CGN
Swakop Uranium

2021
SSHER INDUCTION

Contents

01

PURPOSE & OBJECTIVES

PURPOSE & OBJECTIVE

The purpose

- To ensure all SU employees and Contractors are informed about the safety aspects and risks working in a mining area;
- To share general safety rules.

The objective

- Create awareness of the hazards;
- Create awareness of risks and how to mitigate risks;
- Ensure all SU and Contractors are aware of SU safety rules and procedures;
- Ensure all SU and Contractor will be able to perform their job safely.

02

SU OPERATIONS

SU OPERATIONS

Husab mine is one of largest Uranium mines in the world. It is an open pit mine extracting ore from different zones.

1. Haul trucks with the loading capacity of 327 tones will carry ore from the pits to the processing plant.

2. Ore is fed to the primary crushers where the approximately 1 m boulders from the pit are crushed.

3. Crushed ore is delivered by conveyor to the stockpile and milled and sagged in bore mills.

4. Uranium is further processed through activities in leach, CCD, IX, SX till Final product to produce a high quality U-308 yellow cake.

5. Final product packaged and transported by road to port of Walvis bay and the product is shipped to customers.

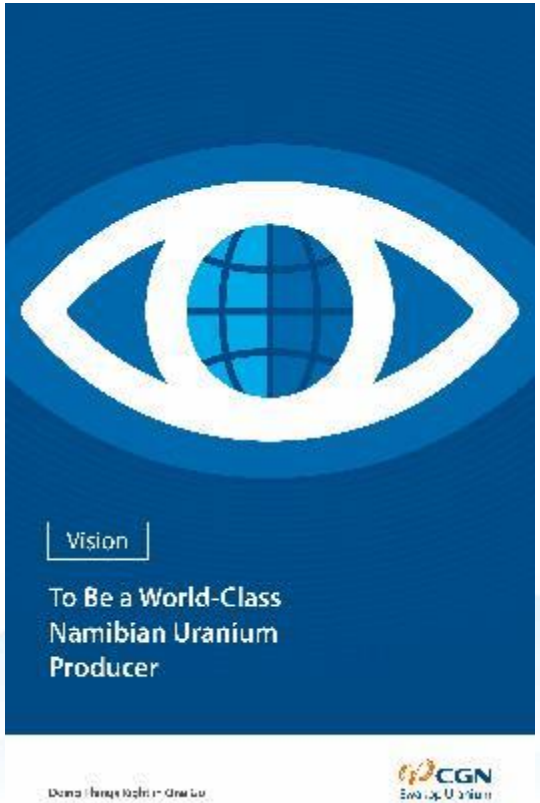
All workers & contractors contribute to a safe and productive operations.

SSHER department assist, assess, advice and continuously monitors to ensures workers are not causing danger to themselves, co workers and the environment.

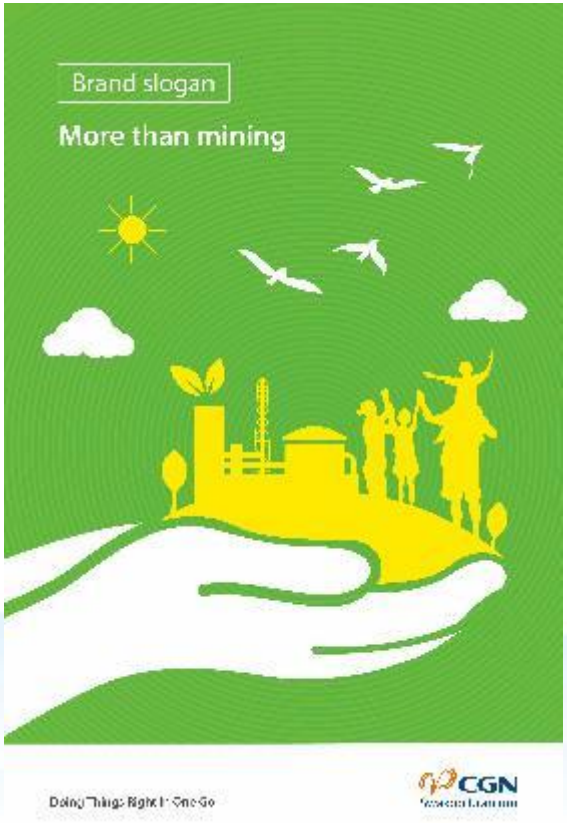
03

ESSENTIALS OF CORPORATE CULTURE

Corporate Culture



Corporate Culture cont.



04

INTEGRATED MANAGEMENT SYSTEM (IMS)

INTEGRATED MANAGEMENT SYSTEM

INTEGRATED MANAGEMENT SYSTEM (IMS)

Swakop uranium Health, Safety, Security, Radiation, Environment and Quality systems are integrated. Systems comply with International standards and Namibian government law for a safe and productive operations.

IMS complies with ISO 9001:2015 (Quality), ISO 14001:2015 (Environment) and OHSAS 18001:2007 ISO 45001:2018 (Health & Safety).

Covers all activities having an impact on the quality of:

- Our products
- Our performance
- Health and Safety of the personnel
- Environment
- Stakeholders

Swakop Uranium obtained its first IMS certificate in 2016, and obtained recertification in 2020.

(IMS) assures that:

- SU complies with the laws.
- SU has goals and targets for operations & health and safety.
- Everyone is responsible to comply with SU procedures.
- Ensures all workers and contractors are committed to IMS system.

SHE INSPECTION SYSTEM

Safety, health, environment, radiation, security, emergency and quality findings from SHE inspections, Visible Felt Leadership (VFL), PTO's, SHE Rep inspections, observations and checklist should be logged on SUMIS- Dingtalk.

- Area owners should ensure findings are tracked and actions implemented to close findings on the system.
- SHE Management system is based on the principle of plan, do check & act. (Continual improvement process)
- Each section must have an appointed and trained SHE Rep, First aider and Fire Marshall.
- Each section should have a SHE file and Team leaders are responsible to maintain the file.
- Both positive and negative findings can be logged on the SHE inspection system.

05

SAFETY

GENERAL SAFETY RULES

- Comply and follow SU’s established work procedures;
- Ensure that you have valid access to a specific area before entering;
- Clarify and correct procedures when in doubt;
- Be sure you are competent and authorised to perform the task;
- Use the right tools and equipment;
- Always do a risk assessment before doing any job;
- Stop and re-assess the risk if the task’s condition change.

GENERAL SAFETY RULES

- Do not operate any machinery, plant equipment or mobile equipment without proper training and authorization;
- When working with any chemical please refer to the Safety Data Sheet/label (SDS) on all chemicals.
- No walking is permitted in the open pit, unless work related;
- Pedestrian must always stand clear of moving vehicles and mobile equipments;
- Be aware and observant at all times;

