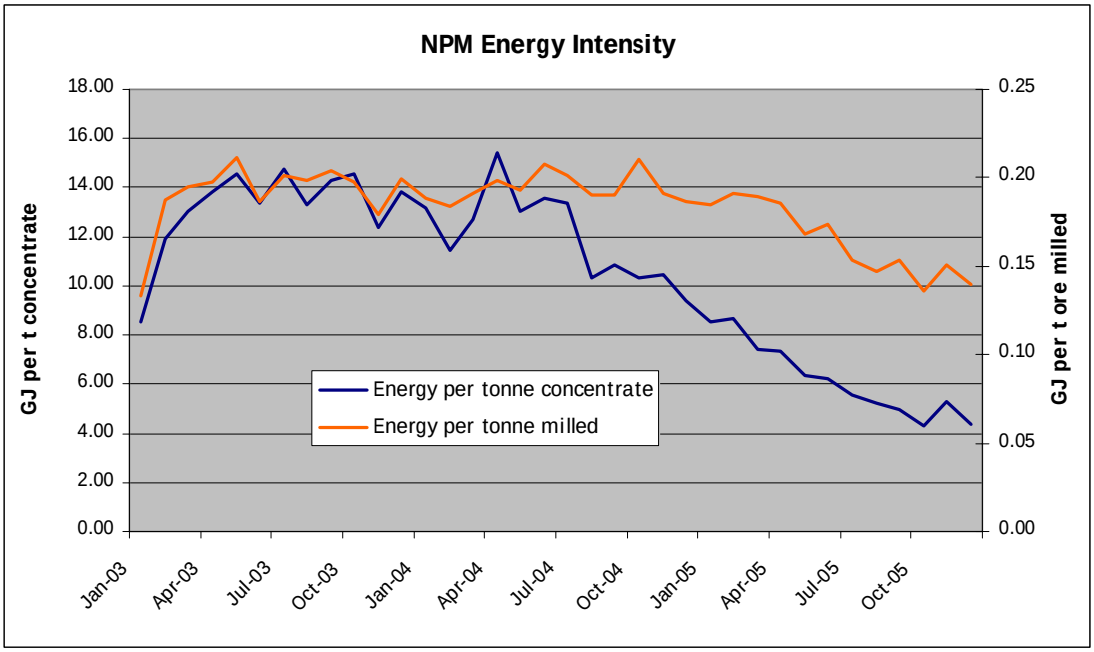


Figure 4: Energy Intensity

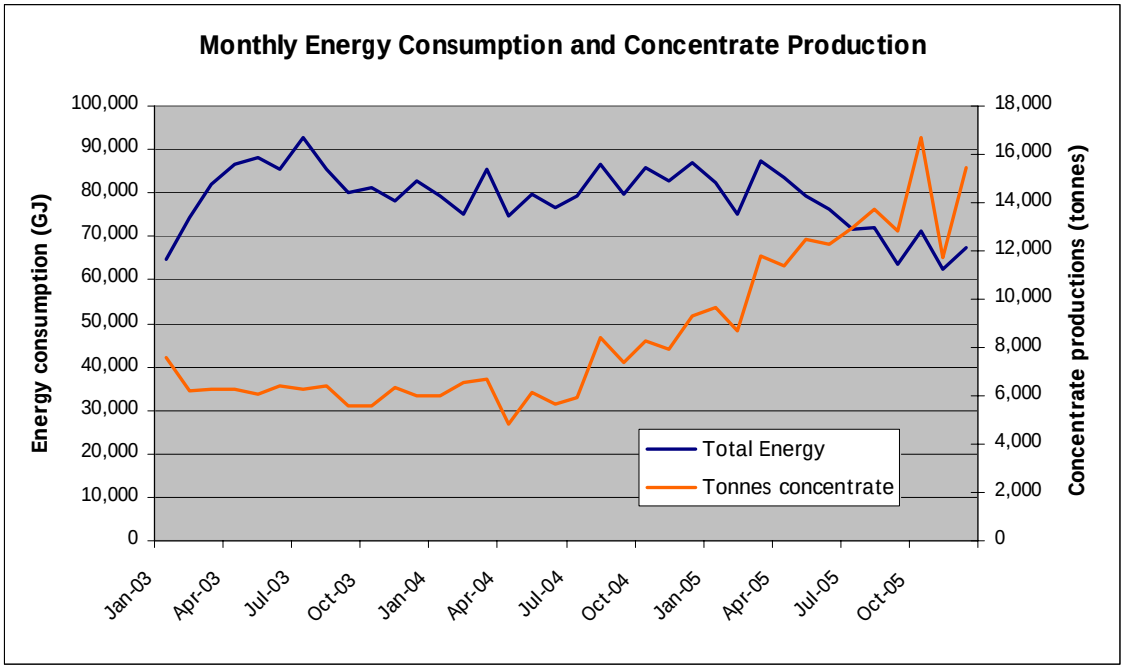


Figure 5: Energy Consumption and Concentrate Production

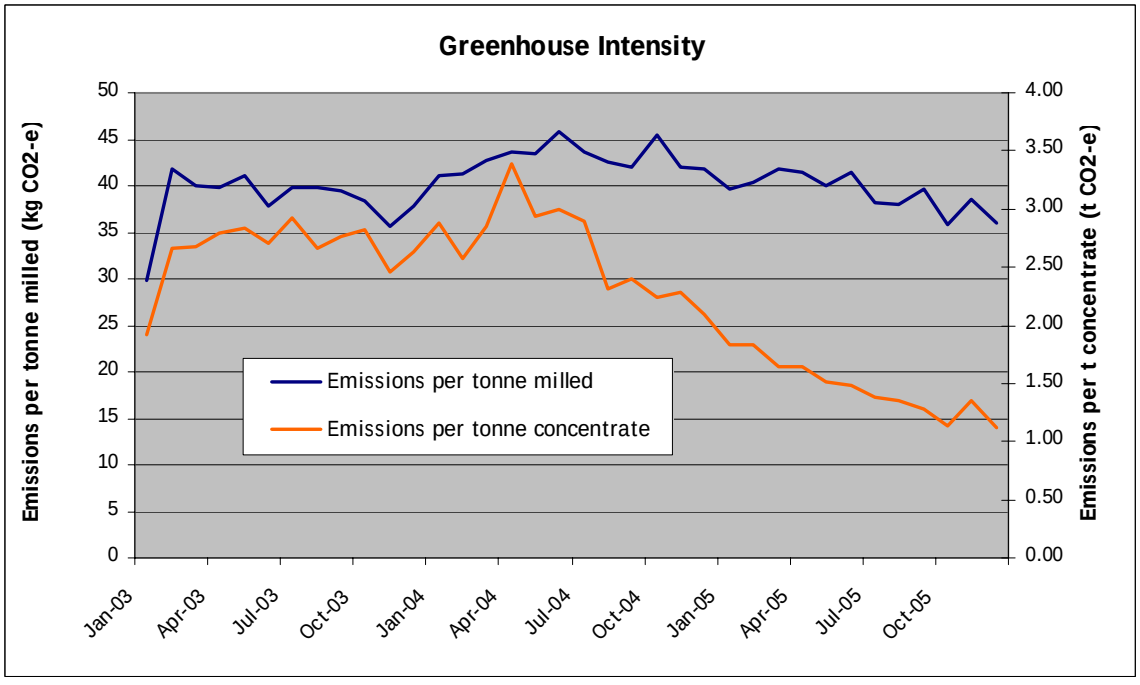


Figure 6: Greenhouse Intensity

Figures 7 and 8 represent Northparkes' typical daily electricity profile over a one month period. As the mine and the mill run continuously for 24 hours a day over 365 days a year, the electricity profile for Northparkes is largely constant at 620MWh per day. As seen from **Figures 7 and 8,** the only variation on the electricity consumption profile is when the mill is shutdown for extended periods of time. It is during this time, that the mill start-up procedure draws the largest amounts of electricity from the grid. In these circumstances, the mill is restarted as soon as possible and is independent of peak or off-peak timing and costs. Once the mill is fully operational, load remains constant. A listing of electrical equipment on site is provided as **Appendix 4**.

