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P-WGP2-058	Rev 2A	1/08/2024

MITSUI E&P Australia

Waitsia Gas Project Stage 2 – Management of Flaring

Disclaimer:

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

RELATED DOCUMENTS

This document should be read in conjunction with following documents:

Document Number	Document Title
MS 1164	Ministerial Statement 1164: Waitsia Gas Project Stage 2
P-WGP2-059	Waitsia Gas Project Stage 2- Greenhouse Gas Management Plan

TERMS, ABBREVIATIONS AND DEFINITIONS

Term or Abbreviation	Definition
ARI	Assessment of Referral Information
CAR	Compliance Assessment Report
CO_2	Carbon Dioxide
DWER	Department of Water and Environmental Regulation
ESD	Emergency Shutdown
Flare Stack	An elevated vertical pipe used so that ignition and combustion of gas takes place at a considerable height predominately for safety purposes.
Irwin Park Farm	Farming property in the Waitsia Gas Project Stage 2 Development Envelope owned by MEPAU
MEPAU	Mitsui E&P Australia
MS	Ministerial Statement
NEPM	National Environment Protection Measure
Non-routine flaring[1]	Non-routine flaring of gas is all flaring other than routine and safety flaring. Non-routine flaring is typically intermittent and of short duration. It is either planned or unplanned. Includes flaring during: • Temporary (partial) failure of equipment that handles the gas during normal operations, until their repair or replacement, e.g. failure of compressors, pipeline, instrumentation, controls; • Temporary failure of a customer's facilities that prevents receipt of the gas; • Initial plant/field startup before the process reaches steady operating conditions and/or before gas compressors are commissioned; • Startup following facility shutdowns; • Scheduled preventive maintenance and inspections; • Construction activities, such as tie-ins, change of operating conditions, plant design modifications; • Process upsets when process parameters fall outside the allowable operating or design limits and flaring is required to stabilize the process again;

Term or Abbreviation	Definition
	• Reservoir or well maintenance activities such as acidification, wire line interventions; • Exploration-, appraisal-, or production-well testing or cleanup following drilling or well work-over.
PJ	Petajoule
Pilot flame	A pilot flame is a flame required to maintain the flare system operational in a safe and ready condition.
Routine flaring	As described by The World Bank (2020), routine flaring of gas is flaring during normal oil production operations in the absence of sufficient facilities or amenable geology to re-inject the produced gas, utilize it on-site, or dispatch it to a market.
Safety flaring[1]	Safety flaring includes flaring of: • Gas stemming from an accident or incident that jeopardizes the safe operation of the facility; • Blow-down gas following emergency shutdown to prevent over-pressurization of all or part of the process system; • Gas required to maintain the flare system in a safe and ready condition (purge gas/make-up gas/fuel gas); • Gas required for a flare's pilot flame; • Gas produced as a result of specific safety-related operations, such as safety testing, leak testing, or emergency shutdown testing; • Gas containing H2S, including the volume of gas added to ensure good dispersion and combustion; Gas containing high levels of volatile organic compounds other than methane.
Standard API 537	*Flare Details for Petroleum, Petrochemical, and Natural Gas Industries*
The Proposal	The Waitsia Gas Project Stage 2
WGP	Waitsia Gas Plant
WGP2	Waitsia Gas Project Stage 2
ZRF 2030	The World Banks 'Zero Routine Flaring by 2030' Initiative

[1]Global Gas Flaring Reduction Partnership 2016

1.0 SUMMARY

A summary of this Management of Flaring Plan is provided in Table 1-1.

Table 1-1 Summary of the Proposal

Proposal Title	Waitsia Gas Project Stage 2 (WGP2)
Proponent Name:	MEPAU Perth Basin Pty Ltd
Purpose of this Flaring Management Plan:	The purpose of this Management of Flaring Plan is to outline the management of flaring at the Waitsia Gas Plant (WGP) and to identify the direct and potential indirect impacts associated with visual amenity and develop management measures that minimises impacts associated with the implementation of the Proposal. This Management of Flaring Plan has been prepared in line with the Instructions on how to prepare *Environmental Protection (EP) Act* 1986 Part IV Environmental Management Plans (EPA 2024).
Ministerial Statement:	The Proposal has been assessed by the EPA (Assessment 2226) and on 1 February 2021, a Ministerial Approval was received via Ministerial Statement (MS) 1164, with associated Proposal implementation conditions.
Condition Clauses:	Condition 9
Proposed Construction and Operation Dates:	Construction of the Proposal commenced in July 2021 and is anticipated to be finalised by mid-2026. The Waitsia Gas Plant (WGP) is expected to be operational for at least 20 years.
Plan Required Pre-Construction:	Yes.
Key Environmental Factor/s and Objective/s:	Key environmental factor: Air Quality and Social Surroundings – Visual Amenity **EPA Objective(s):** Air Quality: To maintain air quality and minimise emissions so that environmental values are protected. Social Surroundings: To protect social surroundings from significant harm. **Management Plan Objective:** No adverse impact on visual amenity or air quality from flaring as a result of implementation of the Proposal.
Key Provisions:	The purpose of this Management of Flaring Plan is to provide further details on the following: • An outline of the management actions for flaring at the WGP site location; • Identify impacts of flaring from the WGP to visual amenity; • Identify impacts of flaring from the WGP on air quality; • Detail the commitment to World Banks Zero Routine Flaring by 2030 Initiative; and • Compliance with the Western Australian Government's position on routine flaring.

1.1 Ministerial Statement 1164 Conditions

Table 1-2 provides a summary of the conditions outlined in MS 1164 in relation to the Management of Flaring Plan and the relevant sections of the Management of Flaring Plan where these conditions have been addressed[2].

Table 1-2 Summary of MS 1164 Conditions Relating to the Management of Flaring Plan

MS 1164 Condition No.	Description	Location in Document
9	**Flaring Management Plan**	-
9-1	The proponent shall implement the proposal to achieve the following environmental objective: (1) no adverse impact on visual amenity as a result of implementation of the proposal.	
9-2	In order to meet the objective of condition 9-1, the proponent shall implement the *Waitsia Gas Project Stage 2: Management of Flaring Plan* (*P-WGP2-058 Rev 1, May 2020*). This plan shall: (1) specify the management actions for flaring at the Waitsia Gas Plant site; (2) identify impacts of flaring from the Waitsia Gas Plant to visual amenity; (3) identify impacts of flaring from the Waitsia Gas Plant on air quality; and (4) detail the commitment to the World Bank's Zero Routine Flaring by 2030 initiative.	Section 4.0
9-3	The proponent: (1) may review and revise the Management of Flaring Plan; or (2) shall review and revise the Management of Flaring Plan as and when directed by the CEO.	Section 5.0
9-4	The proponent shall implement the latest revision of the *Waitsia Gas Project Stage 2: Management of Flaring Plan* (*P-WGP2-058 Rev 1, May 2020*) or any subsequent revisions as approved by the CEO in condition 9-3, until the CEO has confirmed by notice in writing that the proponent has demonstrated that the environmental objective detailed in condition 9-1 has been met.	Section 7.0

[2] MEPAU's Compliance Assessment Plan [WAT-HSE-PLN-00004] outlines MEPAU's approach to compliance with all conditions of MS 1164.

