

Friends of the Earth Melbourne

# Northern Waters: Uranium in Drinking Water in the Northern Territory

2022



# Acknowledgement of Country



Friends of the Earth acknowledges the ongoing struggle for land and rights of indigenous peoples and encourages its members and supporters to be good allies and accomplices in those struggles.

Friends of the Earth actively seeks to work collaboratively with Aboriginal and Torres Strait Islander communities on campaigns, and notes the inseparable nature of environmental considerations from social issues, and this extends to the social, cultural, political and historical context of Australian indigenous people.

We seek to develop alliances with indigenous people to advance their priorities as well as securing good environmental outcomes. Fundamental to this is the commitment not to undermine the decision making structures of indigenous people or ventures simply to gain environmental outcomes.

Friends of the Earth Australia acknowledges the sovereignty of indigenous nations throughout Australia and that sovereignty should be reinstated.

Friends of the Earth work collaboratively with Traditional Owners on our environmental campaigns. To help develop a wider appreciation of indigenous people's land and water management knowledge, and to see that knowledge utilised in care for the natural environment.

An environment movement that provides, where requested, political support, information and resources to Indigenous communities across the world.

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This report was produced in collaboration with the internship program at RMIT University - School of Global, Urban and Social Studies.

# Executive Summary



**Friends of  
the Earth  
Australia**

Access to clean and safe drinking water is one of the most fundamental human rights. Globally, one-third of the population lack access to safe drinking water, in Australia almost 200,000 people do not have safe drinking water and over 25,000 Indigenous people in small remote communities are drinking water that does not meet health standards due to uranium contamination (WHO 2019; Schubert and Rikard-Bell 2022; WSAA 2022).

This report explores uranium-contaminated drinking water in the Northern Territory to shine a light on an underrepresented issue. This report is split into 7 chapters supported by case studies.

Chapter 1 presents the issue of uranium contamination in Australia using the case of Laramba to conceptualise the problem.

Chapter 2 breaks down drinking water guidelines in Australia and globally and Australia's responsibilities under the United Nations Sustainable Development Goals.

Chapter 3 conceptualises the issues of uranium contamination with Australia's nuclear history.

Chapter 4 explores the health impacts of consuming uranium and the uncertainty that exist.

Chapter 5 details the current systems of water treatment and potential treatments that can be used to reduce uranium exposure.

Chapter 6 presents a case of the human rights issues occurring in this issue's context.

And finally, chapter 7 provides recommendations for addressing uranium contamination in the Northern Territory.

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# Introduction

Access to clean and safe drinking water is one of the most fundamental human rights. Globally, one-third of the population lack access to safe drinking water. In Australia, almost 200,000 people do not have safe drinking water and over 25,000 Indigenous people in small remote communities are drinking water that does not meet health standards (WHO 2019; Schubert and Rikard-Bell 2022; WSAA 2022). Many communities have been found to be drinking water containing unsafe levels of contaminants such as uranium, e-coil, nitrates, arsenic, and fluoride (Schubert and Rikard-Bell 2022).

Uranium contamination is of particular concern, Friends of the Earth (FoE) has found consistent and long-term breaches of uranium in the drinking water in a number of small communities across Australia, at times almost 3 times the guideline maximum. Uranium contamination is mostly occurring in small remote communities across the Northern Territory (NT) and Western Australia (WA) as well as isolated communities in South Australia (SA), Queensland, and New South Wales (NSW).

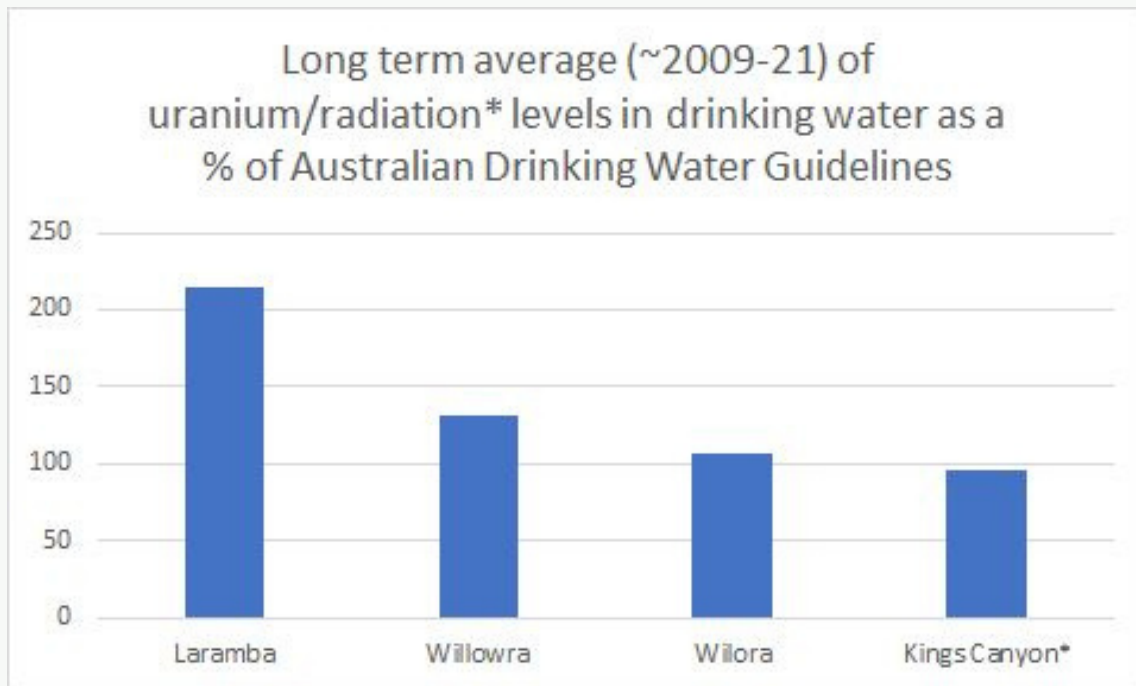
These communities have a mostly Indigenous population with no access to alternative water sources and limited political power and social capital to enact change. This leads to questions about environmental justice and racism as Indigenous peoples are disproportionately affected and have access to fewer resources.

