



# Samphire Uranium Project - Radiation



## WHO IS ALLIGATOR ENERGY?

Alligator Energy Ltd is an Australian exploration company listed on the Australian Stock Exchange (ASX). The company focuses on exploring uranium and other energy-related minerals, with active projects in South Australia and the Northern Territory.

These include the Samphire and Big Lake uranium projects in South Australia, and the Alligator Rivers project in the Northern Territory.



## SAMPHIRE PROJECT OVERVIEW

The Samphire Uranium Project is located around 20 kilometers south of Whyalla in regional South Australia, near the Mullaquana Road area. The project includes two historical uranium deposits, Blackbush and Plumbush.

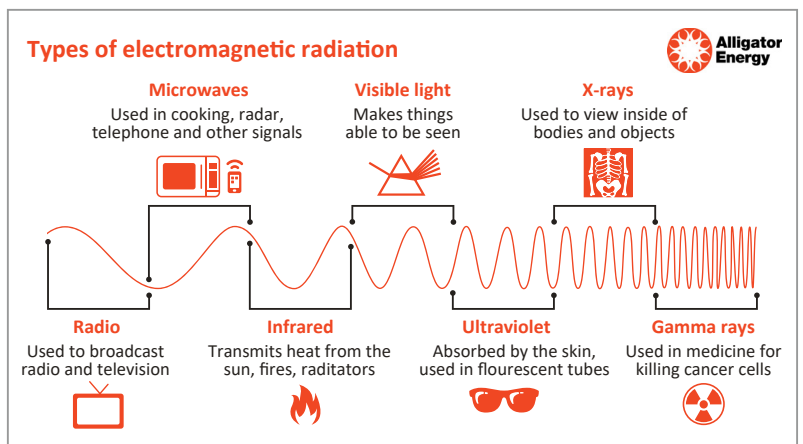
In 2025, Alligator Energy will conduct a short-term small-scale Field Recovery Trial (FRT). The goal of this trial is to test the use of the In-Situ Recovery (ISR) mining method at Samphire. ISR is a mining technique used in around 60% of the world's uranium production and has been safely employed at other mining operations in South Australia and several other countries such as the United States.



## WHAT IS RADIATION?

Radiation is a form of energy that moves in waves or particles from atoms. It is a natural part of our environment, coming from sources such as the sun, the earth (in rocks such as granite), and even some foods. There are various types of radiation, some of which are harmless, like the light we see, and others that can be harmful if there is too much exposure, such as radiation from certain medical treatments or highly radioactive materials.

When uranium mining practices are implemented, they are designed to maintain radiation levels that remain low and within the safe limits we encounter in our daily lives.



## Types of Radiation

Radiation is divided into two categories:

### 1. Natural Radiation:

- Comes from natural sources like the sun and the Earth.
- We're always exposed to it, even when we're indoors.
- The amount of natural radiation we're exposed to varies by location.

### 2. Manmade Radiation:

- Comes from human activities like:
  - Medical treatments (e.g., X-rays, cancer therapy)
  - Nuclear power plants
  - Mines
  - Nuclear tests and weapons

Some manmade radiation is used for saving lives through medical treatments and clean energy.

To find out more about Alligator Energy's projects, you can reach us at:



Call our community line on  
1800 954 140



Email: [feedback@alligatorenergy.com.au](mailto:feedback@alligatorenergy.com.au)



To subscribe to digital updates visit: [alligatorenergy.com.au/projects/samphire](http://alligatorenergy.com.au/projects/samphire)

## WHAT IS URANIUM?

Uranium is a naturally occurring metal found in the Earth's crust, similar to copper or iron. It's found all over the world, but in some areas, like parts of Australia, the concentration is high enough to make mining it worthwhile.

### Uranium and Radiation

Uranium is radioactive, meaning it gives off three types of radiation released from radioactive decay which is a natural process and is important for medical imaging and determining the age of rocks and fossils. They are:

#### 1. Alpha Radiation:

- Weak and low in energy.
- Can only travel a short distance and is stopped by a piece of paper or even the outer layer of skin.
- These particles are not harmful if they stay outside the body but can be dangerous if they enter the body, such as through breathing or swallowing.

#### 2. Beta Radiation:

- Beta particles are fast-moving, high-energy sub-atom particles released from unstable atoms.

#### 3. Gamma Radiation:

- Much stronger and can travel through the air and even through the human body.
- Dense materials like lead or concrete are needed to block gamma radiation.

### How radiation affects the human body

Over the past 60 years, extensive research has been done to study how radiation affects human health. Some key findings include:

- Working in radiation environments is generally safe if radiation levels are kept low and within safe limits.
- There is no strong evidence to suggest that normal radiation exposure causes serious health problems like cancer or genetic diseases.
- Serious health risks only happen with very high levels of radiation exposure (e.g. overexposure to nuclear medicine, nuclear weapons etc.)

### Regulations and safety measures

There are strict rules and regulations to ensure that radiation exposure stays within safe limits. In Australia, organisations like the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and the Environmental Protection Agency (EPA) oversee radiation activities and enforce safety measures.

The risk of radiation exposure from an ISR uranium mine is low due to strict safety measures in place and the nature of the mining process itself. The process happens underground and within sealed pipes, the potential for radiation to escape into the environment is minimal.

ISR operations are highly regulated and monitored by the State and Federal Government and monitored to ensure safety for workers and nearby communities. This includes regular audits and checks on any radiation exposure to workers and the environment.



## MONITORING

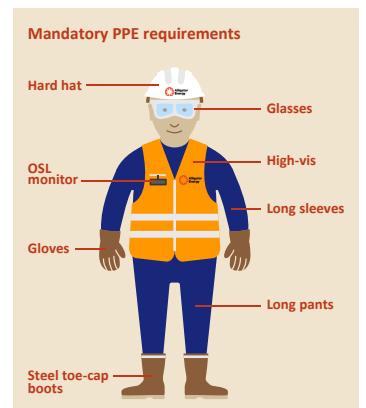
Alligator Energy conducts radiation surveys, and employees are provided with radiation badges (OSL monitor) to measure their exposure to gamma radiation.

- Employees wear these badges during their workday and store them at the end of their shift.
- The badges must be worn at chest level and are not allowed to be taken offsite or left in work areas.



At Alligator Energy, we prioritise safety with multiple layers of protection, including monitoring air, water, and soil quality, managing radon levels, and safeguarding groundwater.

These precautions ensure radiation levels stay well within safe limits.



## RADIATION RISK TO THE COMMUNITY

The risk of radiation exposure to the community from the Samphire uranium project is extremely low. The project is located in a remote area, far from residential zones and the ISR process itself has a significantly lower risks compared to traditional mining.

Additionally, the project is governed by strict safety regulations and is subject to continuous monitoring to ensure that environmental and health standards are met. Advanced technologies are employed to safeguard both the local community and the surrounding environment throughout the trail.



## COMMUNITY ENGAGEMENT

Alligator Energy is committed to building positive, collaborative relationships with stakeholders who may be impacted by or have an interest in our activities. We work closely with local communities to ensure that the land we use is left in a better state than when we began.

Our approach emphasizes environmental care, safety, and health, ensuring that our operations benefit the community while protecting the surrounding environment.

