



COMPANY PROFILE

BAAYSIN READ
LIMITED.



WHO WE ARE



BAAYSIN READ LIMITED is a multi-discipline service provider working with industry throughout Botswana. We have considerable knowledge and experience in supplying a wide range of industrial solutions on both a term maintenance and project basis including;



- Maintenance Cyclone, Mixing Boxes correct medium cones and dilute medium cones lining, production screens panels.
- Fabricated structural assemblies
- Structural Engineering
- Structural Brace
- Personal Protective Equipment (PPE)
- Refractory Design & Maintenance, Fire Proofing & Dam Maintenance
- Pumps
- Bulk handling products
- ELECTROSTATIC PRECIPITATORS and Fabrication
- Load and Haul Logistics

Founded in 2015 as a subsidiary of Potcom G4 with a staff compliment of just 21 people, Baaysin Read Limited has grown to be one of the competitive private progressive citizen owned companies providing Mechanical Services Maintenance and Load and haul in Botswana. Baaysin Read's 7 years in existence has seen its portfolio grow bigger and as such the staff compliment.

Baaysin Read Limited started its operations focusing mainly on Mechanical maintenance and provision of hauling services. The company acquired a reputation for its quality and this helped it in acquiring more jobs.

Our commitment to innovation and excellence invariably results in a successfully both at Contractor and Client Level. We understand and promote the idea of working as a partnership with our clients to ensure their goals are met.

At Baaysin Read we never rest upon our laurels and are passionate and driven to continue the high levels of customer satisfaction we have achieved.

We undertake a variety of projects for a wide range of cliental-from small private to Government project.



VISION

To become the world leader in the creation, development, and deployment of technologies that converge the advancement of human civilization with that of the environmental condition.



MISSION

To provide quality mechanical, mining, and civil engineering services to people and organizations at reasonable and affordable prices by investing and researching in new technologies, to enable a quality livelihood for all.



OUR VALUES

- We understand and respect our customers
- Our employees are our enduring advantage
- Accountability is clear and personal
- Our reputation is indivisible.

We are a company committed to sustainable development.

Our company boasts of energetic and highly motivated team which enjoys completing project to the highest quality in the industry and up to set standard.

At Baaysin Read we fully believe the adage our staff are our most valuable resource. We realized that the personal and professional development of our team is imperative in ensuring the successful delivery of projects, and thus the success of our business. We therefore invest in our staff through comprehensive training programs, mentoring and coaching. The rewards of this philosophy are inevitably shared with customers through increases satisfaction and better quality services.

OUR TEAM

OUR SERVICES

BAAYSIN READ LIMITED provides a wide range of industrial services on a nationwide basis. Services include Asbestos Management, Insulation and Cladding, Refractory Design and Maintenance, Maintenance cyclone, Electrostatic precipitators and Fabrication, Locid and Haul.

Services can be offered on a stand-alone basis or as part of an integrated package, either on a lump sum basis for a specified scope of work or on agreed rates applicable for a fixed term.

INSULATION AND CLADDING

BAAYSIN READ LIMITED has a wealth of Knowledge and expertise. The company intends to build up a reputation as one of Botswana's leading industrial insulation and cladding contractors with the provision of thermal insulation on both project work and term maintenance. We service all sectors including;

- *Energy and Power Generation*
- *Petrochemical*
- *Pharmaceutical*
- *Manufacturing*
- *Civil Engineering*
- *Food & Drinks Industry*

Working throughout the country our highly skilled work force can supply and install the full range of insulation materials for hot cold applications such as:-

- *Mineral Wool*
- *Phenolic Foam*
- *Foam glass*
- *Armaflex*



GALVANIZED STEEL WATER TANK ENGINEERING & INSTALLATION

Installer
Installation preparation
1 Check the material
2 Composite base size, Calibration basic level.



Second step

Installation Bottom plate



Third step

Mounting side panels



The fourth step

Installation plugging, angle iron



The fifth step

Install water tank top and support



Step six

Install tiepiece



Seventh step

Mounting flange



Step Ten

Installation of thermal insulation layer



These may be used in conjunction with vapor barriers, flame retardants, specialist joint sealers and adhesives. Working from our fully equipped workshop, our skilled metal workers can fabricate cladding for any application regardless of size, shape or diameter. Cladding finishes provided include;

- *Aluminum*
- *Stainless Steel*
- *Aluzinc*
- *Galvanized Steel*

REFRACTORY WORKS EXPERIENCED

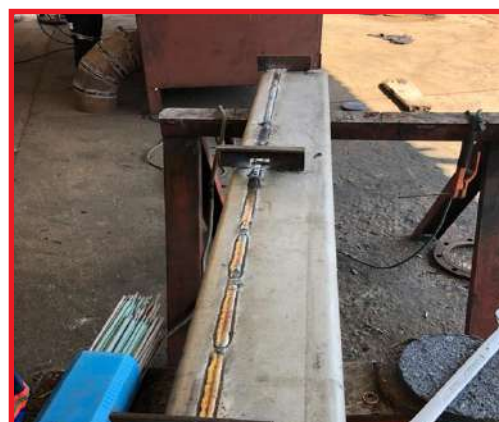
- Refractory, Demolition, Steel fixing, Welding of Anchors , Insulation and Installation of castable 1500 at the Induct Burner No. 3 Morupule B Power Station.
- Baaysin Read Limited has been engaged by Morupule B Power Station through its MMD department to do Boiler inspection, recommendation and propose design for anchors and application of refractory through guniting on burner number 4.
- Baaysin Read has since designed, manufactured and installed the refractory burner blocks for Morupule B Power Station and has since supplied the refractory material to CNEEC.



**MORUPULE B AIR DUCT BURNER
REPAIR (CUTTING TO SPOIL THE
SUTE CAUSED BY SLAG)**



**REPAIRS COMPLETED
ON THE WALL**



**MORUPULE B AIR DUCT BURNER
REPAIR (WELDING OF SAGED)**



PREPARATION OF THE STEEL



U AND L STEEL PLATES (to absorb the axial movement of the belo)



COMPLETED CAST



REMOVAL OF MOULDS
Completed Repair job on the Burner
certified to quality

CONCRETE AND REFRACTORY APPLICATION MAINTENANCE

GOOD NEWS ! WE CHOOSE GUNITING MAINTENANCE PROCEDURE AMONG THE THREE AS MENTIONED BELOW

(ITS NUMBER THREE IN THE REPORT BUT IT IS NUMBER ONE) MAINTENANCE PRODUCTION PLAN

(CONCRETE VS SHOTCRETE VS GUNITE)

1. TRADITIONAL POURED CONCRETE

Any concrete application method to be deployed will depend on the budget, where the concrete will be applied and the skills of personnel applying the concrete.