# Defining the Problem

Many remote communities across Australia currently lack access to clean and safe drinking water. Biological, radiological, and heavy metal contamination are all impacting access to safe drinking water across Australia and the world, with many remote communities across the NT and WA as well as isolated communities in SA, Queensland, and NSW currently being affected by high levels of uranium contamination in their water supply.

Uranium is a naturally occurring mineral that leaches into groundwater from soil and rocks, with anthropogenic uranium entering groundwater from fertilizer use, mining and mill trails, and other industrial activities (WQA 2013; National Ground Water Association 2017; Bjorklund et al. 2021; Micheaux and Jenia 2021). With groundwater being a critical drinking water source, its health is of utmost importance (Gleeson et al. 2021). In Australia groundwater is the main source of drinking water for many remote communities where surface water is scarce, accounting for over 30% of Australia's total drinking water, which is doubled in WA to 66%, and increases yet again in the NT where groundwater accounts for 90% of drinking water (Northern Territory Government 2020; Geoscience Australia n.d.; Geoscience Australia n.d.). Many of the communities affected have little to no access to alternative sources of drinking water and lack the necessary funds and equipment to properly treat their drinking water and thus have no choice but to consume the contaminated water, which can negatively impact their health.

This is not an isolated incident; FoE has identified no less than 20 communities that have breached the safe level of uranium set out by the Australian Drinking Water Guidelines dating back to 2004. These breaches are at times double the guideline level. In addition to this, there are many complicating factors, including the guideline being optional meaning there is no legal requirement to meet it. All states and territories also have different water authority reporting requirements making finding accurate long-term data difficult, and there are often years where uranium was not tested for. This makes it difficult to get a full picture of the issue and understand its scope.



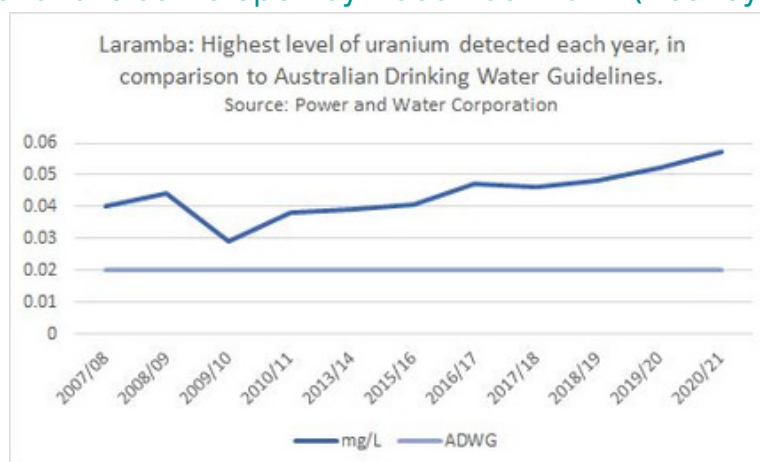
Part of the issue is that these communities are quite small and remote with limited access to resources and little political bargaining power. Additionally, the governments responsible for addressing the issue have finite resources and are reluctant to spend large amounts of money on tiny communities. FoE found that the top 5 affected communities - Laramba, Willowra, Wilora, Kings Canyon, and Ali Curung - have a combined population of less than 3,500, furthermore, most of the residents in these communities are Indigenous and are facing other social pressures that make daily life difficult (ABS 2016; ABS 2016; ABS 2016; ABS 2021; ABS 2021). The remoteness and small community sizes also mean that there is a lack of awareness of the issue in wider Australia and as such, the Australian population is not putting pressure on the government to address this issue and the small communities are often working alone with little support. However, one community that has been successful in its fight is Laramba.

# Laramba - Case Study

Laramba is a small community located 200km northwest of Alice Springs, it has a total population of less than 300 and is a mostly Indigenous community (ABS 2016). Laramba has reported uranium levels of more than double the Australian guideline as far back as 2008 – and in recent years almost triple the guideline - and it was not until recently that this issue had begun to be addressed by the NT Government (Friends of the Earth Melbourne 2021; Kurlmelovs and More 2021). But this was a hard-fought win.

