RioTinto

Rössing Uranium

Working for Namibia

2018

Radiation safety calendar

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2018

Radiation safety calendar

Lifesaving rules

January

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

February

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

March

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

April

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

May

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

June

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

July

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

August

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

September

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

October

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

November

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

December

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

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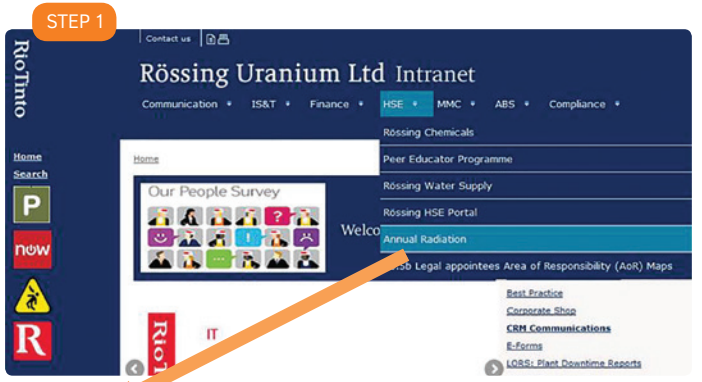
January Week 1		Notes
Mon	1	
Tue	2	
Wed	3	
Thu	4	
Fri	5	
Sat	6	
Sun	7	

How can I find out my own occupational radiation dose?



For more information, contact Radiation Safety

January Week 2		Notes
Mon	8	
Tue	9	
Wed	10	
Thu	11	
Fri	12	
Sat	13	
Sun	14	

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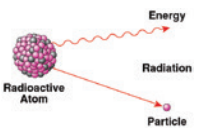
Lifesaving rules

Rössing Uranium emergency number: **2444**

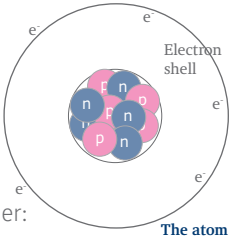
January Week 3		Notes
Mon	15	
Tue	16	
Wed	17	
Thu	18	
Fri	19	
Sat	20	
Sun	21	

What is radioactivity?



The nucleus of an atom contains nucleons:

- p — protons (charge +)
- n — neutrons (no charge)

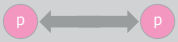


The nucleons are all **crowded** into a very small space in the nucleus.

The forces acting in the nucleus fight each other:

The **strong force** binds nucleons together.

The **electromagnetic force** pushes protons (charge +) apart.

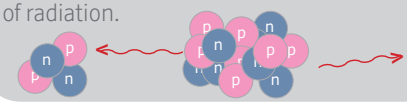


Which force is stronger?

- Over **short** distances, the **strong** force wins.
- Over **long** distances, the **electromagnetic** force wins.

Small nuclei (Helium, Carbon) are **stable**: the nucleons fit into a small space.

Large nuclei (Uranium, Radon) are **unstable**: the nucleons do not fit into a small space; the strong force cannot hold them together. This is the origin of radioactivity: the nucleus starts losing particles, which are emitted in the form of radiation.



For more information, contact Radiation Safety

January Week 4		Notes
Mon	22	
Tue	23	
Wed	24	
Thu	25	
Fri	26	
Sat	27	
Sun	28	

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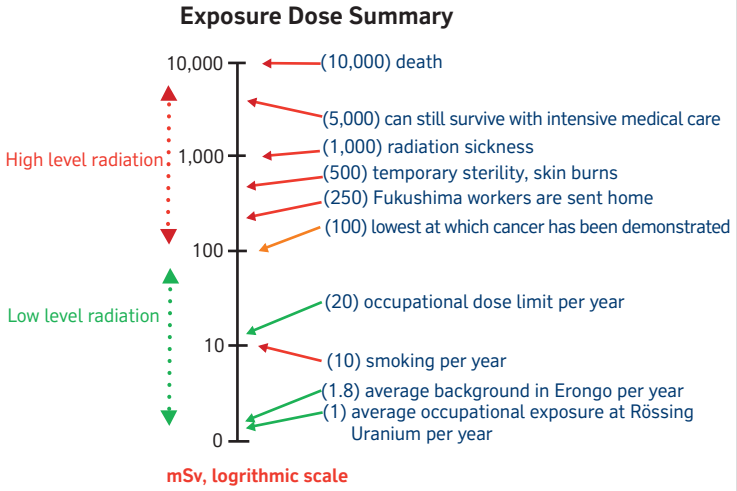
Jan/Feb Week 5		Notes
Mon	29	
Tue	30	
Wed	31	
Thu	1	
Fri	2	
Sat	3	
Sun	4	

How much radiation is too much?