2.0 INTRODUCTION

MEPAU Perth Basin Pty Ltd is a wholly-owned subsidiary of Mitsui E&P Australia Holdings Pty Ltd, which in turn is a wholly-owned subsidiary of Mitsui & Co., Ltd. The Mitsui E&P Australia Holdings Pty Ltd group of companies operates under the brand Mitsui E&P Australia (MEPAU).

3.0 CONTEXT

This Management of Flaring Plan has been prepared to support the assessment, approval and implementation of the Proposal under Part IV of the *Environmental Protection Act* 1986 (EP Act).

The WGP2 was referred under the EP Act to the Environmental Protection Authority (EPA) on 23 August 2019 (EPA Assessment 2226). The EPA assessed the WGP2 as a significant proposal, through Assessment of Referral Information (ARI). The ARI included additional information requested under Section 40(2)(a) of the EP Act including this Management of Flaring Plan, which was subject to a two-week public review period. On 1 February 2021, Ministerial Approval was received for the Proposal via Ministerial Statement (MS) 1164.

Under s. 45C application of the EP Act, an application to amend the Development Envelope was submitted to the EPA due to further refine the well locations/reservoir targets and make associated minor changes to the flowline routes. MS 1164 was amended on 4 October 2021.

A s.45C application of the EP Act was submitted to the EPA on 22 November 2023 to amend the development envelope and footprint and increase the number of gas production wells to a maximum of nineteen (19) to allow further development of the Waitsia Gas Field and to enable the approved production rate to be achieved over the life of the Proposal. MS 1164 was amended on 17 April 2024.

This Management of Flaring Plan was initially prepared during the ARI assessment phase and has been updated in line with the “Instructions on how to prepare EP Act Part IV Environmental Management Plans” (EPA, 2018).

3.1 Proposal

The Proposal (known as WGP2) is a conventional gas proposal located approximately 16 km East-South-East of the Dongara-Port Denison town sites (Figure 3-1). It includes the construction and operation of the 91.25 Petajoule per annum WGP, related wells and gas gathering infrastructure. Table 3-1provides a summary of the WGP2.

Table 3-1 Proposal Overview

Proposal Title	Waitsia Gas Project Stage 2
Proponent Activities	Development of a conventional gas reservoir by designing and constructing wells, a gathering system, gas processing plant and export pipeline to the Dampier to Bunbury Natural Gas Pipeline (DBNGP).
Short Description	Waitsia Stage 2 includes the following components: • Construction and operation of the WGP with a maximum export capacity of 91.25 Petajoule (PJ) per annum; • Up to nineteen (19) gas production wells; • Constructing of a (~1 km) pipeline (PL 128) to connect the WGP to the existing Waitsia Export Pipeline (PL 124); • Installation of a gas gathering system comprising flowlines and hubs to convey the extracted gas to the WGP and the gas distribution network; • Installation of a flowline from the WGP to up to three (3) water re-injection wells to re-inject produced water into a disused petroleum formation; • Clearing of no more than 16.5 ha of native vegetation within a 580.9 ha development envelope; • Disturbance footprint of up to 479.2 ha within the 580.9 ha development envelope; and • Scope 1 Emissions up to ~300,000 tCO_2-e per annum.

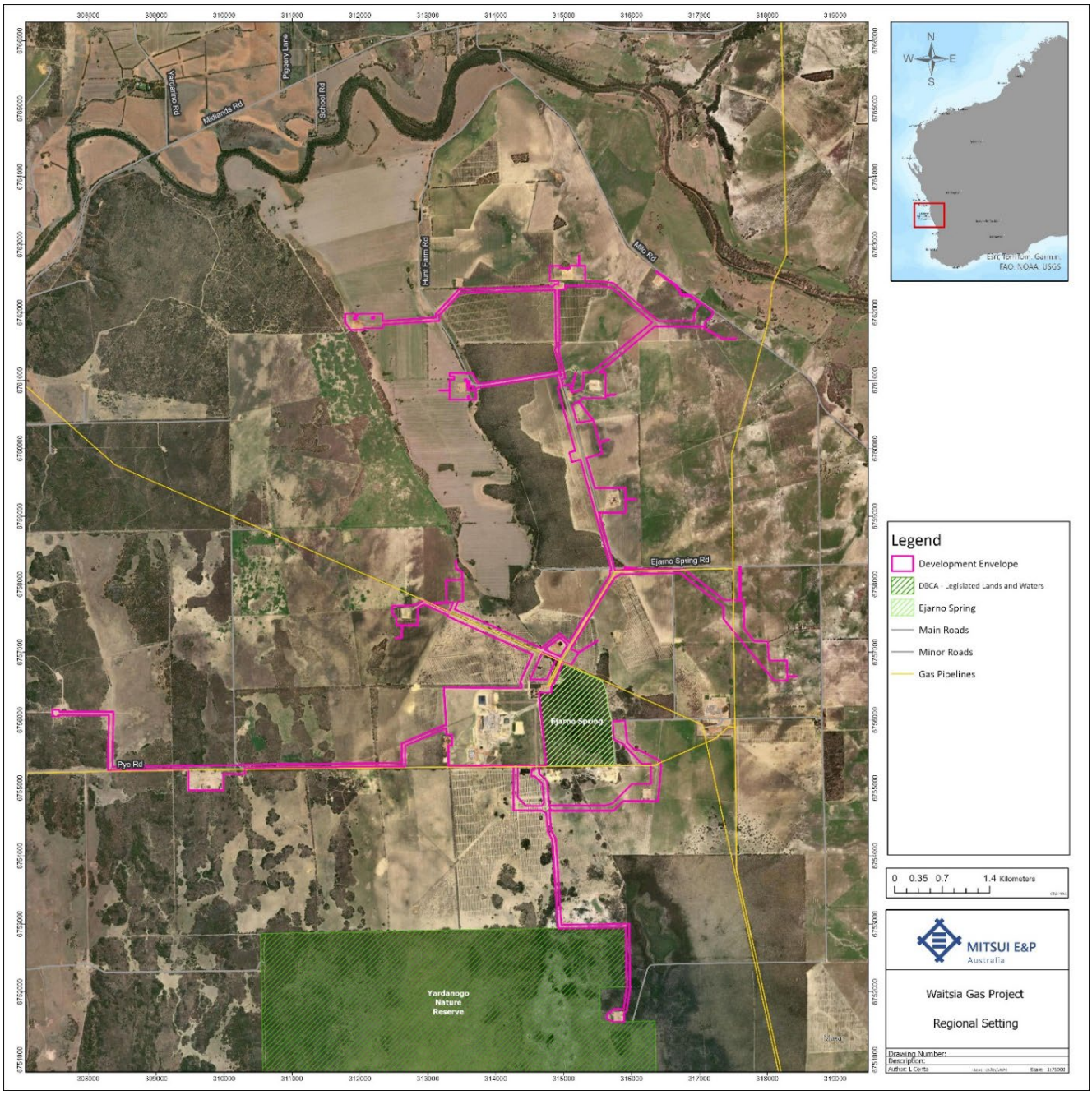

Figure 3-1 Regional Setting

3.1.1 Line of Sight

A line of sight assessment for surrounding landowners and the Irwin Town Site within close proximity to the WGP was completed during the ARI process and is provided in Table 3-2 and shown in Attachment 1 to 6. As identified in the assessment, given the distance and elevation from the residences to the WGP, flare stack, safety flaring and non-routine flaring are not expected to create a significant change to air quality or adverse visual amenity impact to nearby sensitive receptors, whether during the day or night. The results were shared with surrounding landowners as well as the broader community at a Community Information Exchange Session.