WORKPLACE INSPECTIONS

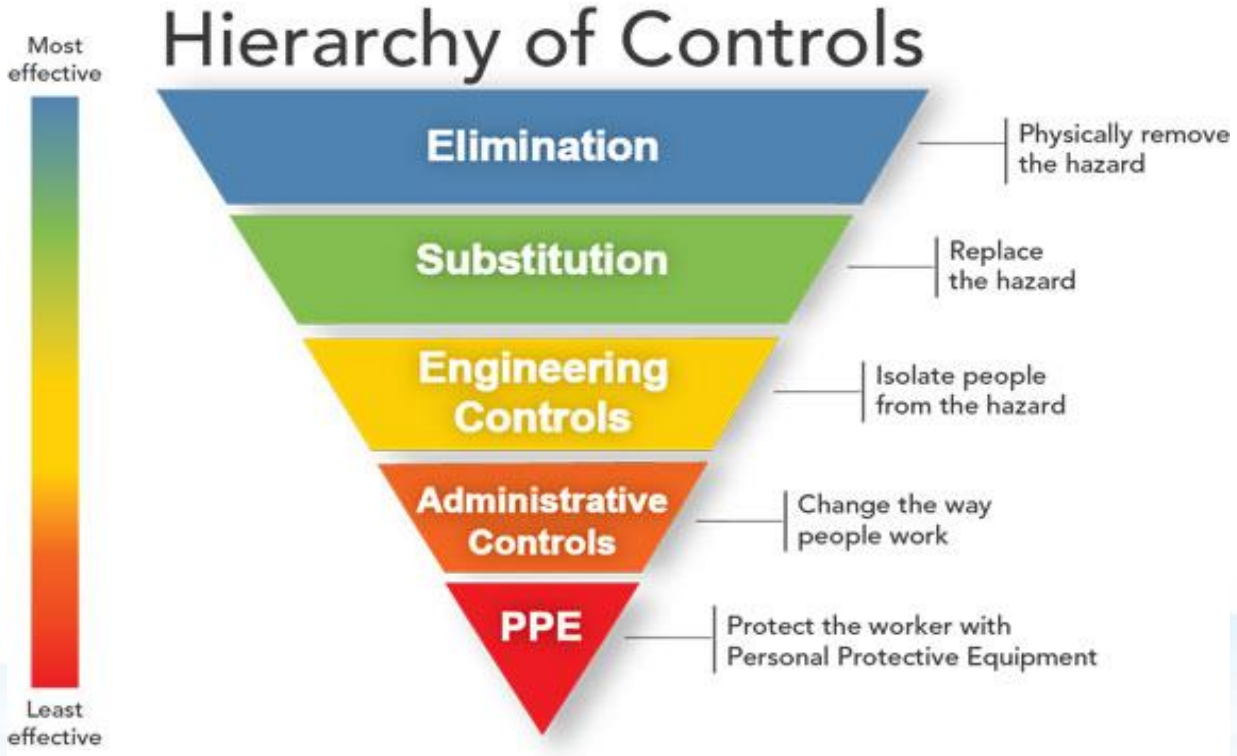
- The purpose of SHE workplace inspections is to identify hazards and any non-conformances. These hazards can be eliminated or the risks reduced by implementing controls in the work area before they can cause harm.
- SHE workplace inspections are a pro-active approach to identifying hazards.
- By controlling them we can help to prevent incidents.
- SHE workplace inspections help to maintain a safe workplace.
- Report inspection findings to area owner or area SHE Rep.

PERSONAL PROTECTIVE EQUIPMENT

- Wear all prescribed PPE that is required by the specific area and ensure that you adhere to the rules;
- If special PPE is required for a specific area, ensure you have it before commencing your job;
- The **chin straps on safety hats** have been **declared compulsory** for the areas in the mine.

HIERARCHY OF CONTROL PRINCIPLE

CGN Swakop Uranium



Use hierarchy of controls to identify effective controls.

VEHICLE/ EQUIPMENT SAFETY

- Please ensure you have the correct colour code for the specific area to drive.
- Your vehicle must be up to SU standards and be adherent to the driving regulations and speed limits at all times in the specific area.
- Inspect the vehicle and fill in the pre-start check list each time before use to eliminate potential hazards and risks.
- Report defects to the Vehicle Maintenance Supervisor immediately
- **Classification of LDV/HDV permits**
  - ✓ Red – LDV/HDV – Open pit and Mining area (including Plant area, Workshops and General areas)
  - ✓ Green - LDV/HDV – Plant area, Workshops and General areas ONLY

LDV SAFETY

Speed limits

- Tar Roads 40km/h
- Processing plant 40km/h
- Haul roads 60km/h
- Dumps 50km/h
- Loading and Dumping 15km/h
- Parking bay 15km/h
- Ramps 30km/h
- Workshop and where people are working 20km/h

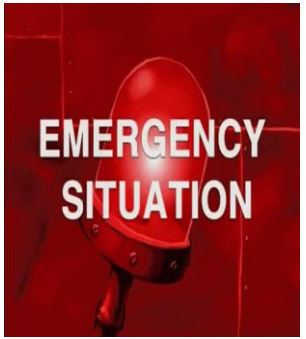
- Seat belts to be worn at all times.
- All vehicles used for work purposes are to be fitted with a reverse hooter that should be operable when the reverse gear is engage.
- A vehicle needs to have a buggy whip that is 4m high when entering the open Pit or Tailings Storage Facility.

06

SECURITY AND EMERGENCY

EMERGENCY NUMBERS

- Security - 0811435380
- Fire emergency - 064-4111329 or 0811435380
- Dispatch - 064-4111248
- Plant Control - 064-4111340
- Safety standby - 0855420013
- Medical - 0811416310
- Environment - 064- 4111228/4111227/4111422
- Radiation - 064-4111359

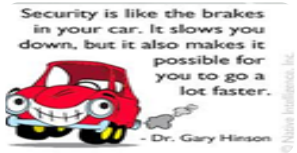


ACCESS CONTROL

Access cards issued to each worker and contractor for identification.

Delivery vehicles, Contractors or contracting firms vehicles will be subject to searches.

No Casual Visits



Only vehicles in a road worthy condition will be allowed on the permanent access road and on site.

Host must accompany visitors

Emergency vehicles should be given right of way.

No photos of operations

ACCESS CONTROL

To remove property belonging to SU and associated Contractors:

- Property Removal Permit form should completed and approved.
- The Security Equipment Removal Permit must be present to security upon exit.

Private Property:

- Private property should be declared at security on entrance.
- A property declaration form should be completed.
- Property declaration form should be presented to security at the mine exit point.
- Laptops and other equipment that frequently needs to be removed will be authorised with a laptop/equipment authorization card.

Tampering

No tampering is allowed with any equipment

Searches: SU workers, visitors & contractors

Subject to searches upon exit in terms of Criminal Procedure Act

Integrity

Act honestly towards SU at all times. Serious breach of integrity in the event of an employee been convicted of any offence with an element of dishonesty in a company disciplinary hearing and/or a court of law, whether related to SU or a Contractor or not.

EMERGENCY

- When **reporting and emergency clearly state** the following:

✓ Your name and job of the person reporting the incident;

✓ Your telephone number

✓ Location of emergency;

✓ Nature of emergency;

✓ Any people injured;

✓ Types of injuries;

- Do not move injured people unless their lives are in danger.
- Keep the person/s calm until emergency response arrive.

- If the **Fire alarm is sounded**:

✓ Stay calm

✓ Stop what you are doing and briskly walk to the nearest Emergency Assembly Point.

✓ Report for the roll call.

✓ Remain at the assembly point, or as otherwise directed until given the “all clear” signal or alternate instructions by the Emergency Response Personnel

✓ Do not attempt to extinguish the fire unless you are trained and authorised to do so.

07

OCCUPATIONAL HEALTH

HEALTH RISKS

- A contractor or visitor is responsible for presenting themselves for work in a **"Fit for Work" state**.
- A female employee who falls pregnant is **responsible to inform his/her line management to ensure that potential work-related risks exposure** are implemented and appropriately mitigated.
- Take note of the **following health hazards onsite**:
  - ✓ Dust, Fumes, Vapours,
  - ✓ Noise, Vibration, Radiation, and Heat stress.
- Practice the **following hygiene practices**:
  - ✓ No smoking, eating and drinking in designated hazardous areas;
  - ✓ Wash your hands and face prior to eating and drinking;
  - ✓ Shower at the end of work shift and laundering of dirty overall;
  - ✓ Use sun screen/block;
  - ✓ Wear long sleeved shirts;
  - ✓ Wear a hat with a brim when working outside;
  - ✓ Drink plenty of water.

- **Fatigue is a major hazard.**

Fatigue is the loss of alertness and capability to perform work safely that result from:

- ✓ Illness or health problems;
- ✓ Too little or poor quality sleep.
- ✓ Mental or physical exhaustion;
- ✓ Working at times you would normally be asleep.