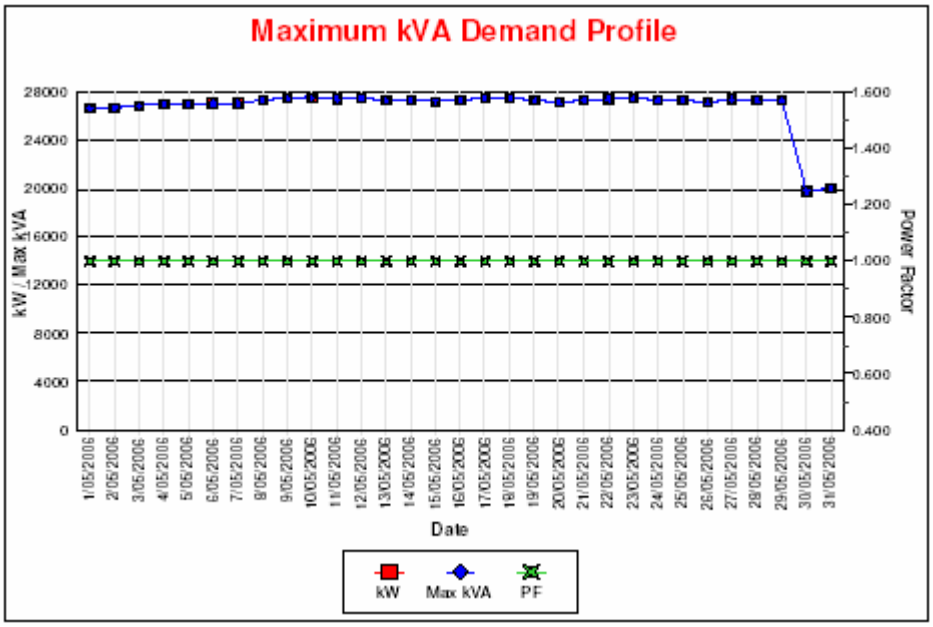


Figure 7: Maximum Demand Profile – May 2006

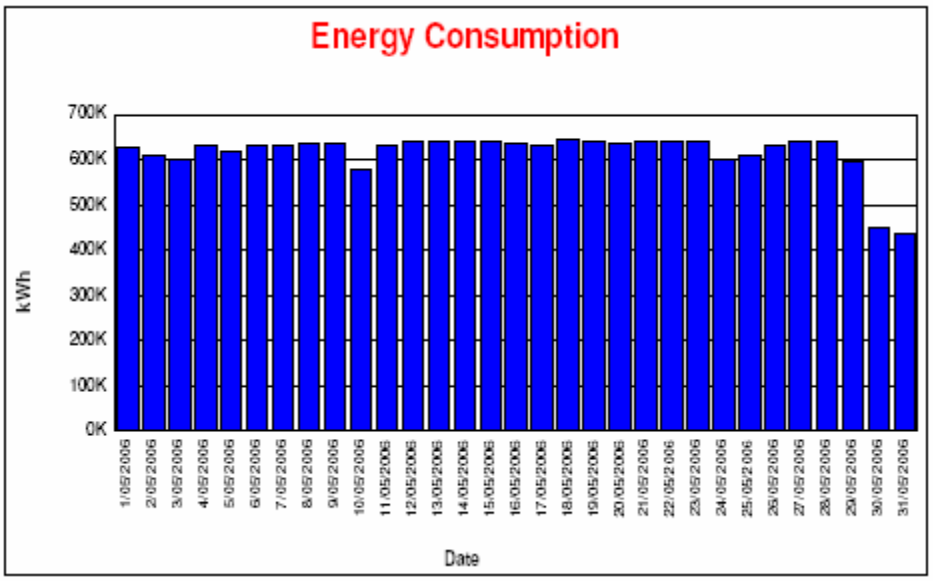


Figure 8: Daily Energy Consumption – May 2006

3. Energy Management Reviews

The 2004 Energy Review (**Appendix 2**) was conducted as part of Rio Tinto's ongoing pursuit of improved energy efficiency. The review team, comprising Tatiana Faroukhians, Jim Phelan and Mick O'Keeffe from Rio Tinto Technical Services (TS) and Gordon Skerry, Technical Manager, Energetics visited NPM during the period 27 September to 1 October 2004. The energy review covered the NPM mining, crushing and conveying and processing operations. This included analysis of the consumption and efficiency of electricity and diesel. The review included a diagnostic of the management systems and processes associated with improving energy efficiency and reducing greenhouse gas emissions. **Figure 9** shows the topics covered by the diagnostic and a summary of results. The result from the diagnostic session indicates a score of 1.23 out of 5 (2 Star rating) for the operation. This suggests average performance. Benchmarking data (**Figure 10)** shows that this is close to the industry average score for metal ore mining of 1.22.

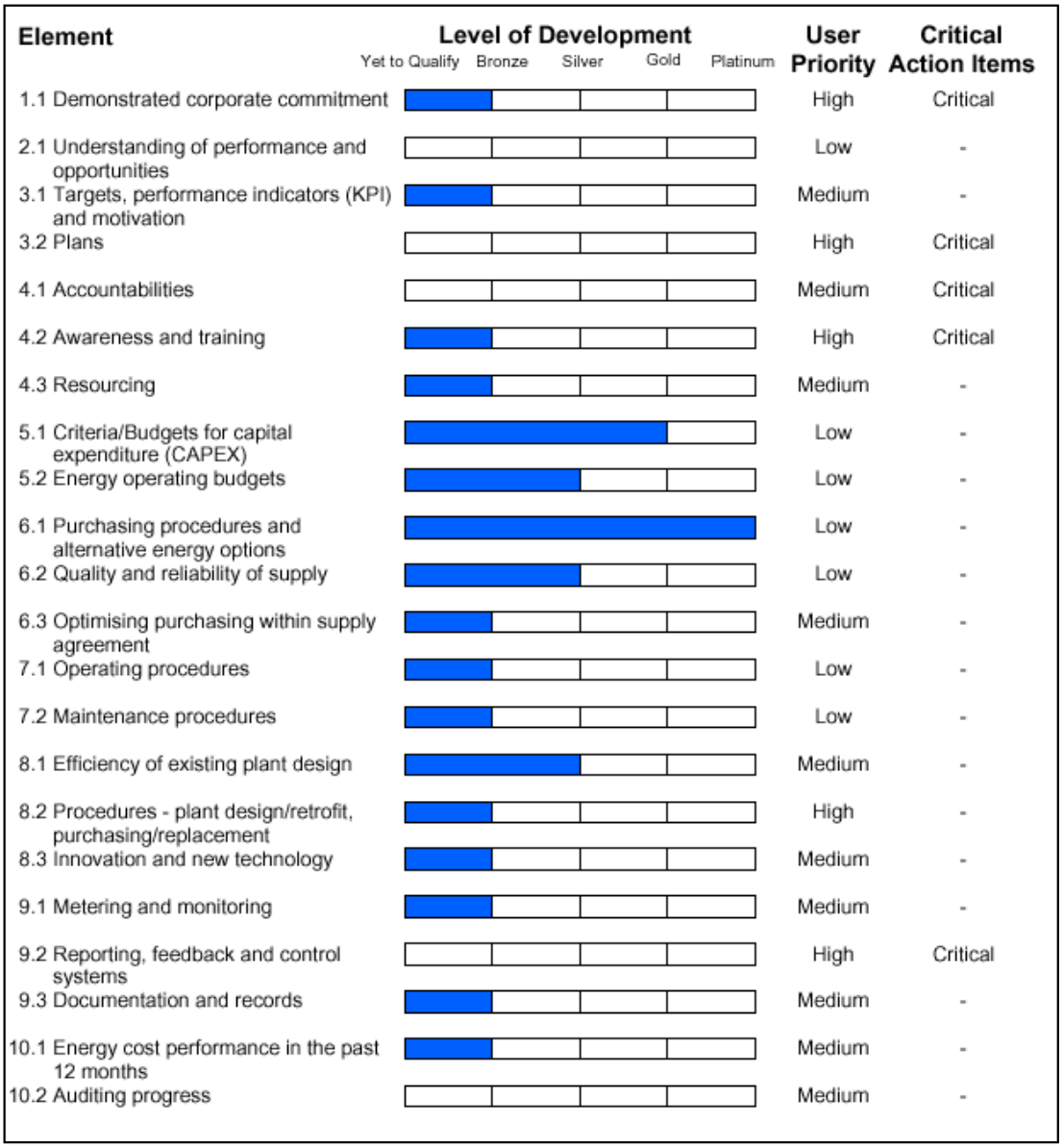


Figure 9: Energy Management Performance Summary

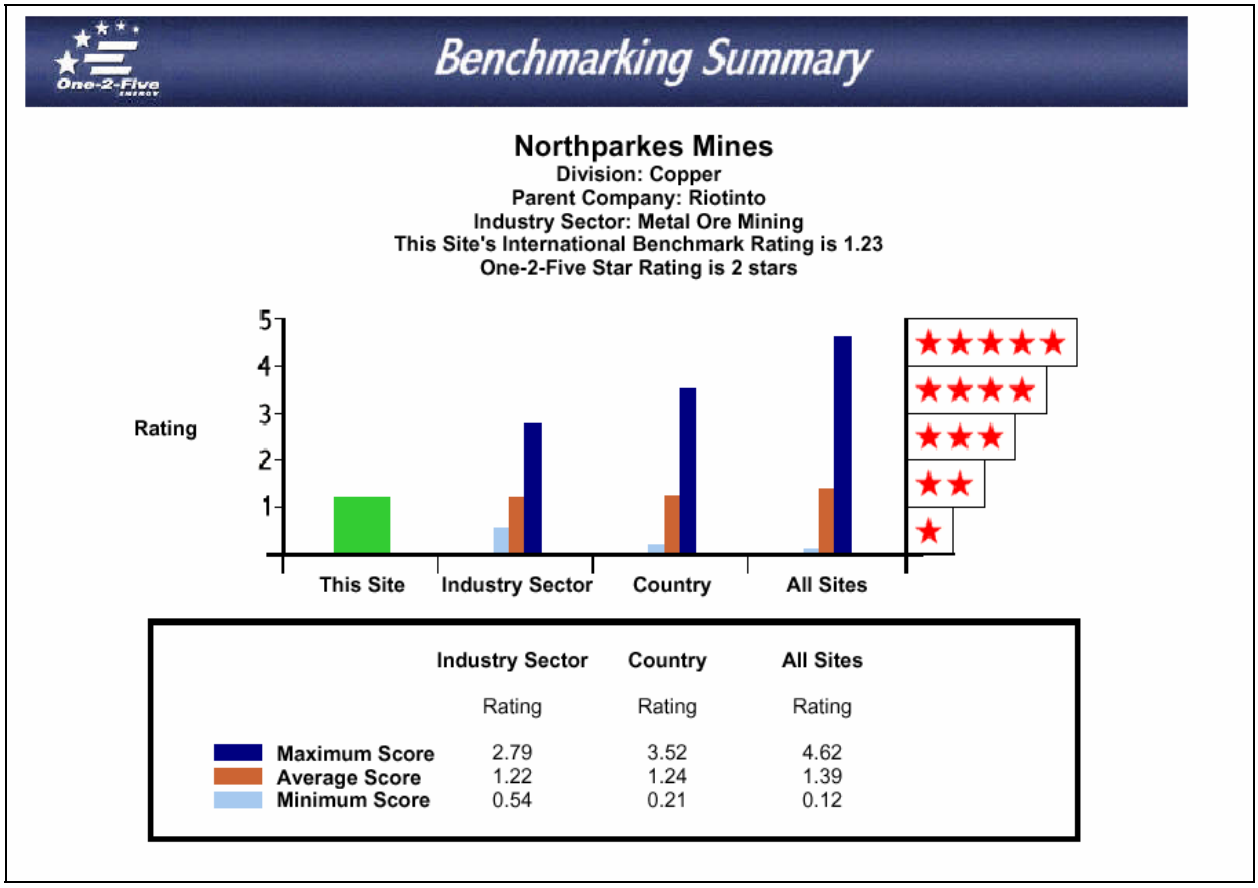


Figure 10: Energy Management Benchmarking Results

The 2004 Energy Review also involved a gap analysis of NPM's compliance with Rio Tinto's Energy and Greenhouse Standard.

In 2005, Kewan Bond Pty. Ltd. was commissioned to conduct a follow up gap analysis of NPM's compliance with the Rio Tinto Energy and Greenhouse Standard and the various internal and external energy and greenhouse reporting requirements.

A number of management system actions resulted from the 2004 and 2005 assessments. A list of the current management system actions is presented in **Section 4**. Technical energy savings projects (as opposed to management system actions) were identified as part of the 2004 review and have continued to be identified internally. Many projects have been completed, whilst a number of actions are still current and planned for future implementation. A list of past, current and future energy savings projects is provided in **Section 5**. NPM's Energy Team meets regularly to discuss progress on the implementation of actions and facilitate the identification of new actions. The team comprises representatives of each operational area.

