

Environmental Approval

SECTION 65 OF THE ENVIRONMENT PROTECTION ACT 2019

Approval number	EP2021/008 - 002
Approval holder	Crowley Australia Pty Ltd
Australian Company Number (ACN)	654 468 836
Registered business address	Crowley Australia Pty Ltd Level 1, 8 Beulah Road Norwood, South Australia 5067
Primary contact	Sean Thomas +1.907.777.5542 Sean.Thomas@crowley.com
Action	To construct and operate a bulk fuel storage facility and ancillary infrastructure for the transfer and storage of jet fuel, East Arm, Darwin (Appendix 1).
Address of premises	740 Berrimah Road, East Arm NT 0822, Sections 5720, 5673, 6350, and 5790 Hundred of Bagot
NT EPA Assessment Report number	93
Decision maker	 ----- Jo Townsend Chief Executive Department of Environment, Parks and Water Security Delegate for the Minister
Date of approval	25 May 2023

General Conditions

1. Commencement of action

- a. This approval expires two (2) years after the date on which it is granted, unless substantial work has physically commenced on or before that date.
- b. The approval holder must notify in writing the Chief Executive Officer of the Department of Environment, Parks and Water Security (the CEO) of the date of commencement of the action, within 10 business days after the date of commencement of the action.

2. Proposal implementation

The action must be carried out:

- a. In accordance with the *Environment Protection Act 2019*;
- b. In accordance with this approval;
- c. In a competent manner; and
- d. Wholly within the premises as identified in Appendix 1.

3. Change of contact details

The approval holder must notify the CEO of any change of its name, physical address, postal address and contact details for the serving of notices or other correspondence within 10 business days of such change.

4. Operation and maintenance of plant and equipment

The approval holder must ensure any plant and equipment used in conducting the action:

- a. Is fit for the purpose and use to which it is put;
- b. Is maintained;
- c. Is operated by a person trained to use the plant and equipment; and
- d. Is calibrated in accordance with Australian Standard methods.

5. Environmental management

- a. Prior to commencement of operation, the approval holder must develop and implement an environmental management system (EMS) that applies specifically to the action, and is consistent with the Australian Standard AS/NZS ISO 14001 Environmental Management Systems, as amended from time to time.
- b. The approval holder must ensure that the action is designed, constructed, maintained and operated in accordance with industry best practice, and as a minimum:
 - (i) all applicable Australian Standards, including but not limited to AS1940 and AS1692, as amended from time to time.
 - (ii) all applicable American Petroleum Industry (API) standards, including but not limited to API650 and API1581, as amended from time to time.

6. Compliance assessment reporting

- a. The approval holder shall prepare and maintain a Compliance Assessment Plan which is submitted to the CEO at least six (6) months prior to the first Compliance Assessment

Report required by condition 6f, or prior to implementation of the action, whichever is sooner.

- b. The Compliance Assessment Plan shall indicate:
 - (i) the frequency of compliance reporting;
 - (ii) the approach and timing of compliance assessments;
 - (iii) the retention of compliance assessments;
 - (iv) the method of reporting of potential non-compliances and corrective actions taken;
 - (v) the table of contents of Compliance Assessment Reports; and
 - (vi) public availability of Compliance Assessment Reports.
- c. After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 6b the approval holder shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 6a.
- d. **The approval holder shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 6a for a period of seven years from the finalisation of each report. The approval holder shall make those reports available when requested by the CEO.**
- e. The approval holder shall advise the CEO of any potential or actual non-compliance within seven (7) days of that non-compliance being known.
- f. The approval holder shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this approval addressing the twelve (12) month period from the date of issue of this approval and then annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO.
- g. The Compliance Assessment Report shall:
 - (i) have the company seal affixed and be endorsed by the approval holder's Chief Executive Officer or a person delegated to sign on the Chief Executive Officer's behalf;
 - (ii) include a statement as to whether the approval holder has complied with the conditions;
 - (iii) identify all potential non-compliances and describe corrective and preventative actions taken;
 - (iv) be made publicly available in accordance with the approved Compliance Assessment Plan; and
 - (v) indicate any proposed changes to the Compliance Assessment Plan required by condition 6a.