- **To improve alertness**
  - ✓ Get in moderate exercise
  - ✓ Get plenty of sleep, go to bed early
  - ✓ Eat smarter and better
  - ✓ Drink more water and less caffeine

AWAKE, ALERT, ALIVE

OCCUPATIONAL HAZARDS

Chemical agents	Gases, vapours, solids, fibres, liquids, dusts, mists, fumes, etc.
Physical agents	Noise and vibration Heat and cold Electromagnetic fields, lighting etc.
Biological agents	Bacteria, fungi, etc.
Ergonomic factors	Lifting, stretching, and repetitive motion
Psychosocial factors	Stress, workload and work organisation

Continuous hygiene monitoring programs is set up to ensure levels are kept below Occupational Exposure limits (OEL's)

OCCUPATIONAL HAZARDS

- SU has a **zero tolerance for alcohol and drugs** and all Contractor and visitors will be subjected to SU's Alcohol and Drug policy/procedure.

✓ **Compulsory testing** will be done when Contractor/Visitors enters mine site

✓ **Post non-conformance testing** will be carried out when a Contractor/visitor has been involved in an accident or incident.

- Contractors/Visitors should understand that medication may effect:

✓ Performance

✓ Ability to work safely

- Workers need to inform their line manager prior to commencing duty if medication is taken that could alter their ability to perform duties safely.

- Employees should ensure they do not receive medication over the counter with adverse affects like drowsiness.

08

ENVIRONMENT

HOW DO WE IMPACT THE ENVIRONMENT

- **Surface disturbance**
  - ✓ e.g. ecosystem disturbance, changing of natural surface flow and habitats
- **Water, soil and air**
  - ✓ e.g. through contamination, increase in dust levels changing ph of soils/water etc.
- **Water use**
  - ✓ In terms of mining operations, drinking and ablution facilities onsite
- **Waste generation**
  - ✓ Examples are: Office waste, household waste workshops
- **Natural Land disturbance**
  - ✓ Blasting
  - ✓ Drilling



- **Prevention**
  - ✓ Familiarise yourself with the Husab Site Environmental Requirements.
  - ✓ Look out for Site Bulletins, Environmental Awareness TBT topics, Monthly Environmental Slogans, SOP's, etc.
  - ✓ Through proper planning and execution of tasks (No shortcuts).
  - ✓ By following procedures and asking if you are unsure about things.
  - ✓ Make sure that you know how to handle all hazardous substances (Only trained employees).
  - ✓ Read the MSDS – Material Safety Data Sheet.
  - ✓ Do not access stores for hazardous substances without permission.
  - ✓ Immediately clean any minor accidental spills and leaks.
  - ✓ Dispose of hazardous waste in specified storage areas- if in doubt ask!
  - ✓ Never mix non-hazardous and hazardous waste!
  - ✓ Immediately report any major leaks and spills.

KEY ENVIRONMENTAL ACTIVITIES

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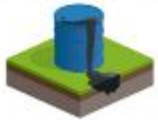
Hazardous Waste

Storm Water Management

Spill Management



Park Access

Inspections & Audits

Contractor Compliance & Management

Waste Water & Effluent Management

Waste Management & Separation

Environmental radiation monitoring

Weather monitoring

Historical & archaeological monitoring

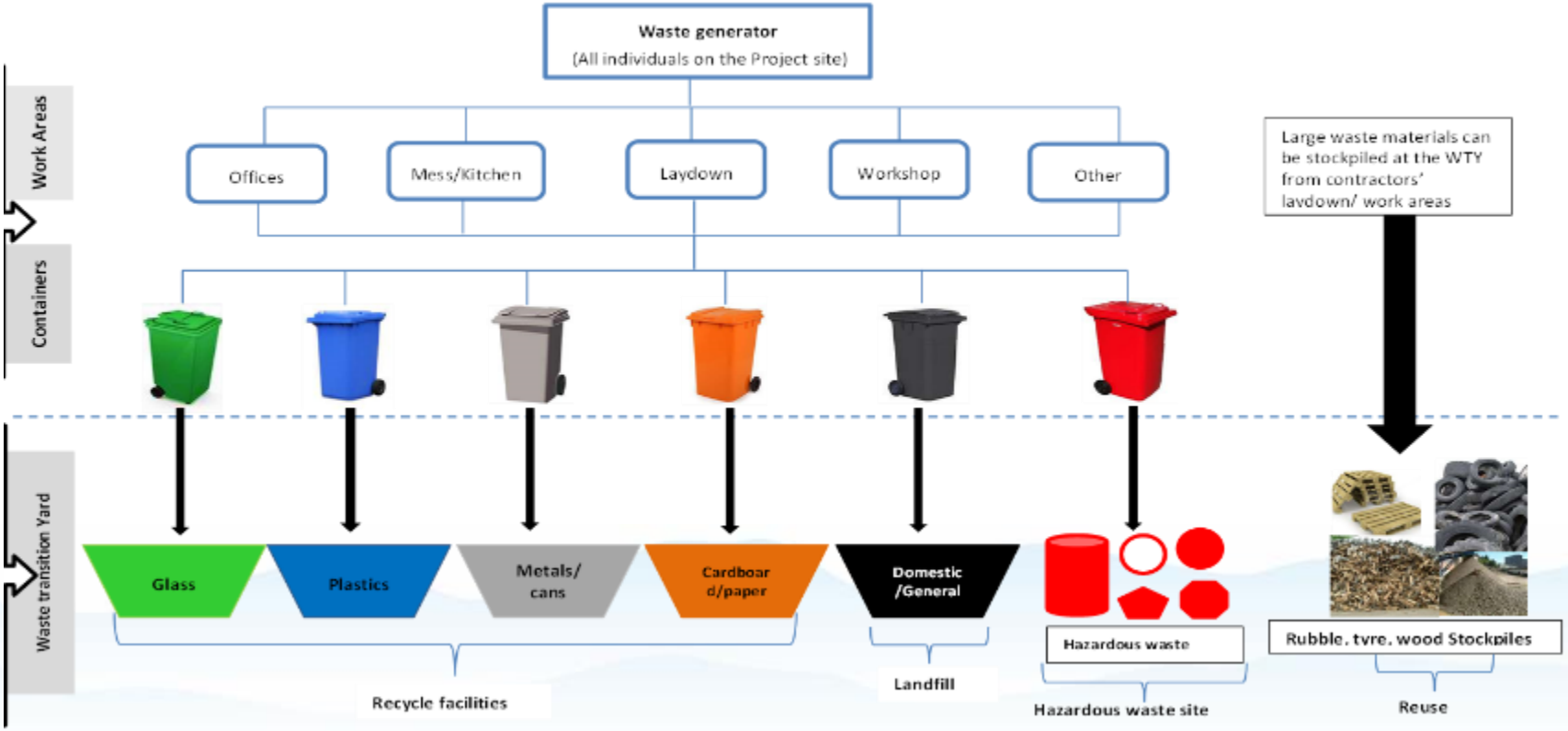
Groundwater & surface monitoring

Noise and vibration monitoring

Air quality monitoring

Biodiversity monitoring & land use management

DISPOSAL OF WASTE



KEY ENVIRONMENT COMPLIANCES

- When entering the Access Road from B2 to the mine you are required to **be in possession of NNNP Permit. Individuals who do not carry the permit in their vehicles can be fined by the Min**
- **Ministry of Environment and Tourism : Directorate Wildlife & National Parks, to the value of NAD 2400.00, which the company is not liable to pay.**
- Essentially **GOOD HOUSEKEEPING, AWARENESS TRAINING** and EFFECTIVE MANAGEMENT are key to environmental compliance!
- It is the **responsibility of each EMPLOYEE and CONTRACTOR** to ensure ENVIRONMENTAL COMPLIANCE in your immediate surroundings.
- The role of the Environmental Section it to provide guidance/advise and ensure compliance of new activities/projects, EMP commitments and Legal requirements. This is done through conducting compliance, biophysical and biodiversity monitoring.
- The Environmental Section ensures compliance for Swakop Uranium's Mining License, Exclusive Prospecting Licenses, and Linear infrastructure areas through all phases of life of mine:
  - ✓ Husab Mine Site and activities
  - ✓ Permanent Access Road, Permanent and Temporary Water Pipeline Supply, Overhead Powerline Networks, etc.
  - ✓ Ida and Husab Camp, Zone 6, etc.