4. Energy Management Actions

Action	Responsibility	Planned Completion Date
Implement the NPM Energy and Greenhouse Strategy as an annual planning process that identifies all priority projects, schedules, responsibilities and budgets.	Utilities Engineer	4Q 2006
Conduct or provide energy-awareness training for operations and maintenance teams and conduct or provide basic training for project management staff in energy efficient plant design, specification, and repair.	Dept. Managers Team Leaders Env. Dept.	In-place and on-going
Update the carbon abatement cost curve and ensure it is regularly reviewed.	K. Bond & Env. Dept.	On-going quarterly
Where applicable, include greenhouse references in the series of documents referenced in the EMS which relate to target setting, implementation and tracking of performance.	Env. Dept.	In-place and on-going
Greenhouse and Energy performance and relationship with targets (currently tracked by the Environment Department) to be reported internally. Include predicted future performance based on production projections. This could be done via NPM intranet and/or monthly data book.	Env. Dept.	In-place and on-going
Ensure regular interpretation of energy consumption trends and anomalies (particularly electricity consumption by various areas of the operation and plant equipment) via the inventory and/or the ProcessMORe programme.	Senior Electrical Engineer	In-place and on-going
Where applicable, annual business plan to include provision for implementation of greenhouse and energy action plans which support the achievement of GHG targets. This should include proposed capital expenditure. SD Implementation plan may be appropriate business plan.	Dept. Managers Env. Dept. Utilities Engineer	4Q 2006
Greenhouse and Energy considerations to be included in project and CAPEX evaluations (i.e., documented processes/procedures).	Dept. Managers Env. Dept. Utilities Engineer	4Q 2006
Management system actions and technical projects to be included in Energy and Greenhouse strategy, along with details of completion dates and responsibilities.	Utilities Engineer	In-place and on-going
Track costs associated with abatement certificates (itemized on monthly electricity bills) within the environmental data spreadsheet.	Senior Electrical Engineer	In-place and on-going
Update the SOP for Environmental Data Collection (Objective No. A270948) to include the additional GHG calculations.	K. Bond & Env. Dept.	4Q 2006

Update the Energy and GHG EMP so that it explains how objectives and targets are set, integrated into business plans, tracked and reported	K. Bond & Env. Dept.	4Q 2006
Include a description within the Energy and GHG EMP of how energy and GHG risks are identified, assessed, managed and reviewed.	K. Bond & Env. Dept.	4Q 2006
Review energy efficiency and GHG intensity targets in light of current performance, forecast performance and opportunities for improvement (e.g., from energy projects). Include targets for performance per tonne ore milled.	K. Bond & Env. Dept.	In-place and on-going
Update the energy and GHG targets in the Sustainable Development Implementation Plan (during its next review) and include energy efficiency and GHG intensity targets.	K. Bond & Env. Dept.	In-place and on-going
Ensure that assessment of the energy and GHG risks associated with various activities or projects consider the business risks in sufficient detail (e.g. consider current and future costs of energy and carbon, strategic importance to NPM and Rio Tinto of reducing emissions)	K. Bond & Env. Dept.	In-place and on-going
Energy Team to drive the implementation of NPM's Energy and GHG EMP and compliance with Rio Tinto's Energy and GHG Standard.	OPD Manager & Utilities Engineer	In-place and on-going
The update and ongoing review of the Energy and GHG EMP be completed by site personnel to ensure that it documents how NPM currently manage energy and GHG issues and comply with the relevant internal and external requirements (e.g., NPM standards, Government reporting requirements)	K. Bond & Env. Dept.	In-place and on-going

5. Energy Savings Measures

Measure Description	Responsibility	Cost to implement	Annual Energy Savings	Annual Emission Savings (t $CO2-^{e}$)	Annual Cost Savings	NPV at 8% (incl. prod savings)	Additional Comments
PREVIOUS ACTIONS OVER THE LAST FIVE YEARS							
Train Haulage of Process Consumables – Back loading consumables to site via empty concentrate trains.	R. Clarke	$10,000	153 kL Diesel	459	TBC	TBC	Considered to be not practical
Dust Suppression – links to SCADA system, road design and suppression agents.	R. Clarke	TBC	3,181 GJ	454	TBC	TBC	Partially completed
Improvements in Efficiency of Grinding Operations – initiatives include process optimisation software and mill monitoring using both load cells and sound levels.	R. Dunn	TBC	37,726 MWh	48,108	$1.351 million	TBC	Completed but still monitoring
Use of Single Furnace in Fire Assay	D. Burridge	TBC	15 kL LPG	27	$7,500	TBC	Completed
Conversion of Diesel Loader to High Efficiency Electric Loaders	R. Cunningham	TBC	63,670 GJ	775	TBC	TBC	Completed
Increasing bucket size on boggers.	M. Betts	TBC	4,422 GJ	1,130	TBC	TBC	Completed
Upgrade Ventilation Fan Equipment & Eliminating Auxiliary Fans	D. Allison	TBC	3,013 MWh	2,772	$107,865	TBC	Completed
Utilise Variable Vane Pitch or Variable Speed Drives on Ventilation Fans	T. Silveria	TBC	3,938 MWh	3,623	$142,600	TBC	Completed
Variable Speed Drives for mill pumps and blowers	N. Huggett	TBC	1,472 MWh	1,354	$52,700	$107,000	Completed
Reduce Time of Use of Air Conditioning to Administration Area	N. Huggett	TBC	460 MWh	420	$16,500	$18,000	Completed
Metering and monitoring	J. Mendis	$90,000	7,200 GJ	1,836	$84,000	$474,000	Completed but still monitoring
Upgrade & Repair of Air Compressors	N. Huggett	$5,000	410 GJ	105	$4,790	$27,000	Completed
Upgrade Air Conditioners	N. Huggett	$5,000	290 GJ	74	$3,400	$18,000	Completed

Measure Description	Responsibility	Cost to implement	Annual Energy Savings	Annual Emission Savings (t $CO2-^{e}$)	Annual Cost Savings	NPV at 8% (incl. prod savings)	Additional Comments
Copper Scavenger Concentrate or Cleaner Tail Regrind - increase recovery of coarse composites.	R. Dunn	$1,000,000	8,779 GJ	1,909	$105,000	$3,000,000	Not financial viable, as it leads to significant Cu & Au losses from over-grinding
Coarsen Primary Grind P_{80} to 100 microns - Coarsen Grind size to reduce electrical load on mills.	R. Dunn	$300,000	19,440 GJ	4,957	$227,000	$1,222,000	Completed
Fuel Additives	Rio Tinto Technical Services (OTX)	$31,900 p.a.	231.7 kL Diesel	623	$115,900	$553,000	Completed but considered to be not practical and difficult to quantify savings at NPM
Pebble crusher Optimisation	R. Dunn	$500,000	19,440 GJ	4,957	$227,000	$1,022,000	Completed
Expert System & Grinding Circuit Process Control	R. Dunn	$500,000	9,720 GJ	2,479	$113,000	$260,000	Completed but not implemented as mill is static with existing large amounts of automation
Delay Reporting, Froth Cameras & Loop Optimisation	R. Dunn	$700,000	8,779 GJ	1,909	$105,000	$13,000,000	Partially completed with continuous monitoring
Flotation Feed Pulp Density Optimisation	R. Dunn	$150,000	8,779 GJ	1,909	$105,000	$6,000,000	Completed with the above project
Pump Optimisation	N. Huggett	$150,000	5,044 GJ	1,286	$59,000	$245,000	Completed

TBC = To Be Confirmed

Last reviewed by NPM Site Energy Team – May 2, 2006

Measure Description	Responsibility	Cost to implement	Annual Energy Savings	Annual Emission Savings	Annual Cost Savings	NPV at 8% (incl. prod savings)	Additional Comments
POTENTIAL COST-EFFECTIVE OPPORTUNITIES – CURRENTLY BEING IMPLEMENTED OR REVIEWED							
Crusher optimisation – Improve primary crusher and conveyor energy performance by increased crusher throughput and avoidance of crusher and conveyor idle time.	M. Betts R. Cunningham	$15,000	489 GJ	125	$5,700	$23,000	Project current idle and subject to project approval and funding
Proflote technology - The Proflote system uses innovative technology to improve flotation recovery of fine copper particles. This project improves recovery and as a result reduces the energy KPI.	R. Dunn	$70,000 CAPEX $23,000/ month OPEX	5,267 GJ	1,145	$63,000	$108,000	Successfully installed on Module 2, improving Cu recovery by 3% Module 1 is to be fitted during 2H 2006 after project approval and funding is granted. Significant retro-fitting will be required
Winder upgrade – by increasing the winder lifting rate from 815 to 957tph, so mill throughput can increase which results in more concentrate being produced hence reducing the energy KPI.	M. Betts R. Cunningham P. Clinch	$3,000,000	2,736 GJ	TBA	$32,000	TBA	Project to proceed, based on increased production rates not energy savings
Underground Hauling - This project combines a number of optimisation options for underground Load Haul Dump (LHD) and skip hoisting. Projects include automation of LHD's, optimisation of skip filling and review skip designs to improve efficiency ahead of a proposed winder upgrade to 6 million tonnes.	M. Betts R. Cunningham P. Clinch G. Stapylton	$100,000	2,736 GJ	698	$32,000	$114,000	Project to proceed, based on increased production rates not energy savings
Primary Cyclone U/F to Ball Mill Discharge - Examine the potential benefit of moving the first stage cyclone underflow from feeding the ball mill to being directed to the ball mill discharge sump. This gives the potential to reclassifying the stream, thereby reducing slimes contamination.	R. Dunn	$300,000	1,756 GJ	382	$21,000	$120,000	Project currently idle, whilst awaiting the completion of other projects and mill simulation package to be complete

Measure Description	Responsibility	Cost to implement	Annual Energy Savings	Annual Emission Savings	Annual Cost Savings	NPV at 8% (incl. prod savings)	Additional Comments
Application of VSD's - Improve the efficiency of larger drives by application of Variable Speed Drives (VSD's) to match energy use to pressure and flow requirements. This particular project highlights cyclone feed pumps and the optimisation of cyclone pressure for improved operation at reduced energy use.	N. Huggett R. Dunn	$50,000	2,005 GJ	511	$23,000	$107,000	Project identified as a potential energy and greenhouse saver and researched further in 2H 2006
Pre-crushing SAG mill feed – By reducing the SAG mill feed top-size from 90mm to 55mm, a reduction of 5.5kWh/t of mill feed is realised by reducing the SAG reduction ratio and hence electric load. This project would also allow for more production, further reducing the energy KPI.	R. Dunn G. Stapylton	$7,000,000	110,951 GJ	TBA	$1.103 million	TBA	Preliminary engineering design work completed, project waiting further analysis, approval and funding
Hot Water Systems - Replace Electric Hot Water Systems for offices and amenities with approved Solar (Electric Boosted) units. This will reduce electricity costs and greenhouse emissions and lead to the creation once off Renewable Energy Credits (REC's).	J. Mendis	$24,000	531 GJ	135	$6,200	$17,000	Project identified as a potential energy and greenhouse saver and researched further in 2H 2006

TBA = To Be Announced

Last reviewed by NPM Site Energy Team – May 2, 2006

6. References

- Kewan Bond Pty Ltd, Review of Management and Reporting Requirements for Energy and Greenhouse Gas Emissions (November 2005)
- Northparkes Mines, Management Plan (Sitewide) – Energy and Greenhouse Gas – (November 2004)
- NSW Government - Department of Energy, Utilities and Sustainability. Guidelines for Energy Savings Action Plans (October 2005)
- Rio Tinto Greenhouse Gas Emissions Standard
- Rio Tinto Greenhouse Gas Emissions – Guidance Note
- Rio Tinto Technical Services, Northparkes Mines Energy Review (September 2004)