In 2018 the residents of Laramba - as represented by Australian Lawyers for Remote Aboriginal Rights - sought compensation for being provided with contaminated drinking water. Unfortunately, they lost this case (Grealy 2020; Jonscher 2022). It was found by the Northern Territory Civil and Administrative Tribunal (NTCAT) that the landlord responsible for providing all the housing in Laramba was not required to provide safe water to households, this was because the landlord's obligation was only for the physical water infrastructure and not the water itself (Grealy 2020). This was an odd ruling because the landlord in the case of Laramba, is the Department of Local Government, Housing, and Community Development. The ruling was essential saying that the government in its role as the landlord is not responsible for providing safe water, but what about its other roles? (Grealy 2020). The NT has no enforceable standards for water supply and so it seemed that the people of Laramba were going to be left drinking contaminated water (Grealy 2020).

However, there was a cry of public support and media attention, particularly from, the ABC and The Guardian. around the Laramba issue and in 2021 the NT government announces \$28 million of funding to improve water quality in 10 remote communities, including Laramba (Heaney 2021). Laramba will receive new water treatment and infrastructure to help remove uranium from their drinking water and is set to open by December 2022 (Heaney 2021; Jonscher 2022).



While there may be an end in sight for Laramba and the 9 other communities receiving government support there are still many people suffering from radioactive substances in their drinking water.



# Water Regulation

The purpose of the Australian Drinking Water Guidelines (the Guidelines) is to 'provide a framework for good management of drinking water supplies that, if implemented, will assure safety at point of use' (NHMRC, 2022: 2). The Guidelines are concerned with the health and safety of drinking water as well as its aesthetic quality (NHMRC, 2022). The Guidelines apply to all water intended for drinking in Australia, except for bottled water, and provides a guide for; microbial, physical, chemical, and, radiological water contaminates, this includes uranium (NHMRC 2022).

The guideline for uranium reads as follows:

*'Based on health considerations, the concentration of uranium in drinking water should not exceed the health-based guideline value of 0.02mg/L. This health-based guideline value is based on chemical toxicity. The chemical toxicity of uranium is more restrictive than its radiological toxicity'. (NHMRC, 2022: 1018).*

This is the new guideline as of 2022, but prior to this, the guideline level was 0.017mg/L. The Guidelines provide no reason for this change but when contacted, the National Health and Medical Research Council (NHMRC) said this was to 'better align with the rounding convention' (NHMRC, personal communication, 29 July 2022). Regardless of this change, remote communities in the NT and WA are constantly breaching what the NHMRC has determined to be a safe level. In 2007/08 Laramba reported uranium levels of 0.04mg/L and then in 2020/21 reported a level of 0.057mg/L almost triple the new guideline. In 2016/17 Willowra recorded a breach of 0.033mg/L and that same year Wilora had uranium levels of 0.023mg/L. So, if there are guidelines why are they not enforced?

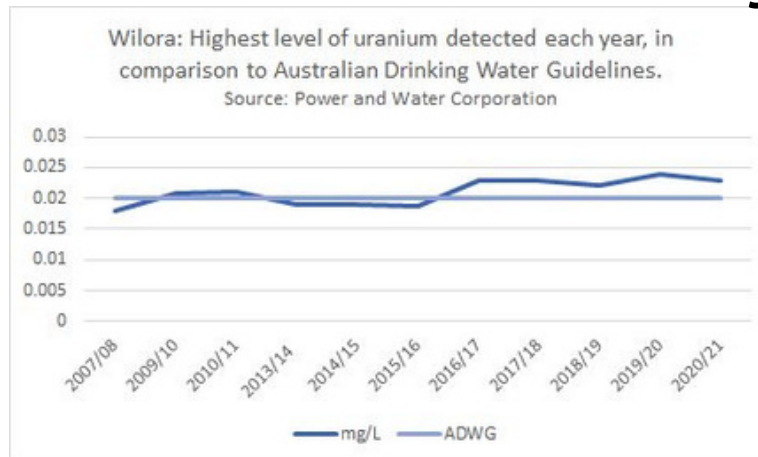
The main problem with the Guidelines is that they are only effective "if implemented" but are non-legally binding and are therefore not enforceable so there is no incentive or requirement for governments or water authorities to follow them and take efforts to address contamination breaches. This is allowing for contamination breaches at high levels over a long period of time because it is legal, even though it is not ethical.

# Global standards

The World Health Organization (WHO) also has a set of drinking water guidelines that address many contaminants including uranium. Interestingly, the WHO guideline for uranium is 0.03mg/L higher than the Australian guideline and this seems to be a trend with the United States (US) also having 0.03mg/L as their guideline level (WQA 2013; WHO 2022). Yet, despite having a lowered guideline level Australia still suffers from numerous breaches, impacting not only the health and water security of affected communities but also Australia's ability to achieve their international commitments.