Concrete is a commonly used composite material made of three elements such as Portland cement, Water and Aggregates. The Portland cement acts as a binding agent when mixed with water and aggregates. Water chemically reacts with the cements and makes the concrete workable. Aggregates may be fine like sand or coarse rock like gravel and when mixed, these three can combine and hardened to a durable material. Traditionally, concrete has been poured from the ready mix truck right on the project site. It is either placed on the ground or in the forms and vibrated to flash out air and make sure it is compact because it typically requires the use of forms and vibration for the concrete to be compacted. It is often more expensive and time consuming than other forms of concrete application. However, there are significant advantages of the poured concrete such as the ability to be used in large areas like in a building foundation.

2. SHOTCRETE

With shotcrete, the concrete is projected at a high velocity typical on to a vertical or overhead surfaces. The force of this application method consolidates the concrete resulting in an outstanding bond with most substrates. It is often more cost effective than traditional concrete placement methods as it requires less formwork. Shotcrete involves applying the concrete after it is already mixed as a concrete application process, shotcrete has several benefits, operators who apply concrete using the shotcrete method must be skilled but need not be experts in mixing the concrete because it is pre-mixed and loaded in the hopper. Shotcrete takes less time than pouring concrete and it forms a strong consistent coating. It is also an inexpensive way to apply concrete in curves and irregular shapes which are often difficult or impossible to achieve with conventional concrete methods. Shotcrete also does not need a complex system of forms as with poured concrete and generally needs only a one-sided form or no form as this is all compacted. Finally it does not require vibration or compaction after placement. But there are drawbacks to using the shotcrete process. Because it is pre-mixed once the process is started, the concrete must be applied quickly without any stops, too much water is added to keep it from hardening, cracks can form in the concrete. In addition, shotcrete while less expensive than poured concrete is more expensive than gunite. Finally, shotcrete takes a significant amount of time as compared to poured concrete making it a less ideal choice for large foundations, structural piers or other large projects.

3. GUNITE

Gunite is similar to shotcrete in that it is a method of applying concrete involving a high pressure hose, however with GUNITE the concrete is loaded dry and mixed with water at the nozzle when it is spread. It is generally less expensive than shotcrete and it allows builders more work time to complete the concrete project. All three methods result in a water resistant surface that is less susceptible to deterioration over time than other building material such as steel or wood. In addition, because concrete can last in high temperatures without compromising the structure, any of this method can be used to fireproof steel.

There are many advantages to choosing the gunite as application method particularly if you are working with skilled operators who can expertly mix the concrete. The gunite method allows the operator to stop and start project without creating what is known as the cold joints. These are the areas that form two separate pores when operator attempt to blend a new pore into an old pore.

his cold joint will not only look different, it will also be susceptible to cracking. With gunite, an operator can stop and start the process without creating cold joints because the velocity of the application allows the material to bond together. You will also have more time to work with the concrete because it will be mixed on site and the process can be sopped and started as needed. Gunite is generally a less expensive process than shotcrete and concrete point and most as the same advantages as shotcrete. However the gunite process is not without disadvantages, it does require a skilled operator who understand how to achieve the proper ratios when mixing concrete, otherwise, the quality of the concrete could be compromised. The dry mix may also cloak the horse pipe causing problems on the construction site. Gunite also has a tendency to produce overspread or rebound which is both messy and wasteful. Ultimately the concrete application method that works best will depend on the specific needs of the project, understanding the benefits and drawbacks of each process can help you make an informed choose as you move forward with your concrete construction project.

The finished products also share the other positive attributes of concrete including strength, law maintenance and relative low cost effectiveness compared to material. Before concrete hardens it is also very plyable and it can easily be shaped. The traditional poured concrete hass several advantages, first it is incredibly versatile. Contractors can use this method for a variety of projects by building precise customized forms. Second, poured concrete results in a strong smooth surfaces. Third, the application of the concrete and this method is common, so it does not require specialized skill compared to shotcrete and gunite. Fourth, it is generally the most appropriate method for large scale building projects as it is more time and cost effective than the other processes. However poured concrete is the most expensive of the three methods. It has much higher labour cost because you are requiring forms to be build then remove after the concrete hardens and in addition the concrete has to be vibrated to flash out air and compactthe material and it is also challenging to form shapes with poured concrete or to make joint .



OVERVIEW

The Rockcreter 65 is a modern version of the original equipment suitable for any industry from mining to refractory use. It is a leading machine of its class for transporting any form of dry mix material. It is robust, requires little maintenance and is simple to operate.

APPLICATION

- ☞ Concrete Repairs
- ☞ Shaft & Pipe Lining
- ☞ Spill Ways
- ☞ Tunnel Support
- ☞ Fire Proofing
- ☞ Refractory linings
- ☞ Vent Seals
- ☞ Dams
- ☞ Housing etc.
- ☞ Lateral support



BAAYSIN READ
LIMITED.

TECHNICAL SPECIFICATIONS

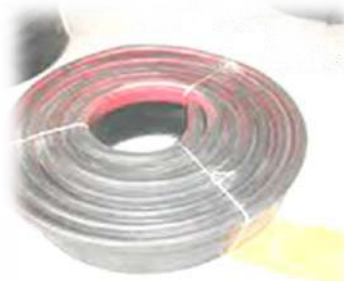
Dimensions	Length	:	1400 mm
	Width	:	700 mm
	Height	:	1200 mm - with hopper 1400 mm
	Weight	:	± 680 kg
Conveying Distance	Up to 200 m (with mods)		
Air Requirements	4 - 6 bar @ 750cfm - Air drive 4 - 6 bar @ 450cfm - Electric drive		
Options	Variable speed electric drive / Air drive / Diesel		
Output	Up to 4cu.mtrs/hr		
Features	Mixing element - ideal for pre-bagged material Full/half rotor 50 mm/38 mm Hose		

BULK HANDLING PRODUCT

BAAYSIN READ LIMITED provides a wide range of quality and reliable Bulk handling products and services on a nationwide basis. The bulk handling products includes;



- *Conveyor belts*
- *Drum pulleys and rollers*
- *Magnetic separators*
- *Fluid couplings*
- *Dust suppression*
- *Bucket chain conveyors*
- *Impact & troughing idlers*
- *Belt scrapers and ploughs*
- *Vibro feeders*



QUALITY ASSURANCE

The maintenance and total works and products shall meet the set international standards and as requested by the client and also to be so environmentally friendly to preserve all that needs to be protected. There shall be some identification of some critical aspects for inspection within Baaysin Read,;



Any unsatisfactory results during any of the operations, supply or of the maintenance and construction phase shall be communicated to the client in a reasonable time and shall be corrected immediately.

Records of works or products which will be provided shall be recorded and also information on any problems encountered shall be recorded and client notified of the deviations to be used in future by the client as an improvement tool.

