

Statement of Reasons

INPEX OPERATIONS AUSTRALIA PTY LTD – MAINTENANCE DREDGING AND SPOIL DISPOSAL MANAGEMENT PLAN

PROJECT

On 7 May 2017, INPEX Operations Australia Pty Ltd (the Proponent) submitted a Dredging and Spoil Disposal Management Plan (DSDMP) for maintenance dredging to the Northern Territory Environment Protection Authority (NT EPA) for consideration as a Notice of Intent (NOI) under the *Environmental Assessment Act* (EA Act).

The Proponent proposes to carry out maintenance dredging to maintain the required depths in the turning basin and shipping channel constructed for the Ichthys Gas Field Development Project and dispose of dredged sediment at the existing offshore dredge spoil disposal area (DSDA).

Capital dredging works were conducted by the Proponent within Darwin Harbour's East Arm between 2012 and 2014 as part of the Ichthys Gas Field Development Project, removing approximately 16.1 million cubic metres (Mm³) of fine clay, silt, sand and hard rock material and disposing of the material at the designated DSDA within Beagle Gulf, approximately 45 km north from East Arm and around 12 km north-west of Lee Point. The dredged channel and ship turning basin were needed to allow access to Bladin Point by tankers for LNG product transport and were assessed as part of the Environmental Impact Statement (EIS) for the Ichthys Gas Field Development Project.

The DSDMP proposes a maximum volume of 1.5 Mm³ of sediment to be dredged within a five-year period with a planned maintenance dredging campaign and up to four contingency campaigns, with no single campaign exceeding 0.75 Mm³. The Proponent seeks to undertake such dredging campaigns at any time within the five-year period for maintenance and particularly soon after major sediment accretion events (e.g. cyclone).

A single trailing suction hopper dredge (TSHD) has been proposed for the maintenance dredging. Unconsolidated sediment would be dredged using draghead/s and a suction pipe and directly loaded into the TSHD hoppers. The dredged material would then be transported to the DSDA and released via bottom doors to the sea floor.

A hydrographic survey of the INPEX dredged footprint in East Arm was conducted at completion of the capital dredging program (June/July 2014) to confirm that the design depth was achieved. Since then, two additional surveys have been completed (August 2015 and May 2016) to assess integrity of dredged area batters and to identify zones of accretion and erosion. An additional survey, carried out in 2017, will determine whether maintenance dredging will be required in 2017.

CONSULTATION

The NOI has been reviewed as a notification under the EA Act in consultation with Northern Territory Government (NTG) advisory bodies and the responsible Minister, in accordance with clause 8(1) of the Environmental Assessment Administrative Procedures.

JUSTIFICATION

Review of the NOI identified the following potential environmental risks and impacts associated with the proposed action:

- impacts to sensitive receptors such as coral, seagrass and mangrove habitats from elevated suspended sediments and excessive sedimentation
- potential impacts from vessel interaction and underwater noise on marine megafauna such as turtles, dugong and coastal dolphins
- cumulative impacts from this and other maintenance dredging campaigns in the harbour
- impacts to the marine environment from the introduction of marine pests
- impacts to heritage sites
- impacts to the marine environment from waste and pollution.

Impacts on sensitive receptors from suspended sediments and sedimentation

Dredging and dredge spoil disposal activities are expected to cause elevated suspended sediment concentrations and consequent sedimentation to varying degrees in areas outside the immediate dredging footprint, particularly as a result of overflows of the hopper at the dredging site and dumping of dredge spoil in the DSDA. The NOI identifies a number of significant biodiversity values within and outside Darwin Harbour that are at risk from the proposed maintenance dredging and spoil disposal including critical habitats (coral reefs, seagrass and mangroves) that are sensitive to lower water quality resulting from increased suspended sediments and reduced light.

The environmental risk assessment in the DSDMP is based on various modelling scenarios for suspended sediment concentration and sedimentation and indicates that 0.8 ha of coral habitat (approximately 0.05% of coral habitat estimated to occur in the Darwin Region) would be impacted if dredging activities were conducted in the Dry season. The assumed tolerance limits for other critical habitats identified in the NOI are not predicted to be exceeded. However, the modelling outputs show very high suspended sediment concentrations in areas where seagrass are now known to occur based on recent mapping of seagrass habitat within Darwin Harbour by the Department of Environment and Natural Resources (DENR) near Channel Island and Wickham Point. The NT EPA has recommended that INPEX update its benthic habitat mapping using the most current data to improve the predictions of potential impacts and risks to seagrass from the proposed dredging.