Appendix 1 Energy and Greenhouse Inventory

ENERGY	UNITS	2003	2004	2005	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05
ENERGY CONVERSION FACTORS																
Electricity	GJ/kWh	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036
Diesel	GJ/kL	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6	38.6
Petrol	GJ/L	0.0348	0.0348	0.0348	0.0342	0.0342	0.0342	0.0342	0.0342	0.0342	0.0342	0.0342	0.0342	0.0342	0.0342	0.0342
LPG	GJ/L	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257	0.0257
ELECTRICITY																
Cost	$	9,018,061	9,048,487	11,328,024	865,132	802,749	980,597	947,775	1,008,530	965,400	967,596	1,056,226	931,662	1,040,260	901,851	860,245
Peak	GJ	96,068	89,925	98,838	6,817	7,112	8,247	8,068	9,119	8,507	8,222	9,956	8,316	8,760	8,107	7,608
Shoulder	GJ	191,922	178,821	199,233	13,416	13,880	16,950	16,006	18,047	17,189	16,650	20,146	17,129	17,948	16,574	15,298
Off Peak	GJ	410,332	377,018	437,152	37,102	30,244	38,615	37,850	37,645	36,536	37,649	36,269	33,317	41,001	31,886	39,037
Total Electricity	**GJ**	**698,322**	**645,764**	**735,223**	**57,335**	**51,237**	**63,812**	**61,924**	**64,812**	**62,232**	**62,520**	**66,371**	**58,762**	**67,708**	**56,567**	**61,942**
DIESEL																
HWE Opencut	GJ	126,617	212,495	88,884	16,121	15,491	15,808	15,634	9,916	10,164	5,749	0	0	0	0	0
HWE Underground																
Barclay Mowlem																
GR Services	GJ	10,982	10,820	11,149	1,217	1,217	1,244	333	461	248	286	1,248	1,463	689	1,815	927
Pybar	GJ	3,221	2,123	0	0	0	0	0	0	0	0	0	0	0	0	0
Tails Lift	GJ	34,795	18,774	10,144	2,304	2,469	2,853	2,125	392	0	0	0	0	0	0	0
Heggies Goonumbla Siding	GJ	2,375	2,347	5,270	345	273	326	347	524	571	432	467	463	533	524	463
Exploration Drilling	GJ	11,024	16,532	17,296	1,478	1,485	1,734	1,725	1,768	1,398	1,530	1,603	1,226	1,190	1,194	965
Oxide Crushing	GJ	9,891	23,737	4,333	2,682	1,651	0	0	0	0	0	0	0	0	0	0
Farming	GJ	2,880	2,711	2,170	0	0	0	310	154	265	0	0	312	0	476	652
Northparkes total	GJ	28,128	15,778	17,260	875	1,282	1,308	1,097	1,316	1,308	1,188	2,135	1,330	1,225	1,800	2,397
Total Diesel	**GJ**	**281,506**	**322,724**	**156,505**	**25,022**	**23,867**	**23,275**	**21,572**	**14,532**	**13,955**	**9,185**	**5,454**	**4,794**	**3,636**	**5,809**	**5,404**
PETROL																
Total Petrol	GJ	1,625	1,762	1,041	140	118	110	115	110	71	99	108	99	0	0	72
LPG																
Bulk LPG	GJ	807	1,780	0	0	0	0	0	0	0	0	0	0	0	0	0
Bottle LPG	GJ	4	7	82	16	0	0	5	11	14	14	18	0	0	5	0
Total LPG	**GJ**	**811**	**1,787**	**77**	**16**	**0**	**0**	**5**	**11**	**14**	**14**	**18**	**0**	**0**	**0**	**0**

GREENHOUSE EMISSIONS	UNITS	2003	2004	2005	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05
EMISSION FACTORS																
Electricity	t CO_2-e/kWh	0.000918	0.001054	0.000985	0.000985	0.000985	0.000985	0.000985	0.000985	0.000985	0.000985	0.000985	0.000985	0.000985	0.000985	0.000985
Diesel	t CO_2-e/kL	2.69	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Petrol	t CO_2-e/L	0.00229	0.00229	0.00229	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028
LPG	t CO_2-e/L	0.00153	0.00153	0.00153	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018	0.0018
Explosives (ANFO)	t CO_2-e/t	0.1659	0.1659	0.1659	0.1673	0.1673	0.1673	0.1673	0.1673	0.1673	0.1673	0.1673	0.1673	0.1673	0.1673	0.1673
Explosives (Emulsion)	t CO_2-e/kg	0.0001659	0.0001659	0.0001659	0.0001659	0.0001659	0.0001659	0.0001659	0.0001659	0.0001659	0.0001659	0.0001659	0.0001659	0.0001659	0.0001659	0.0001659
ELECTRICITY																
Peak	t CO_2-e	24,497	26,328	27,043	1,865	1,946	2,256	2,208	2,495	2,328	2,250	2,724	2,275	2,397	2,218	2,082
Shoulder	t CO_2-e	48,940	52,355	54,512	3,671	3,798	4,638	4,379	4,938	4,703	4,556	5,512	4,687	4,911	4,535	4,186
Off Peak	t CO_2-e	104,635	110,383	119,610	10,152	8,275	10,566	10,356	10,300	9,997	10,301	9,924	9,116	11,218	8,724	10,681
Total Electricity	**t CO_2-e**	**178,072**	**189,065**	**201,165**	**15,688**	**14,019**	**17,460**	**16,943**	**17,733**	**17,027**	**17,106**	**18,160**	**16,078**	**18,526**	**15,477**	**16,948**
DIESEL																
HWE Opencut	t CO_2-e	8,824	16,515	6,908	1,253	1,204	1,229	1,215	771	790	447	0	0	0	0	0
GR Services	t CO_2-e	765	841	866	95	95	97	26	36	19	22	97	114	54	141	72
Pybar	t CO_2-e	224	165	0	0	0	0	0	0	0	0	0	0	0	0	0
Tails Lift	t CO_2-e	2,425	1,459	788	179	192	222	165	30	0	0	0	0	0	0	0
Heggies Goonumbla Siding	t CO_2-e	165	182	410	27	21	25	27	41	44	34	36	36	41	41	36
Exploration Drilling	t CO_2-e	768	1,285	1,344	115	115	135	134	137	109	119	125	95	92	93	75
Oxide Crushing	t CO_2-e	689	1,845	337	208	128	0	0	0	0	0	0	0	0	0	0
Farming	t CO_2-e	201	211	169	0	0	0	24	12	21	0	0	24	0	37	51
Northparkes total	t CO_2-e	1,960	1,226	1,341	68	100	102	85	102	102	92	166	103	95	140	186
Total Diesel	**t CO_2-e**	**19,618**	**25,082**	**12,164**	**1,945**	**1,855**	**1,809**	**1,677**	**1,129**	**1,085**	**714**	**424**	**373**	**283**	**451**	**420**
PETROL																
Total Petrol	t CO_2-e	107	144	85	11.42	9.69	9.02	9.40	9.01	5.78	8.08	8.83	8.09	0.00	0.00	5.91
LPG																
Bulk LPG	t CO_2-e	48	125	0	0	0	0	0	0	0	0	0	0	0	0	0
Bottle LPG	t CO_2-e	0	0	6	1	0	0	0	1	1	1	1	0	0	0	0
Total LPG	**t CO_2-e**	**48**	**125**	**5**	**1**	**0**	**0**	**0**	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**0**
EXPLOSIVES																
Bulk ANFO	t CO_2-e	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emulsion	t CO_2-e	171	336	94	21	18	18	18	9	10	0	0	0	0	0	0
Powersplit/Powerfrag	t CO_2-e	**2**	**4**	**2**	1	0	1	0	0	0	0	0	0	0	0	0
Total Explosives	**t CO_2-e**	**212**	**340**	**96**	**21**	**18**	**19**	**18**	**9**	**10**	**0**	**0**	**0**	**0**	**0**	**0**

PERFORMANCE	UNITS	2003	2004	2005	Jan-05	Feb-05	Mar-05	Apr-05	May-05	Jun-05	Jul-05	Aug-05	Sep-05	Oct-05	Nov-05	Dec-05
Production																
Tonnes ore milled	t	5,167,955	5,008,378	5,452,794	445,858	393,978	460,528	449,884	472,251	438,064	466,826	489,562	415,182	525,114	413,673	481,874
Tonnes concentrate	t	75,075	83,042	149,584	9,677	8,689	11,790	11,375	12,467	12,248	12,963	13,708	12,856	16,668	11,716	15,427
KPI'S - Energy																
Total Energy	GJ	982,264	972,038	892,845	82,513	75,222	87,197	83,615	79,466	76,271	71,818	71,951	63,655	71,344	62,376	67,418
Energy per tonne milled	GJ/t	0.19	0.19	0.16	0.19	0.19	0.19	0.19	0.17	0.17	0.15	0.15	0.15	0.14	0.15	0.14
Energy per tonne concentrate	GJ/t	13.08	11.71	5.97	8.53	8.66	7.40	7.35	6.37	6.23	5.54	5.25	4.95	4.28	5.32	4.37
2008 Target (5% below 2003)	GJ/t	12.43	12.43	12.43	12.43	12.43	12.43	12.43	12.43	12.43	12.43	12.43	12.43	12.43	12.43	12.43
Performance against target	% from 2003		-11%	-54%												
Ore milled KPI performance	% from 2003		2%	-14%												
KPI's - Electricity Cost																
Total Electricity Cost	$	9,018,061	9,048,487	11,328,024	865,132	802,749	980,597	947,775	1,008,530	965,400	967,596	1,056,226	931,662	1,040,260	901,851	860,245
Electricity cost per tonne milled	$/t	1.74	1.81	2.08	1.94	2.04	2.13	2.11	2.14	2.20	2.07	2.16	2.24	1.98	2.18	1.79
Electricity cost per tonne concentrate	$/t	120.12	108.96	75.73	89.41	92.39	83.17	83.32	80.90	78.82	74.64	77.05	72.47	62.41	76.98	55.76
KPI's - Greenhouse Emissions																
Total Emissions	t CO_2-e	198,057	214,757	213,515	17,666	15,902	19,296	18,647	18,882	18,129	17,829	18,594	16,459	18,808	15,929	17,374
Emissions per tonne milled	kg CO_2-e/t	38.32	42.88	39.16	39.62	40.36	41.90	41.45	39.98	41.38	38.19	37.98	39.64	35.82	38.51	36.05
Emissions per tonne concentrate	t CO_2-e/t	2.64	2.59	1.43	1.83	1.83	1.64	1.64	1.51	1.48	1.38	1.36	1.28	1.13	1.36	1.13
2008 Target (4% below 2003)	t CO_2-e/t	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53	2.53
Performance against target	% from 2003		-2%	-46%												
Ore milled KPI performance	% from 2003		12%	2%												

