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IXOM

Department of Planning, Industry and Environment

2021 Annual Report

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Date: January 2022

Revision: 1.0

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1 Executive Summary

1.1 The following approvals are currently held or operated under by the Ixom Botany ChlorAlkali Plant

Table 1: Current approvals and licences

Approval No.	Date last varied	Details of any changes made during reporting period
DA 35/98	10-09-2018	No Change
EPL 20547	10-10-2019	No Change
MHF 10358-01	11-02-2014	No change. Renewal.
DG 35/03500 (held by Botany Industrial Park)	07-07-2019	No change. Renewal.

IXOM Operations Pty Ltd, Botany ChlorAlkali Plant (CAP) is required to provide an Annual report to DPIE as per condition 47 and 48 of DA 35/98. The last variation of the DA 35/98 was on 10 September 2019, MOD 5 – Repack Facility. CAP is located within the Botany Industrial Park (BIP) in Sydney, New South Wales.

This Annual report covers the period between 1 December 2020 to 30 November 2021 and is following the CRPAR guidelines issued June 2018. The report presents those relevant conditions pertaining to the current operations of the plant.

There was a variation update of the EPL 20547 issued on 10 October 2019, in relation to the lot number updates for the operators on the BIP site. The updated site map is attached as Appendix C.

In summary, the self-assessment Annual report as follow;

- There were no non-conformances identified during the reporting period.
- No issues were identified or raised in relation to environmental performance.
- Actual production is 10% higher than the forecast and shows a steady growth in the past three years. Truck movements have slowed down due to more frequent use of B Doubles.
- Effluent discharge slightly decreased from last year and continue to be below the target. A peak of effluent discharge was recorded in March (April reporting) where heavy rainfall events were recorded.
- Planager conducted an independent Hazard Audit in March of 2021. One finding involves signing off MOC and HAZOP by technical and operations representative. Planager provided 1 recommendation to resolve this finding as well as 2 additional opportunities for improvements for other items.
- Quantitative Risk Analysis was completed last December 2021 for Botany CAP Site. There have been very few changes to the Chloralkali Facility operations and equipment since the 2018 QRA. Hydrochloric acid and sodium hypochlorite Repack Plant scenarios were included in the latest QRA.

2 Introduction

2.1 Site Overview

Table 2: Site Details

Project Name and DA number	Replacement of Chlor-Alkali Plant at Botany, DA35/98 (Ref. R98/00010)
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Site Address	16-20 Beauchamp Road, Matraville NSW 2036
Industrial Complex	Botany Industrial Park (BIP)
Local Government Authority	City of Sydney
Site Area	BIP – 70 hectares Site – 23 hectares
Locality Map	Appendix A
Site Plan	Appendix A
Current Use	Botany ChlorAlkali Plant
Lot No.	LOT 1101 DP 1227173, LOT 1102 DP 1227173, LOT 1103 DP 1227173, LOT 1104 DP 1227173, PART LOT 1115 DP 1227173
Site Owner	Orica Limited owns approximately 40% of land at the BIP, including the area specific to this EMP
Reporting Period	1 December 2020 – 30 November 2021

The facility manufactures chlorine and caustic soda from the electrolysis of salt. Hydrogen is produced as a by-product. The four main products produced are sodium hypochlorite (referred to as 'Hypo'), hydrochloric acid, caustic soda and ferric chloride.

The chlorine produced on site is used in the manufacture of hydrochloric acid, hypo and ferric chloride, with these downstream processes being collectively referred to as product plants. All chlorine produced at Ixom Botany ChlorAlkali facility is consumed in the product plants.

The plant can produce 31,200 tonnes per annum (TPA) of chlorine assuming 95% uptime. All chlorine is reacted to produce the following product range:

- HCl (~45,000 TPA)
- Hypo (~60,000 KLPA)
- Ferric chloride (~15,000 TPA)
- Sodium hydroxide (Caustic ~36,000 TPA as 50%) (co-product of chlorine manufacturing process).