MITIGATION MEASURES: The Company always ensure that the results of their investigations findings are known to the employees

1.3.6 Fire extinguishers and firefighting equipment are always availed for any project carried and employees are satisfactorily well trained in firefighting so that they can respond actively to any fire outbreak. Fire extinguishers are usually placed in any way that they allow a fast response

1.3.7 Personal Protective Equipment (PPE)

All employees will be provided with PPE and it shall be replaced as and when it shows signs of defects. Coming to work without required PPE will invite a very heavy penalty which includes a fine or being sent home whilst not being paid.

1.4 ENVIRONMENTAL MANAGEMENT POLICY

For projects that lie within areas that have little occupation in terms of residents, therefore, Baaysin Read Limited usually take precautions towards environmental issues to minimize adverse effects to soil, vegetation and the surrounding environment. All oil leakages should happen on hard surfaces like concrete which will eventually be broken down at the end of the project. All bitumen is usually collected and burnt and disposed of by means of burying.

PUBLIC HEALTH

The management of the company is fully committed to safety hence it seeks to protect the public and persons other than company employees from health and safety hazards associated with our works.

To date the company has a viable public health policy which seeks to achieve the following:-

- All activities which undermine the health of the public is usually closely monitored and corrective measures taken to reduce adverse impact.
- Neither fire arms nor ammunition are allowed on site.
- All excavations are always secured

HIV/AIDS POLICY

1.4.1 HIV/AIDS has adverse impact on both the company and the general public, it is being observed that it depletes the countries supply of labor and it lowers productivity. The company has a proactive strategy to compliment other endeavors to combat HIV/AIDS.

1.4.2 EMPLOYMENT

No any other person whatsoever will be forced to undergo an HIV/AIDS test or shall be required to disclose his or her HIV/AIDS status. However employees may be required to undergo some medical exams in order to avoid subjecting them to health hazards.

1.4.3 WORKERS RIGHTS

There is due respect to workers' rights as per the international Labour organization standard hence nobody will be discriminated because of her HIV/AIDS status. Employees will not be required to disclose their health status to any other person unless the illness put his/her life at risk.

1.4.4 MEDICAL ASSISTANCE

HIV/AIDS people who are on medication will not be prevented from taking their treatment. However when an employee is no longer capable of carrying their duties due to illness the company rules regarding ill health and retirement will apply.

1.4.5 COUNSELLING

APPROPRIATE COUSELLING ARE ALWAYS AVAILABLE TO ALL THE EMPLOYEES AT NO COST.

1,4,6 AIDS AWARENESS

Monthly HIV/AIDS awareness seminars will be conducted for all employees of the company and different topics be covered.

1.4.7 AIDS PREVENTION AND CAMPAIGN

Preventive measures will be adopted and this will include things as

- Encouraging safe male circumcision
- ABC prevention to be adopted
- Condom distribution will be done on weekly basis
- Pamphlets will be availed

1.5 POLICY REVIEW

Our policy on HIV/AIDS will be reviewed on certain intervals to put it in line with the ever changing trends in HIV/AIDS response.

1.6 STAKEHOLDERS

The fight against HIV/AIDS can only be a success if there is an involvement of other stakeholders. Baaysin Read Limited will involve other sectors such as community councilors, NGOs, home based care and the local clinic. This people will be very important as they are also to disseminate HIV/AIDS information at ease.



DEBSWANA EXPERIENCE

IN THIS PROJECT WE WERE ENGAGED IN THE OPERATION OF SUSPENDED PLAT FORM TO EASILY INSTALL THE PLATE LININGS ON THE 240Tons BIN LINERS AT ORAPA NO.2 PLANT DMS AS A SUPPORT CONTRACTOR TO OMES - ORAPA MECHANICAL ENGINEERING SERVICES.

BELOW IS OUR EXPERT UNDERSTANDING OF THE DIAMOND PROCESSING PLANT

MAINTENANCE PRODUCTION PLAN (CYCLONES, MIXING BOXES, CORRECT MEDIUM CONES AND DILUTE MEDIUM CONES LINING, PRODUCTION SCREENS PANEL)

1. INTRODUCTION

This document serves to outline all the equipment, processes and resources that are going to be essential for the day to day maintenance and inspection of cyclones, mixing boxes, medium cones and production screens efficiently with safe work place policies and procedures. Maintenance operations require vigilance at all times and therefore, every process in action must be detailed to a level of understanding suitable for operators stakeholders and management.

2. SCOPE

This production plan will apply to all our employees, business partners and anyone coming in and out of our work area.

3. OBJECTIVES

- 3.1 This plan shall outline all the safety aspects of the whole project in detail.
- 3.2 To provide an over view of the whole project return on investment based on day to day activities.
- 3.3 To classify all the resources needed to achieve the overall goal of the production plant maintenance of cyclones, screens, mixing boxes and medium cones
- 3.4 Monitoring, troubleshooting, Investigating, Maintaining and adhering to policies and procedures of efficient process plant management with regards to cyclones, mixing boxes, medium cones and production screens

4. SHIFT CONFIGURATION

The following working arrangements are proposed and are open to change based on the operational demands and compliance to the employment Act:

- a. 5 days on and 2 days off or weekend off day shift only
- b. 6 days on and 2 days-off 6 by 2 shift of day and afternoon shifting

If the operation requires only day shift operations then the shifts shall consist of 1 shift and standby team

- Site foreman
- Shift Supervisor
- 2 boilermakers (1 in and 1 on standby)
- 2 fitters (1 in and 1 on standby)
- 1 rigger
- 4 semi-skilled or servicemen on line and 2 on standby

Relievers are meant for control of fatigue to effectively manage the operation. With day shift alone:

HEALTH AND SAFETY

At BAAYSIN READ LIMITED, safety is our NO 1 priority and by integrating Health, Safety and Environmental considerations into all aspects of our business, we can protect our employees, Customers and other who may be affected by our operations. The health and safety of all staff, sub-contractors, clients and visitors is significantly important to our organization and we intend to thrive for excellence in the effective health and safety management of all works sites under our control.



We also aim to effectively mitigate all hazards arising from our facilities, activities and site specific environment. We also ensure we comply with all legal obligations, relevant standards and codes of practice with a commitment to developing a culture of safety within the Mechanical, Mining and Construction industry.

SAFETY, HEALTH AND ENVIRONMENTAL MANAGEMENT PLAN-A MONITORING BRIEF

Preamble

The safety, health and environmental performance of any project undertaken by Baaysin Read Limited are of cardinal importance in pursuance of our (safety health environment) policy which is "to ensure a safe and healthy working environment as well as protecting the physical environment". The project safety and environmental monitoring plans are drawn to achieve as far as it is practicable results in this regard.

1.3 SITE SAFETY

1.3.1 Site safety is always of the highest standard and shall conform to all legislative requirements. The management of Baaysin Read Limited regards health and safety of its employees as of paramount importance hence there are always measures and controls within the company workforce.