Appendix 2 2004 Energy Review

Appendix 3 Northparkes Mines Energy and Greenhouse Management Plan

Appendix 4 Electrical Equipment Inventory

PLANT EQUIP NUMBER	DESCRIPTION	Kw	FLC (AMPS)	FRAME (SIZE)	Mounting Foot or Flange	D.E. Bearing	N.D.E. Bearing	RPM	MAKE
350AG23	Collector Mixing	1.5	3.3	E90LD	Flange	6305 UU	6205 UU	1420	Toshiba
350AG25	Sulphidiser Storage Tank	5.5	10.6	E132SD	Flange	6308 UU	6308 UU	1440	Toshiba
350AG26	Spare								
350AG27	Bulk Liquid Floc Tank	2.2	4.4	D100LD	Flange	6206 ZZ	6206 ZZ	1405	Toshiba
360AG28	Conc. Storage TK-Oxide	11	21	D160M	Flange	6310	6208	1455	Toshiba
360AG29	Conc. Storage TK-Sulph.	11	21	D160M	Flange	6310	6208	1455	Toshiba
ANALYSER									
340AN03	Multi Stream	0.75	3.5/2	RX61-D780N4	Flange			1380/349	Sew-Eurodrive
340AN04	On Line Multiplexer	0.25	0.75	E20-M1B4	Flange			1380	Flender Himmel
340AN05	Control Room								
340AN06	Demultiplexer	0.18	0.54					1350	Western Electrics
BLOWERS									
340BL01	Mod 1 Flotation Cells	185	305	D315M	Foot	6314C3	6313C3	2960	Toshiba
340BL02	Mod 2 Flotation Cells	185	305	D315M	Foot	6314C3	6313C3	2960	Toshiba
340BL03	Mod 2 Flotation Cells	185	350	D315M	Foot	6313C3	631C3	2960	Toshiba
COMPRESSOR									
301CP01	Plant Air	75	80	D250MA		6210	6210	2950	TECO
301CP02	Plant Air	75	80	D250MA		6210	6210	2950	TECO
301CP03	Plant Air	75	80	D250MA		6210	6210	2950	TECO
301CP04	Air, Workshop								
301CP05	Air, Screw	200		D315M				1475	Leroy Somer
308CP08	Air, Lab Portable								
ACTIVATOR									
350BA01	Lime Bin	0.96	2.5	B93S14	Foot			1440	TECO
AGITATORS									
304AG35	Sewage Plant								
304AG36	Sewage Plant EN26								
333AG01	Tank 1	22	40	D180L	Foot	6310	6210	1455	Toshiba
333AG02	Tank 2	22	40	D180L	Foot	6310	6210	1455	Toshiba
333AG03	Tank 3	22	40	D180L	Foot	6310	6210	1455	Toshiba
333AG04	Tank 4	22	40	D180L	Foot	6310	6210	1455	Toshiba
333AG05	Tank 5	22	40	D180L	Foot	6310	6210	1455	Toshiba
333AG06	Tank 6	22	40	D180L	Foot	6310	6210	1455	Toshiba
333AG07	Tank 7	22	40	D180L	Foot	6310	6210	1455	Toshiba
333AG08	Tank 8	22	40	D180L	Foot	6310	6210	1455	Toshiba
333AG09	Tank 9	22	40	D180L	Foot	6310	6210	1455	Toshiba
333AG10	Tank 10	22	40	D180L	Foot	6310	6210	1455	Toshiba
333AG11	Tank 11	22	40	D180L	Foot	6310	6210	1455	Toshiba
340AG15	Roughers Collect Cond	2.2	4.4	D100LD	Flange	6206 ZZ	6206 ZZ	1405	Toshiba
340AG16	Roughers Promoter Cond	2.2	4.4	D100LD	Flange	6206 ZZ	6206 ZZ	1405	Toshiba
340AG17	Roughers 2 Sulphidiser	5.5	10.5	D132SD	Flange	6308 ZZ	6306 ZZ	1435	Toshiba
340AG18	Roughers 2 Collect. Cond.	4	7.8	D112MD	Flange	6206 ZZ	6205 ZZ	1420	Toshiba
340AG19	Scavs 1 Sulphidising Cond	5.5	10.5	D132SD	Flange	6308 ZZ	6306 ZZ	1435	Toshiba
340AG20	Scavs 2 Sulphidising Cond	5.5	10.5	D132SD	Flange	6308 ZZ	6308 ZZ	1435	Toshiba
340AG21	Roughers 1 Sulphid. Cond	5.5	10.5	D132SD	Flange	6308 ZZ	6308 ZZ	1435	Toshiba
340AG22	Roughers 1 Collector Cond	4	7.8	D112MD	Flange	6306 ZZ	6206 ZZ	1420	Toshiba
340AG30	Retreat Sulphidising Cond	2.2	4.4	D100LD	Flange	6206 ZZ	6206 ZZ	1405	Toshiba

PLANT EQUIP NUMBER	DESCRIPTION	Kw	FLC (AMPS)	FRAME (SIZE)	Mounting Foot or Flange	D.E. Bearing	N.D.E. Bearing	RPM	MAKE
340AG31	Retreat Collector Cond	1.5	3.2	D90LD	Flange	6256 ZZ	6206 ZZ	1395	Toshiba
350AG12	Sulphidiser Mixing	0.75	1.8	E80D	Flange	6204 UU	6204 UU	1410	Toshiba
350AG14	M.O.L.	3	6	D100LD	Flange	6006 ZZ	6206 ZZ	1420	Toshiba
CONVEYORS									
320CV01	Crusher to Stockpile	200	350	D315M	Foot	NU2224	6318	1480	Toshiba
320CV05	Crusher Clean Up	200	350	D315M	Foot	NU2224	6318	1480	Toshiba
320CV08	E26N Stockpile	150	246	D315M	Foot	NU320	6318	1480	Toshiba
320CV09	Stockpile Transfer	15	27	D160L	Foot	6310	6208	1450	Toshiba
321CV02	#1 Stockpile Reclaim	37	65	D225S	Foot	6313	6312	1470	Toshiba
321CV10	#2 Stockpile Reclaim	55	94	D250S	Foot	6317	6313	1475	Toshiba
330CV03	#1 Sagmill Oversize (1)	5.5	10.5	D132S	Foot	6308 ZZ	6306 ZZ	1435	Toshiba
330CV04	#1 Sagmill Oversize (2)	11	21	D160M	Foot	6310	6208	1455	Toshiba
330CV11	#2 Sagmill Oversize (1)	5.5	10.5	D132S	Foot	6308 ZZ	6306 ZZ	1435	Toshiba
330CV12	#2 Sagmill Oversize (2)	15	27	D160L	Foot	6310	6208	1450	Toshiba
330CV13	Oversize Transfer	5.5	10.5	D132S	Foot	6308 ZZ	3606 ZZ	1435	Toshiba
330CV20/21	Oversize Transfer	3	6	D100L	Foot	6206 ZZ	6206 ZZ	1420	Toshiba
370CV14	Concentrate Transfer	1.5	4.5	D112M	Foot	6206 ZZ	6206 ZZ	690	Toshiba
370CV15	Concentrate Transfer	1.5	4.5	D112M	Foot	6206 ZZ	6206 ZZ	690	Toshiba
370CV16	Concentrate Stacking	1.5	4.5	D112M	Foot	6206 ZZ	6206 ZZ	690	Toshiba
370CV17	Concentrate Stacking	1.5	4.5	D112M	Foot	6206 ZZ	6206 ZZ	690	Toshiba
CRUSHER									
306CR04	Jaw, Crusher, Lab	7.5	14	MRA132 4K	Foot			1460	C.M.G.
320CR01	Primary	185	365	D355LS	Foot	NU1224	6320	740	Toshiba
330CR02	Oversize: #1 Sag Mill	150	246	D315M	Foot	NU320	6318	1480	Toshiba
330CR03	Oversize: #2 Sag Mill	220	390	D315M	Foot	NU2224	6318	1480	Toshiba
DRIVES									
330DV01	#1 Sag Mill, Inch Drive	30	51.5	D200L	Foot	6312	6312	1460	Toshiba
330DV02	#1 Ball Mill, Inch Drive	30	51.5	D200L	Foot	6312	6312	1460	Toshiba
	#2 Sag Mill, Inch Drive	55	94	D250S	Foot	6317	6313	1475	Toshiba
	#2 Ball Mill, Inch Drive	55	94	D250S	Foot	6317	6313	1475	Toshiba
DRYER									
301DR01	Instrument Air	0.28	1.3	SPECIAL	Foot			2950	KIRBY
301DR02	Instrument Air	0.28	1.3	SPECIAL	FOOT			2950	KIRBY
DUST CONTROL									
309DC07	LABORATORY	15	27.5	KFC160 M02	FOOT			2920	WESTERN ELECTRIC
320DC01	CRUSHER	5.5	10.7	D132S	FOOT	6308 ZZ	6306 ZZ	2906	TOSHIBA
321DC02	#1 RECLAIM	2.2	4.5	D90L	FOOT	6205 ZZ	6205 ZZ	2795	TOSHIBA
321DC03	#1 RECLAIM	2.2	4.5	D90L	FOOT	6205 ZZ	6205 ZZ	2795	TOSHIBA
321DC05	#2 RECLAIM	2.2	4.5	D90L	FOOT	6205 ZZ	6205 ZZ	2795	TOSHIBA
321DC06	#2 RECLAIM	2.2	4.5	D90L	FOOT	6205 ZZ	6205 ZZ	2795	TOSHIBA
350DC04	LIME SILO	2.2	4.4	D100L	FOOT	6206 ZZ	6206 ZZ	1405	TOSHIBA
FEEDERS									
320FE01	VIBRATING GRIZZLY	55	99	D280S	FLANGE	NU318	6318	980	TEFC
321FE02	#1 STOCKPILE RECLAIM	1.67	5.1….2.9	VEDE05 30	FOOT	NJ2309E CP-C4	NJ2309E CP-C4	930	AEG U213W-K
321FE03	#1 STOCKPILE RECLAIM	1.67	5.1….2.9	VEDE05 30	FOOT	NJ2309E CP-C4	NJ2309E CP-C4	930	AEG U213W-K
321FE04	#1 STOCKPILE RECLAIM	1.67	5.1….2.9	VEDE05 30	FOOT	NJ2309E CP-C4	NJ2309E CP-C4	930	AEG U213W-K
321FE05	#1 STOCKPILE RECLAIM	1.67	5.1….2.9	VEDE05 30	FOOT	NJ2309E CP-C4	NJ2309E CP-C4	930	AEG U213W-K
321FE06	#2 STOCKPILE RECLAIM	1.67	5.1….2.9	VEDE05 30	FOOT	NJ2309E CP-C4	NJ2309E CP-C4	930	AEG U213W-K
321FE07	#2 STOCKPILE RECLAIM	1.67	5.1….2.9	VEDE05 30	FOOT	NJ2309E CP-C4	NJ2309E CP-C4	930	AEG U213W-K
321FE08	#2 STOCKPILE	1.67	5.1….2.9	VEDE05	FOOT	NJ2309E	NJ2309E	930	AEG