7. Monitoring and auditing

- a. The approval holder must design and implement a monitoring program, to the satisfaction of the CEO, which demonstrates compliance with condition 10g and 10l of this environmental approval. The monitoring program must include:
 - (i) the collection of baseline data over an appropriate time period;
 - (ii) appropriate monitoring of relevant parameters in accordance with Appendix 2 of this approval;

- (iii) a system for recording and maintaining monitoring details and data records; and
 - (iv) a quality assurance and quality control system.
- b. The approval holder must develop and implement an environmental audit program for the site. The program must:
 - (i) be developed by a qualified person, and approved by the CEO prior to commissioning of the action;
 - (ii) verify that the safeguards specified in this environmental approval are implemented and maintained;
 - (iii) evaluate the effectiveness of the safeguards for the protection of the environment applied or adopted in relation to the action;
 - (iv) evaluate compliance with the conditions of this environmental approval; and
 - (v) verify that environmental monitoring, maintenance and record keeping are being undertaken in accordance with the Compliance Assessment Reporting process required under condition 6, and the approval holder's EMS.
- c. The audit program must include an audit within two (2) months of the completion of construction of the action, and an audit within two (2) months after the first year following commissioning of the action. Thereafter, auditing of the action will be conducted at a frequency determined by the CEO.
- d. The approval holder must ensure that, within 20 business days of conclusion of each environmental audit, it provides to the CEO:
 - (i) a written report on the environmental audit required by condition 7c that is prepared and signed by the qualified person who conducted the audit; and
 - (ii) a written report from the approval holder that responds to each potential and actual non-compliance identified in the written audit report.

8. Notification of environmental incidents

Notification of environmental incidents must be in accordance with Part 9 Division 8 of the *Environment Protection Act 2019* and Part 10 of the *Environment Protection Regulations 2020*.

In an emergency, the **NT EPA Pollution Response Hotline** should be notified in the first instance by telephoning **1800 064 567**.

9. Public availability of data

Subject to confidentiality of information requirements under Part 13, Division 3 of the *Environment Protection Act 2019*, within six (6) months of commencement of the action and for the remainder of the life of the action, the approval holder is required to publish and make publicly available, in the form and manner approved by the CEO, all available environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)), monitoring records, management plans, reports and audits relevant to the assessment of the action and implementation of the environmental approval.

Environmental Conditions

10. Marine environmental quality

The approval holder must ensure there are no attributable impacts from the action on the following environmental outcome:

Protect the quality and productivity of water, sediment and biota in Darwin Harbour so that environmental values are maintained.

To demonstrate that the outcome in condition 10 is met, the approval holder must:

- a. Take all reasonably practicable measures during the planning, design, construction, operation, remediation and closure of the action to avoid and mitigate impacts attributable to the action on the quality and productivity of water, sediment and biota beyond the boundary of the premises.
- b. Ensure there is no migration or overflow of a contaminant or waste beyond the boundary of the premises, which causes or may cause environmental harm.
- c. Ensure all fuel storage tanks are designed and constructed in accordance with API Standard 650 Welded tanks for oil storage, and must include:
 - (i) impermeable sub-grade release prevention barriers; and
 - (ii) undertank leak detection systems.
- d. Ensure that storage tanks and bunds on the premises are designed and constructed to minimise the potential for overflow of containment structures from dynamic pressure and product wave in the event of catastrophic tank failure.
- e. Take all reasonably practicable measures to ensure that stormwater within the premises does not come into contact with a contaminant, which causes or may cause environmental harm.
- f. Maintain capacity at all times to contain stormwater that has the potential to be contaminated within the boundary of the premises up to a 2% Annual Exceedance Probability 24-hour rainfall event. The height of bund walls must not be less than 3 metres.
- g. Ensure that any stormwater that has the potential to be contaminated with hydrocarbons is retained on the premises and treated through an oily water separation device to a quality in accordance with Table 1 of Appendix 2 of this approval.
- h. Ensure and be able to validate that any water (including stormwater) discharged from the premises does not contain a contaminant or waste, except as specifically authorised by another condition of this approval.
- i. Ensure that wastewater (not including sewage) is not discharged from the premises unless all other reasonably practicable measures for re-use or controlled removal of wastewater from the premises have been excluded, in accordance with the waste management hierarchy.
- j. Ensure any discharge of wastewater to the environment from the premises, after consideration of condition 10i, must:
 - (i) be controlled, such as through a pipe, in a manner that does not cause erosion;
 - (ii) be recorded, including details of the date, time, discharge point location, name of the person monitoring the discharge, and the volume and rate of discharge; and