2.2 Key Contacts for Environmental Management

Table 3: Environmental Contacts for Ixom Botany ChlorAlkali Plant

Name	Position	Contact Details
Ian Parker	Regional Manufacturing Manager – NEA and WA	02 9352 2254 0400 686 047 Ian.Parker2@ixom.com
Ben Pagarigan	Compliance Manager NEA	02 9352 2123 0476 410 458 Benedick.Pagarigan@ixom.com
Richard Benson	Environmental Advisor & BIP Operations Manager	02 8336 1357 0409 558 127 Richard.Benson@qenos.com

3 Compliance Status Summary

Compliance Status Descriptors

Compliant Sufficient verifiable evidence to demonstrate that all elements of the requirements have been complied with.

Non-compliant A non-compliant with one or more elements of the requirements

Not triggered A requirement has an activation or timing trigger that has not been met at the phase of the development when the compliance assessment is undertaken, therefore an assessment of compliance is not relevant.

Table 4: current relevant approvals and licences

Approval No.	Date last varied	Details of any changes made during reporting period
DA 35/98	10-09-2018	No changes
EPL 20547	10-10-2019	No changes

3.1 Compliance Table

Table 5: Status of compliance (Relevant Conditions)

Approval No.	Conditions	Monitoring Methodology	Evidence and Comments
DA 35/98	11	Ongoing Hazards Management – Hazard Analysis due every 3 years	Compliant – Completed in December 2021
	12	Incident Reporting	Compliant - Refer to Section 6
	13	Hazard Audit – Required 3 every 3 years	Compliant – Completed in March 2021
	24	Independent Environmental Audit – Required every 3 years	Compliant – Next audit scheduled December 2022
	47	Annual report - commercial traffic Movements	Compliant - See Appendix A
	48	Annual report - Environmental performance	Compliant - See Appendix B
	48	Annual report - Community Complaints	Compliant - Refer to section 7

4 Non-Compliances

Table 6: non-compliances during the reporting period

Approval No./ Conditions	Conditions	Comments
DA 35/98		No non-compliance

No non-compliance was identified during the reporting period, 1 December 2020 – 30 November 2021.

5 Previous report actions

Previous report actions which have been undertaken during the reporting period.

Table 7: Actions required from previous Annual Review

Actions required	Source	Progress	Comments
No actions required from previous report			

6 Incidents

During the reporting period there were no incidents or non-compliances against the conditions of any relevant permit, license or approval for the Ixom Botany ChlorAlkali Plant.

6.1 Incidents Register

Table 8: Incidents Register

Nature of incident	Relevant conditions	Date of incidents	Status of Report
No reportable incidents for the reporting period.			

7 Complaints

During the reporting period there were no incidents or non-compliances against the conditions of any relevant permit, license or approval for the Ixom Botany ChlorAlkali Plant

The Botany Industrial Park (BIP) maintains an up to date website for the public that provides the following information:

- Minutes of the BIP Community Consultative Committee (BIPCC)
- Community Hotline
- Contacts for Regulators
- Items of interest including updates where appropriate.
- Commitments to Safety

Ixom maintains an up to date public website that provides the following information:

- Information about the Botany ChlorAlkali plant
- Details of Licence conditions
- Contact details for more information on the facility
- Map of licensed discharge points
- Results of monthly air quality monitoring
- Safety Management system
- Emergency Response including PIRMP
- Actions for the public to take in the event of an emergency
- Pollution Notification Process

There were three BIPCCC meetings held in the reporting period, on 21 March 2021, 28 July 2021 and 1 December 2021. Ian Parker, Regional Manufacturing Manager for NEA and WA attended the meeting in March 2021 as representative for Ixom, and Nick Brazil, Botany Operations Manager attended as representative for Ixom in July and December 2021. The number of BIPCCC meetings held during the reporting period was reduced due to COVID-19 restrictions.

No public complaint recorded against Ixom via community hotline during the reporting period.

7.1 Complaints Register

Table 8: Complaints Register

Nature of complaints	Relevant conditions	Date of complaint	Status of Report
No complaints recorded against Ixom			

8 Independent Hazard Audit

A three yearly Independent Hazard Audit was conducted at the Botany CAP site by Planager on the 4th and 5th of March 2021. The requirement for a Hazard Audit forms part of the Conditions of Consent relevant for Development Application (DA) number 35/98, which specifies that the Applicant shall carry out a comprehensive hazard audit by an auditor approved by the Director-General and in accordance with the Hazardous Industry Planning Advisory Paper (HIPAP) number 5 *Hazard Audit Guidelines*.