Table 3-2 WGP to Nearest Residence

Residence Name	Line of Sight (km)	Flare Visibility
A	4.7	Not visible due to elevation and slope
B	2.6	Not visible due to elevation and slope
C	6.6	Not visible due to elevation
D	4.3	Not visible due to elevation and slope
Irwin Townsite	10.4	Not visible due to elevation

3.2 Key Environmental Factors

The preliminary key environmental factors that have been identified by the EPA from implementation of the Proposal includes: Air Quality, Flora and Vegetation, Inland Waters, and Social Surroundings (Visual Amenity). A summary of the Air Quality and Social Surroundings (Visual Amenity) key environmental factors with a specific focus on the impacts of flaring on surrounding landowners and the Irwin Town Site from the WGP are detailed in in Table 3-3.

Impacts from flaring will be managed via the management measures detailed in Section 0.

Table 3-3 Summary of Key Environmental Factor – Air Quality and Visual Amenity

Air Quality and Visual Amenity	
EPA objectives	• To maintain air quality and minimise emissions so that environmental values are protected. • To protect social surroundings from significant harm.
Policy and guidance	• Environmental Factor Guideline - Air Quality (EPA, 2020) • Environmental Factor Guideline – Social Surroundings (EPA, 2023) • Part V of the *Environmental Protection Act* 1986 • *Petroleum and Geothermal Energy Resources Act* 1967
Potential impacts – direct impacts	• Potential adverse impacts from flaring operations on visual amenity to surrounding landowners; • Potential impacts from flaring emissions on air quality to surrounding landowners.
Potential impacts – indirect impacts	• Greenhouse gas emissions are minimised (refer to Greenhouse Gas Management Plan [P-WGP2-059]).

3.3 Condition Requirements

The WGP2 has been assessed by the EPA (Assessment 2226) and on 1 February 2021, Ministerial Approval was received via Ministerial Statement No. 1164. Condition 9 outlines the objectives, requirements for implementation and reporting associated with this Management of Flaring Plan.

3.4 Rationale and Approach

A number of key information sources and aspects inform the rationale and approach of the management provisions outlined in Section 0. This section provides a concise description of the rationale and approach for this Management of Flaring Plan. Specially, the following sub-sections summarise:

- Study findings (Section 3.4.1);
- Key assumptions and uncertainties (Section 0);
- Management Approach (Section 0); and
- Rationale for Choice of Provisions (Section 3.4.4).

3.4.1 Study Findings

A number of studies were undertaken or reviewed to assess the feasibility and practicability of various design components and aspects of the Proposal. Table 3-4 provides a summary of these studies.

Table 3-4 Study Findings

Study	Description of Findings
Operations philosophy - Combustion and Flaring over venting	The operating philosophical approach for the operation of the WGP is combustion or flaring instead of cold venting. Flaring is only expected to occur at infrequent intervals during non-operational activities. Consequently, flaring is not expected to significantly contribute to visual amenity impacts.
WGP location – siting	Several locations were assessed within the local area for installation of the WGP and the chosen option was determined to have the least potential impact on surrounding sensitive receptors. The siting of the WGP, located on farmland, was chosen to be at a greater distance from residences and the flare is located at a lower gradient with surrounding hills and bushland than the other options. The chosen siting of the WGP followed consultation with surrounding landowners.
WGP design	The WGP has been designed in accordance with the World Bank's "Zero Routine Flaring 2030" initiative to more efficiently manage natural gas resources and reduce greenhouse gas emissions to the atmosphere. Adopted the applicable industry standards for the selection, design, specification, operation, and maintenance of flares, also ensures greenhouse gas emissions are minimised.
WGP Flare operation	An emergency flare connected to a flare header and knock-out drum system is provided to allow relief stream, blowdowns and vents to be directed safely to atmosphere. A flare drum is used to knockout any liquids from the gas to ensure liquids are not routed to the flare. The flare will operate with a pilot light under normal operation and gas will be re-routed to the flare under an emergency scenario. Pilots and flare purge will operate continuously.
WGP flare design – pilot flame	As detailed in the Environmental Referral Supporting Report (MEPAU, 2019), MEPAU reviewed and assessed a wide range of processing technologies to identify the method that provided the most effective and therefore lowest impact technology for the Proposal. MEPAU has designed a flare system at the WGP, that meets industry standards including API 537 and 521. The flare is shrouded to minimise light emissions during normal operations. Flare pilots are needed in continuous service to ensure safe combustion of the flare contents, reducing GHG emissions and safe operation of the flare system.
WGP design – flaring frequency	Gas recirculation will be used upon WGP start up (including after planned/unplanned shutdowns) will minimise the need to flare off-specification gas, reducing the frequency of flaring and reducing the potential for adverse visual impacts to surrounding sensitive receptors.
WGP flare design – flare height	The minimum flare height above ground level is conditioned under Part V, noting that the flare is located down gradient of the WGP, and the flare tip is located in a low point of the surrounding valley, which limits the visibility of flare flame during flare events.

3.4.2 Key Assumptions and Uncertainties

The key assumptions and uncertainties that MEPAU have made with respect to the proposed approach to managing visual amenity and air quality emissions are summarised in Table 3-5.

Table 3-5 Assumptions and Uncertainties in Flaring Management

No.	Assumptions and Uncertainties
1	One planned shutdown of WGP annually for emergency shutdown (ESD) testing.
2	One planned blowdown every 4 years of WGP will occur for blowdown system testing.
3	Estimated annual flare GHG emissions are provided in the Greenhouse Gas Management Plan.
4	New residences built in the area will have regard to visual impacts associated with flaring.

3.4.3 Management Approach

MEPAU plans to implement objective and management-based provisions under this Management of Flaring Plan. The management approach is based on the following objectives:

- Adopting design, technology and management measures to mitigate air emissions and visual amenity concerns, having regard to the as low as reasonably practicable principle; and
- Alignment with the State Government's commitment to Zero Routine Flaring by 2030 (ZRF 2030) Initiative.