INPEX reported that the monitoring program for the Ichthys Project capital dredging works did not detect significant dredging-related impacts to critical habitat within the harbour or near the spoil ground. The volumes of sediment proposed to be dredged in a worst-case single maintenance campaign are less than 5% of the volume dredged during the original capital works and the duration of the campaign for the worst-case scenario is estimated at 39 days, in contrast to the capital dredging program which was conducted over two years.

The proportion of fines in maintenance dredging material is predicted to be high (about 59%) when compared to the mostly sandy and coarse sediment removed during capital dredging. The NOI proposes controlled overflow methods and technology, including overflow funnel/s fitted with green valves, and overflow duration managed to a maximum of 60 minutes, to restrict the release of fine

material at the dredging site. The NT EPA has recommended that INPEX commit to minimising, as far as practicable, the magnitude and spatial distribution of suspended sediment plumes. As for the original dredging program, the NT EPA recommends that dredging be conducted in the Wet season where practicable, when suspended sediments are naturally higher. These recommendations should be addressed in a revised DSDMP.

A monitoring program using turbidity sensors is proposed to detect the risk of potential impacts to sensitive receptors with management actions based on clearly defined turbidity triggers.

The NT EPA considers that potential impacts to critical habitats from suspended sediments and reduction of light as a result of maintenance dredging will be significantly less than the impacts of the capital dredging program, and that these impacts, as far as is known, were minor. However the NT EPA considers that the monitoring program cannot rely solely on short-term turbidity monitoring, and that a long term biological program to improve our understanding of cumulative impacts is required. In the EPA's view, the important matter of cumulative environmental impacts in Darwin Harbour, and the associated need for long term environmental monitoring programs, is not the sole responsibility of INPEX, but a shared responsibility of relevant government agencies and companies wishing to undertake activities in the harbour (and its catchment) that may have cumulative environmental impacts and risks. In this regard, the development of such programs should be informed by the best available science, e.g. the dredging node of the WA Marine Science Institution. The NT EPA will raise this matter with the CEO of the DENR in the first instance. The NT EPA has recommended that INPEX contribute to the development and implementation of such a program.

Marine megafauna

Dredging has the potential to impact marine megafauna such as turtles, sawfish, dugongs and cetaceans, through physical interactions with vessels and equipment, and through underwater noise. These impacts were identified and described in the EIS for the Ichthys project and the NOI contains appropriate measures to manage the potential issues, including but not limited to:

- trained marine megafauna observers on vessels with triggers for prescribed management actions (e.g. reducing vessel speeds, directional changes, suspension of dredging) based on predetermined megafauna approach distances
- observing prescribed vessel speed limits
- dredges fitted with equipment such as turtle 'tickler' chains on dragheads to minimise entrainment of marine fauna, particularly turtles and sawfish.

The NT EPA is satisfied that the Project can be appropriately and adequately managed to minimise impacts on marine megafauna with the implementation of such measures.

Marine pest management

Bringing dredges to Darwin Harbour has the potential to introduce marine pests. The NT EPA is satisfied that the risks have been addressed in the DSDMP and can be appropriately managed with the implementation of the measures set out there.

Heritage and sacred site management

There are a number of Aboriginal sacred sites and non-Aboriginal heritage sites in Darwin Harbour in the vicinity of the maintenance dredging area and en-route to the spoil disposal area. Movement or anchoring of dredge and support vessels over or on heritage or sacred sites can cause disturbance or damage to sites. Management actions have been described in the DSDMP.

The NT EPA is satisfied that the risks have been addressed in the DSDMP and can be appropriately managed with the implementation of the measures set out there.

Fuel, chemicals and waste management

Fuel, chemicals and wastes must be managed throughout the dredging program to avoid injury to or mortality of marine fauna as a result of ingestion or entanglement, or pollution to the marine environment. The NT EPA is satisfied that the risks have been addressed in the DSDMP and can be appropriately managed with the implementation of the measures set out there.