High radiation doses are almost never experienced in everyday life. They may occur during nuclear bomb explosions or during nuclear accidents.

Any radiation exposure below 100 mSv per year is considered low, because no effects are documented below this threshold. Low radiation doses are experienced every day, by everyone.

Some characteristic radiation levels are shown in the graphic below.



For more information, contact Radiation Safety

February Week 6		Notes
Mon	5	
Tue	6	
Wed	7	
Thu	8	
Fri	9	
Sat	10	
Sun	11	

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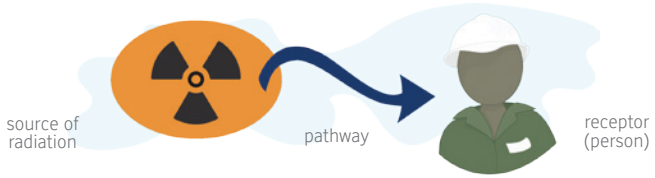
Lifesaving rules

Rössing Uranium emergency number: **2444**

February Week 7		Notes
Mon	12	
Tue	13	
Wed	14	
Thu	15	
Fri	16	
Sat	17	
Sun	18	

How does a radiation exposure risk occur?

A risk of human exposure to ionising radiation exists if there is an exposure pathway from a radiation source to a receptor (a person).



Sources of ionising radiation include:

- Naturally-occurring radioactive materials in our environment (uranium, thorium, potassium)
- Industrially-manufactured radioactive sources used in medicine or industrial measuring (cesium-137, cadmium-109, iodine-131 and many more)
- Industrial X-ray sources for medical, industrial measurement or security applications
- Cosmic radiation (high-energy particles and electromagnetic radiation) from the sun and deep space, and
- Radon gas (occurs everywhere in the air, at concentrations that depend on the uranium content of the soil).

The **exposure pathway** describes the method by which receptors (people) can get exposed to radiation, that is:

- External exposure: direct irradiation (mostly by gamma rays, which are the most penetrating form of radiation)
- Internal exposure from inhaling (breathing in) radon gas and radon gas decay products
- Internal exposure from inhaling radioactive particles contained in dust, and
- Internal exposure from ingesting (eating or drinking) radioactive materials.

For more information, contact Radiation Safety

February Week 8		Notes
Mon	19	
Tue	20	
Wed	21	
Thu	22	
Fri	23	
Sat	24	
Sun	25	

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Feb/Mar Week 9		Notes
Mon	26	
Tue	27	
Wed	28	
Thu	1	
Fri	2	
Sat	3	
Sun	4	

What are radiation exposure pathways?

How can we be exposed to ionising radiation?

There are four different exposure pathways:

Exposure pathway:
The way a person can be exposed to ionising radiation.

External (from outside our bodies)

1. Exposure to **gamma rays in our environment** – at the mine this could include radiation from uranium ore, drums containing radioactive materials, radioactive deposits (scales) on pipes etc.

Internal (inside our bodies)

2. **Inhalation**: breathing in dust or fumes that are radioactive (including cigarette smoke).

3. **Inhalation**: breathing in radon decay progeny (radioactive decay products of radon gas).

4. **Ingestion** Consuming radionuclides which are in or on our food or drink.

For more information, contact Radiation Safety

March Week 10		Notes
Mon	5	
Tue	6	
Wed	7	
Thu	8	
Fri	9	
Sat	10	
Sun	11	

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Lifesaving rules

Rössing Uranium emergency number: **2444**

March Week 11		Notes
Mon	12	
Tue	13	
Wed	14	
Thu	15	
Fri	16	
Sat	17	
Sun	18	

What are the workplace limits for radiation control at Rössing?

Dose levels in all areas and for all people must be '**ALARA**' (as low as reasonably achievable, economic and social factors considered).