3.4.4 Rationale for Choice of Provisions

The management provisions proposed are based on the following rationale:

- Emergency blowdown that allows MEPAU to safely manage large volumes of hydrocarbon gas in a process upset / emergency situation whereby hydrocarbon inventory can be safely depressurised in a controlled manner;
- Planned maintenance to ensure reliability of the emergency shutdown and blowdown system; and
- Unplanned process upsets.

4.0 FLARING MANAGEMENT

An environmental objective has been developed to mitigate environmental impacts on social surroundings associated with the implementation of the WGP2. Table 4-1 details the environmental objective for this Management of Flaring Plan.

Table 4-1 Environmental Objective

Potential Impact	Environmental Objective
Reduction in visual amenity and air quality from flaring	No adverse impacts from flaring on visual amenity or air quality as a result of implementation of the Proposal.

4.1 Flaring Management Plan Provisions

Table 4-2 identifies the management-based provisions that MEPAU will implement to ensure that the environment outcomes are met during the implementation of the WGP2.

Measurement and reduction of emissions is dealt with under the Greenhouse Gas Management Plan [P-WGP2-059] and the two documents should be reviewed together.

Table 4-2 Environmental Management Approach for Flaring

EPA Objectives		To maintain air quality and minimise emissions so that environmental values are protected. To protect social surroundings from significant harm		
Impact	**Management Objective**	**Management Approach**	**Monitoring**	**Reporting**
Reduction in visual amenity and air quality from flaring	No adverse impact on visual amenity or air quality from flaring as a result of implementation of the Proposal.	MEPAU has designed a flare system at the WGP adhering to the requirements of applicable industry standards including API 537 and 521. The flare system includes: • A flare stack that will be approximately 25 m in height; • A constant pilot flame that is shrouded such that minimal flame is visible during normal operations; • Flare pilots are required in continuous service to ensure safe combustion of the flare contents, reducing GHG emissions and safe operation of the flare system; • A smokeless flame[3] during normal operations; and • An operating philosophy[4] that mandates industry best practice of combustion or flaring instead of cold venting. The flaring of gas is only expected to occur for safety flaring and non-routine flaring purposes, as defined in the Terms and Definitions section of the document. Any complaints received from stakeholders regarding reduction in visual amenity or air quality due to flaring will be recorded and actioned.	Review event management system for complaints.	• Ministerial Conditions Annual Compliance Assessment Report (CAR).
		Non-routine flaring or safety flaring events that may infrequently occur will result in a flame temporarily higher. During such events the flame will be visible at the WGP, however due to the selection of the WGP location, the local terrain and the height of the flare, the flame is not expected to be visible at nearby sensitive receptors (shown in Attachments 1 through 6).: • A plan of the distance to the nearest surrounding landowners and the town site of Irwin) from the WGP flare stack; and • Line of sight plan, demonstrating distance and elevation from the sensitive receptors to the WGP flare stack. Both safety flaring and non-routine flaring are not expected to create a significant visual amenity impact to nearby sensitive receptors, during day or night periods. MEPAU has developed an operational protocol that includes actions for engagement with surrounding landowners, including notification of non-routine flaring. Should non-routine flaring be expected such as during commissioning activities, Production Operations will contact the Land Management function ahead of flaring, so that affected landowners can be notified. Within 7 days of the first non-routine flaring event – MEPAU will contact the surrounding landowners to discuss flaring and solicit feedback on impacts to visual amenity and air quality. MEPAU will use feedback to inform requirement for further engagement on the issue with individual landowners. At a minimum, MEPAU will ensure impacts of flaring on visual amenity and air quality is discussed with surrounding landowners at least annually.	Annually review the event management system for landowner feedback.	• Ministerial Conditions Annual CAR.

[3] Defined as being less than Ringelmann 1, as measured using methodology as per AS 3543:2014, *Use of standard Ringelmann and Australian Standard miniature smoke charts.*

[4] Cold venting results in the release of methane, carbon dioxide, volatile organic compounds, sulphur compounds and gas impurities to the atmosphere. Combustion or flaring causes these gases to oxidise and form carbon dioxide, which, when compared to methane, has significantly lower global warming potential. By adopting the operating philosophy that combustion or flaring are the preferred methods of disposal of hydrocarbon during upset or abnormal operating conditions, emissions associated with this activity are reduced to as low as reasonably practicable.

EPA Objectives		To maintain air quality and minimise emissions so that environmental values are protected. To protect social surroundings from significant harm		
Impact	**Management Objective**	**Management Approach**	**Monitoring**	**Reporting**
		MEPAU notes that flaring effectively reduces the volume of gas available for export to market and is thus minimised, as far as is practicable, due to both commercial and environmental considerations. During the WGP2 operations MEPAU will ensure to: • Operate pilot flames during routine operations to ensure availability to operate as a safety flare when required (this ensures emissions from flaring are minimised); • Not undertake routine flaring of gas; and • Minimise non-routine and safety flaring of gas. Alignment with the State Government's commitment to Zero Routine Flaring by 2030 (ZRF 2030) Initiative. Further discussed in Section 4.1.2..	Annually review of flaring records.	• Ministerial Conditions Annual CAR

4.1.1 Operational Flaring Controls – Commissioning

During commissioning of the WGP it is likely that more frequent non-routine flaring events will occur. This is primarily associated with the requirements to achieve safe operating conditions within the WGP. The WGP design includes a full plant recycle, to reduce the frequency of using flaring to bring the WGP to operational specifications.

The safe and efficient commissioning of the WGP is managed and controlled by the use of commissioning plans, commissioning procedures, and the permit to work system, all of which are developed and reviewed by the commissioning and operations teams for safety, efficiency and interactions across numerous work fronts. It is an objective of commissioning plans and procedures that flaring and gas (hydrocarbon) wastage is minimised, while still ensuring safe operating conditions are always achieved. Commissioning programs and plans will be reviewed daily and at each step throughout the commissioning phase of the Proposal.

All equipment that can contribute to flaring gas (e.g. pressure relief and blowdown valves) are pre-tested and certified to operate as specified. This verification is managed and controlled with the supply vendors by the project design and construction teams. The commissioning teams then cross verifies these compliances.

The first stages of commissioning (as per the commissioning procedures) will involve pressure and leak testing of the installed systems using a non-hydrocarbon source (e.g. water, air or nitrogen). Leak points and critical valves are all checked and rechecked at increasing pressure testing stages for leaks and operating problems. If leaks to the flare occur during this phase, then there are nil gas emissions to the flare. As would be detailed in the commissioning procedures, only once the systems have been tested to planned testing pressures (and confirmed compliant to design specifications), will hydrocarbons be introduced to the WGP systems, which could become a source of emissions via the flare.

The next stages of commissioning will be purging processing systems to remove oxygen, ensuring safe conditions are achieved before the first introduction of hydrocarbons. These purge stages can result in flaring to achieve safe operating conditions. These steps, times and gas flared volumes are all managed in accordance with the commissioning plans and procedures.

All flared volumes are metered and accounted for within the design of the WGP, which will be operational before the first introduction of hydrocarbons.