1.3.2 A comprehensive safety management system is always in place to ensure compliance to site QSE system, quality assurance, safety and environmental meetings is usually incorporated in weekly site meetings and there is a project and HSE project management committees that normally include:

- iv) The managing Director
- v) Contracts Engineer
- vi) and HSE officer

1.3.3 Risk Assessment Audits-Baaysin Read Limited ensures that it works in conformity with set standard and the safety information is usually conveyed to all personnel through the site training programme and this session is conducted by trained personnel.

1.3.4 First Aid Box and First aid Equipment- Baaysin Read Limited at all times ensure that there is a fully fledged first aid box and other necessary first aid equipment for all its projects engaged in. This equipment used by trained personnel. Proof of training (certificate) is always attached to the written letter of appointment and acceptance. The first aid shall ensure that all necessities are available and regular inspection of the first aid box is conducted. The first aider shall not act as a nurse but will save life and then refer all injuries to the relevant authorities.

1.3.5 Incident, accident reporting and investigation-monthly statistics is usually availed with detailed information on the number of injuries, details of what was done.

5. EQUIPMENT MANAGEMENT

As a joint venture business we shall be managing the whole operation and our machinery service provider shall manage all the equipment up to the standard required by the operation. Any modifications to the machinery with regards to additional operational requirements shall be paid for by the client or by us and claimed from the client. All machinery as per the contract shall be availed as stipulated.

6. CYCLONES MANAGEMENT

The role of the plant is to process ore into usable minerals efficiently and sustainably. This is a process that is run through very complex standards and we as Baaysin Read Limited are positioned to ensure that such is achieved with absolute conviction. Cyclones play a major role in this value chain and our role is to ensure that they achieve what the process requires. We shall provide the service of:

- Installing new cyclones into the required circuits.
- Replace old cyclones as per client requirements.
- Monitoring, troubleshooting, Investigating, Maintaining the efficiency of all cyclones and adhering to policies and procedures while doing our job.
- Provide rigging services and fitting services in the plant pertaining to cyclones management.

7. MIXING BOXES MANAGEMENT

In the production process of the plant mixing boxes play a major role as ore and medium meet for the first time in this section to allow efficient separation in the production cyclone therefore, it must be ensured that:

- Ceramic tiles in the mixing boxes are installed.
- Ceramic tiles are intact.
- The mixing box is not worn out

And that is where we fit in.

8. SCREENS MANAGEMENT

After the crushing process has taken place, the ore begins to go through the screening process where all the specifications of each screen are availed e.g. ore that is less than 1.7mm should go to a single section, ore that is above 1.7mm and less than 27mm to a set section and ore that is above 27mm but less than 150mm to recrushing This is achieved through effective screen panels. We shall ensure this by:

- The fitting of new screen panels.
- Monitoring, assessing and documenting screen panels life span in accordance to process requirements.
- Unblinding screen panels.
- Suggesting the appropriate screen panel models.

9. PRODUCTION PROCESS

Ore processing as a value chain consists of a number of interdependent smaller processes that contribute to its success as part of the liberation section. Screening and secondary crushing perform the second stage of liberation. The ore liberated through primary crushing becomes an input at the screening and secondary crushing sections of the main treatment plant. The setup of screens around the plant is similar therefore DMS plant will be used to show circuits that are essential within our scope.

SAFETY: our operational standard is mainly driven by risk management principles which encompass:

RISK ASSESSMENT A risk assessment is simply a careful examination of what, in our work, could cause harm to people, so that we can weigh up whether we have taken enough precautions or should do more to prevent harm. Workers and others have a right to be protected from harm caused by a failure to take reasonable control measures. And at BRL it is of two types:

(I.) **Continuous Risk Assessment**

This is analysing and assessing all possible hazards that may occur continuously throughout working and managing them.

Hygiene and Health Surveys (Noise, Lighting, Ventilation, Temperature Extremes)

Environmental Impact and Aspect Registers

Fire Risk Assessments

(II.) **Pre - work Risk Assessment**

This involves analysing possible hazards that may occur and putting in management controls before starting work.

- Identify hazards with the purpose of immediately treating
- Significant risks

Based on the fact that our operation is based on machinery that is interlinked to a process as a value chain it is important to understand the lockout procedure to prevent any uncalled for circumstances:




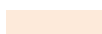
Lockout procedure : this is ensuring that equipment is properly and completely shut off prior to the starting/commencement of maintenance. It requires that electrical and kinetic power sources be isolated and rendered inoperative before any activity commence on it. If many people are working on equipment simultaneously then each and every one of them must lock with their own safety padlock and keep their own key. Accidents and ill health can ruin lives and affect business too if output is lost, machinery is damaged, insurance costs increase or the company has to go to court. At BRL we are legally required to assess the risks in our workplace so that we put in place a plan to control the risks.

The lockout procedure










- Inform CCR to stop feeding on the equipment and stop it.
- Inform CCR about the problem to get a job card.
- Observe the equipment.
- Do a pre work risk assessment.
- Choose the right tools for the job and PPE
- Stop the equipment on the field manually and lock it.
- Stop the auxiliary equipment feeding in to the equipment if there is any.
- Test run the equipment with CCR to ensure that it is completely off and if off you commence work.
- Continue doing continuous risk assessment as you proceed with the maintenance.
- Once finished, lock the equipment and inform CCR to start it.
- Observe if the problem has been solved as the equipment runs and if yes then production continues and if not the procedure is followed again to redo the work.
- Clean your tools and environment after the work

The production plant is a very complex work site that requires us to understand a lot of communication aspects that are within it especially signs such that safety is prioritized and in this case within our scope of work it involves:

QUARTELY COLOUR CODES FOR COMPLIANT MACHINERY AND EQUIPMENT

-  FIRST QUARTER
-  SECOND QUARTER
-  THIRD QUARTER
-  FOURTH QUARTER

COLOUR CODING IN THE PLANT PIPELINE COLOUR CODING

PIPELINE	COLOUR CODE
	Portable water
	Sewage
	Industrial water
	Flocculant
	Slimes
	Correct media
	Compressed air
	Hydraulic oil
	Transformer oil

WASTE BINS

-  Domestic Waste
-  Paper
-  Clinical waste

In a Dense Media Separation (DMS) plant, powdered ferrosilicon (an alloy of iron and silicone) is suspended in water to form a fluid near the density of diamond (3.52 g/cm³), to which the diamond bearing material is added to begin the separation process of the heavier minerals from the lighter material. Additional separation of the denser material occurs by centrifuge in “cyclones” that swirl the mixture at low and high speeds, forcing the diamonds and other dense minerals to the walls and then out the bottom of the cyclone. Waste water raises at the centre of the cyclones and is pushed out and screened to remove waste particles. The DMS process results in a concentrate that generally weighs less than one percent of the original material fed into the plant at the beginning of the process. Since most of the liquids used in the laboratory are expensive or toxic, the dense medium used in industrial separations is a thick suspension, or pulp, of some heavy solid in water, which behaves as a heavy liquid. The process offers some advantages over other gravity processes. It has the ability to make sharp separations at any required density, with a high degree of efficiency even in the presence of high percentages of near density material. The density of separation can be closely controlled, within a relative density of 2.55 g/cm³ to 2.60g/cm³ at a ratio of 6:1 ore to medium.