The United Nations (UN) current sustainable development agenda, the Sustainable Development Goals (SDGs) highlights the need for safe drinking making 'clean water and sanitation' (UN 2021) as one of its goals with target 6.1 aiming that 'universal and equitable access to safe and affordable drinking water for all' be achieved by 2030 (UN 2021). Australia's progress with the SDG is slow with many challenges remaining and only seven years to address them but based on government reporting drinking water is not one of them, with the government reporting that they have met target 6.1 (Sachs et al. 2022). How is it possible that Australia can report that it has 'universal and equitable access to safe ... drinking water for all' (UN 2021) when there are communities that have limited access to safe drinking water?

## Wilora - Case Study



Wilora is a tiny community located in the NT around 100km south of Davenport with a population of only 59 people (ABS 2021). The situation in Wilora is similar to of Laramba with uranium contamination dating back over ten years above 0.02mg/L dating back to 2009 (Davidson 2018; Friends of the Earth Melbourne 2021). The difference between the two cases though is how the issues are being addressed, whereas in Laramba there is an end in sight with the funding that was announced by the NT Government, Wilora is not a part of this plan. While we do not know the reason for Wilora being ignored by the government we can speculate that it is at least in part due to the small size of the community.

Wilora is an Indigenous community with only 59 people (ABS 2021), this is a community with little social resources, media attention or ability to advocate for change. Additionally, like Laramba, the people of Wilora are tenants of the Department of Local Government, Housing, and Community Development and, so as we learned from Laramba, their landlord has no responsibility to help.

However, unlike Laramba there is currently no end in sight for the community of Wilora, making it vitally important to remember that even with funding announced the issues are still not solved.

# Radioactive History

While the data of uranium breaches in groundwater in Australia only dates back to the early 2000s Indigenous water rights and nuclear issues have a long history.

Indigenous Australians are the longest continuous living civilization in the world having occupied Australia for over 65,000 years (National Museum Australia 2022). Many changes that have occurred over this time have infused the ways in which Indigenous Australians interact with the lands and waters around Australia, a major influence being British invasion and colonisation (Jackson 2008; Barber 2014). Indigenous peoples have always had a strong and unique cultural and spiritual connection to the lands and waters across Australia in their role as custodians that extends beyond the surface to what lies below, and it is what lies below that is threatened (Jackson 2008). The NT's water management laws and programs have repeatedly been found to be lacking by the Environmental Defenders' Office naming them one of the worst in the country (Environment Centre NT 2022). This is due to a lack of consideration being given to climate change, and injustices being embedded in the Northern Territory's water laws, this is clear in the case of Ali Curung (Environment Centre NT 2022).

## Ali Curung - Case Study

In the desert community of Ali Curung, it rains an average of just 380mm a year, but groundwater supplies have inspired confidence in the NT government so much so that in April 2021 the government granted agricultural company Fortune Agribusiness permission to extract 40,00 megalitres of groundwater from Singleton Station a year, at no cost (Jonscher 2021). This has angered environmental groups and traditional owners and raised questions about the NT's water laws (Jonscher 2021). The biggest issue that has arisen from the decision is the silencing of Indigenous voices around water rights in the Northern Territory with the traditional owners lacking meaningful representation in how water is used and allocated in the Territory (Jonscher 2021). The Central Land Council (CLC) 'believes the NT Water Act does not adequately protect Indigenous access to water and therefore fails to protect the livelihoods of those living in the bush' (Jonscher 2021). This is particularly an issue in Ali Curung where the majority of residents are Indigenous and are already struggling with extreme poverty, and now with water access both for drinking and cultural and spiritual needs (Jonscher 2021).

On Country, water is sacred, especially in Central Australia and Fortune Agribusiness will not only take much-needed drinking water away from residents but will also cause damage to up to 40 sacred sites and ecosystems, and for Indigenous peoples ‘[t]hese sites hold more than water - they also hold key cultural knowledge’ (Jonscher 2021). The residents of Ali Curung are not strangers to water issues and have all heard the stories told of when Philip Creek ran dry in 1952 and their families had to move from their homes in search of water (Jonscher 2021). Now, in addition to the Singleton Station, they are also contending with uranium contamination. While the levels of uranium in the water at Ali Curung are under the guideline level, at around 50% of the guideline, this is chronic uranium exposure, and it is still unclear what effect this has on health. Ali Curung is also exposed to radiation at about 50% of the guideline level. What is the cumulative impact of being exposed to both uranium and other radioactive substances?

## Nuclear Weapons and Australia

Between 1952 and 1957 the British government, with permission from the Australian government, conducted 12 major nuclear weapon tests, and hundreds of minor trials on Indigenous lands that their colonialist mindsets saw as “remote, empty, and far away” (Ruff & Hawkins 2020; Hawkins 2021). Many Aboriginal communities were not properly evacuated or even informed that these tests were going to occur, and both these communities and those working at the test sites suffered from adverse health effects, including an increased risk of cancer (Ruff & Hawkins 2020). These tests caused devastating environmental and social damage that is still felt to this day, both in the legacy of harm to Indigenous peoples and the continued presents of nuclear particles in the land, that leach into groundwater (Aerie & Leckie 2021; Hawkins 2021). It is also likely that fallout would have impacted on houses using water tanks. Furthermore, there has been little effort taken to clean and rehabilitate these sights and little to no long-term environmental monitoring (Ruff & Hawkins 2020). Despite the damage done by nuclear testing in Australia, the NT continues to contribute to nuclear technology development through Uranium mining.