There are 3 management action recommendation of this audit.

Action	Priority	Actions	Comments
1	Medium	Action 1: Ensure that the MoC process, including completed actions, is signed off by both a technical representative (e.g. from the Engineering Team) and an Operations representative. This applies also to HAZOP Actions. The current system appears to include the technical sign-off but to not include sign-off by the Operations Team.	Closed. Technical and Operations group are part of MOC approvers. Procedures updated and system is in place.
2	Low	Opportunity for improvement 1: Provide Notification to Operations Team in case of any change to critical procedures such as those in the "Bible".	Closed. Notification capability is available in SharePoint system. Work Instruction is now available and communicated to relevant personnel.
3	Low	Opportunity for improvement 2: There is currently insufficient space for the work party to sign onto the task-based risk assessment (JSEA).	Closed. JSERA is now changed and improved. System moved to MEX (CMMS).

9 Appendices

9.1 Appendix A – Production and Truck Movements

9.1.1 Production Metrics

The period covered by this report saw an increase in production compared to the previous year and slightly above forecast. The traffic movements have decreased likely due to increased use of B-doubles by carriers. The plant achieved an uptime rate of approximately 95% which indicates consistent operation throughout the year.

Truck movements (figures reported below include both inwards and outwards movements – i.e. one truck entering the facility to load then exiting is counted as two truck movements), the number of truck movements has increased in 2021 due to increase in production in the 2021 reporting period. Table 9 and Figure 1 show a summary of key metrics for the facility over this reporting period compared to previous years.

Table 9: Production Metrics Summary

Reporting Requirement	Limit	Previous reporting period (2020 actual)	This reporting period (2021 actual)	Next reporting period (forecast)
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Traffic movements into and out of site	N/A	17392	18574	16640
Hours spent by loaded chlorine road tankers on site	4380	0	0	0
Production (100% caustic)	N/A	28460	30499	27323

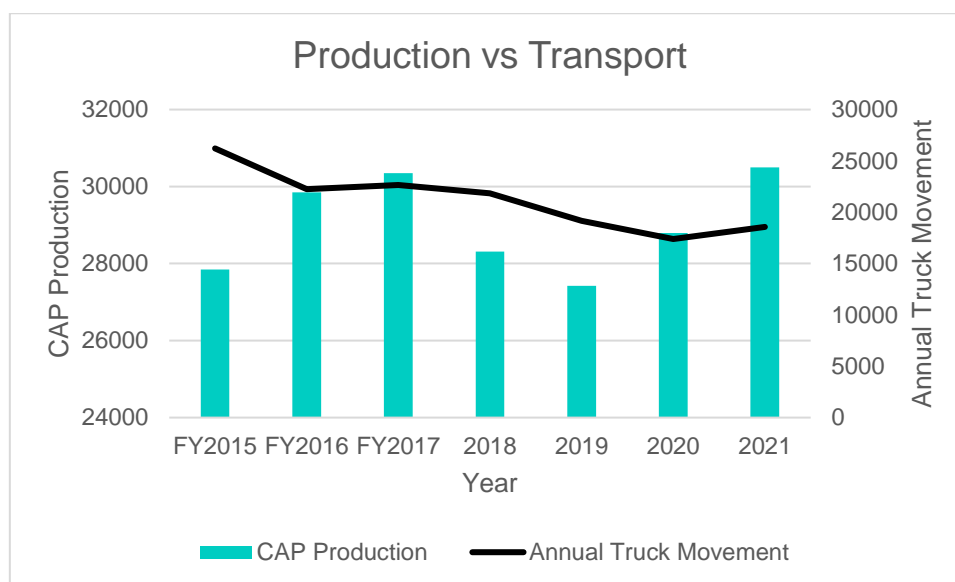


Figure 1: Truck Movements vs Production

Note: Financial year (FY) data provided in Figure 1 is for the October to September period each year. However, data for 2018 onwards are for reporting period between 1 December and 30 November in the year.