09 RADIATION

RADIATION

- Radiation is ENERGY , travelling as waves or particles, emitted by a source, either natural or man-made and transferred through space.
- Electromagnetic spectrum is divided into:
  - ✓ Ionizing radiation – high energy
  - ✓ non-ionizing radiation – low energy
  - ✓ Ionizing radiation consists of alpha particles, beta particles and gamma rays.
- Radiation is invisible and cannot be directly detected by human senses.
- Can only be detected through measuring using radiation detectors.
- Units of measurement are Sieverts (Sv), or milli-sieverts(mSv)

RADIATION

- Radiation occurs in forms of electromagnetic waves for example:
  - ✓ Radio waves which are low energy electromagnetic waves and have a wave length of between a meter to kilometer in length
  - ✓ Microwaves have enough energy to be use to cook food. Their wavelength is between a centimeter and a millimeter in length
  - ✓ Visible light has wavelength the size of bacteria or about a ten-thousandth of a millimeter
  - ✓ Infrared radiation, for example from fire is felt as heat and has a wavelength about a tenth to a thousand of a millimeter
  - ✓ Ultraviolet light, example from the sun or artificial sources. Has a wavelength of about hundred-thousand of millimeter in length
  - ✓ X-rays are high – energy penetrating electromagnetic waves which are used in medical and security environments. Has a wavelength of about millionth to hundred millionth of a millimeter in length
  - ✓ Gama rays are very high in energy and originate from radioactive material. Has a wavelength of about millionth to thousandth millionth of a millimeter.






3 TYPES OF RADIATION

Type	Uses
Alpha	- Commonly used in smoke alarms.
Beta	- Mainly used in industrial processes such as paper mills and aluminum foil production
Gamma	- Gamma rays are the most useful type of radiation often used to fight cancer and to sterilize food, and kinds of medical equipment that would either melt or become compromised by bleaches and other disinfectants. - Gamma rays are also used to detect leaking pipes

How radiation can enter your body:

External	Internal
• From Direct Gamma radiation • Originates from outside the body • Comes from uranium bearing ores, waste rock, solutions etc.	• Inhalation of LLRD (long lived radioactive dust • Inhalation of radon gas and decay products • Ingestion of uranium bearing product

Sources of Ionizing Radiation at SU

- Uranium ore
- Sub-economic Ore Material/ Waste
- Uranium bearing slurry
- Ammonium diuranate/Yellow cake
- Uranium Oxide Concentrate (U_3O_8)/Final Product
- Tailings Material
- Sealed Sources and radiation generators




RADIATION EXPOSURE LEVELS

The Namibian occupational dose limits are specified in the **Regulations under the Atomic Energy and Radiation Act, Act 5 of 2005.**

As a RADIATION WORKER Occupational Exposure Limit – **20 mSv/a**

Member of the Public Pregnant Female Employees – **1 mSv/a**

How to limit or control exposure to external radiation:

Time ,distance and shielding are the main tools to limit exposure to external radiation.

- **Time** : keep time spent in areas of high exposures to a minimum.
- **Distance** : Increase the distance between yourself and a source.
- **Shielding** : Shield sources of radiation with steel or concrete.

PERSONAL PROTECTION

- Always wash your hands and face before eating/drinking and smoking, and practice good hygiene;
- Only eat in clean areas, and store food in a clean container;
- Stay upwind of dust plumes.
- Use appropriate respiratory protection in dusty areas, and be clean shaven to ensure proper fit and seal;
- Reduce dust and spills;
- Use APPROPERIATE PPE (protective glasses, respirators, overalls for protection against external contamination, gloves, safety shoes, dust masks);
- ACTIVELY practise the Principle of ALARA (**A**s **L**ow as **R**easonably **A**chievable);
- Ventilate confined spaces where there is possibility of Radon build up;

RADIATION PROCEDURE AND CONTROLS

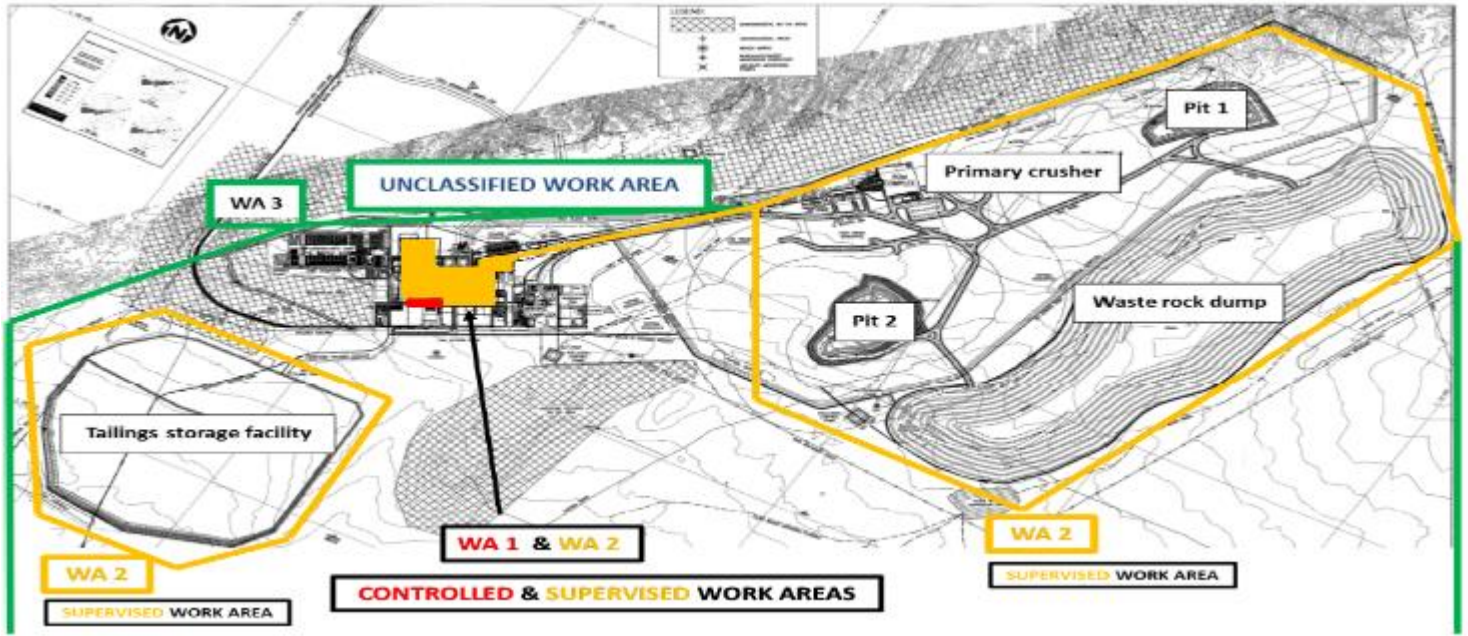
- **Radiation Sealed Sources onsite**
  Workers should be aware of any sealed sources in their areas of responsibility and follow instructions on sign/warning boards.

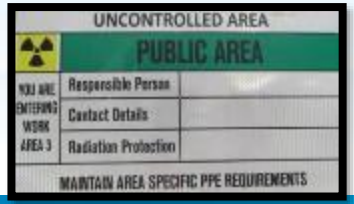
- **Security Scanning and contamination checks**
  All persons working on-site will be subject to random spot-checks by either the securities or by radiation department for the purpose of contamination control.