- International occupational dose limit: 100 mSv over a defined 5-year period (20 mSv per year on average)
- Public dose limit (applies to pregnant workers): 5 mSv over a defined 5-year period (1 mSv per year on average)
- Radon concentration in workplaces: 1,000 Bq/m^3
- Radioactive surface contamination for items to be cleared from site: less than 0.4 Bq/cm^2 (averaged over 300 cm^2)
- Radioactive surface contamination in contaminated workplaces (such as Final Product Recovery area): 4 Bq/cm^2. Our target for 2018 is to not exceed 1.0 Bq/cm^2 on average.
- Radioactive dust inhalation in Final Product Recovery area: our target is to not exceed a dust dose rate of 10 µSv per hour (not considering respirator protection factor), and to keep the levels 'ALARA'.

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March Week 12		Notes
Mon	19	
Tue	20	
Wed	21	
Thu	22	
Fri	23	
Sat	24	
Sun	25	

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Mar/Apr Week 13		Notes
Mon	26	
Tue	27	
Wed	28	
Thu	29	
Fri	30	
Sat	31	
Sun	1	

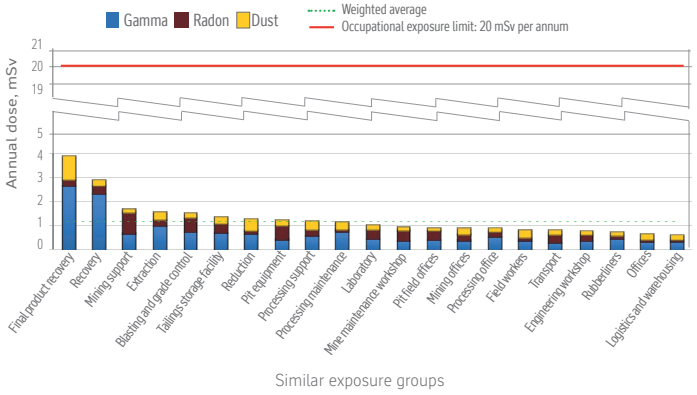
What is the occupational radiation exposure at Rössing Uranium?

Key Facts

- The annual exposure limit for workers is, by law, 20 mSv per annum.
- International studies show that an excess cancer risk from exposure to ionising radiation can only be demonstrated above a dose of 100 mSv.

The dose

- At Rössing Uranium, the average occupational dose is well below the legal limit.
- The average annual dose for each similar exposure group can be read from the graph below.



For more information, contact Radiation Safety

April Week 14		Notes
Mon	2	
Tue	3	
Wed	4	
Thu	5	
Fri	6	
Sat	7	
Sun	8	

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Rössing Uranium emergency number: **2444**

April Week 15		Notes
Mon	9	
Tue	10	
Wed	11	
Thu	12	
Fri	13	
Sat	14	
Sun	15	

Do I need a radiation clearance?

NO CLEARANCE NEEDED for materials from Office areas, Mining areas, Labs, Crushing areas and Stores.

A CLEARANCE IS NEEDED for all areas of the Processing Plant, ie Machine Shop, CIX, SX, Thickeners, Leaching, Snake Pit, FPR, Grit Blasting, Rubberlining Workshop, Plate Shop, Tailings or any workshop handling parts from the Processing Plant.

NOT TO BE REMOVED FROM SITE:

For more information, contact Radiation Safety

April Week 16		Notes
Mon	16	
Tue	17	
Wed	18	
Thu	19	
Fri	20	
Sat	21	
Sun	22	

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April Week 17		Notes
Mon	23	
Tue	24	
Wed	25	
Thu	26	
Fri	27	
Sat	28	
Sun	29	

Which items may be removed from site without clearance from radiation safety?

The following may be removed from site without a radiation clearance:

For more information, contact Radiation Safety

Apr/May Week 18		Notes
Mon	30	
Tue	1	
Wed	2	
Thu	3	
Fri	4	
Sat	5	
Sun	6	

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Rössing Uranium emergency number: **2444**

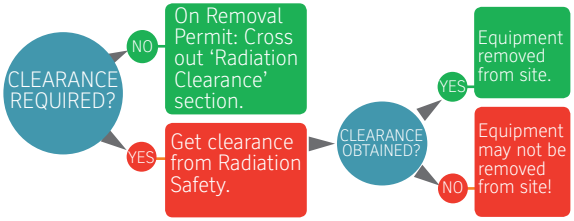
May Week 19		Notes
Mon	7	
Tue	8	
Wed	9	
Thu	10	
Fri	11	
Sat	12	
Sun	13	

How do I get a radiation clearance?