PLANT EQUIP NUMBER	DESCRIPTION	Kw	FLC (AMPS)	FRAME (SIZE)	Mounting Foot or Flange	D.E. Bearing	N.D.E. Bearing	RPM	MAKE
	RECLAIM			30		CP-C4	CP-C4		U213W-K
321FE09	#2 STOCKPILE RECLAIM	1.67	5.1….2.9	VEDE05 30	FOOT	NJ2309E CP-C4	NJ2309E CP-C4	930	AEG U213W-K
321AF01	APRON FE: EMERG RECLAIM	11	21	D160M	FOOT	6310	6208	1500	WEST ELECTRIC
334FE21	DISCHARGE GOLD SKID								
350FE20	LIME SCREW	1.5	3.2	D90LD	FLANGE	6205 ZZ	6205 ZZ	1395	TOSHIBA
FILTRATION									
360FL01	CONCENTRATE	2.2	4.4	D100L	FOOT	6206 ZZ	6206 ZZ	1405	TOSHIBA
360FL02	CONCENTRATE	2.2	4.4	D100L	FOOT	6206 ZZ	6206 ZZ	1405	TOSHIBA
FLOTATION									
309FT30	LABORATORY		5	56C	FOOT	6203	6203	1750	BALDOR
340FT01	MOD 1 ROUGHERS CELL 1	30	56	D225M	FOOT	6313 ZZ	6312 ZZ	975	TOSHIBA
340FT02	MOD 1 ROUGHERS CELL 2	30	56	D225M	FOOT	6313 ZZ	6312 ZZ	975	TOSHIBA
340FT03	MOD 1 ROUGHERS CELL 3	30	56	D225M	FOOT	6313 ZZ	6312 ZZ	975	TOSHIBA
340FT04	MOD 1 ROUGHERS CELL 4	30	56	D225M	FOOT	6313 ZZ	6312 ZZ	975	TOSHIBA
340FT05	MOD 1 SCAVENGER CELL 1	30	56	D225M	FOOT	6313 ZZ	6312 ZZ	975	TOSHIBA
340FT06	MOD 1 SCAVENGER CELL 2	30	56	D225M	FOOT	6313 ZZ	6312 ZZ	975	TOSHIBA
340FT07	MOD 1 SCAVENGER CELL 3	30	56	D225M	FOOT	6313 ZZ	6312 ZZ	975	TOSHIBA
340FT08	MOD 1 SCAVENGER CELL 4	30	56	D225M	FOOT	6313 ZZ	6312 ZZ	975	TOSHIBA
340FT09	MOD 1 RETREAT CELL 1	15	29	D180L	FOOT	6310	6210	975	TOSHIBA
340FT10	MOD 1 RETREAT CELL 2	15	29	D180L	FOOT	6310	6210	975	TOSHIBA
340FT11	MOD 1 RETREAT CELL 3	15	29	D180L	FOOT	6310	6210	975	TOSHIBA
340FT12	MOD 1 RETREAT CELL 4	15	29	D180L	FOOT	6310	6210	975	TOSHIBA
340FT15	MOD 2 ROUGHER 1 CELL 1	37	66	D250S	FOOT	6317	6313	980	TOSHIBA
340FT16	MOD 2 ROUGHER 1 CELL 2	37	66	D250S	FOOT	6317	6313	980	TOSHIBA
340FT17	MOD 2 ROUGHER 2 CELL 1	37	66	D250S	FOOT	6317	6313	980	TOSHIBA
340FT18	MOD 2 ROUGHER 2 CELL 1	37	66	D250S	FOOT	6317	6313	980	TOSHIBA
340FT19	MOD 2 SCAVENGER 1 CELL 1	37	66	D250S	FOOT	6317	6313	980	TOSHIBA
340FT20	MOD 2 SCAVENGER 1 CELL 2	37	66	D250S	FOOT	6317	6313	980	TOSHIBA
340FT21	MOD 2 SCAVENGER 2 CELL 1	37	66	D250S	FOOT	6317	6313	980	TOSHIBA
340FT22	MOD 2 SCAVENGER 2 CELL 2	37	66	D250S	FOOT	6317	6313	980	TOSHIBA
340FT23	MOD 2 RETREAT CELL 1	15	29	D180L	FOOT	6310	6210	975	TOSHIBA
340FT24	MOD 2 RETREAT CELL 2	15	29	D180L	FOOT	6310	6210	975	TOSHIBA
340FT25	MOD 2 RETREAT CELL 3	15	29	D180L	FOOT	6310	6210	975	TOSHIBA
340FT26	MOD 2 RETREAT CELL 4	15	29	D180L	FOOT	6310	6210	975	TOSHIBA
HEATER									

PLANT EQUIP NUMBER	DESCRIPTION	Kw	FLC (AMPS)	FRAME (SIZE)	Mounting Foot or Flange	D.E. Bearing	N.D.E. Bearing	RPM	MAKE
334HE03	PREHEATER	1.5	26.641	DT90C4	FLANGE			56	Sew Eurodyne
HANDLER									
330LH01	MILL LINER	15	56/28	256TC/FL	FOOT	6309	6208	1450	TOSHIBA
LUBE SYSTEMS									
320LU25	PRIMARY CRUSHER	0.15	0.6					1380	Sew Eurodyne
330LU01	#1 BALL MILL GEAR BOX								
330LU02	#1 SAG MILL TRUN. BRG.	7.5	13.8	132M	FLANGE	6308 ZZ	6306 ZZ	1450	TECO AEVB
	OIL COOLING FAN	1.5		D90LN				1420	BOOK & CROMPTON
	DYNA HEAT EXCHANGER	4	7.8	D112M	FOOT	6306 ZZ	6206 ZZ	1420	TOSHIBA
330LU03	#SAG MILL GEAR SPRAY								
330LU04	#1 BALL MILL GEAR SPRAY								
330LU05	#1 SAG MILL GEAR BOX	5.5	11.2	D132M	FOOT	6308 ZZ	6306 ZZ	955	TOSHIBA
	FAN MOTOR	4	7.8	D112M	FOOT	6306 ZZ	6206 ZZ	1420	TOSHIBA
330LU06	#2 SAG MILL MAIN MOTOR	2.2	4.7	100L	FLANGE	6206 ZZ	6305 ZZ	1420	TECO
	HEAT EXCHANGER	0.75	1.9	80-FRAME	FOOT	6204	6204	1400	O.E.M. DYNACOOL
330LU07	#2 SAG MILL GEAR BOX	7.5	15.5	D160M	FOOT	6310	6210	960	
	RADIATOR FAN MOTOR	4	7.8	D112M	FOOT	6306 ZZ	6206 ZZ	1440	
330LU08	#2 SAG MILL TRUN. BRG.								
	120L (MIN) PUMP MOTOR	30			FLANGE			1440	TOSHIBA
	300L/MIN PUMPS	18.5	34.5	D180M	FLANGE	6310	6208	1460	TOSHIBA
	12 L/MIN	2.2	4.4	D100LD	FLANGE	6306 ZZ	6306 ZZ	1405	TOSHIBA
330LU09	#2 SAG MILL GEAR SPRAY								
330LU10	#2 BALL MILL MAIN MOTOR	2.2	4.7	100L	FLANGE	6206 ZZ	6205 ZZ	1420	
	16L/MIN PUMP	2.2	4.7	100L	FLANGE	6206 ZZ	6205 ZZ	1420	TECO
	HEAT EXCHANGER	0.75	1.9	80-FRAME	FOOT	6204	6204	1400	O.E.M. DYNACOOL 29-15
330LU11	#2 BALL MILL GEAR BOX	7.5	15.5	D160M	FOOT	6310	6208	960	TOSHIBA
	RADIATOR FAN MOTOR	4	7.8	D112M	FOOT	6306 ZZ	6206 ZZ	1440	TOSHIBA
330LU12	#2 BALL MILL TUN. BRG.								
	120L/MIN	7.5	14.4	D132MD	FLANGE	6308 ZZ	6306 ZZ		TOSHIBA
	300L/MIN	1.5	3.6	D100LD	FOOT & FLANGE	6206 ZZ	6206 ZZ	940	TOSHIBA
330LU13	#2 BALL MILL OPEN GEAR								
330LU14	#2 SAG GRG. GREASE SEAL								
330LU15	#2 BALL BRG. GREASE SEAL								

PLANT EQUIP NUMBER	DESCRIPTION	Kw	FLC (AMPS)	FRAME (SIZE)	Mounting Foot or Flange	D.E. Bearing	N.D.E. Bearing	RPM	MAKE
330LU20	#1 SAG MILL PINION BGS.								
330LU21	#1 BALL MILL BEARINGS	2.2	4.4	D100LD	FLANGE	6206 ZZ	6206 ZZ	1405	TOSHIBA
340LU16	BLOWERS	0.37	1.07	AEVB-VC FR71	FLANGE	6202 ZZ	6202 ZZ	1400	TECO
340LU17	REGRIND GEABOX COOL								
	GEAR MOTOR	4	0.8	D112MD	FOOT	6306 ZZ	6206	1420	TOSHIBA
	AIR / OIL COOLER	1.5	3.2	D90L	FOOT	6205 ZZ	6205 ZZ	1395	TOSHIBA
340LU18	REGRIND TRUN. LUBE								
340LU19	REGRIND GEAR SPRAY								
MAGNETS									
320MA01	STOCKPILE CONVEYOR		63						STURTON-GILL
330MA02	#1 SAGMILL O/SIZE TRAMP	2.2	4.7	100L	FLANGE	6206 ZZ	6305 ZZ	1420	TECO
330MA03	#2 SAGMILL O/SIZE TRAMP	2.2	4.4	D100L	FLANGE	6206 ZZ	6206 ZZ	1405	TOSHIBA
330MA04	MOD 1/2 SAG MILL LIFTING								
MILLS									
309ML06	BOND INDEX LABORATORY	0.75	1.81	SGA820 2-4	FLANGE			1390	CMG ELECTRIC
330ML01	#1 SAG MILL	2800	172	N3RYS7 10L6	CYL. ROLL	NU1038	NU1034	991	GEC ALSTHOM
					DEEP GROOVE BALL	6038			
330ML02	#1 BALL MILL	2800	172	N3RYS7 10L6	CYL ROL	NU1038	NU1034	991	GEC ALSTHOM
330ML03	#2 SAG MILL	4900	301	N3RYS9 00H6C	RENK	EF2LB-18-200	EFZLQ-180	993	GEC ALSTHOM
330ML04	#2 BALL MILL	4900	301	N3RYS9 00H6C	RENK	EF2LB-18-200	EFZLQ-180	993	GEC ALSTHOM
340ML05	#1 REGRIND	1300	82	E944044 RM001	FLANGE	6306 C3	6336 C	990	TOSHIBA
340ML06	# 2 Tertiary Regrind	2800						991	GEC ALSTHOM
303PP018	CIP PROCESS WATER TANK	75	134	D250M	FOOT	6317	6313	1475	TOSHIBA
303PP019	CIP PROCESS WATER TANK	75	134	D250M	FOOT	6317	6313	1475	TOSHIBA
303PP038	#1 MACMAHONS	15	25	160	FOOT & FLANGE	6309	6307	2930	AJAX
303PP039	#2 MACMAHONS	15	25	160	FOOT & FLANGE	6309	6307	2930	AJAX
303PP040	TAILINGS RETURN WATER	55	94	D250S	FOOT	9317	6313	1475	TOSHIBA
303PP041	TAILINGS RETURN WATER	55	94	D250S	FOOT	9317	6313	1475	TOSHIBA
303PP042	PROCESS WATER DAM	37	65	D225S	FOOT	6313	6312	1470	TOSHIBA
303PP043	PROCESS WATER DAM	37	65	D225S	FOOT	6313	6312	1470	TOSHIBA
303PP044	FRESH WATER	30	52	D200L	FOOT	6312C3	6312C3	2940	TOSHIBA
303PP045	FRESH WATER: STANDBY	30	52	D200L	FOOT	6312C3	6312C3	2940	TOSHIBA
303PP047	FIRE SERVICE JACKING	0.75	5.1-5.05/4.75		FLANGE			2780	Grundfos
303PP048	FIRE SERVICE MAIN	18.5	32.9	SGA160 L-2	FOOT & FLANGE			2936	CMG