- **Contaminated Waste Disposal**
  All contaminated waste should be disposed of in special marked yellow drums labelled ‘Contaminated Waste’, and familiarize themselves with waste disposal procedures.

- **Use suitable respiratory protection**
  To reduce internal exposure from inhaling of dust.
- **Personal Protective Equipment**
  To help reduce the exposure to radiation and keep you safe.

WORK AREA CLASSIFICATION





10

AMMONIA AWARENESS

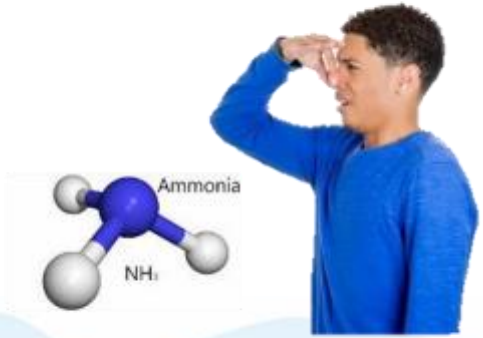
WHAT IS ANHYDROUS AMMONIA

- Anhydrous means without water.
- Colourless gas(natural state)
- Stored as liquid under pressure in storage tankers.
- Strong, pungent and irritating smell.
- Anhydrous ammonia is 100% ammonia
- Chemical formula is NH3
  - ✓ One part nitrogen
  - ✓ Three parts hydrogen

- You can recognizing Ammonia by:

The most recognizable property of ammonia is:

Smell

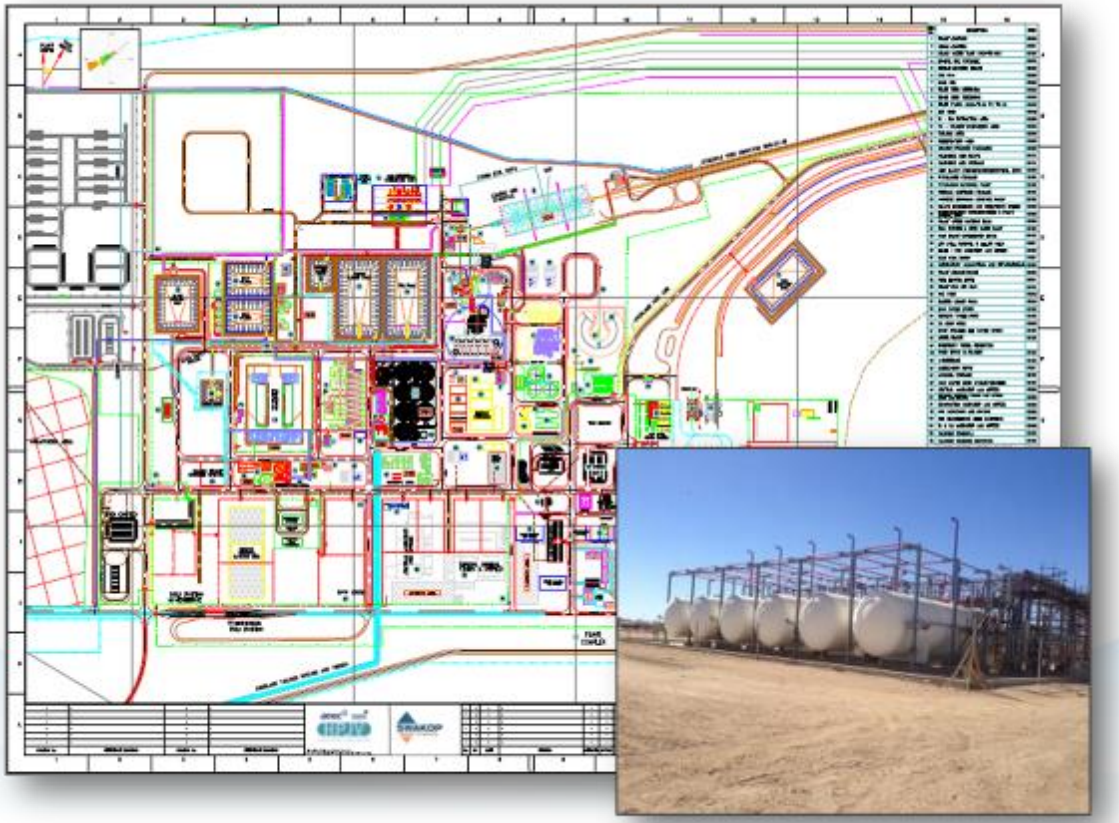


Human nose can detect ammonia at 5ppm (parts per million) 0.0005% in air.

Rule of Exposure:

- **5 ppm** - You can **smell** it
- **50 ppm** - It can **harm** you
- **300 ppm** - **IDLH** – Immediate Danger to Life & Health
- **5,000 ppm** (0.5%) - It can **kill** you!

WHERE IS THE AMMONIA YARD ON SITE?



Anhydrous Ammonia: Hazards	
	H280: Contains gas under pressure; may explode if heated H221: Flammable gas
	H331: Toxic if inhaled
	H314: Causes severe skin burns and eye damage H318: Causes serious eye damage
	H400: Very toxic to aquatic life H411: Toxic to aquatic life with long lasting effects

- Area 3100 (47)
- Western side of Processing Plant
- 6 x 60 tons storage vessels
- Transferred as a gas via pipelines to the required areas
- Used to produce U3O8 in the Recovery section.

Ammonia water

- This is **BAD because**
  - ✓ Ammonia attacks the moist areas of the body,
  - ✓ Body is made up of 85% water
  - ✓ The eye alone is made out of 90% water, exposure can result in immediate damage of the eyes without any PPE.

- This is **GOOD because**:
  - ✓ Water can be used to absorb and control a ammonia vapour release with water sprayers.
  - ✓ Water can be used as a first-aid treatment for ammonia exposure by dilution of the effected area. Flush area for at least 20 minutes.

AMMONIA AWARENESS

Ammonia Emergency

Detectors activate at 200ppm → Alarm sounded → Move to the muster/gas room

- If you smell, see , or hear the ammonia emergency alarm, you must :
  - ✓ Move directly to the Ammonia Muster Room or Gas escape Room in your area.
  - ✓ Avoid the affected area and remain upwind (Check wind direction)
  - ✓ Follow Ammonia Muster Room/Gas Escape Room rules.
  - ✓ Remain there until ‘all clear’ alarm is sounded.

All Clear siren

11

SAFE JOB PROCEDURES

LIFE SAVING RULES

- The Life-Saving Rules (LSR) procedure has been developed in line with the Swakop Uranium (SU) incident records, risk assessments and the broader mining industry best practice, with the objective to ensure workplace safety above everything else.

- The procedure applies to all SU employees within all departments, contractors and service providers who are directly engaged in any activities on SU's property or area of operation.

- **The consequence of violating the LSR is a fatality or serious injury and SU management is committed to the prevention thereof. Note that deliberate or repeated failure to comply with Life-Saving Rules is a disciplinary offence in terms of the Disciplinary Regulation procedure.**

LIFE SAVING RULES

Rule 1: Alcohol and Drugs

Being in the possession or under the influence of alcohol or illegal drugs is strictly prohibited

Rule 2: Working at Heights

Fall protection to be utilised at all times when working at heights of more than 1.8m

Rule 3: Isolation and Lock-out

Always Isolate and lock-out any source of energy when working on machinery or equipment.

Rule 4: Confined Space

Always enter a confined space with a valid confined space permit and adhere to the permit conditions.

Rule 5: Lifting Operations

Never work or walk under a suspended load or within the lift exclusion zone of a load

Rule 6: Vehicles and Driving

Ensure you are licensed to operate equipment and the equipment is fit for use.

LIFE SAVING RULES

Rule 7: Slope Failure

High wall approach permit and SSHER Risk Assessment required when approaching the high Risk Zone of a high wall.

Rule 8: Heavy Mobile Equipment

Make positive contact before entering the 50m radius of Heavy Mobile Equipment (HME).