This system is based on the property of diamonds having a much higher specific gravity (density) of ~3.52 g/cm³ compared to most of the other minerals that make up material in which diamonds are found. This is a process that can be achieved if cyclones are working efficiently, screens are separating efficiently, mixing boxes are working efficiently and cones are well managed which is where BRL fits in and our purpose is to ensure that the plant is able without any reasonable doubt achieve the section purpose:

This section of the plant's main aim is to concentrate diamondiferous ore by separating the high density material of the ore from the low density by means of centrifugal forces which act on the particles separating high density particles from the low density particles. This system works on certain basic rules:

Always ensuring that the density of the medium is set at the required range (2.55 to 2.60 g/cm.³

Always check that the pressures of the cyclone are at the required rates (LL110kPa HH210kPa).

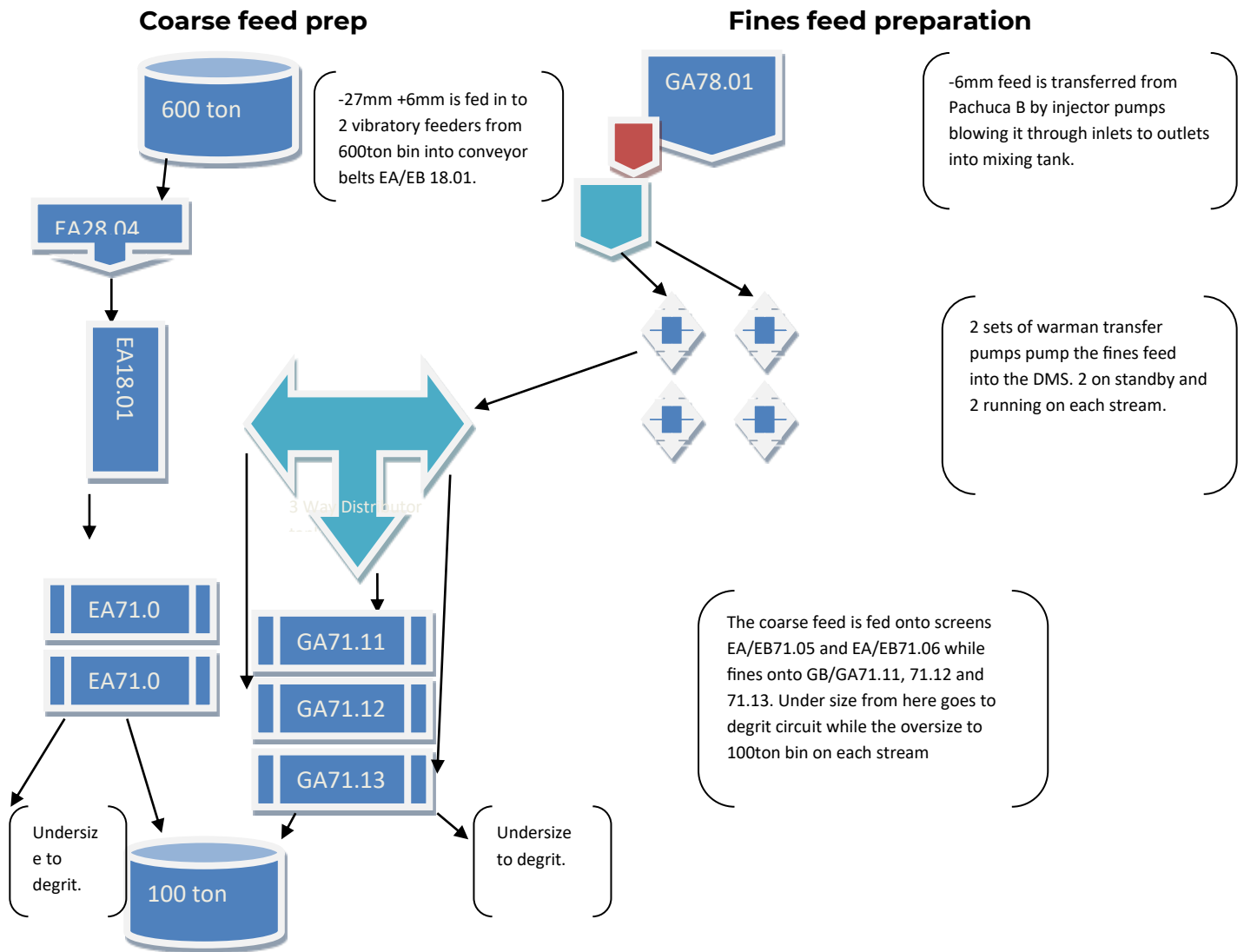
Always ensuring that the levels of the Correct Medium Cones are at the set range (35% - 100%).