9.2 Appendix B – Environment performance

9.2.1 Environmental Performance table

Table 10 details the key environmental performance parameters for the Ixom Botany ChlorAlkali Plant.

Table 10: Environmental Performance

Aspect	Approval criteria / EIS prediction	Performance during the reporting period	Trend / key management implications	Implemented/proposed management actions
Noise	Day – 65 LAeq Evening – 55 LAeq Night - 50 LAeq (Limits from EPL 20547, Section L4.2). Monitoring location 8 in the noise report, is the only location the receiver is impacted by Ixom Operations	Compliant. Noise monitoring from December 2020 to November 2021 was undertaken by Wolfpeak Pty Ltd From the reports, the samplings at location 8 were observed to be below 50 dB(A) LAeq (15minute) when measured at the nearest residential receiver and complied with the applicable	Based on the report comments the high results were dominated by sources not related to site Ixom operations. The main contributors were passing traffic (mostly dominant) – between 50 – 86.	No action required

		EPL conditions, except on July 2021 reading where it registered 51.1 dB(A) LAeq (15minute). However, the dominant noise was observed to be coming from other source not related to IXOM.		
Air quality	<p>There are 3 licenced discharge points at the Ixom Botany ChlorAlkali plant:</p> <p>Point 1 (Figure 2) Hypochlorite Backing Tower. Discharge limit = 200mg/m³ Chlorine, Monitored Continuously</p> <p>Point 2 Absorption Tail Tower. Discharge limit = 30mg/m³ Hydrogen Chloride. Measured quarterly</p> <p>Point 3 (Figure 3) Emergency Chlorine Vent. No discharge limit in EPL, statutory limit from Schedule 4 of the POEO act of 200mg/m³ used for reference. Monitored Continuously</p>	Compliant. Air quality data is reported on the Ixom website each month and is included as the weblink in this section of the report.	Results are consistent with that of previous years. See graphs below.	No action required
Water	See Section 9.2.3 of this report			
Biodiversity	The EIS identified that there was no expected impact on Biodiversity from the operation of the Ixom Botany ChlorAlkali Plant	No impact	None identified	No action required
Heritage	The EIS identified that there was no expected impact on Aboriginal, Natural or Urban Heritage items, relics or places from the operation of the Ixom Botany ChlorAlkali Plant	No impact	None identified	No action required
Flora and Fauna	The EIS indicated that no flora or fauna were expected to be directly affected by the	No impact	None identified	No action required

	operation of the Ixom Botany ChlorAlkali Plant			
Amenity	<p>The premises and operations shall be conducted in such a manner as not to interfere with, or materially affect, the amenity of the neighbourhood by reason of noise, vibration, smell, fumes, vapour, steam, soot, ash, dust, waste water, waste products, grit, oil, or otherwise.</p> <p>The occupier of the premises shall not cause, permit, or allow the emission of any odorous air impurity from the development such that it can be detected outside the property boundaries by its odour.</p> <p>(DA 35/98 conditions 37 and 38)</p>	<p>Compliant.</p> <p>There were no instances of material harm affecting the amenity of the neighbourhood by reason of noise, vibration, smell, fumes, vapour, steam, soot, ash, dust or waste products.</p> <p>There were no reports of odorous material from the development detected outside the property boundaries.</p> <p>There were no community complaints received in the reporting period related to the Ixom Botany ChlorAlkali Plant or its operation.</p>	None identified	No action required