Cumulative impacts

In addition to the dredging proposal by the Proponent, there are a number of other dredging campaigns proposed for Darwin Harbour.

The NOI and the DSDMP indicate that the Proponent has engaged with key stakeholders (both private enterprises and government bodies) to identify applicable dredging activities that could lead to cumulative impacts. The dredging activities that could occur within the 5-year time frame included a combination of both capital and maintenance dredging programs, ranging spatially from East Arm, Darwin City, the harbour mouth and outside of Darwin Harbour. In all cases, the Proponent was advised that information on dredging volumes, dredging and disposal methods, and timing were still yet to be finalised. Where indicative dredge volumes were provided by stakeholders, these ranged from 0.03 Mm³ to 1 Mm³.

The NT EPA considers that there is some uncertainty with respect to potential cumulative impacts and has recommended that INPEX contribute to the development and implementation of a long term biological monitoring program to address these risks.

In addition, with respect to the INPEX maintenance dredging, the NT EPA has recommended that the following conditions form part of the development consent under the *Planning Act*:

- that maintenance dredging be conducted in accordance with an approved DSDMP that is prepared to the satisfaction of the Department of Environment and Natural Resources (DENR)
- approval should not extend beyond five years from the date of consent and the volume of dredged material should not exceed 1.5 million cubic metres (Mm³) in total, with no single campaign to exceed 0.75 Mm³
- measures to ensure dredging does not occur beyond the dimensions of the capital dredging footprint
- a requirement that an independent third party audit be conducted to assess compliance with the DSDMP and Section 12 of the *Waste Management and Pollution Control Act*, in each year when maintenance dredging has been carried out, with findings provided to the NT EPA
- prior to the commencement of a campaign, INPEX notify the consent authority and DENR and provide campaign-specific details (including location, timing, vessel type, volume to be dredged and campaign-specific overflow management controls).

The Proponent commissioned three independent expert reviews of various aspects of the Maintenance Dredging and Spoil Disposal Management Plan in accordance with a condition of the Ichthys Project approval decision under the *Environment Protection and Biodiversity Conservation Act 1999* and the NT EPA *Guidelines for the Environmental Assessment of Marine Dredging in the Northern Territory* (NT EPA 2013). Issues raised by the reviewers were subsequently addressed.

The reviewers concluded that the scenarios presented in the maintenance DSDMP were plausible and that the likelihood of significant impact to sensitive receptors was low. The reviews considered the management plan comprehensive and that reasonable and practical measures had been taken by the Proponent to manage the risks associated with the proposed maintenance dredging and disposal activities.

The Proponent is aware that a development permit under the *Planning Act* is required for dredging within Darwin Harbour. An application, accompanied by the DSDMP, has been lodged with the Department of Infrastructure, Planning and Logistics (DIPL). The NT EPA has provided recommendations to the Development Consent Authority to inform its consideration of the development application and a revised DSDMP is anticipated.

The NT EPA considers that the Project does not require further assessment under the EA Act and has provided recommendations to the Proponent to ensure that impacts can be appropriately managed and responsibilities under other relevant legislation can be met.

DECISION

The proposed action, which was referred to the NT EPA by INPEX Operations Pty Ltd, has been examined by the NT EPA and investigations and inquiries conducted. The proposed action will require assessment and development consent under the *Planning Act* to ensure the environmental issues associated with the proposed action are effectively managed. The NT EPA has decided that the potential environmental impacts and risks of the proposed action are not so significant as to warrant environmental impact assessment by the NT EPA under the provisions of the *Environmental Assessment Act* provided the recommended development permit conditions are imposed by the Development Consent Authority and dredging and disposal is conducted in accordance with the revised and approved DSDMP.

This decision is made in accordance with clause 8(2) of Environmental Assessment Administrative Procedures, and subject to clause 14A the administrative procedures are at an end with respect to the proposed action.



DR PAUL VOGEL

CHAIRMAN

NORTHERN TERRITORY ENVIRONMENT PROTECTION AUTHORITY

26 JULY 2017