- (iii) be of a quality that meets 95% species protection for marine water under the Australian & New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018), except as specifically authorised by another condition of this approval.
- k. Implement best available practices for:
 - (i) Handling, transport, storage, use and disposal of firefighting foams containing PFAS; and
 - (ii) Phasing out use of firefighting foams containing PFOA, PFOS, PFHxS, and precursor compounds to PFOA, PFOS, and PFHxS where this does not compromise safety requirements.
- l. The approval holder must conduct surface water and groundwater quality monitoring within the premises, in accordance with the monitoring program under condition 7 that measures the parameters listed in Appendix 2.

11. Air quality

The approval holder must ensure there are no attributable impacts from the action on the following environmental outcome:

Protect air quality and minimise emissions and their impacts on the Darwin airshed so that environmental values are maintained.

To demonstrate that the outcome in condition 11 is met, the approval holder must:

- a. Take all reasonably practicable measures during the planning, design, construction, operation, remediation and closure of the action to avoid and mitigate impacts attributable to the action on air quality beyond the boundary of the premises.
- b. Plan, design, construct, operate, remediate and close the action using best available techniques to minimise emissions of volatile organic compounds to air.
- c. Within 20 business days after the commencement of construction of the action, complete:
 - (i) a Level 1 air quality impact assessment (AQIA) of the operational design of the action; and
 - (ii) if required following completion of the Level 1 assessment, a Level 2 (refined dispersion modelling) AQIA for operation of the action.
- d. Undertake the AQIA in accordance with Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (State of NSW and Environment Protection Authority [EPA] 2016 or latest version), to the satisfaction of the CEO. An AQIA report must be provided to the CEO within 20 business days of completing the AQIA.
- e. Ensure control equipment for tanks storing jet fuel includes:
 - (i) in tanks with F34 flammable jet fuel, a floating cover constructed of material impervious to vapour that, under normal operating conditions, floats on the surface of the liquid inside a fixed roof; and
 - (ii) if the AQIA undertaken in accordance with conditions 11c and 11d indicates that there is the potential for significant impacts to air quality from the action beyond the boundary of the premises, a vapour recovery system (no incineration) at loading / unloading points.

- f. Implement emission mitigation measures for volatile organic compounds (no incineration) if the turnover of the total volume of 300 million litres (ML) of stored jet fuel on the premises is exceeded in any year.
- g. Undertake annual monitoring for total volatile organic compounds and BTEX at the boundary of the operating premises in accordance with approved air emission monitoring techniques in the Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (EPA 2016), or latest version, to the satisfaction of the CEO. The results from annual monitoring must be evaluated as part of the Compliance Assessment Reporting process required under condition 6.
- h. Within the period of the first turnover and during a period in which the action is operating under predicted maximum emission levels (i.e. during tank filling), undertake a sampling program to confirm the air emission performance of the premises. The sampling program must measure, as a minimum:
 - (i) organic vapours concentration at point source discharge point/s such as tank vents or vapour recovery systems using the appropriate test method/s.
- i. Within six weeks of sampling referred to in condition 11h (unless otherwise agreed by the CEO), provide a written verification report to the CEO. The report **will include**:
 - (i) **all analytical results of sampling required for all discharge points (any external report must be reproduced in full);**
 - (ii) **all relevant Australian Standard (AS) information in relation to establishing, siting, operating and maintaining meteorological monitoring equipment i.e. the latest versions of:**
 - a. **AM-1 Guide for the siting of sampling units (AS/NZS 3580.1.1)**
 - b. **AM-2 Guide for measurement of horizontal wind for air quality applications (AS 3580.14)**
 - c. **AM-4 Meteorological monitoring guidance for regulatory modelling applications (AS 3580.14 or USEPA 454/R-99-005).**

Also, the meteorological stations will use an anemometer with a stall speed of 0.5 m/s or less;

 - (iii) **a description of operational parameters during sampling relevant for air emissions estimates; and**
 - (iv) **a comparison of analytical results from sampling against final design emission specifications and modelled emission parameters in the AQIA required under conditions 11c and 11d.**
- j. **Ensure that where any comparison under condition 11i identifies measured emission concentrations or rates that are more than 15% greater than the emissions characteristics used in the AQIA or are greater than the Protection of the Environment Operations (Clean Air) Regulation 2021 standards of concentration:**
 - (i) **provide an updated validated air dispersion model report to confirm compliance with the impact assessment criteria contained in the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (EPA 2016) or the latest version; and**
 - (ii) **if requested by the CEO, identify and record as part of the EMS, measures to be implemented to reduce emissions of air pollutants so that they comply with the relevant NSW Clean Air Regulation standards and assessment criteria in the**

Approved Methods for the Modelling and Assessments of Air Pollutants in New South Wales (NSW EPA 2016) or the latest version.