# Uranium Mining in the Northern Territory

The NT has a long history of uranium mining dating back to 1953 with the opening of the Rum Jungle mine (World Nuclear Association 2018; Northern Territory Government 2022). Uranium mining has historically been vital to the NT's economy, but this has not been without controversy (McGill 2000). Uranium mines in the NT have often come up against opposition from environmental groups and traditional owners. One of the most decisive mines in the NT was at Jabiluka. In 1977 the Australian Government allowed for the mining and export of uranium from Jabiluka and was met with fierce protest that cumulated in the 1998 blockade, however, despite pushback from environmental and Indigenous activists the mine went ahead and was only "closed" in 2003 (National Archives of Australia n.d.). Rehabilitation began in 2003, with work commencing in 2013 to remediate and remove the interim water management pond.

Indigenous and environmental rights have always been at the heart of the anti-nuclear movement with clear reason. Reports of uranium mines have repeatedly found that Indigenous Australians have little to no control over if mining occurs on their land and this has led to damage and destruction of uncounted sacred sites (Cultural Survival 1993; Wilson 1997). In addition to the cultural harm of uranium mining it also poses significant environmental risks. The Ranger Uranium Environmental Inquiry (Fox Report) highlighted 'the possibility that contaminated water from the mine site might cause environmental damage downstream' (McGill 2000), and in 1981 the Nabarlek mine leaked contaminated water in the local creek systems, the Buffalo and Coppers creeks (Cultural Survival 1993). This is a threat to both the environment and human health as the 'geochemical and isotopic characteristics' of uranium can persist over many years and travel to connected water bodies, including to groundwater bores (de Caritat, Schroder & Wallace 2018). This can contribute to a rise in uranium in drinking water sources.

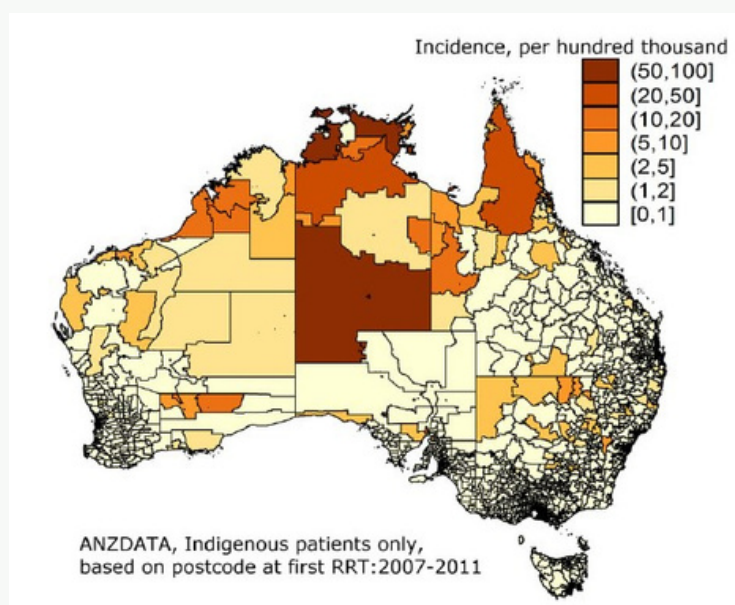
# Human Health

Drinking water is a high-risk way to be exposed to uranium and the health impacts of uranium exposure are complex and difficult to pin down (Winde et al. 2017). There are several factors that lead to this, the first is a lack of information and studies on this type of uranium exposure (Corlin et al. 2016). While uranium groundwater contamination is not uncommon the levels of chronic exposure in towns such as Laramba are concerning and under-researched. The few studies that have been conducted use animals, particularly rats, as test subjects and only run for a fraction of the length of time that these issues have been occurring in the NT (Svenesson et al. 2005). Another factor that complicates the matter is that the issue of uranium contamination does not exist in isolation. Communities impacted by uranium contamination are also facing other issues that can impact their health, therefore, making it impossible to tell if certain health conditions are due to uranium exposure or other existing factors, this is especially true in the case of chronic kidney disease (CKD). CKD is more prevalent among Indigenous Australians, but it has also been linked to uranium exposure, meaning that in mostly Indigenous communities that suffer from uranium-contaminated drinking water it is impossible to say for certain that it is because of the uranium (Hoy 2014; Lawton et al. 2015; Northern Territory Government 2016; Rajapakse et al. 2018; Department of Health 2019; Huges et al. 2019; Australia Institute of Health and Welfare 2020; Menzies School of Health Research 2021).

Uranium contamination results in two different types of exposure. The first is radiological which is a result of uranium as a radioactive product and its by-products (Winde et al. 2017; Bjorklund et al. 2020). Radiological exposure to uranium accumulates in the bones and up to 90% can stay there for over a year and a half, potential leading to the development of bone sarcomas and cancer (Rajapakse et al. 2018; Bjorklund et al. 2020). Radiation from uranium has also been connected to cases of leukaemia, lung cancer, especially if inhaled, and thyroid cancer (Bjorklund 2017; Winde et al. 2017; Bjorklund et al. 2020). The second type of uranium contamination is chemical, which is linked to uranium's heavy metal properties (Heaney 2021). Heavy metal is the most common contamination and is strongly like to CKD (Zamore et al. 1998; Bjorklund 2017; Rajapakse et al. 2018; Bjorklund et al. 2020; Heaney 2021).