CONTRACTORS
Equipment brought to site: short-term use

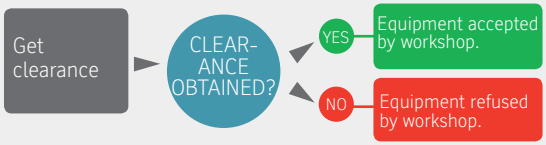

Radiation Clearance Checklist.

EMPLOYEES With Removal Permit




Removal Permit.

WORKSHOP PERSONNEL, ETC.
Temporary removal of items from contaminated areas to onsite workshops.




Radiation clearance form for onsite movement of items.

For more information, contact Radiation Safety

May Week 20		Notes
Mon	14	
Tue	15	
Wed	16	
Thu	17	
Fri	18	
Sat	19	
Sun	20	

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May Week 21		Notes
Mon	21	
Tue	22	
Wed	23	
Thu	24	
Fri	25	
Sat	26	
Sun	27	

What is surface contamination?

Radioactive material which has been deposited on surfaces such as floors, tools, benches, etc., is called surface contamination.

Loose (non-fixed) contamination is a greater hazard than fixed contamination because it can lead to internal exposure. There are two ways in which it may enter the body:

- It can be transferred to exposed skin from which it may find its way into the mouth.
- It can be inhaled as a result of re-suspension into the air. Re-suspension is caused by work activity and traffic.

Eating, drinking, smoking, and any actions which could lead to ingestion are restricted in all areas which can become contaminated with loose contamination.

Spreading contamination can be prevented by:

- Keeping contaminated PPE on site and cleaning it on site.
- Measuring contamination levels of tools and equipment intended to be transported off site, and detaining contaminated objects on site (only uncontaminated equipment is “cleared”).

For more information, contact Radiation Safety

May/Jun Week 22		Notes
Mon	28	
Tue	29	
Wed	30	
Thu	31	
Fri	1	
Sat	2	
Sun	3	

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June Week 23		Notes
Mon	4	
Tue	5	
Wed	6	
Thu	7	
Fri	8	
Sat	9	
Sun	10	

How do I control exposure to penetrating radiation?

How can exposure to penetrating (gamma) radiation be minimised?

Time:

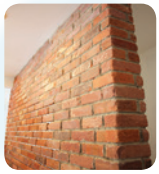
Limit the time spent in radiation areas to a minimum.

Distance:

Increase the distance between you and any radiation source to a maximum.

Shielding:

Shield radiation sources with lead or concrete.



For more information, contact Radiation Safety

June Week 24		Notes
Mon	11	
Tue	12	
Wed	13	
Thu	14	
Fri	15	
Sat	16	
Sun	17	

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June Week 25		Notes
Mon	18	
Tue	19	
Wed	20	
Thu	21	
Fri	22	
Sat	23	
Sun	24	

How do we prevent internal exposure from ingestion?

Great care must be taken to prevent ingestion or inhalation of uranium dust:

Do not eat outside. Use only the designated lunch rooms and make sure your hands and eating surfaces are clean before eating.

No matter how much or how little you eat: always wash your hands thoroughly before eating and drinking.

Use your respiratory protection to prevent inhalation of dust if it is dusty in your area.

Smoking is the biggest health hazard after HIV in Namibia. If you must smoke, make sure your hands are clean.

For more information, contact Radiation Safety

Jun/Jul Week 26		Notes
Mon	25	
Tue	26	
Wed	27	
Thu	28	
Fri	29	
Sat	30	
Sun	1	

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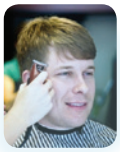
July Week 27		Notes
Mon	2	
Tue	3	
Wed	4	
Thu	5	
Fri	6	
Sat	7	
Sun	8	

How do we ensure the effectiveness of respiratory protection?

An important exposure pathway is the inhalation of ore dust (low grade uranium ore) or uranium dust (concentrated uranium from Final Product Recovery). The pathway can be significantly reduced by wearing respiratory protection: dust masks for preventing the inhalation of ore dust, or respirators for preventing the inhalation of uranium dust.