4.1.2 Zero Routine Flaring by 2030 (ZRF 2030) Initiative

The World Bank established the ZRF 2030 Initiative to bring together governments, oil companies and development institutions who agree to cooperate to eliminate routine flaring[5] no later than 2030. The ZRF 2030 Initiative, is premised on routine flaring (as described above), not being sustainable from a resource management and environmental perspective.

WGP2 is consistent with the ZRF 2030 Initiative in that from the initial commencement of operations, routine flaring will not be undertaken.

[5] The ZRF 2030 Initiative relates to routine flaring and not safety flaring, exploration testing or non-routine flaring.

4.1.2.1 West Australian State Government Commitment to Zero Routine Flaring

In February 2019 the West Australian Government became the first Australian jurisdiction to endorse the World Bank's ZRF 2030 Initiative.

Companies operating oil fields in Western Australia are therefore required to comply with the Initiative. The WGP2 complies with the ZRF 2030 Initiative and the Western Australian Government's commitment.

5.0 MANAGEMENT PLAN REVIEW

This Management of Flaring Plan is intended to be dynamic and may be updated to reflect changes in management practices and the natural environment over time. This approach will allow flexibility to adopt new approaches/management measures.

Amendments to management actions will be made on an "as needs" basis. This will include:

- Amendment of management actions that are not achieving the desired outcomes;
- Monitoring that identifies additional impacts requiring additional management actions or changes to existing management actions;
- Changes to relevant legislation that may affect the implementation of management actions; and/or
- Improvements to management practices to achieve a greater environmental outcome.

6.0 STAKEHOLDER CONSULTATION

Consistent with the EPA's expectations for this Management of Flaring Plan to align with the principles of Environmental Impact Assessment, MEPAU consulted with relevant stakeholders. MEPAU will continue to maintain effective communication with local and regional stakeholders throughout the delivery of the WGP2.

A summary of stakeholder consultation outcomes completed as of August 2019 is provided in Table 3-1 of the *Environmental Referral Supporting Report* (MEPAU, 2019).

Any additional consultation regarding this Management of Flaring Plan will be captured in subsequent revisions.

7.0 PUBLIC AVAILABILITY

A copy of this Management of Flaring Plan is available on the MEPAU website. As per MEPAU's Compliance Assessment Plan [WAT-HSE-PLN-00004], this Management of Flaring Plan and any associated validated environmental data shall be made available to members of the public within 7 days of MEPAU receiving such a request.

8.0 REFERENCES

1. Environmental Protection Authority (EPA). 2024. Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans. EPA, Government of Western Australia.
2. Environmental Protection Authority (EPA). 2020. Environmental Factor Guideline – Air Quality.
3. Environmental Protection Authority (EPA). 2023. Environmental Factor Guideline – Social Surroundings.
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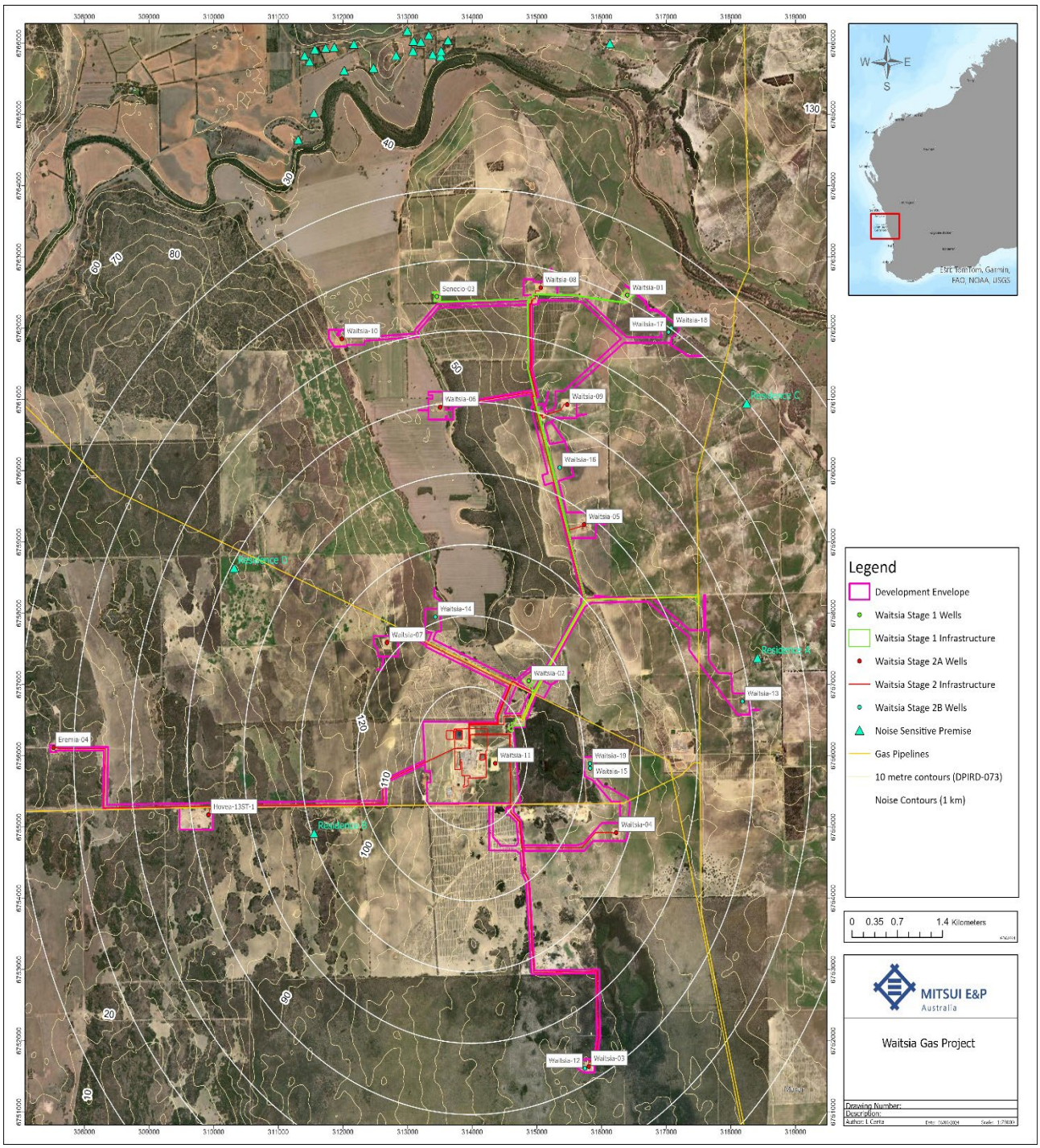
5. Mitsui E&P Australia (MEPAU). 2019. Waitsia Gas Project Stage 2 – Environmental Referral Supporting Report. http://www.epa.wa.gov.au/sites/default/files/Referral_Documentation/Supporting%20Document_7.pdf
6. National Environment Protection Council (NEPC). 2020. National Environment Protection Measures (NEPMs) Accessed 21 January 2020 http://www.nepc.gov.au/nepms
7. Ramboll. 2019. Waitsia Gas Project – Stage 2 – Air Dispersion Modelling in MEPAU (2019) Mitsui E&P Australia (MEPAU) (2019). Waitsia Gas Project Stage 2 Appendix E. http://www.epa.wa.gov.au/sites/default/files/Referral_Documentation/Appendix%20E%20-%20Air%20Dispersion%20Modelling.pdf
8. The World Bank. 2020. Zero Routine Flaring by 2030. Accessed 15 January 2020.https://www.worldbank.org/en/programs/zero-routine-flaring-by-2030