# Chronic Kidney Disease (CKD)

CKD occurs when the kidneys are damaged leading to reduced function and is considered chronic when it lasts for over 3 months and worsens over time, and currently, there is no cure (Department of Health 2019; Australian Institute of Health and Welfare 2020; Cleveland Clinic 2020; Mayo Clinic 2021). It is the primary function of the kidneys to filter toxins from the bloodstream and expel it as urine, because of this over 60% of uranium is filtered from the blood within 24 hours and 95% within one week (Agency for Toxic Substance and Disease Registry 2013; Cleveland Clinic 2020; Ma 2020). However, when the kidneys are damaged, as they are with CKD, toxins, like uranium, build up in the body causing illness (Cleveland Clinic 2020). CKD is hard to treat and manage because in addition to there being no cure CKD also has a lot of associated co-morbidities, including cardiovascular disease (CVD) and diabetes (National Institute of Diabetes and Digestive and Kidney Disease 2016; Northern Territory Government 2016). CKD disproportionately affects Indigenous Australians with it affecting around half of Indigenous Australians over the age of 65 and they access renal replacement therapy (RRT) to manage end-stage kidney disease (ESKD) at 5 times the rate of the rest of the population (Huges et. al 2019). Adding to this, the Indigenous communities that are most affected by uranium exposure and CKD are mostly located in remote areas with little healthcare access (Hoy 2014; Lawton et. al 2015; Menzies School of Health Research 2021). The map below also shows that cases of CKD in Indigenous Australians are also mostly found in the NT where most of the uranium contamination is occurring, and while this does not guarantee a cause it can be seen to show uranium consumption is another risk factor associated with CKD.



(Hoy 2014).

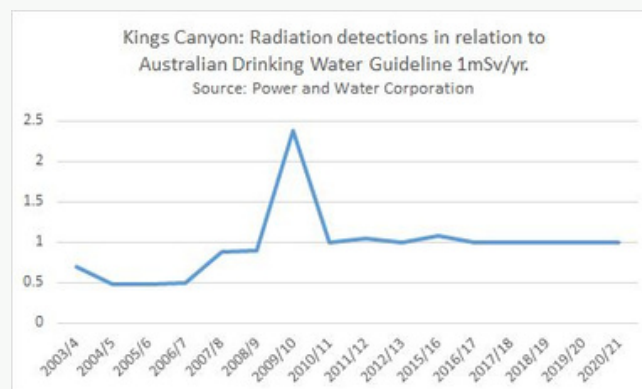


# Kings Cannon - Case Study

Kings Canyon, located in the Pitjantjatjara region of the Northern Territory is a popular tourist destination due to its incredible sites and Indigenous history. Pitjantjatjara is home to around 2,000 people comprised of mostly Indigenous Australians (ABS 2016). Kings Canyon is different to the other cases discussed so far as the uranium exposure, in this case, is from radiation. Radioactivity has been detected in the water in Kings Canyon consistently from 2003 up to 2018, with a spike of 2.37mSv/yr in 2009/10 which is over twice the guideline level (Friends of the Earth Melbourne 2021). This level is dangerous even in the short term as the body can store radiation for up to two years potential leading to cancer (Bjorklund et al. 2020). Kings Canyon also demonstrated the cause of a disease can be hard to pin down as during this time they were also exposed to high levels of selenium, lead, hardness, dissolved solids, iodine, and chloride (Friends of the Earth 2021). This is a key example of why addressing uranium and radiation is difficult and slow as many communities are suffering from a myriad of issues outside of uranium contamination.

Uranium and Radioactivity are measured separately under the Australian Drinking Water Guidelines with Radioactivity having an annual guideline limit of 1 mSv/yr. Kings Canyon comes close to or exceeds this level each year. It has the highest radioactivity levels in the NT with long-term average readings at about 96% of the guideline level. The next highest levels have been recorded at Ali Curung at about 55% of the guideline level.

‘All water supplies are examined to gain an initial screening level of radioactivity. Communities that had one or more samples above the screening level have the annual radiological dose (ARD) calculated. To comply with the ADWG, the radiological data used in the calculation of the total annual radiation dose should be no more than two years outside the reporting period for groundwater supplies, and no more than five years for surface water’ (Power and Water 2019).