Rule 9: Chemicals & Hazardous Substances

Handle chemicals and hazardous substances in accordance with Safety Data Sheet.

Rule 10: Hot Works

Conduct hot work with a valid hot work permit and adhere to the permit conditions at all times.

Hot work only to commence when all potential flammable and combustible materials are isolated and removed.

JOB SAFETY-RISK ASSESSMENT

- **What is a hazard?**
  - ✓ Anything that can cause harm
- **What is a risk?**
  - ✓ Is any chance that someone will be harmed by the hazard.
- **What is risk assessment**
  - ✓ When you identify hazards
  - ✓ Analyses or evaluate the risk associated with that hazard
  - ✓ Determine appropriate ways to eliminate or control the hazard

ON THE JOB SAFETY

- Most incidents and accidents are direct results of unsafe acts.

Always ask yourself the following questions before commencing the job/task.	Answer
Am I trained to do the job?	√
Do I have the permission/authorization?	√
Do have a procedure/plan for the job?	√
Do I have the correct PPE for the job?	√
Do I have the right tools for the job?	√
Are the tools and equipment that I want to use in a good condition?	√
Have I made everyone aware of all the possible hazards and risk?	√
Do I require a permit for this job?	√
Has anything change since I last did the job?	√

HAZARD IDENTIFICATION AND RISK ASSESSMENT

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- **What is hazard identification**

A systematic process of evaluating the potential risk that may be involved in a projected activity or undertaking.

- **5 steps of risk assessment**

Step 1- Identify the hazard i.e. anything that can harm you.

Step 2- Determine who will be harmed and how.

Step 3- Assess the risk and take action.

Step 4- Make a record of the finding.

Step 5- Review the risk assessment.

HAZARD

RISK

CRITICAL RISKS

Symbol	Critical risk	Symbol	Critical risk	Symbol	Critical risk	Symbol	Critical risk
	Falling objects		Stored energy		Pressure testing		Hot works
	Slope failure		Electricity		Vehicle / people interaction		Excavation work
	Radiation		Lifting		HME / vehicles interaction		
	Blasting & explosives		Hazardous substances		Confined spaces		

CRITICAL RISKS MITIGATION MEASURES

Critical Risk	Mitigation
Chemicals and Hazardous Substances	Chemical pre-authorization process to be followed and safe handling to be maintained at all times. Trained person should handle chemicals.
Hot work	Ensure you are in possession of a valid hot work permit, before commencing with any hot work. Hot work must not proceed unless, all potential flammable and combustible materials have been isolated, removed and /or protected from the sources of ignition. Sparks, flame, or heat can travel great distances by various means and may ignite combustibles in other areas more than 12 meters away from the hot work. Ensure all proper controls are placed before conducting Hot works.

PERMIT TO WORK

- **What is a Permit to Work**

It a safe system of work which allows a person to:

- ✓ Optimum safety for people and the environment;
- ✓ Allow for good coordination between activities;
- ✓ Ensure equipment must be safe to work on;
- ✓ All risk associated with the job have been systematically identified and effectively controlled;
- ✓ Full compliance with contractual obligation

PERMIT TO WORK

CGN Swakop Uranium

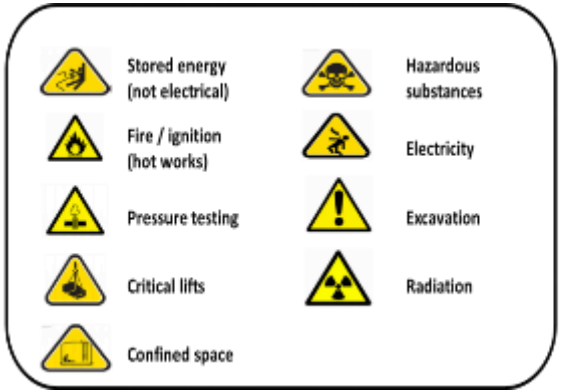
Work Requests – The Essentials!

All Requests shall be accompanied by details of the work plan. This must include the following:

No.	Required Information / Documents	
1	Names of all workers involved in the activity (and evidence of their relevant training / competency)	☑
2	Detailed plan of activities, including plant / equipment required and drawings	☑
3	Risk assessment for the hazards identified across all aspects of the activity	☑
4	Measures that will be employed (including PPE) to protect health & safety	☑
5	Emergency plan / procedure	☑

If anything is missing / unsatisfactory then no work will be authorised!

Priority hazards



Priority hazards are critical hazards which requires additional permits and controls.

CONFINED SPACE

- **A confined space is an enclosed space where one or more of these conditions are present:**

✓ Limited space to work within.

✓ Restricted access and/or limited accessibility.

✓ Restricted/limited airflow with the possibility of gas accumulation or oxygen deficiency.

- **Entrance into Confined Space – when any body part has passed through the opening into the internal space.**

- **Ensure authorization and clearances are in place before entering the confine space by the permit issuer.**

INCIDENT REPORTING

Observation	Near miss	Incident
Recording of a situation that has negative or positive outcome	Unplanned event that did not result in injury, illness, or damage – but had the potential to do so.	Any unplanned, unexpected event that may or may not result into Injury illness or damage.

INCIDENT REPORTING

- **Incident Investigations will be conducted as soon as possible and will include the following:**

✓ All unwanted events must be reported immediately to your supervisor before you leave work.

✓ An unwanted event can be divided into two categories:

✓ Risk behavior

✓ Risk condition

✓ Incident scene not to be disturbed prior to investigation without permission.

✓ Photographs of incident scene to be taken.

✓ Statements taken of all involved and witnesses.

✓ Preliminary report to be submitted to HOD and SSHER manager.

12

PROCESSING PLANT SAFETY

GENERAL SAFETY RULES WHEN ENTERING THE PLANT

- Comply and follow established work procedures;
- Wear an appropriate respirator when required;
- Do not operate any machinery, plant equipment, or mobile equipment without proper training or authorization;
- Clarify correct procedures when in doubt;
- Reinstall any guards removed from equipment;
- Monitor all plant work areas for any buildup of dirt or debris;
- Keep chemical storage areas clean and organized;
- Know the MSDS (Material Safety Data Sheet) for each reagent in your section
- Comply with the safety precautions and PPE and the **Chin strap has been declare compulsory for the processing plant area.**

- Keep away from moving equipment, and never under estimate the power of the machine;
- Be on the look-out for damaged electrical equipment or cables;
- If there is a spillage in your section, clean it up immediately;
- Never enter a area you do not have authority to enter or operate;
- No one should do a task without supervision unless they are competent;
- Be extra careful when you begin to feel tired, because you can endanger yourself and every one else.
- Be aware of Potential hazards;

GENERAL HIGH RISK HAZARDS IN THE PLANT

- Moving equipment (crushers, conveyers, etc.).
- Elevated areas MAKE USE OF THE 3 POINT CONTACT RULE.
- Improper or loose guarding
- Spillages – (ore or oil).
- Electrical shock
- Fire – (friction on conveyors, idlers, etc.).
- Flying and falling objects(crushing, rock breaking, ore transfer points, etc.). – ALWAYS MAKE SURE TO HAVE A 3 DIMENSIONAL VIEW.