ATTACHMENTS

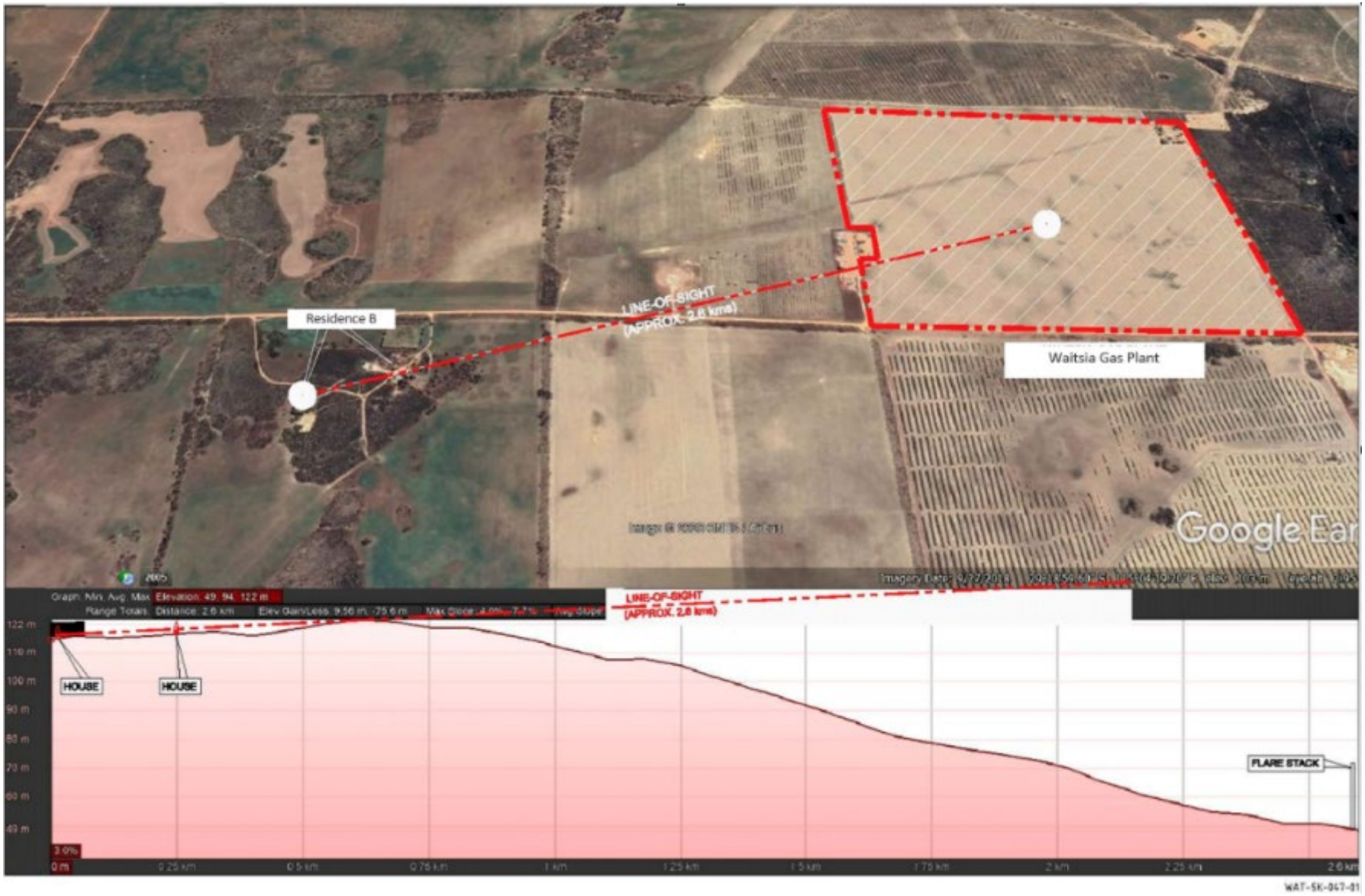
ATTACHMENT 1
IMPACTS OF FLARING ON VISUAL AMENITY –WAITSIA GAS PLANT TO NEAREST SENSITIVE RECEPTORS


Legend
Development Envelope
Waitsia Stage 1 Wells
Waitsia Stage 1 Infrastructure
Waitsia Stage 2A Wells
Waitsia Stage 2 Infrastructure
Waitsia Stage 2B Wells
Noise Sensitive Premise
Gas Pipelines
10 metre contours (DPIRD-073)
Noise Contours (1 km)
0 0.35 0.7 1.4 Kilometers
MITSUI E&P
Australia
Waitsia Gas Project
Drawing Number:
Description:
Author: L Certa
Residence B
Residence C
Residence D
Residence E
Residence F
Waitsia-01
Waitsia-02
Waitsia-03
Waitsia-04
Waitsia-05
Waitsia-06
Waitsia-07
Waitsia-08
Waitsia-09
Waitsia-10
Waitsia-11
Waitsia-12
Waitsia-13
Waitsia-14
Waitsia-15
Waitsia-16
Waitsia-17
Waitsia-18
Senecio-03
Eremia-04
Hovea-13ST-1