- k. Ensure the final design, installation and operation of the plant does not preclude the ability for air pollution emissions controls to be retrofitted.

12. Closure of action

- a. The approval holder is required to assess the premises for contamination in accordance with the National Environment Protection (Assessment of Site Contamination) Measure (as amended from time to time). If the premises is contaminated, it must be remediated in accordance with the CRC CARE National Remediation Framework prior to closure of the action, or as otherwise specified to the satisfaction of the CEO.
- b. The approval holder must submit to the CEO a plan for closure of the action within a period not less than three (3) years prior to closure of the action, or within a period determined by the CEO if the environmental approval is revoked by the Minister.

Definitions

The terms used in this approval have the same meaning as the terms defined in the *Environment Protection Act 2019* and *Environment Protection Regulations 2020*.

Best available techniques	Techniques specified in Best Available Techniques Reference Document (BREF) 2006 'Emissions from storage' by the European Commission carried out under Article 16(2) of Council Directive 96/61/EC (Integrated Pollution Prevention Control Directive).
BTEX CEO	Air toxics - benzene, toluene, ethyl-benzene, xylene Chief Executive Officer of the Department of Environment, Parks and Water Security
Environmental harm	Environmental harm means direct or indirect alteration of the environment to its detriment or degradation, of any degree or duration, whether temporary or permanent.
Jet fuel	F34 (or JP-8) flammable jet fuel and F44 (or JP-5) combustible jet fuel stored at the premises.
Material environmental harm	Environmental harm that is not trivial or negligible in nature and is less serious than significant environmental harm.
Plant and equipment	All material items used in association with the activity, including (but not limited to) storage vessels and containers, pipe work and hosing, vehicles (including vessels), tools, and measuring equipment.
Premises	The premises identified in this approval which includes equipment, plant and structures, whether stationary or portable, and the land on which premises are situated.
Qualified person	A registered environmental auditor; or a registered environmental practitioner; or a person or class of persons, who have the qualifications and experience determined by the CEO for the purpose of this definition.
Significant environmental harm	Environmental harm that is of major consequence having regard to the context and intensity of the harm; and the sensitivity, value and quality of the environment harmed, and the duration, magnitude and geographic extent of the harm.
Stormwater	Water flowing over ground surfaces, in natural streams and drains as a direct result of rainfall over a catchment and consists primarily of rainfall runoff.
Turnover	The complete replacement of jet fuel stored in all tanks on the premises.
Waste	A solid, a liquid or a gas; or a mixture of such substances, that is or are left over, surplus or an unwanted by-product from any activity (whether or not the substance is of value) and includes a prescribed substance or class of substances.
Wastewater	Water that contains a contaminant or waste (excluding sewage in the case of this approval)
Water	Surface water, groundwater and tidal waters; and coastal waters of the Territory, within the meaning of the <i>Coastal Waters (Northern Territory Powers) Act 1980</i> (Cth); and water containing an impurity.

Appendix 1 Approved extent

The Proposal includes the development and operation of a bulk aviation turbine (jet) fuel storage facility on section 5720 Hundred of Bagot, within the East Arm precinct.

The fuel stored would include:

- JP-8 (Jet Propellant 8) – to meet the requirements of US Military Specification MIL-T-83188D - North Atlantic Treaty Organisation (NATO) Code F34
- JP-5 (Jet Propellant 5) – to meet the requirements of US Military Specification MIL-PRF-5624S Grade JP-5 - NATO Code F44

Fuel will be received and issued from ships berthed at East Arm Wharf via an extension to the pre-existing pipeline rack and pipeline, and from triple road trains via a load/unload gantry.