- Fatigue
- Noise
- Dust
- Exposure to hazardous chemicals
- Manual handling
- Uranium dust and gasses
- Confined Spaces
- Human error and carelessness
- Flammable substances

HAZARD IDENTIFICATION: PROCESSING AREA

Hazard	Prevention
▪ The exposure of hazardous chemicals	▪ Know the pipeline color coding, MSDS.
▪ Manual Handling	▪ Apply correct lifting techniques
▪ Dust	▪ Always wear the correct PPE
▪ Improper or loose guarding	▪ Report loose guarding to Team leader
▪ Flying and Falling Objects	▪ Always wear your hard hat
▪ Moving equipment in the plant area	▪ Be visible to operator at all times
▪ Spillages	▪ Ensure proper house keeping is done
▪ Electrical shock	▪ Do isolation before working on any electrical components

HIGH RISK AREA SX SECTION: RISK FIRE

- Access to the SX plant is restricted and entrance is controlled by strict security measures.
- Ensure that you are adequately equipped with the required safety apparel before entering the plant.
- Any combustible materials must be placed in the pigeonholes at the security cubicle.
- Authorization for entry of vehicles will only be approved by the SX team leaders.
- Vehicles leaking petrol, diesel or oil are prohibited from entering.
- No vehicles are allowed to park overnight within the SX fence.
- All hot work will require Proto team to be present, work must not start until such controls are in place.
- Any piece of plant equipment requiring discarding or removal from the SX plant must be cleaned thoroughly.
- Never ever create sparks or other sources of ignition.
- Always carry an approved radio, for effective communication.
- Do not use metal tools in the SX plant unless they are used individually.
- All maintenance tools must be intrinsic safe.
- Since all pipelines and tanks contains acidic and or organic mix, always check for leaks from any source.

HIGH RISK AREAS – FPR SECTION: EXPOSURE TO RADIATION

- All visitors should report to the security control room when entering the FPR change house.
- The security personnel will provide visitor with a log book.
- The security will notify the laundry personnel to accompany the visitor to the Clean side of the change house.
- After the visit to the FPR building, the visitor will exit the FPR building and enter the change house Dirty Side.
- The visitor will dispose the used PPE in the appropriate bins provided.
- The visitor will pass through the showers to the Clean Area, and dress in his/her personnel clothing.
- The security personnel will do a 360 degree contaminated scanning.
- Should the scanner detect any uranium dust contamination, the visitor will be asked promptly to take a shower again.
- The visitor will only leave the change house when the scanner shows contamination levels below 0.4Bq/cm2.
- Standard respiratory masks(half face respirators) are issued and should be worn in FPR plant, to prevent breathing in fine particles of uranium bearing dust in the atmosphere.
- Wear the appropriate protective clothing when working with radioactive materials.
- FPR employees- DO NOT BYPASS showers.
- All employees – DO NOT LEAVE the mine with CONTAMINATED clothing.
- Comply with the radiation safety procedures regarding regular testing and monitoring. Do not leave the area without testing for contamination

HIGH RISK AREAS – ACID PLANT : RISK FIRE

- Safety in handling sulphur, whether as a solid or liquid, requires adequate precautions against possible dangers.

- If ignited by a flame, static electricity or friction spark, sulphur will burn in air, yielding acrid fumes of sulphur dioxide(SO_2).

- Sulphur is non-toxic, but dust respirators and dust tight goggles should be worn when handling solid sulphur.

- Sulphuric acid is very toxic.

- It may be fatal if inhaled or swallowed and is corrosive to the eyes, skin and respiratory tract.

- Before working in operating areas where sulfuric acid may be used, all personnel are responsible for knowing it's properties, characteristics and hazards.

- Wear goggles, acid-resistant protective clothing, and personal protective equipment at all times when working in the acid makeup and storage area.

- Full PPE is required when making repairs on open sulfuric acid systems, transferring acid out of a shipment vessel, and any other time there is a significant risk of exposure to sulfuric acid.

- Permission must be obtained from the Team leader or the Control Room Operator.

- Visitors needs an escort in the Acid section.

- Induction has to be completed before any access will be permitted.

13

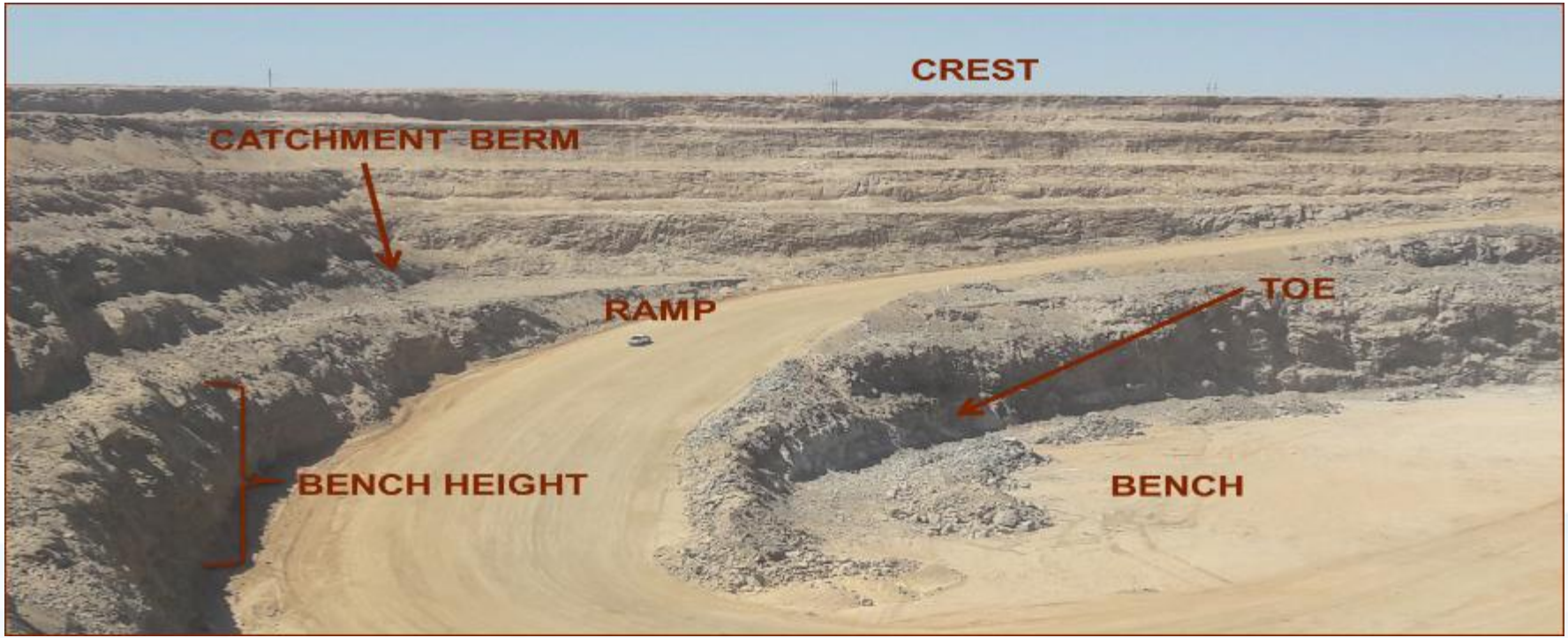
MINE SITE SAFETY

GENERAL MINE SITE SAFETY RULES

- Ensure that you are authorized to enter the mining site area;
- Be aware of Blasting notices;
- Be aware of Earth Moving Mining equipment;
- Employees are not permitted to be in possession of a mobile device whilst in the mining area, unless authorized;
- To be in possession of a cellphone approval must be acquired from the HOD-Mining;
- The driver of the vehicle, is not allowed to use a mobile phone, while he/she is driving;
- Following distance behind any vehicle shall not be less than 50M;

- Two way radio communication is used to make all personnel entering the open pit area aware of the requirements;
- Communication on the radio is strictly for work purpose, no casual conversations are allowed;
- Never interrupt while someone else is using the radio unless it is an emergency;
- It is an offense to swear or use abusive language on the radio;
- Official language(English) must be used at all times;
- Radio silence is to be maintained under the following circumstances:
- During blast periods-radio conversation will be restricted to blasting personnel and other personnel involved in the blasting operation.
- During emergencies-radio conversation are restricted to key operations personnel and emergency services.