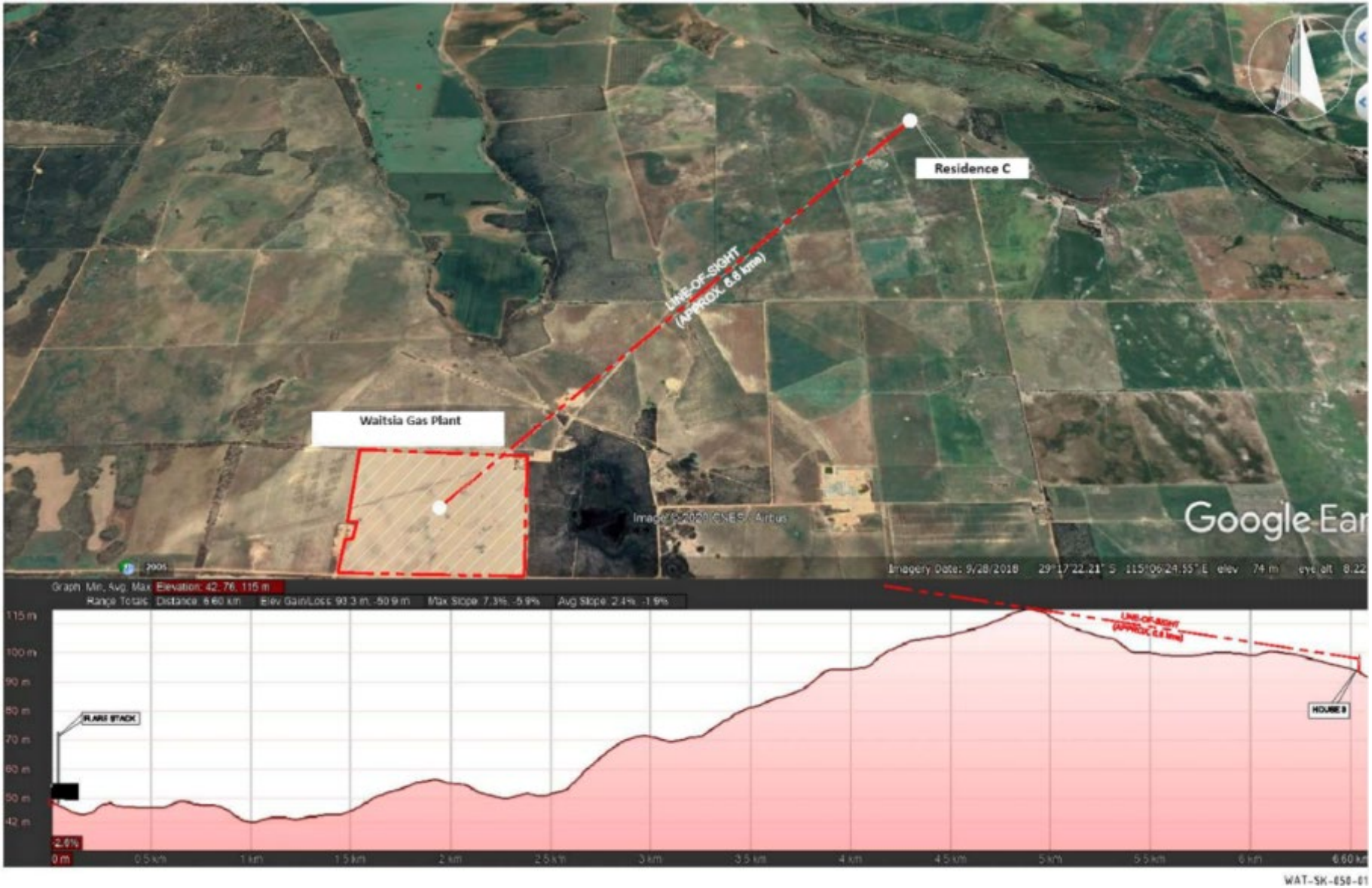
ATTACHMENT 2
IMPACTS OF FLARING ON VISUAL AMENITY – LINE OF SIGHT - WAITSIA GAS PLANT TO RESIDENCE A


Residence A
LINE-OF-SIGHT
(APPROX. 4.7 km)
Waitsia Gas Plant
Imagery Date: 9/28/2018
Graph: Min, Avg, Max Elevation: 36, 68, 121 m
Range Totals: Distance: 4.75 km
Elev Gain/Loss: 98.3 m, -26.9 m
Max Slope: 7.6%, -5.5%
Avg Slope: 2.9%, -1.9%
121 m
100 m
75 m
50 m
36 m
FLARE STACK
LINE-OF-SIGHT
(APPROX. 4.7 km)
0.5 km
1 km
1.5 km
2 km
2.5 km
3 km
3.5 km
4 km

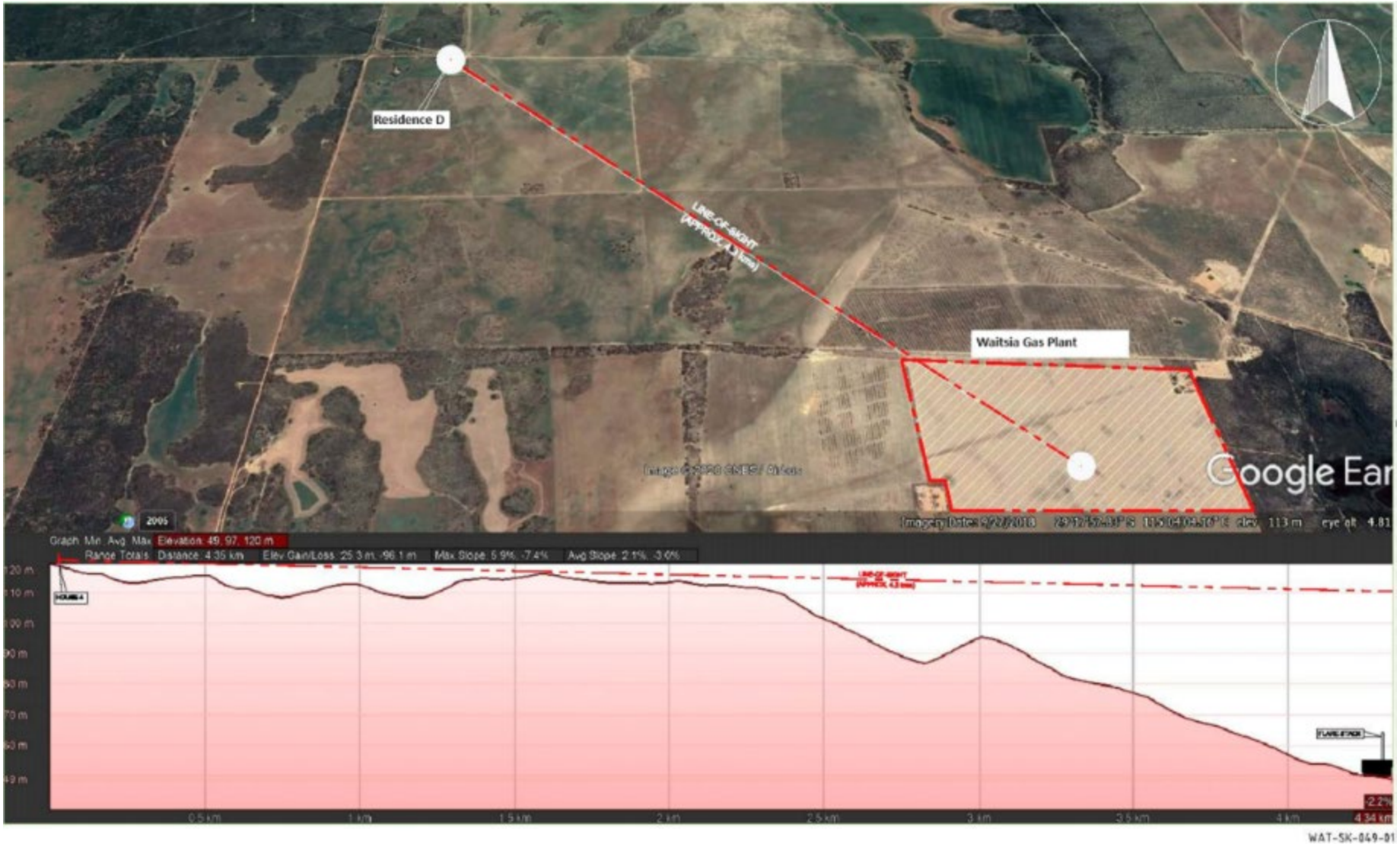
ATTACHMENT 3
IMPACTS OF FLARING ON VISUAL AMENITY – LINE OF SIGHT - WAITSIA GAS PLANT TO RESIDENCE B