Respiratory protection is only effective if:



- The face is clean shaven.
- The respirator/dust mask is fit tested properly to the person.
- The respirator/dust mask is fitted properly and worn consistently.
- The respirator cartridge/dust mask is replaced regularly (after 40 working hours for high dust environments, after 80 hours for medium dust environments).
- The respirator is cleaned and maintained properly.

For more information, contact Radiation Safety

July Week 28		Notes
Mon	9	
Tue	10	
Wed	11	
Thu	12	
Fri	13	
Sat	14	
Sun	15	

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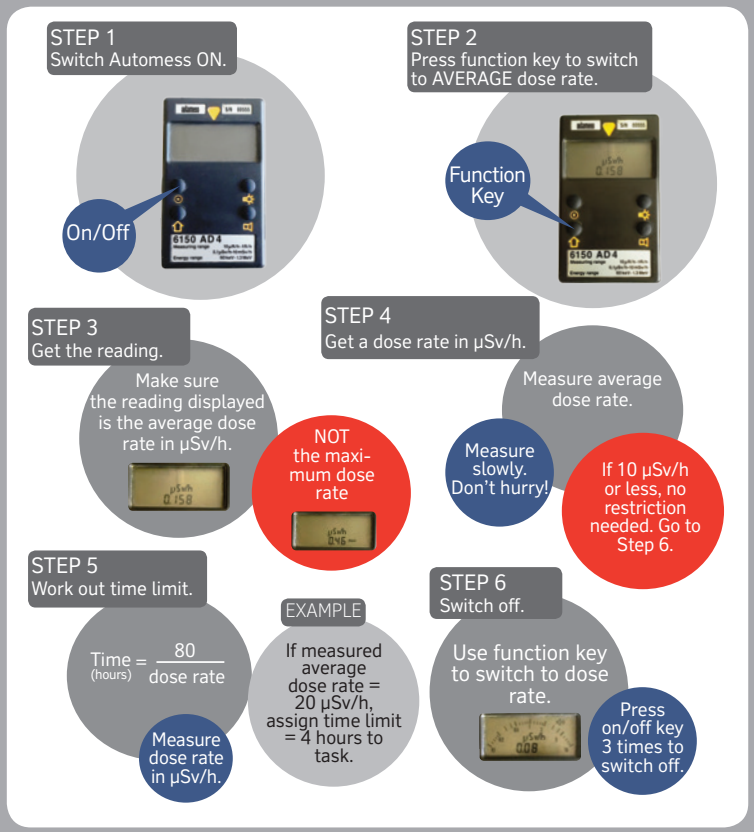
July Week 29		Notes
Mon	16	
Tue	17	
Wed	18	
Thu	19	
Fri	20	
Sat	21	
Sun	22	

How do I issue time restrictions using the Automess instrument?



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July Week 30		Notes
Mon	23	
Tue	24	
Wed	25	
Thu	26	
Fri	27	
Sat	28	
Sun	29	

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Jul/Aug Week 31		Notes
Mon	30	
Tue	31	
Wed	1	
Thu	2	
Fri	3	
Sat	4	
Sun	5	

How do I use a Tracerco personal electronic dosimeter?

STEP 1

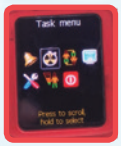
Switch instrument on by pressing button for 3 seconds.

STEP 2

Hold button for menu.

STEP 3

Scroll to task menu and select using button.



STEP 4

Scroll to 'Start Task' and select using button.

STEP 5 Read dose rate, peak dose rate and total dose for shift from display.

Dose rate in µSv/h:

Green: < 10 µSv/h
Amber: 10 – 100 µSv/h
Red: > 100 µSv/h

Peak dose rate in µSv/h

Total dose for user in µSv:
Green: < 75 µSv
Amber: 75 – 2,000 µSv
Red: > 2,000 µSv

The dose for the shift should not exceed 80 µSv!

STEP 6

After work, use button to scroll to Task Menu, Select 'Stop task'.

STEP 7

Scroll to On/ OFF, press button again to switch off.

For more information, contact Radiation Safety

August Week 32		Notes
Mon	6	
Tue	7	
Wed	8	
Thu	9	
Fri	10	
Sat	11	
Sun	12	

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August Week 33		Notes
Mon	13	
Tue	14	
Wed	15	
Thu	16	
Fri	17	
Sat	18	
Sun	19	

How do I use a thermo-luminescent dosimeter (TLD)?