The Proposal includes:

- Construction of an access road
- Extension of an existing pipeline rack and pipeline
- Eleven jet fuel tanks with a total storage capacity of 330 million litres (ML) comprising
 - Four 30 ML tanks will store up to 111 ML of lower flash point (38°C) kerosene based jet fuel (F34).
 - Seven 30 ML tanks will store up to 190 ML of high flash point (>60°C) kerosene based jet fuel (F44)
- Storage compounds with concrete retaining walls, and flooring designed to contain spills
- Unsealed paved areas around storage compounds to allow emergency and crane access
- A common user facility incorporating:
 - a tanker loading gantry
 - additional park-up area required for triple road tankers
 - combined warehouse and administration building
 - firewater tanks/pumps
 - oily water separation.

The environmental approval applies to the premises as defined in the table below.

Table 1: Location of physical and operational elements

Element	Location
Bulk fuel storage facility	Section 5720 Hundred of Bagot, Freehold, Town Planning Zone DV, 740 Berrimah Rd.
Access road	Part Section 5673 Hundred of Bagot, Freehold, Town Planning Zone DV, 3 Salloo Street
Access road/laydown area	Part Section 6350 Hundred of Bagot, Freehold, Town Planning Zone MZ, 740 Berrimah Rd
New pipeline easement	<ul style="list-style-type: none"> • Section 5720 Hundred of Bagot, Freehold, Town Planning Zone DV, 740 Berrimah Rd. • Section 5719 (right of way behind Vopak), Hundred of Bagot, Freehold, Town Planning Zone MZ, 780 Berrimah Rd
Pipeline route	<ul style="list-style-type: none"> • Section 07219 Hundred of Bagot plan LTO2015/060 • N.T. Portion 05986, East Arm plan S2000/206 • Section 05717 Hundred of Bagot plan S2003/201 (access only) • Section 05719 Hundred of Bagot plan S2003/201 • Section 05720 Hundred of Bagot plan S2003/201 • Section 05783 Hundred of Bagot plan S2005/171A • Section 04443 Hundred of Bagot plan S921090

All coordinates are in metres, listed in Map Grid of Australia Zone 51 (MGA Zone 51), datum of Geocentric Datum of Australia 1994 (GDA94). Coordinates defining the:

- development envelope
- indicative underground pipeline route
- indicative disturbance footprint

are held by the Department of Environment, Parks and Water Security, Document Folder Reference NTEPA2021/0104.

Appendix 2 Water quality monitoring parameters

Table 1 - Discharge water quality monitoring parameters

Parameter ¹	Units of measure	Concentration limit	Frequency	Sampling method
Total Recoverable Hydrocarbons	milligrams per litre	10	Weekly during any discharge	Grab sample
pH	pH	7.0-8.5	Weekly during any discharge	Grab sample
Total Suspended Solids	milligrams per litre	30	Weekly during any discharge	Grab sample

¹Any water discharged to the environment must not contain any floating debris, oil, grease, petroleum hydrocarbon sheen, scum, or litter; or cause or generate odours which would adversely affect the use of surrounding waters.

Table 2 - Groundwater monitoring parameters

Parameter	Units of measure	Concentration limit	Frequency	Sampling Method
Standing water level	metres	-	Quarterly	In situ
Benzene	micrograms per litre	-	Quarterly	Representative sample
Ethyl benzene	micrograms per litre	-	Quarterly	Representative sample
pH	pH	-	Quarterly	Representative sample
Polycyclic aromatic hydrocarbons	micrograms per litre	-	Quarterly	Representative sample
Toluene	micrograms per litre	-	Quarterly	Representative sample
TPH	milligrams per litre	-	Quarterly	Representative sample
TPH C10-C14 Fraction	micrograms per litre	-	Quarterly	Representative sample
TPH C15-C28 Fraction	micrograms per litre	-	Quarterly	Representative sample
TPH C29-C36 Fraction	micrograms per litre	-	Quarterly	Representative sample
TPH C6-C9 Fraction	micrograms per litre	-	Quarterly	Representative sample
Xylene	micrograms per litre	-	Quarterly	Representative sample
PFAS (per and poly-fluoroalkyl substances)	µg/L	-	Quarterly	Representative sample

¹Trigger investigation levels for toxicants at 95% species protection level (Australian and New Zealand Guidelines for Fresh and Marine Water Quality, 2018)

- Detected in sample (above the limit of detection).

