

5 June 2022

Northern Territory Environmental Protection Authority

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Dear Sir /Madam

Re: Middle Arm Sustainable Development Precinct Referral

I am a long- term resident of Darwin who has chosen to live in Darwin because of its beautiful natural environment and outdoor lifestyle. I regularly use the Darwin harbour and connecting waterways; walking and cycling daily along the shores, boating, bird watching as well as exploring the natural environments surrounding the harbour.

I am writing because I am concerned that the Middle Arm Sustainable Development Precinct (MASDP) will pose significant risks to preserving the Territory's lifestyle and its unique environment, which is one of the most intact in Australia. It will also pose severe risks to the health of people living in Greater Darwin, particularly those living in the adjacent communities of Palmerston.

I feel the '*Statement of Reasons for a Strategic Assessment*' presented by the NT Government, while identifying some potential risks, significantly underestimates other risks, in particular the impact of the various industries identified, such as the petrochemicals and CCS storage as well as others, which are likely to be located at the MASDP.

Petrochemical Hub

Petrochemical hub poses serious risk to human health

The development of a petrochemical hub poses serious risks to human health in terms of pollution and air quality. While more studies are needed, there is evidence in the few places around the world, where petrochemical development is situated close to residential areas, that there is a higher incidence of cancer and cancer mortality. A health study in Louisiana, where there is a large petroleum industry hub, showed there was a 95% higher risk of residents developing cancer from air toxins than the American average.

The petrochemical industry and its by product industries (such as plastics, tyres, dyes, paints and paint thinners, explosives and adhesives, which may be located at the hub) are major polluters. Pollutants, emitted by petrochemicals include Volatile Organic Compounds (VOC) which vaporise into gas at normal temperatures. VOC exposure from petrochemical plants e.g., ethane crackers pose a real health risk to frontline communities. These include eye, nose and throat irritation, headaches and nausea, and chronic impacts at high doses like liver, kidney and central nervous system damage.

Pollutants from petrochemicals are often broken down and emitted again through the processing of by product industries, which means nearby communities maybe doubly impacted.

Petrochemical hub poses serious risk to NT waterways and surrounding environments

Petrochemicals and its by product industries will also adversely impact on the unique and significant biodiversity of the NT waterways, its marine and terrestrial ecosystems and the surrounding environments.

Petrochemicals require a lot of water for operation of the industry and for transport. While water must be treated before discharge into waterways, petrochemical industries may still discharge dozens of contaminants into the waterways. This combined with the impact of other industries in the hub could lead to dangerous levels of chemicals entering downstream waterways. Also, pollutants can enter waterways through the dangerous disposal of waste as well as from rain events that could contaminate ground or surface water. This impacts on the environment and leads to oxygen depletion in the water impacting on the food chain, including fish kills as well as negatively impacting on the health of people living in the area.

There will be significant long term detrimental impacts to Darwin harbour as a unique environment, a place for fishing and leisure and as a key tourist attraction. The outdoors lifestyle, and the natural pristine environment are key tourist attractions, with fishing and tourism being key industries which could be placed at risk.

Climate change will exacerbate the risk of accidents

Petrochemicals are highly flammable. There is a high risk of explosion during processing and transporting. There are risks of chemical accidents and spills, and fugitive emissions through leaks, rendering water not usable, killing animals, plants and sea life and creating significant health hazards for the people living nearby. Severe weather events such as major storms and cyclones, which are likely to increase due to climate change, will exacerbate these risks.

Regulation and Risk Mitigation – are the risks too high?

The risks from petrochemical and by product industries are very high both for the environment and human health. Many pollutants are invisible as such fence line monitors in nearby communities need to be in place and residents need information in a way that is easy to understand to enable them to monitor, accurately assess and understand the risks including health risks.

There is evidence internationally as well as in Australia that industries often breach environmental standards and that pollutants let out into the atmosphere and waterways are often at higher levels than set in regulations. The experience of people in Louisiana is that even when environmental regulations are in place, petrochemical plants contaminated the water with vinyl chloride, eventually forcing a number of people to leave the area.

Impacts on Climate Change and Carbon Capture Storage (CCS)

Significant Increase in greenhouse gas emissions will undermine reaching our zero emissions target

The NT and Australian Government have a commitment to reduce greenhouse emissions to net zero by 2050, with the Australian Government committing to 43% reduction in emissions by 2030. The MASDP will significantly increase greenhouse gas emissions, putting at severe jeopardy reaching these targets and increasing the risks of catastrophic climate change.

The MASDP will facilitate the expansion of the onshore and offshore gas industries in the NT, which will significantly increase greenhouse emissions. It does this in a number of ways, including greenwashing of carbon capture and storage (CCS); increasing the demand for gas through use as feedback for petrochemicals and expanding gas processing.

CCS is not a proven or effective technology for reducing emissions

The CCS facility proposed for the MASDP hub is designed to collect, capture and transport carbon dioxide through pipelines from nearby onshore and offshore gas fields.

International research to date shows no evidence that CCS is a proven and effective technology for reducing greenhouse emissions. In fact, climate bodies such as the Australian Climate Council see CCS as delaying the rapid transformation required to reduce global warming and as providing a licence for fossil fuel industries such as gas companies, to continue production of high greenhouse emission activities for decades to come. The continuation and expansion of fossil fuels has also led to the expansion of other by-product industries that contribute to environmental damage and climate change, such as petrochemical industries and the rapid expansion of plastics.

The rate of CCS project failure is very high. No CCS project anywhere in the world has delivered on time and captured the agreed amount of carbon. A recent study of all CCS developments in the USA found that more than 80% had ended in failure and Chevron's Gorge Gas Plant in WA, which is the biggest attempt at a CCS project in the world, has after 5 years of operation captured less than half the emissions needed to make the CCS project viable.

CCS projects pose significant environmental and public health risks

In addition, significant risks of environmental damage and health impacts exist for CCS projects, which are over and above those for gas pipelines. CCS is contained at very high-pressure levels and extremely low temperatures, which can lead to corrosion of the pipelines increasing the risk of leakage, ruptures and running fractures. The impact of explosions through accidents are extreme. Explosive decompression of a CCS pipeline releases more gas more quickly, and spreads more quickly over a wider area, than an explosion from a gas pipeline. The WA Chevron CCS project has been plagued by leaks and cracks and is frequently evacuated.

Need for robust environmental impact assessment for individual industries located at the MASDP

While there is strong merit in a strategic environmental assessment in addressing the regional and cumulative impacts to environmental values and threatening processes, there is a danger that it reduces the accountability and transparency for individual industries at the MASDP. Once the overall envelope of projects is given approval by the NTEPA, then individual projects within this strategic area will only need to apply for licences, an approval process which can be given in just 60 days. They will also not have to go through providing separate environmental impact statements. Given the potential of individual industries to pose significant environmental and public health risks, this process does not seem strong enough.

Need for this referral to be assessed at the highest level – through a public Inquiry

Significant environmental and health risks exist at the MASDP hub, particularly from the petrochemical and CCS storage industries and there is not enough evidenced based research as to how to effectively mitigate these risks. The risks are too high, given the site is located only 3ks away from Palmerston communities and is based in our beautiful Darwin harbour, used by Darwin residents daily for leisure while also supporting key industries like fishing and tourism.

Darwin residents do not have any experience with petrochemicals or their impacts. Given this, I request that a public inquiry be held, like that undertaken for fracking, so the public can be informed before making any decisions, as to whether they agree with having petrochemicals located in their beautiful Darwin harbour, and so close to where large populations live.