All workers in areas with a potential radiation exposure exceeding 5 mSv per annum are registered as radiation workers. Radiation workers are issued with a TLD for continuous dose monitoring.

TLD wearers must:

- Always wear your TLD during work, attached to your front pocket.
- Report immediately if you lost your TLD.
- Do not remove your TLD from site.
- Do not give your TLD to others to wear, and check you are wearing the one with your name on it.
- No radiation worker should enter a radiation area without wearing a TLD.
- You can inform yourself about your dose reports by asking about them each time you exchange an old TLD for a new one. You should be aware of your own dose records!

For more information, contact Radiation Safety

August Week 34		Notes
Mon	20	
Tue	21	
Wed	22	
Thu	23	
Fri	24	
Sat	25	
Sun	26	

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Aug/Sept Week 35		Notes
Mon	27	
Tue	28	
Wed	29	
Thu	30	
Fri	31	
Sat	1	
Sun	2	

How are radiation workers monitored?

- At Rössing Uranium, we formally define a radiation worker as someone who may potentially be exposed to a dose of ionising radiation of 5 mSv or more per year in the course of their work.
- All work areas holding the risk of an annual dose of 5 mSv or more are classified as 'controlled radiation areas', which means they are signposted and access to them is restricted.
- Radiation workers must undergo periodic personal radiation monitoring.
- All radiation workers are required to wear their thermo-luminescent dosimeters (TLDs) at all times while at work. Each TLD is issued to a specific person — no one else may use this particular TLD. The wearing period of a TLD is printed on the device to ensure the device is replaced with a fresh one on time.

- All radiation workers undergo monthly urine sampling to test the uranium content of their urine. This measure is used as a check to detect and promptly address accidental ingestion of uranium, should it occur.

- All female radiation workers undergo monthly pregnancy testing. This is to ensure the radiation exposure dose for the duration of any pregnancy can be kept below the public dose limit of 1 mSv per annum above background.

For more information, contact Radiation Safety

September Week 36		Notes
Mon	3	
Tue	4	
Wed	5	
Thu	6	
Fri	7	
Sat	8	
Sun	9	

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September Week 37		Notes
Mon	10	
Tue	11	
Wed	12	
Thu	13	
Fri	14	
Sat	15	
Sun	16	

How do we measure internal radiation exposure?

Workers' internal exposure to alpha radiation (the most ionising type of radiation when exposure occurs inside the body) can come from either of two inhalation sources and pathways:

1. Inhalation (breathing in) dust containing alpha emitting radionuclides, or

2. Inhaling air with radon gas decay products, which are alpha emitters.

These two internal inhalation exposures are measured separately with personal measuring devices:

MyRIAM instrument

MyRIAM instrument
Radioactive dust that might be inhaled by the worker is sampled with the MyRIAM instrument, using a small internal pump that forces air through a filter.

DoseManPro monitor

DoseManPro Monitor
Radon decay products in air that might be inhaled are sampled with the DoseManPro monitor, which also pumps air through an internal filter, collecting radon daughter products on the filter.

For more information, contact Radiation Safety

September Week 38		Notes
Mon	17	
Tue	18	
Wed	19	
Thu	20	
Fri	21	
Sat	22	
Sun	23	

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September Week 39		Notes
Mon	24	
Tue	25	
Wed	26	
Thu	27	
Fri	28	
Sat	29	
Sun	30	

How do we measure external radiation exposure?

Workers' external exposure to gamma rays (penetrating radiation from their environment) is measured directly using personal dosimeters. There are two types of dosimeter in use at the Rössing Uranium mine:

Thermo Luminescent Dosimeters (TLDs) are used for designated radiation workers – people who are monitored continuously since they work in areas where the ambient radiation exceeds background levels. TLD badges are worn for a period of 12 weeks and are then returned to the supplier for analysis and re-setting.

Electronic Personal Dosimeters (EPDs) are used for short term monitoring of penetrating radiation, when this is needed.

These dosimeters indicate a direct reading, which means the monitoring result for the wearing period (one day, or sometimes only a few hours) can be known immediately.

TLD: Worn every shift for a period of 12 weeks.

Thermo-Luminescent Dosimeters

Electronic Personal Dosimeters

EPD: Worn for a few hours or one day. Instant results.