# Water Health and Treatment

Drinking water should be free from chemicals that can cause harm (Water Research Australia 2013), but it has been well established by this report that the water quality in remote Australian communities is not only poor but neglectful, resulting in illness and a near-total lack of safe drinking water, but what has led us to this point. In the NT the Power and Water Corporation (PWC) are responsible for the treatment and provision of drinking water to residents. Currently, their water treatment process is focused on the removal of microorganisms, with the primary method of treatment being disinfection using chlorine (Arup n.d.; PWC n.d.). While disinfection treatment is standard and considered to be best practice it fails to remove contaminants such as uranium and even the other four most common treatment practices - filtration, coagulation and clarification, fluoridation, and pH correction - fail to remove this highly harmful contaminate (PWC n.d.). Treatment for uranium is not commonplace and as such the infrastructure is not in place, an upgrade would be needed to make the contaminated water safe again, however, this would be expensive. PWC hired consulting firm Arup to investigate the best way to remove uranium from drinking water, they recommended the use of electro-dialysis and reverse osmosis, systems that would cost an estimated \$23.6 million to implement (Arup n.d.). Furthermore, these costs would not be recoverable through water sales but instead would result in social and health gains for affected communities (Arup n.d.). It is clear what needs to be done to address this issue, but what is happening?

# The Future of Water Treatment

In April 2021 the NT government announced a \$28 million plan to address contamination issues in 10 communities across the Territory, including Laramba (Afianos 2021). The plan for Laramba is the construction of a plant that uses ion exchange to remove uranium from drinking water, the plant is set to be operational by the 16th of December 2022, and its success will be used to determine if this method should be rolled out on a wider scale (Afianos 2021; Heaney 2021; Jonscher 2022). Ion exchange is when resins are used to target specific ions, in this case, those associated with uranium, which stick to the resin beads and are then filtered out (Sharma & Bhattacharya 2017; Jonscher 2022). Ion exchange is a simple and cheap way to remove contaminants, such as uranium, however, it can raise the sodium content in filtered water, which could cause issues for certain impacted community members (Sharma & Bhattacharya 2017). The other treatment option often mentioned in cases of uranium contamination is reverse osmosis. Reverse osmosis is the process of using pressure to force water through a dense membrane filter to remove impurities and contaminants, it 'is one of the most effective types of water treatment' (Sharma & Bhattacharya 2017:1054). This raises the question if it is so effective why is it not commonly used in Australia?

A major challenge with large-scale water treatments, such as ion exchange and reverse osmosis, in the NT, is size (Kinsela et. al 2012; Grealy & Howey 2020; Howey & Grealy 2021). The NT is immense, and communities affected by uranium contention are spread over great distances making it impossible for one central water treatment plant, meaning that each affected community would require their own, the costs of which would be highly unlikely to be approved. And yet, water treatment that addresses uranium contamination is critical as '[a]dequate and safe drinking water is key to human life and health and it vital for the self-determination of Indigenous communities' (Howey & Grealy 2021:111).

(Water treatment graphic)

# A Case for Human Rights

‘[H]istorical and contemporary systemic acts of discrimination against marginalised population...all play substantial roles in creating environmental injustices’ (Parson et al. 2021:42). The issues observed in the NT are a case of environmental justice and an act of environmental racism. Environmental Racism (ER) is an idea that came about in the 1980s in the United States when minority groups were being exposed to huge amounts of toxins due to toxic and chemical waste dumps, landfills, polluting industries, and contaminated water supplies were placed right on their doorsteps (Lohmann 2016; Woods 2017; Cooper et al. 2018; Dombey 2019). ER is defined as a break of environmental justice, specifically against people of colour and Indigenous people. Environmental Justice is the principle that states ‘everyone has the right to inhabit clean, healthy and safe environments, and to enjoy equal access to safe and healthy workplaces, schools, recreation areas and nutritious food, irrespective of race, ethnicity, gender, disability and other ‘axes of difference’ Byrne and MacCallum 2013:4). Despite its origins in the American civil rights movement, ER has a long history in Australia.

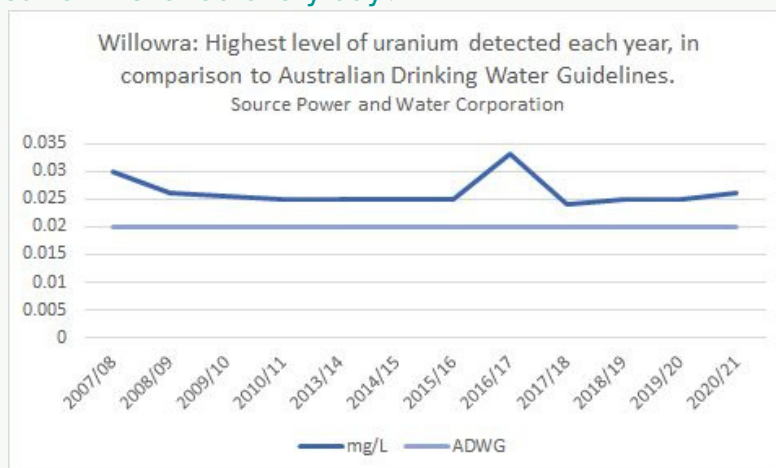
‘Racism against Indigenous Australians permeates the very fabric of contemporary Australian society...occurring in the public domain,...health systems,...sport,...the law and criminal justice system,...and civil society as a whole’ (Paradies 2005:2). It could be argued that this racism and ER in Australia began when colonists wrongly described the land as Terra Nullius. In this one act, countless acts of discrimination and racism were legitimised and allowed to occur resulting in an unequal relationship between non-Indigenous and Indigenous Australians, especially when it comes to environmental justice (Green et al. 2017). The British nuclear tests conducted on Indigenous land by the British government in the 1950s were a clear breach of environmental and social justice, which used the Terra Nullius colonial mindset of “remote, empty, and far away” to justify their action (Ruff and Hawkins 2020; Hawkins 2021). This mindset is one that continues today leading to Indigenous Australians’ suffering discretionally from environmental burdens and is the same reasoning that allows for uranium mines to operate on Indigenous lands despite a lack of social licences and the mindset that is seeing people suffering from uranium contamination with no solution in site (Environmental Defenders Office 2022).