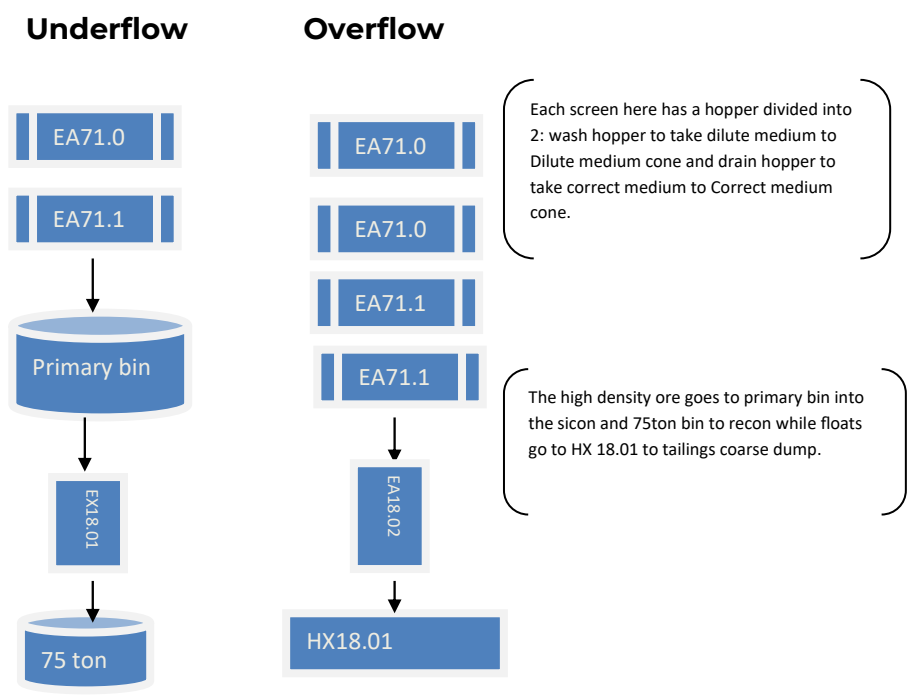
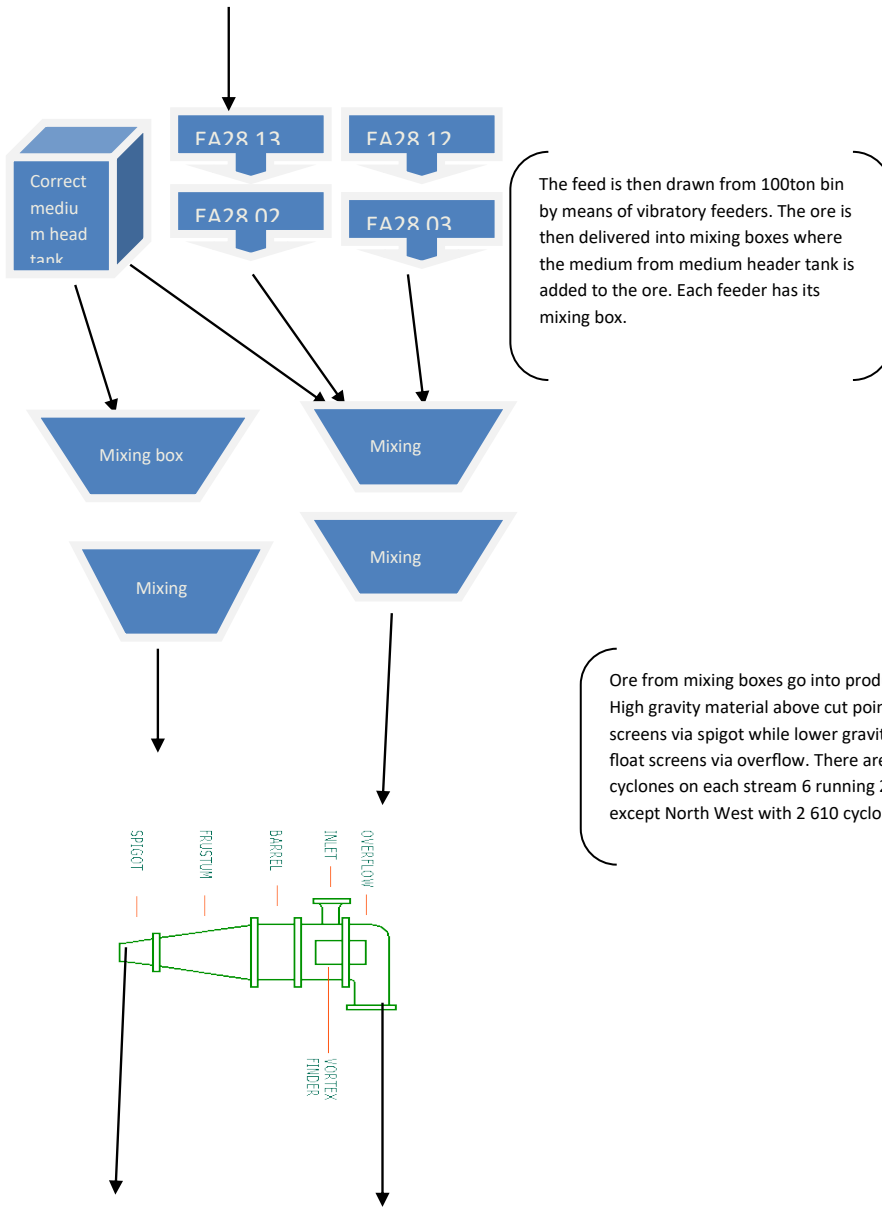
Medium type: 100D coarse and 150D for fines.

Moisture content for tailings deposits: Coarse: 6% and fines: 26%

MATERIAL FLOW (DMS)

The plant has two streams but for simplicity only one stream will be discussed.





MATERIAL FLOW

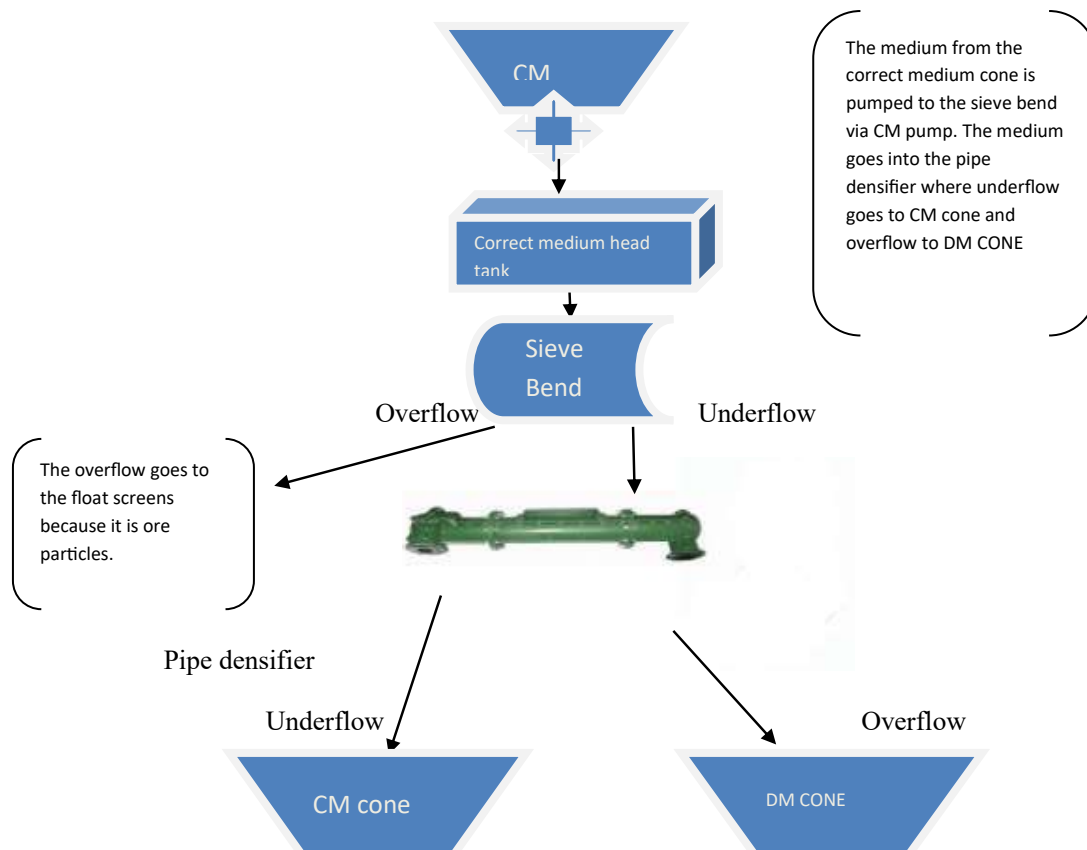
The 600ton bin (EX08.01) provides coarse feed of +6mm 27mm through variable speed vibratory feeders EB/EA28.04 on to conveyor belts EA/EB18.01. The belts feed onto two coarse feed prep screens on each stream EA/EB71.05 and EA/EB71.06. these are single deck screens of apertures 1.7*13mm.+1.7mm 27mm goes to 100ton bin where it meets fines from GB/GA78.01 pachucas through fines prep screens GA/GB 71.11, 71.12 and 71.13 which feeds the oversize to 100ton bin. Each stream has its own 100ton, the 1.7mm from both coarse and fines screens gravitates to Degrit header tank GB/GA08.21, this is done to prevent medium contamination. Eight degrit cyclones receive the feed from the header tank. The overflows from the cyclones report to the slimes disposal section via overflow launder. The underflows to single deck screens GB/GA71.21 and GB/GA 71.22 and discharged into conveyor belt NX18.11 and transported to fines tailings dump. Underflow pumps GB/GA63.21, GB/GA 63.22 and GB/GA 63.23 pump the undersize to degrit header tank. Feed from dilute medium cone goes into primary magnetic separators overflows from here go to Correct medium cone while underflows to secondary magnetic separators where overflows go to CM cone while effluents gravitate as underflows to collector box degrit.