MINING TERMS



FATAL AND HIGH RISK HAZARDS IN MINING AREA

- Fire and Explosion
- Light Delivery Vehicles and Heavy Machinery Equipment.
- Slope Monitoring
- Unauthorized entry in to the pit.
- Electricity
- Moving Equipment
- Elevated areas(Make use of the 3 point contact rule)
- Improper or loose guarding
- Spillage- ore or oil
- Flying and falling objects
- Fatigue
- Noise
- Dust
- Exposure to hazardous chemicals
- Manual handling
- Uranium dust and gasses
- Confined space
- Human Error and carelessness
- Flammable substances

HAZARD IDENTIFICATION: MINING AREA

Hazards	Prevention
• Heavy Mining equipment and Light Vehicle Interaction	• Stay clear of mobile equipment.(50M)
• Blasting	• Know the blasting times, schedule and siren
• Rock spillages	• Avoid driving over stones and boulders.
• Dust	• Wear correct PPE and equipment
• Weather Conditions	• Take caution in extreme weather conditions.(Heat stress)
• Working near high walls	• Stay clear of High Risk Zone(HRZ)15M

ELECTRICAL SAFETY

- **When working around electrical cables:**

✓ The driver of the self-propelled mobile equipment is responsible to ensure that there is enough clearance when driving underneath overhead electrical cables.

✓ If there are any uncertainty, park at least 10M away in a safe place and report to the mining supervisor.

- **If the equipment makes contact with the electrical cables**

✓ Stop and report the incident to dispatch/supervisor immediately

✓ Remain in the equipment or vehicle, until safe to disembark

- **Exposed or trailing electrical cables are not to be crossed, unless suitable bridges are provided to fit the purpose**

SPILLAGES

Clearing Rock Spillage

- ✓ Avoid driving over stones and boulders as far as possible.
- ✓ Rock spillages should be cleared from the flat haul roads by the driver or his passengers except in cases of in-pit ramps, but ensure correct lifting procedure.
- ✓ If there is too much spillage or the rocks are too large to be manually handled, call a Grader/Tyre dozer on the radio, using Load & Haul channel.

WORKING CLOSE TO A HIGH WALL

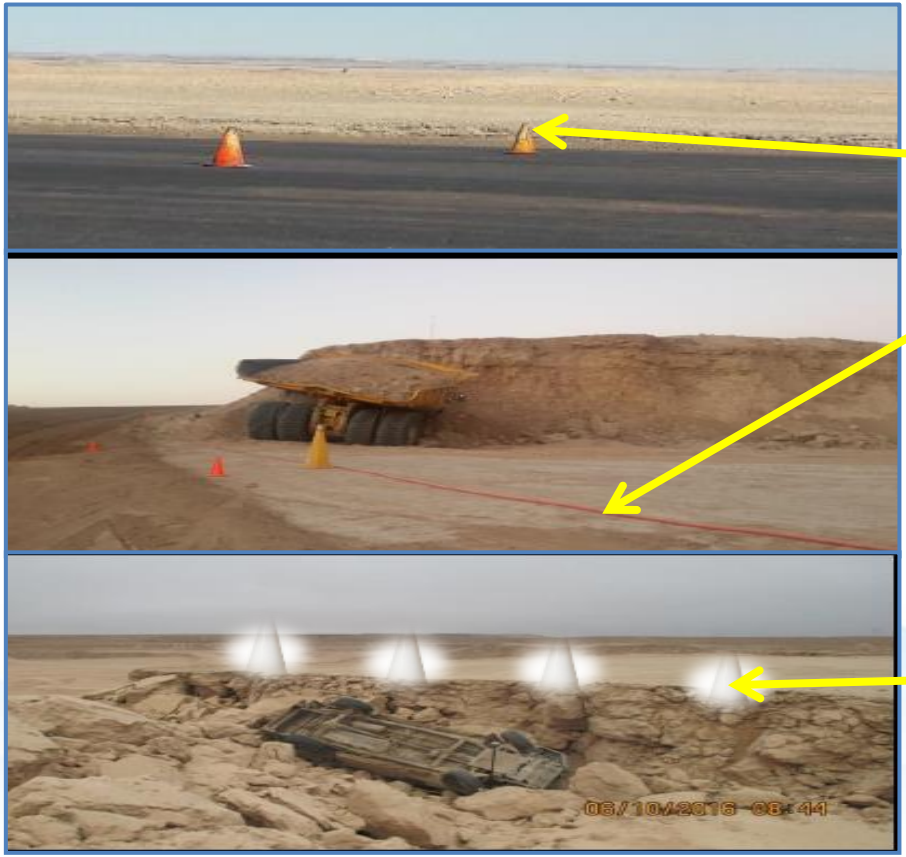
- A High Risk Zone (HRZ) is defined where there is high risk due to falling of loose rocks, boulders or wedges from high walls.
- All open pit employees will receive general awareness training on working in close proximity to high walls.
- A high wall inspection team will over re-inspect HRZ after reviewing recommendations from the Geotechnical geologist.
- NO ONE will be allowed to work within defined HRZ unless:
  - ✓ Is a holder of a High wall Approach Permit (HWAP) or
  - ✓ Is under direct supervision of a HWAP holder.

DEMARCATION STANDARDS

BLUE CONE DEMARCATION INDICATE **DRILLING** IN PROGRESS

RED CONE DEMARCATION INDICATE **BLASTING** IN PROGRESS

DEMARCATION STANDARDS



ORANGE CONES – NO GO AREA, ELECTRIC CABLING, HAZARDOUS AREA

WHITE CONE DEMARCATION INDICATE - CREST

BLINDSPOTS: MINING EQUIPMENT

- **What is a blindspot**
- Any area where a driver's visibility is obstructed whilst behind the driver's seat.
- Blind spots around mining equipment can be FATAL.
- Always ensure, when approaching mining equipment, you remain visible to the operator.
- Acquire permission from the equipment operator, if and when you need to park within 15m of the equipment.
- The following photograph depicts visibility of the equipment operator.
- Visibility of operator from equipment cab.

- **Always maintain 50m radius from equipment**

IMPORTANT SIGNALS/SIRENS TO REMEMBER

CGN Swakop Uranium

Haul truck hooter signals

1 Short horn -stand clear, equipment is about to start up.

2 Short horns - equipment moving in a forward motion.

3 Short horns – equipment is going to reverse

1 Continuous horn – equipment about to turn right (beware of the truck's blind spot)

CONCLUSION

- Make sure you always work safely, any time you are in doubt as to correct procedures, request clarification from your team leader or Control Room Operator;
- Never put a co-worker at risk;
- Adhere to SU policies and procedures;
- Use the correct PPE and equipment as provided;
- Not misuse or damage any equipment;
- Immediately report any hazards you cannot fix.

SSHER TEAM

SSHER	Section	Superintendent	Senior Officer Groups		Inspectors
HOD Li Le Deputy HOD Justus Tsauseb	Safety	Angelika Nakatana (Acting)	MIN & MRM	Angelika Nakatana	• Wilfred Buys Shift A • Request Haraseb Shift B • Emlynn Jackson Shift C • Richelous Xoagub Shift D • Rowland O'Brian Day Shift • Selma Kalimbo Day Shift
			MMD	Denise Neels	
			PRO-Operations	Oscar Ihuhua	
			PRO-Maintenance	Klemens Kahengutji	
			PPD, SCM & Services	Beauty Gaeses	
			IMS	Cory Sun, Zelda Muukua, Amon Gaoseb	
	Environment	Carlene Binneman	Environment	Itaveleni Mupewa, Michael Binneman, Immanuel Kalomo, Ilka Schroer, Liezl Bezuidenhout, Jazzman Kandjai, James Mutenda, Levi Ipinge	
	Radiation and Occupational Hygiene	Fulencia Louw	Radiation	Rebecca Bengela, Efraim Ihemba , Adriaan van der Merwe & Oa-mite Hoebeb	
			Occupation and Hygiene	Meghan Scheffers & Marlon Izaks,	
	Security and Emergency	Hendrik Steyn	Security	Likius Shawelaka, Angelo Lopez & Alfred Auchab,	
			Emergency and Fire	Levi Nangolo	

Thank You