Residence B
LINE-OF-SIGHT
(APPROX. 2.8 kms)
Waitsia Gas Plant
Google Ear
LINE-OF-SIGHT
(APPROX. 2.8 kms)
HOUSE
HOUSE
FLARE STACK
122 m
110 m
100 m
90 m
80 m
70 m
60 m
40 m
0 m
0.25 km
0.5 km
0.75 km
1 km
1.25 km
1.5 km
1.75 km
2 km
2.25 km
2.6 km
WAT-SK-047-01

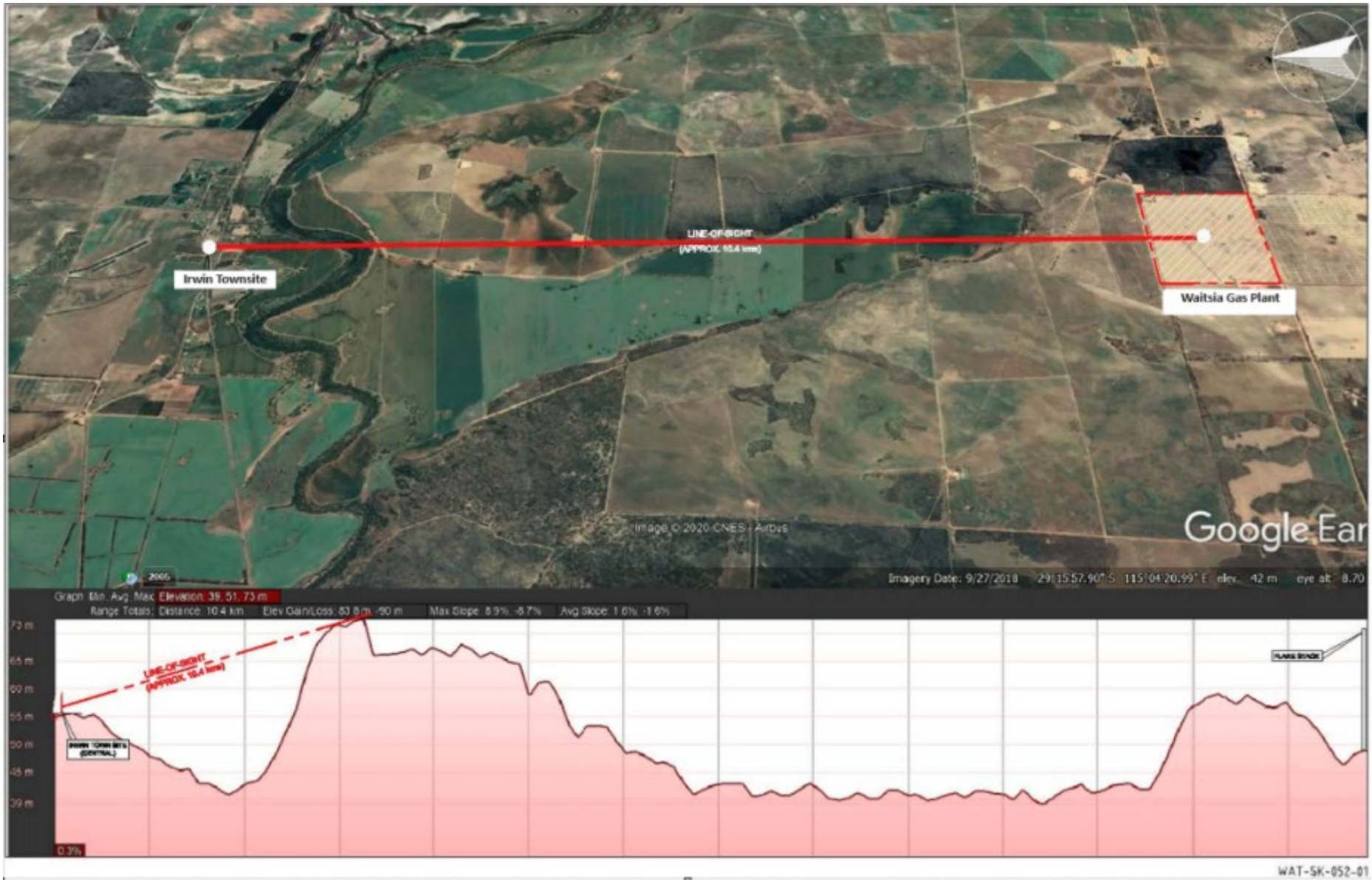
ATTACHMENT 4
IMPACTS OF FLARING ON VISUAL AMENITY – LINE OF SIGHT - WAITSIA GAS PLANT TO RESIDENCE C


Residence C
LINE-OF-SIGHT
(APPROX. 6.6 kms)
Waitsia Gas Plant
Google Ear
Imagery Date: 9/28/2018
Graph Min, Avg, Max Elevation: 42, 76, 115 m
Range Totals: Distance: 6.60 km
Elev Gain/Loss: 93.3 m, -50.9 m
Max Slope: 7.3%, -5.9%
Avg Slope: 2.4%, -1.9%
115 m
100 m
90 m
80 m
70 m
60 m
50 m
42 m
FLARE STACK
HOUSE B
-2.6%
0 m
0.5 km
1 km
1.5 km
2 km
2.5 km
3 km
3.5 km
4 km
4.5 km
5 km
5.5 km
6 km
6.60 km
WAT-SK-650-01

ATTACHMENT 5
IMPACTS OF FLARING ON VISUAL AMENITY – LINE OF SIGHT - WAITSIA GAS PLANT TO RESIDENCE D


Residence D
LINE-OF-SIGHT
Waitsia Gas Plant
Google Ear
2005
Graph Min Avg Max Elevation 49, 97, 120 m
Range Totals Distance 4.35 km Elev Gain/Loss 25.3 m, -96.1 m Max Slope 5.9%, -7.4% Avg Slope 2.1%, -3.6%
0.5 km
1 km
1.5 km
2 km
2.5 km
3 km
3.5 km
4 km
4.34 km
WAT-SK-049-01

ATTACHMENT 6
IMPACTS OF FLARING ON VISUAL AMENITY – LINE OF SIGHT - WAITSIA GAS PLANT TO IRWIN TOWN SITE


LINE-OF-SIGHT
(APPROX. 10.4 kms)
Irwin Townsite
Waitsia Gas Plant
Image © 2020 CNES / Airbus
Google Ear
Imagery Date: 9/27/2018
Elevation: 39, 51, 73 m
Range Totals: Distance: 10.4 km
WAT-SK-052-01