A set of four vibratory feeders on each stream collects the feed from 100ton and into the mixing box where the ore is mixed with medium which is fesi. The underflow from the mixing box goes to the production cyclone while overflow goes to the pipe densifier. The overflow flow from the cyclone goes to sink screens via overflow hood and the denser ore goes to sink screens via spigot. Both the sink and float screens have a wash hopper to wash dilute medium to Dilute medium cone and drain hopper to gravitate correct medium into Correct medium cone. The ore at the sink screen is fed into primary bin that transports it to 75 ton bin via the sicon conveyor belt in to recon while from the float screens the ore goes into EA/EB 18.02 into HX18.01 to the coarse tailings dump.

DMS CIRCUITS DESCRIPTION

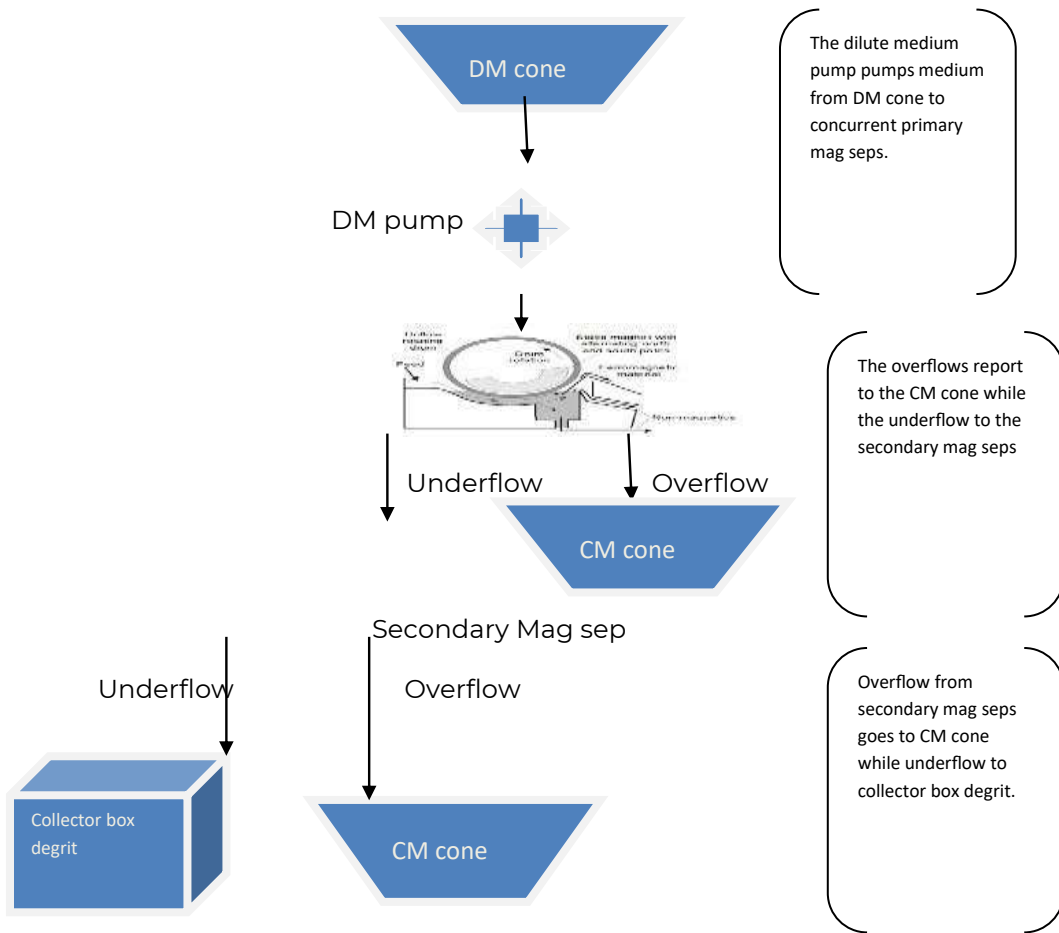
DENSIFICATION CIRCUIT

This is a circuit that bleeds off the correct medium line going to the mixing boxes.