Clean and safe drinking water is a basic human right that is being wilfully neglected in remoter Indigenous communities across the world and here in Australia (Broadbent 2018). In the NT remote Indigenous communities are in a water crisis, that has been ongoing for over a decade, with calls for urgent action from the National Congress of Australia's First Peoples (NCAFP), and environmental and human rights groups, routinely ignored by the government (Barrass 2018; Davidson 2018; O'Donnell and Howey 2022). This has often raised questions about the spatial inequalities in addition to the racial inequalities with many noting that this kind of widespread and ongoing water contamination would not be tolerated in densely populated urban centres with mostly non-Indigenous populations (Barsh 1990; Broadbent 2018; O'Donnell and Howey 2022). This question was addressed by O'Donnell and Howey (2022) who noted that gaps in the water regulation systems in the NT has allowed for the different treatment that remote Indigenous communities are subjected to. Willowra is just one of these communities.

## Willowra - Case Study

Willowra is a community of just 300 located next to the Lander River over 300km northeast of Alice Springs in the NT (ABS 2016). Like Laramba the residents of Willowra have been drinking water with uranium levels as high as double the guideline for over 10 years. And like Laramba there have been calls for urgent action back in 2018, that did not result in any changes (Davidson 2018). However, unlike Laramba who is starting to see a way out, there has been no solution provided for Willowra, like many of these communities they are still waiting for something to be done. With luck, a successful pilot program in Laramba could mark the next step in restoring clean drinking water to the residents of Willowra but in the meantime, they suffer and are ignored, due to their remoteness, their size, and whether consciously or unconsciously due to ER on the part that it is a mostly Indigenous community.

But is there a way out, not just for the five communities this report has explored but for the many others that suffer in silence every day?



# Next Steps

Finding a way forward for these remote communities is an insurmountable task with no perfect solution. That being said doing nothing is not an option, we recommend the following action be taken to help move towards a future where remote Indigenous communities are not left without clean drinking water.

## 1

The NT Government needs to implement safe drinking water laws. Without these laws, there are no enforceable minimum standards for safe drinking water in the Territory. This is particularly the case when landlords are under no obligation to provide safe drinking water to consumers in the Territory and yet the NT Government (Department of Housing) is the major landlord in many remote communities.

## 2

NT Government should undergo an in-depth independent audit of water systems to identify the main issues causing high levels of uranium, and other, contamination so as to work on individual solutions for each affected community. Alternative supplies/bores should also be investigated/funded.

## 3

NT Government needs to provide impacted communities with temporary clean water supplies until issues with their water supply are resolved. This might include transporting safe drinking water into some of the impacted communities.

## 4

The Federal and NT Government's urgently need to provide funding for better water treatment and supply options to remote communities that allow them to be guaranteed access to safe drinking water. This will require increased budgetary expenditure. The April 2021 NT Government funding announcement is welcome, but the funding needs to be extended to more communities. Why has it taken so long for this to occur? It appears that media interest generated since 2018 was the catalyst for change at Laramba, what would have occurred without the media scrutiny?

## 5

Uranium and radioactive substances in drinking water in; Willowra, Wilora, Ali Curung and Kings Canyon require urgent attention.

## 6

Academic health institutions need to further research the underlying causes of CKD in Australia and to determine the contribution that drinking water plays in the development of CKD.

## 7

The legislative framework needs urgent reform in the NT regarding drinking water and remote communities

## 8

Australian Drinking Water Guidelines should incorporate the latest research into cumulative long-term impacts of drinking water above or below drinking water guidelines in terms of uranium and radioactive substances. This should also include possible synergistic impacts of different chemicals reacting to uranium and radioactive substances.

## 9

Remote communities in Western Australia are also facing uranium and pathogens in their drinking water supplies. More attention on alternative water supplies by the WA Government including better treatment options also needs to be implemented in Western Australian remote communities as well.

## 10

And finally, and most importantly, involve the local communities and Indigenous groups in significant and meaningful ways as they should be part of the decision making on Country and part of the issues is that their knowledge has long been ignored



# Conclusion

In conclusion, drinking water is a vital human right that is being denied to many communities in the NT, but it does not have to be. Australia's drinking water guidelines and systems are in desperate need of reform to ensure that all citizens have access to safe drinking water. Uranium contamination in communities such as Laramba, Willowra, Wilora, Kings Cannon and Ali Curung, is causing unknown social and physical harm to residents and could be addressed with the introduction of new water treatment methods. But there is no forward until the historically environmental racism is addressed and Ingenious Australians are included in the decision-making process.

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