For more information, contact Radiation Safety

October Week 40		Notes
Mon	1	
Tue	2	
Wed	3	
Thu	4	
Fri	5	
Sat	6	
Sun	7	

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October Week 41		Notes
Mon	8	
Tue	9	
Wed	10	
Thu	11	
Fri	12	
Sat	13	
Sun	14	

What special measures are taken with female workers?

At Rössing Uranium, the occupational dose limit is **20 mSv** per year.

The unborn child of a pregnant worker at the Rössing mine is classified as a member of the public. The public dose limit is 1 mSv per year above natural background and medical radiation.

What does this mean?

- The radiation dose for some workers may exceed 1 mSv per year.
- Occupational exposure doses exceeding 1 mSv per year are not compliant with the public dose limit, and must therefore be prevented from occurring in pregnant workers.
- Female workers in areas with an identified increased radiation exposure risk undergo monthly pregnancy testing.

Female worker (occupationally exposed person) and unborn child (member of the public)

For more information, contact Radiation Safety

October Week 42		Notes
Mon	15	
Tue	16	
Wed	17	
Thu	18	
Fri	19	
Sat	20	
Sun	21	

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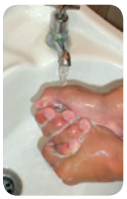
October Week 43		Notes
Mon	22	
Tue	23	
Wed	24	
Thu	25	
Fri	26	
Sat	27	
Sun	28	

Why do we take monthly urine samples of some workers?

Uranium can be accidentally ingested at the workplace, either when eating, drinking or smoking with contaminated hands or through inhalation when respiratory protection fails. Ingestion of uranium can lead to internal radiation exposure.

The risk for internal contamination with uranium only exists in workplaces where uranium has been concentrated and extracted from the ore, i.e. in the Processing Plant, including the areas of SX, CIX, Chemical Laboratories and Final Product Recovery.



Controls for preventing ingestion include respiratory protection and physical separation of the workplace from areas for eating, drinking and smoking, as well as washing facilities.

If traces of uranium are detected in urine, this is a sign that controls are not working adequately and need to be reviewed.

When this happens, the affected worker is informed and the hygienic practices at the workplace, as well as effectiveness of respiratory protection, are investigated and improved if needed.

For more information, contact Radiation Safety

Oct/Nov Week 44		Notes
Mon	29	
Tue	30	
Wed	31	
Thu	1	
Fri	2	
Sat	3	
Sun	4	

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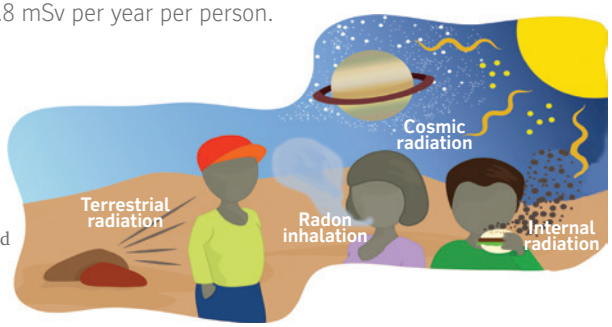
November Week 45		Notes
Mon	5	
Tue	6	
Wed	7	
Thu	8	
Fri	9	
Sat	10	
Sun	11	

What is background radiation?

In the Erongo Region, the total average background radiation is about 1.8 mSv per year per person.



Terrestrial radiation
comes from the rocks and the soil around you.

The annual dose from terrestrial radiation is about 0.6 mSv per person.

Cosmic radiation
is made up of highly energetic particles and electromagnetic waves from the sun and from interstellar space. The earth's atmosphere and its magnetic field shield us from cosmic radiation.

The average annual radiation dose from cosmic radiation is about 0.3 mSv per person.

Internal radiation
comes from the things you eat and drink, the dust you inhale, and the radioactivity in your blood and bones.

On average, the annual internal radiation dose from ingestion and inhalation of particulate matter is about 0.3 mSv per person.

Radon
is a radioactive gas that is emitted from rocks and soils and occurs everywhere in air.

The annual dose from the inhalation of radon decay products is about 0.5 mSv per person.