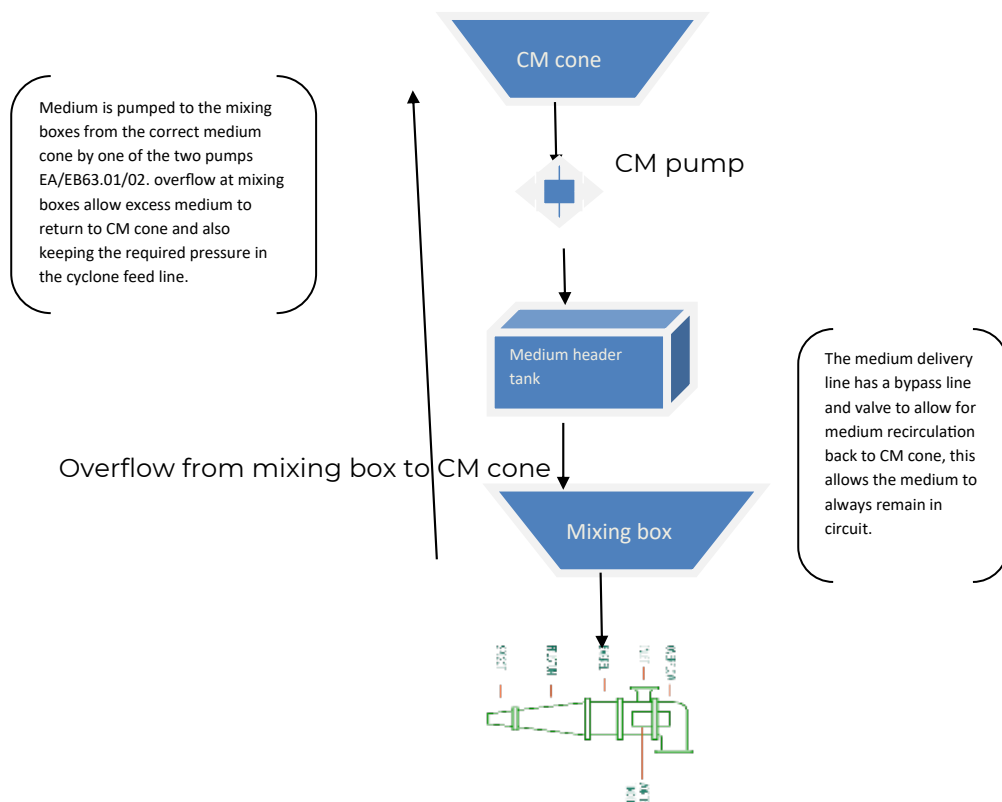
DILUTE MEDIUM CIRCUIT

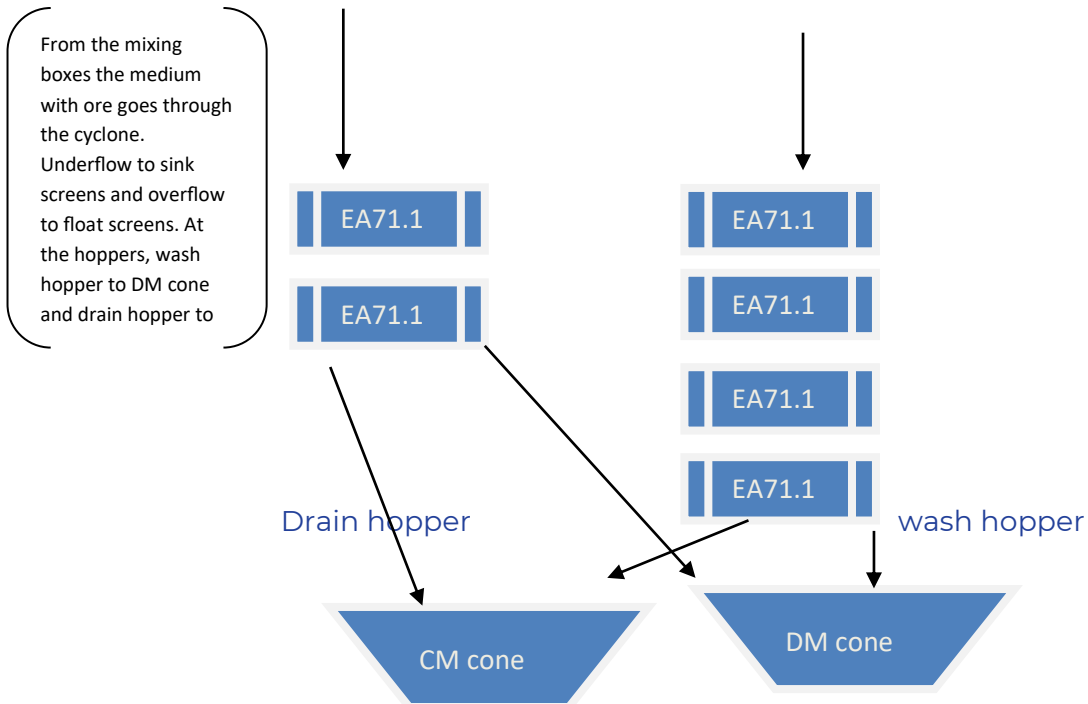
This is a circuit that removes effluent from the Fesi.



CORRECT MEDIUM CIRCUIT

To provide correct medium to the DMS mixing boxes at all times





WE ARE POSITIONED TO SOLVE CAUSES AND PROBLEMS LEADING TO DIAMOND LOSS

- When the density is too high the diamond containing material will float with non diamond bearing ore into the conveyor belt HX18.01 to tailings dump. And if cyclones and cones are well maintained that will never be a problem.
- When the cyclone is blocked, the diamond bearing ore will overflow into the floating screens to tailings.
- When delivery lines in to and out of the cyclones is holed then the diamond bearing ore will be delivered outside production circuits.
- When the screen panels are holed or have moved the diamond bearing ore will be delivered into medium circuits where upon unblocking the cones will be delivered to the ground.

WE SHALL ADDRESS COMMON CAUSES OF FESI LOSS

- When the feed preparation screens spray nozzles are blocked the ore will not be washed leading to rapid viscosity.
- When screen panels are blinded there will be free flow leading to contamination of medium.

10. MEDIUM CONES MANAGEMENT

We shall provide

- Tiling of medium cones
- Manage cone efficiency.

11. ARISING DEVELOPMENTS IN THE PROJECT

Any arising developments in the project shall be communicated and quotation for such extra costs submitted to the client respectively.

12. OPERATIONS INTERACTIONS WITH OTHER PROJECTS.

If there is any activity within the mine that interacts with our operation then it shall be suggested an interaction meeting with the concerned parties to discuss and implement traffic management plans to address such interactions. And such meetings shall be taken seriously.

13. ENVIRONMENT AND COMMUNITY INTERACTIONS.

All issues of environment and community shall be addressed as per the Botswana regulations and policies of the client and the client shall be the overseer of such issues.

**KNOW SAFETY.
NO INJURY.
KNOW DROMEX.**

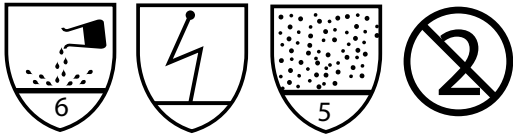
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AUTHORIZED
DISTRIBUTOR OF
DROMEX PERSONAL
PROTECTIVE
EQUIPMENT**



PROMAX DISPOSABLE COVERALL

CODE: PROMAX

EN 14605:2005 EN 1149-5:2008 EN 13034:2009



- Type 5 and 6 disposable coverall
- Microporous spun bound polyethylene laminate fabric with bound seams
- Zip and storm flap front closing
- Non-linting
- Good mechanical properties and performance
- Protects the arms, legs, torso and head from the hazards of light liquid sprays, chemical splashes and sprays, airborne solid particulates and anti-static dissipation
- Liquid penetration resistance against a basic range of chemicals:
 - Sulphuric Acid 30% - Class 3
 - Sodium Hydroxide 10% - Class 3
 - O-Xylene – Class 3
 - 1-Butanol – Class 3

Sizes: Small – 3XL

Suitable Use:

- Asbestos removal
- Accident attendance
- Fiber exposure
- Painting and spraying
- Clean rooms
- General maintenance





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