PLANT EQUIP NUMBER	DESCRIPTION	Kw	FLC (AMPS)	FRAME (SIZE)	Mounting Foot or Flange	D.E. Bearing	N.D.E. Bearing	RPM	MAKE
303PP049	FIRE SERVICE EMERG. DIESEL				FOOT				
303PP050	#1 UNDERGROUND	15	25	160M	FOOT & FLANGE	6309	6307	2930	AJAX
303PP051	#2 UNDERGROUND	15	25	160M	FOOT & FLANGE	6309	6307	2930	AJAX
303PP054	DUST SUPPRESSION "A"	15	25	160		6309	6307	2950	TOSHIBA
303PP055	E26 PUMP SET	15	25	160		6309	6307	2930	TOSHIBA
304PP056	AIR PUMP SEWAGE PLANT								
308PP165	MOBILE PUMP	10.4						3000	AJAX
309PP037	HEADER LABORATORY (DAVEY)								
309PP057	SUMP, DAVEY SUBMERSIBLE	0.31	2.4	XP350P	FLANGE				DAVEY
309PP058	DOSING (CHEMI GEM)	1.1	2.47		FOOT			1400	STAR
309PP059	DOSING (CHEMI GEM)	1.1	2.47		FOOT			1400	STAR
320PP000	STANDBY PUMPS: PLANT WIDE								
320PP001	CRUSHER SUMP	11	21	D160M	FOOT	6310	6208	1455	TOSHIBA
320PP002	RILL TOWER BOOSTER	11	22/18.8	160MA2	FLANGE			2800/2900	Grundfos
320PP203	#1 CONV. SUMP PUMP	0.37	1.2	D71D	FLANGE	6203 ZZ	6203 ZZ	1405	TOSHIBA
321PP147	#1 RECLAIM TUNNEL SUMP	4	7.8	D112M	FOOT	6306 ZZ	6206 ZZ	1420	TOSHIBA
321PP148	#2 RECLAIM TUNNELL SUMP	5.5	10.5	D132S	FOOT	6308 ZZ	6306 ZZ	1435	TOSHIBA
321PP157	MOD 1 O/SIZE CRUSHER SUMP	4	7.8	D112M	FOOT	6306 ZZ	6206 ZZ	1420	TOSHIBA
321PP158	MOD 2 O/SIZE CRUSHER SUMP	11	21	D160M	FOOT	6310	6208	1455	TOSHIBA
330PP003	#1 SAGMILL CYCLONE FEED	150	246	D315M	FOOT	NU 320	6318	480	TOSHIBA
330PP004	#1 SAGMILL CYCLONE FEED	150	246	D315M	FOOT	NU 320	6318	480	TOSHIBA
330PP005	#1 GRINDING MODULE SUMP	7.5	14.4	D132M	FOOT	6308 ZZ	6306 ZZ	1440	TOSHIBA
330PP060	#1 BALL MILL CYCLONE FEED	185	330	D315M	FOOT	NU2224	6318	1480	TOSHIBA
330PP061	#1 BALL MILL CYCLONE FEED	185	330	D315M	FOOT	NU2224	6318	1480	TOSHIBA
330PP062	#1 GRINDING MOD PRODUCT	75	134	D250M	FOOT	6317	6313	1475	TOSHIBA
330PP063	#1 GRINDING MOD PRODUCT	75	134	D250M	FOOT	6317	6313	1475	TOSHIBA
330PP064	#2 SAG MILL CYCLONE FEED	185	330	D315M	FOOT	NU2224	6318	1480	TOSHIBA
330PP065	#2 SAG MILL CYCLONE FEED	185	330	D315M	FOOT	NU2224	6318	1480	TOSHIBA
330PP066	#2 BALL MILL CYCLONE FEED	350	580	D400L	FOOT	22228	NU320	985	TOSHIBA
330PP067	#2 BALL MILL CYCLONE FEED	350	580	D400L	FOOT	22228	NU320	985	TOSHIBA
330PP068	#2 GRINDING MODULE SUMP	7.5	14.4	D132M	FOOT	6308 ZZ	6306 ZZ	1440	TOSHIBA
333PP008	DISSOLUTION PUMP	7.5		D132M		6308 ZZ	6308 ZZ	1440	TOSHIBA
333PP009	LOADED CARBON DISCOVERY	7.5	14.4	D132M	FOOT	6308 ZZ	6308 ZZ	1440	TOSHIBA
333PP010	GLAND SEAL WATER	3						2990	Grundfos
333PP011	GLAND SEAL WATER	3						2990	Grundfos

PLANT EQUIP NUMBER	DESCRIPTION	Kw	FLC (AMPS)	FRAME (SIZE)	Mounting Foot or Flange	D.E. Bearing	N.D.E. Bearing	RPM	MAKE
333PP012	ADSORPTION SUMP	7.5	14.4	D132M	FOOT	6308 ZZ	6308 ZZ	1440	TOSHIBA
333PP013	DRAW DOWN	11		203FR/TH	FOOT			1440	FORRENS
334PP020	OIL (GOLD SKID)	1.5	7					3000	SAKURAGAWA 5.222
334PP021	ELUATE SUMP	7.5	15	D132M	FOOT	6308	6308	1450	WESTERN ELECTRIC
334PP022	BALANCE MULTI STAGE	3	5.6	D100L FL	FOOT			2850	MEZ
334PP023	SLUDGE CELL								
334PP024	ELUTION MULTI STAGE	11	20	D160M	FOOT	6310C3	6208	2900	TOSHIBA
334PP025	ACID METERING	0.55	1.3	D71 FLG	FOOT			1450	KOLE BACH
334PP026	ACID SUMP	1.5	7		FOOT			3000	SAKURAGAWA 5.222
335PP014	TAILINGS 1ST STAGE "B"	110	181	D280M	FOOT	NU318	6318	1465	TOSHIBA
335PP015	TAILINGS 1ST STAGE "A"	110	181	D280M	FOOT	NU318	6318	1465	TOSHIBA
335PP016	TAILINGS "A"	110	181	D280M	FOOT	NU318	6318	1465	TOSHIBA
335PP017	TAILINGS "B"	110	181	D280M	FOOT	NU318	6318	1465	TOSHIBA
335PP128	FLOTATION TAILINGS	185	330	D315M	FOOT	NU2224	6318	1480	TOSHIBA
335PP129	FLOTATION TAILINGS	185	330	D315M	FOOT	NU2224	6318	1480	TOSHIBA
335PP130	FLOTATION TAILINGS	185	330	D315M	FOOT	NU2224	6318	1480	TOSHIBA
335PP131	FLOTATION TAILINGS	185	330	D315M	FOOT	NU2224	6318	1480	TOSHIBA
335PP132	FLOTATION TAILINGS	185	330	D315M	FOOT	NU2224	6318	1480	TOSHIBA
335PP133	FLOTATION TAILINGS	185	330	D315M	FOOT	NU2224	6318	1480	TOSHIBA
335PP144	MOD 2 GLAND SEALING TAILS		5.1	A2-24F115	FLANGE			1445	Grundfos
335PP145	MOD 2 GLAND SEALING TAILS		5.1	A2-24F115	FLANGE			1445	Grundfos
335PP161	LP GLAND SEALING	75	134	D250M	FOOT	6317	6313	1475	TOSHIBA
335PP162	LP GLAND SEALING	75	134	D250M	FOOT	6317	6313	1475	TOSHIBA
335PP201	GLAND WATER, TAILS STAGE 1								
335PP202	GLAND WATER, TAILS STAGE 1								
340PP069	SECOND ROUGHERS FEED	110	181	D280M	FOOT	NU318	6318	1465	TOSHIBA
340PP070	SCAVENGERS FEED	110	181	D280M	FOOT	NU318	6318	1465	TOSHIBA
340PP071	TAIL. THICKENER FEED	75	134	D250M	FOOT	6313	6312	1475	TOSHIBA
340PP072	FLOTATION AREA SUMP	11	21	D160M	FOOT	6310	6208	1455	TOSHIBA
340PP073	FLOTATION AREA SUMP	11	21	D160M	FOOT	6310	6208	1455	TOSHIBA
340PP074	CLEANERS FEED	55	94	D250S	FOOT	6317	6313	1475	TOSHIBA
340PP075	RETREAT FEED	37	65	D225S	FOOT	6313	6312	1475	TOSHIBA
340PP076	RETREATS THICKENER FEED	15	27	D160L	FOOT	6310	6208	1450	TOSHIBA
340PP077	RECLEANERS FEED	18.5	34.5	D180M	FOOT	6210	6210	1460	TOSHIBA
340PP078	CONCENTRATE	11	21	D160M	FOOT	6310	6208	1440	TOSHIBA
340PP079	TAILS THICKENER FEED	110	181	D280M	FOOT	NU318	6318	1465	TOSHIBA
340PP080	CLEANERS FEED	110	181	D280M	FOOT	NU318	6318	1465	TOSHIBA
340PP081	RECLEANERS FEED	45	80.5	D225M	FOOT	6313	6312	1460	TOSHIBA
340PP082	CONCENTRATE	11	21	D160M	FOOT	6310	6208	1440	TOSHIBA
340PP083	REGRIND CYCLONES FEED	185	330	D315M	FOOT	NU2224	6318	1480	TOSHIBA
340PP084	REGRIND CYCLONES FEED	185	330	D315M	FOOT	NU2224	6318	1480	TOSHIBA
340PP085	MOD 2 1ST SCAVS	110	181	D280M	FOOT	NU318	6318	1465	TOSHIBA