For more information, contact Radiation Safety

November Week 46		Notes
Mon	12	
Tue	13	
Wed	14	
Thu	15	
Fri	16	
Sat	17	
Sun	18	

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November Week 47		Notes
Mon	19	
Tue	20	
Wed	21	
Thu	22	
Fri	23	
Sat	24	
Sun	25	

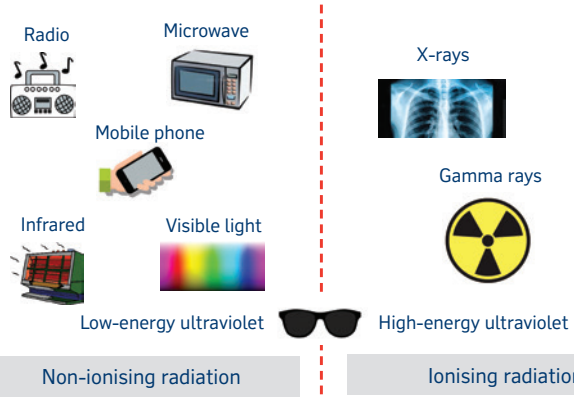
What is electromagnetic radiation?

Electromagnetic radiation is a form of energy that is all around us in many types, such as radio waves, microwaves, sunlight, ultraviolet, X-rays and gamma rays.

Electromagnetic radiation is ionising if it has sufficient energy to ionise matter, ie remove electrons from atoms. This radiation can be harmful to life and includes high-energy UV, x-rays and gamma rays.

Electromagnetic radiation is non-ionising when its energy is too low to interact with matter. Radio, microwaves, visible light and low-energy UV are non-ionising radiation.

Types of electromagnetic radiation



For more information, contact Radiation Safety

Nov/Dec Week 48		Notes
Mon	26	
Tue	27	
Wed	28	
Thu	29	
Fri	30	
Sat	1	
Sun	2	

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December Week 49		Notes
Mon	3	
Tue	4	
Wed	5	
Thu	6	
Fri	7	
Sat	8	
Sun	9	

Is your cell phone dangerous?

Key Facts

- Cell phones release electromagnetic radiation (EMR) every time you talk on the phone.
- There is no clear evidence in the existing scientific literature that the use of mobile telephones poses a long-term public health hazard (although the possibility of a small risk cannot be ruled out).

How to reduce your exposure to EMR from cell phone use:

Hold the phone at the bottom. This reduces the power output necessary for the phone to communicate with the net.

Use a hands-free set to increase the distance between your phone and your brain when talking.

Use the phone in an area of maximum signal to reduce its power output.

Use texting instead of talking where possible. However do not text while driving or walking!

For more information, contact Radiation Safety

December Week 50		Notes
Mon	10	
Tue	11	
Wed	12	
Thu	13	
Fri	14	
Sat	15	
Sun	16	

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December Week 51		Notes
Mon	17	
Tue	18	
Wed	19	
Thu	20	
Fri	21	
Sat	22	
Sun	23	

Does smoking give you an internal radiation dose?

Smoking is a radiation hazard, both for active and for passive smokers.

- Tobacco is traditionally grown using large amounts of phosphate fertiliser, which contains high concentrations of uranium.
- Among the decay products of uranium are radioactive polonium-210 and lead-210, which end up in the lungs of smokers, exposing it to radiation.
- Because of the structure of the airways in the lung, radioactive materials such as polonium-210 get trapped in 'hot spots' in the lung, where they accumulate and continue emitting alpha radiation.
- Alpha radiation is the major internal radiation hazard because alpha particles are particularly ionising inside the body.
- Filters remove only a minor fraction of the radioactive materials from cigarette smoke.
- Smoking 1 pack of cigarettes a day can lead to an annual radiation exposure of 13 mSv.

For more information, contact Radiation Safety

December Week 52		Notes	
Mon	24		
Tue	25		
Wed	26		
Thu	27		
Fri	28		
Sat	29		
Sun	30	Mon	31

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Public Holidays

Monday, 1 January	New Year's Day
Wednesday, 21 March	Independence Day
Friday, 30 March	Good Friday
Monday, 2 April	Easter Monday
Tuesday, 1 May	Workers' Day
Friday, 4 May	Cassinga Day
Thursday, 10 May	Ascension Day
Friday, 25 May	Africa Day
Sunday, 26 August	Heroes' Day
Monday, 27 August	Public holiday
Monday, 10 December	Human Rights Day
	Day of the Namibian women
Tuesday, 25 December	Christmas Day
Wednesday, 26 December	Family Day

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