PLANT EQUIP NUMBER	DESCRIPTION	Kw	FLC (AMPS)	FRAME (SIZE)	Mounting Foot or Flange	D.E. Bearing	N.D.E. Bearing	RPM	MAKE
	FEED								
340PP149	SAMPLER RETURN	4	7.8	D112M	FOOT	6306 ZZ	6206 ZZ	1420	TOSHIBA
340PP150	SAMPLER RETURN	4	7.8	D112M	FOOT	6306 ZZ	6206 ZZ	1420	TOSHIBA
340PP151	SAMPLER FEED	0.75	1.75	D80	FOOT	6204 ZZ	6204 ZZ	1400	A.S.M.
340PP152	SAMPLER FEED	0.75	1.75	D80	FOOT	6204 ZZ	6204 ZZ	1400	A.S.M.
340PP153	SAMPLER FEED	0.75	1.75	D80	FOOT	6204 ZZ	6204 ZZ	1400	A.S.M.
340PP154	SAMPLER FEED	0.75	1.75	D80	FOOT	6204 ZZ	6204 ZZ	1400	A.S.M.
340PP156	MOD 1 SULPHIDE RETREAT								
340PP160	ANALYSER, SLURRY	4	8.4	DV112M 4	FLANGE			1420	Sew Eurodyne
350PP028	CYANIDE SOLUTION TRANSFER	2.2	14.4	D100L	FOOT	6206 ZZ	6206 ZZ	1405	TOSHIBA
350PP029	CYANIDE SOLUTION TRANSFER	2.2	14.4	D100L	FOOT	6206 ZZ	6206 ZZ	1405	TOSHIBA
350PP030	CYANIDE SOLUTION FEED	7.5	14.4	D132M	FOOT	6308 ZZ	6306 ZZ	1440	TOSHIBA
350PP031	CYANIDE SOLUTION FEED	7.5	14.4	D132M	FOOT	6308 ZZ	6306 ZZ	1440	TOSHIBA
350PP032	CYANIDE SOLUTION FEED	7.5	14.4	D132M	FOOT	6308 ZZ	6306 ZZ	1440	TOSHIBA
350PP033	CYANIDE MIXING LIME SUMP	7.5	14.4	D132M	FOOT	6308 ZZ	6306 ZZ	1440	TOSHIBA
350PP034	M.O.L FEED	11	19.3	160M	FLANGE	6309 ZZ	6309 ZZ	2930	Grundfos
350PP035	M.O.L. FEED	11	19.3	160M	FLANGE	6309 ZZ	6309 ZZ	2930	Grundfos
350PP086	FROTHER METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP087	FROTHER METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP088	FROTHER METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP089	FROTHER METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP090	FROTHER METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP091	FROTHER METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP092	COLLECTOR TRANSFER	2.2	4.4	E100L	FOOT	6206 UU	6205 UU	1420	TOSHIBA
350PP093	COLLECTOR TRANSFER	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP094	COLLECTOR METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP095	COLLECTOR METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP096	COLLECTOR METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP097	SULPHIDISING TRANSFER	7.5	13.9	E132M	FOOT	6208 UU	6208 UU	1440	TOSHIBA
350PP098	SULPHIDISING METERING	1.5	3.3	E90LD	FLANGE & FOOT	6305 UU	6205 UU	1420	TOSHIBA
350PP099	SULPHIDISING METERING	1.5	3.3	E90LD	FLANGE & FOOT	6305 UU	6205 UU	1420	TOSHIBA
350PP100	SULPHIDISING METERING	1.1	2.5	E90SD	FLANGE & FOOT	6305 UU	6205 UU	1420	TOSHIBA
350PP101	SULPHIDISING METERING	1.1	2.5	E90SD	FLANGE & FOOT	6305 UU	6205 UU	1420	TOSHIBA
350PP102	PROMOTOR METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP103	PROMOTOR METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP104	FLOTATION REAGENT SUMP	11	21	E160M	FOOT	6309 UU	6308 UU	1450	TOSHIBA
350PP105	FLOCCULANT METERING	2.2	4.4	D100LD	FLANGE	6206 ZZ	6206 ZZ	1450	TOSHIBA
350PP106	FLOCCULANT METERING	0.75	1.75	D80D	FLANGE	6204 ZZ	6204 ZZ	1400	TOSHIBA
350PP107	FLOCCULANT METERING	0.37	1.04	R42FA-FR.71	FLANGE	6203 ZZ	6202 ZZ	1400	TECO

PLANT EQUIP NUMBER	DESCRIPTION	Kw	FLC (AMPS)	FRAME (SIZE)	Mounting Foot or Flange	D.E. Bearing	N.D.E. Bearing	RPM	MAKE
350PP108	FLOCCULANT METERING	0.37	1.04	R42FA-FR.71	FLANGE	6203 ZZ	6202 ZZ	1400	TECO
350PP109	FLOCCULANT METERING	1.5	3.2	D90LD	FLANGE	6205 ZZ	6205 ZZ	1395	TOSHIBA
350PP110	COLLECTOR METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP111	COLLECTOR METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP112	COLLECTOR METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP113	COLLECTOR METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP114	MOD 2 COLLECTOR METERING	0.75	1.8	E80D	FLANGE	6204 UU	6204 UU	1410	TOSHIBA
350PP115	SULPHIDISER METERING	1.1	2.5	E90SD	FLANGE & FOOT	6305 UU	6205 UU	1420	TOSHIBA
350PP116	FLOCCULANT WATER PUMP	1.5	3	D90SD	FLANGE	6205 ZZ	6205 ZZ	2805	TOSHIBA
350PP117	FLOCCULANT WATER PRIMARY	0.75	1.75	D80D	FLANGE	6204 ZZ	6204 ZZ	1400	TOSHIBA
355PP118	CONS.THICK.U/FLOW-OXIDE	11	21	D160M	FOOT	6310	3208	1455	TOSHIBA
355PP119	CONS.THICK.U/FLOW-OXIDE	11	21	D160M	FOOT	6310	3208	1455	TOSHIBA
355PP123	RETREAT THICK U/FLOW	15	27	D160L	FOOT	6310	6208	1450	TOSHIBA
355PP124	RETREAT THICK U/FLOW	11	21	D160M	FOOT	6310	6208	1455	TOSHIBA
355PP125	FLOTATION PROCESS WATER	250	440	D315L	FOOT	NU2224	6318	1480	TOSHIBA
355PP126	FLOTATION PROCESS WATER	250	440	D315L	FOOT	NU2224	6318	1480	TOSHIBA
355PP127	FLOTATION BOOSTER WATER	37	65	D225S	FOOT	6313	6312	1475	TOSHIBA
355PP134	THICKENER AREA SUMP	11	21	D160M	FOOT	6310	6208	1455	TOSHIBA
355PP135	CONS. THICK.U/FLOW-SULPH	11	21	D160M	FOOT	6310	6208	1455	TOSHIBA
355PP136	CONS. THICK.U/FLOW-SULPH	11	21	D160M	FOOT	6310	6208	1455	TOSHIBA
360PP120	CONCENTRATE FILTER FEED	15	27	D160L	FOOT	6310	6208	1450	TOSHIBA
360PP121	CONCENTRATE FILTER FEED	15	27	D160L	FOOT	6310	6208	1450	TOSHIBA
360PP122	CONCENTRATE FILTER FEED	15	27	D160L	FOOT	6310	6208	1450	TOSHIBA
360PP137	ACID DRUM PUMP								
360PP138	ACID, OXIDE	240BA R4.1	1.7	C736-112 LPH 34.01	FOOT				MILTON ROY
360PP139	ACID, SULPHIDE	240BA R4.1	1.7	C736-112 LPH 34.01	FOOT				MILTON ROY
360PP140	FILTRATE/BACKWASH TRANSFER	11	21	D160M	FOOT	6310	6208	1455	TOSHIBA
370PP143	DRYING PAD AREA 1 SUMP	15	27	D160L	FOOT	6310	6208	1450	TOSHIBA
370PP146	CONCENTRATE AREA SUMP	15	27	D160L	FOOT	6310	6208	1450	TOSHIBA
370PP155	DRYING PAD AREA 2 SUMP	15	27	D160L	FOOT	6310	6208	1450	TOSHIBA
333SC01	BASKET GUARD								
333SC06	INTERTANK TANK 6								

PLANT EQUIP NUMBER	DESCRIPTION	Kw	FLC (AMPS)	FRAME (SIZE)	Mounting Foot or Flange	D.E. Bearing	N.D.E. Bearing	RPM	MAKE
333SC07	INTERTANK TANK 7								
333SC08	INTERTANK TANK 8								
333SC09	INTERTANK TANK 9								
333SC10	INTERTANK tank 10								
333SC11	INTERTANK tank 11								
334SC02	LOADED CARBON	0.85	1.9	KEE-17-4	FOOT	NJ309E C3	NJ309E C3	1445	MURAKAMI
334SC03	BARREN CARBON DEWATER	0.4	2.0/1.1	KEE-9-4B	FOOT	6308 ZZC4	6308 ZZC4	1430	MURAKAMI
334SC04	REACTIVATED CARBON FINE	0.4	1.8182	KEE-9-4B	FOOT	3608 ZZC4	6308 ZZC4	1430	MURAKAMI
330SV06	#2 SAG MILL DISCHARGE								
333SV01	TRASH	5.5	10.2	KEE-84-4B	FOOT	NJ2318E C3	NJ2318E C3	1475	MURAKAMI
333SV03	VIBRATING GUARD	5.5	10.2	KEE-84-4B	FOOT	NJ2318E C3	NJ2318E C3	1475	MURAKAMI
360SV07	DISC FILTER FEED	0.4		KEE9-4	FOOT	6407 ZZC4	6407 ZZC4	1460	MURAKAMI
360SV08	DISC FILTER FEED	0.4		KEE9-4	FOOT	6407 ZZC4	6407 ZZC4	1460	MURAKAMI
THICKENER									
355TH01	CONCENTRATE (OXIDE)	3	5.9	D100L	FOOT & FLANGE	6206 ZZ	6205 ZZ	1415	TOSHIBA
355TH02	RETREAT	3	5.9	D100L	FOOT & FLANGE	6206 ZZ	6205 ZZ	1415	TOSHIBA
355TH03	TAILINGS	11	21	D160M	FOOT & FLANGE	6310	6208	1455	TOSHIBA
355TH04	CONCENTRATE (SULPHIDE)	3	5.9	D100L	FOOT & FLANGE	6206 ZZ	6205 ZZ	1415	TOSHIBA