9.2.2 Air Monitoring

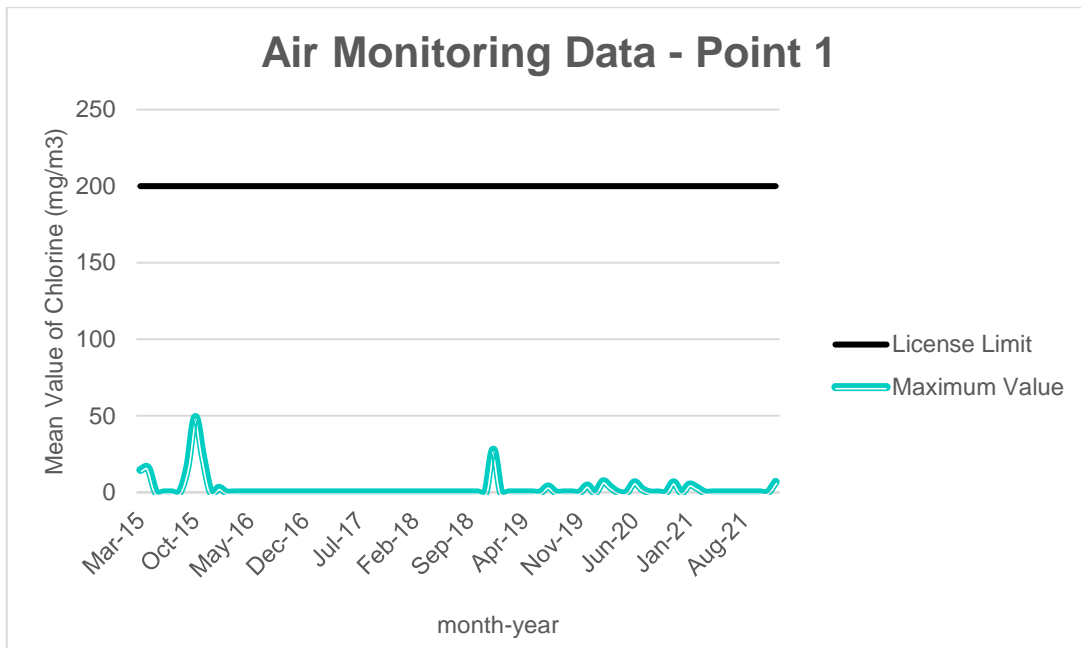


Figure 2: Point 1 Air Monitoring Data March 2015 - November 2021

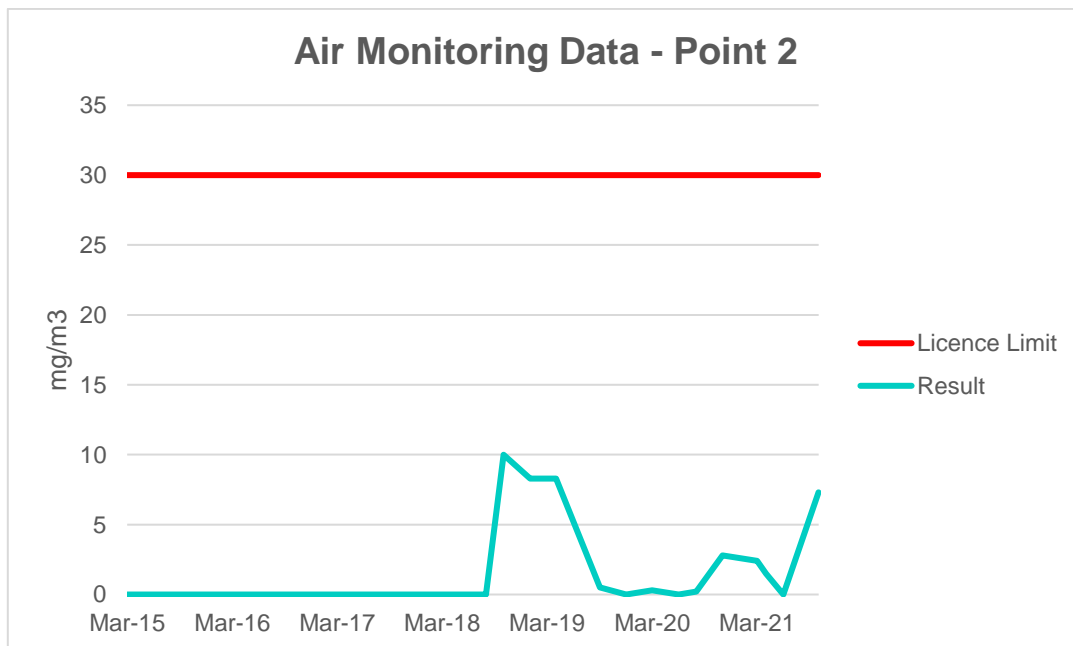


Figure 3: Point 2 Air Monitoring Data March 2015 - November 2021

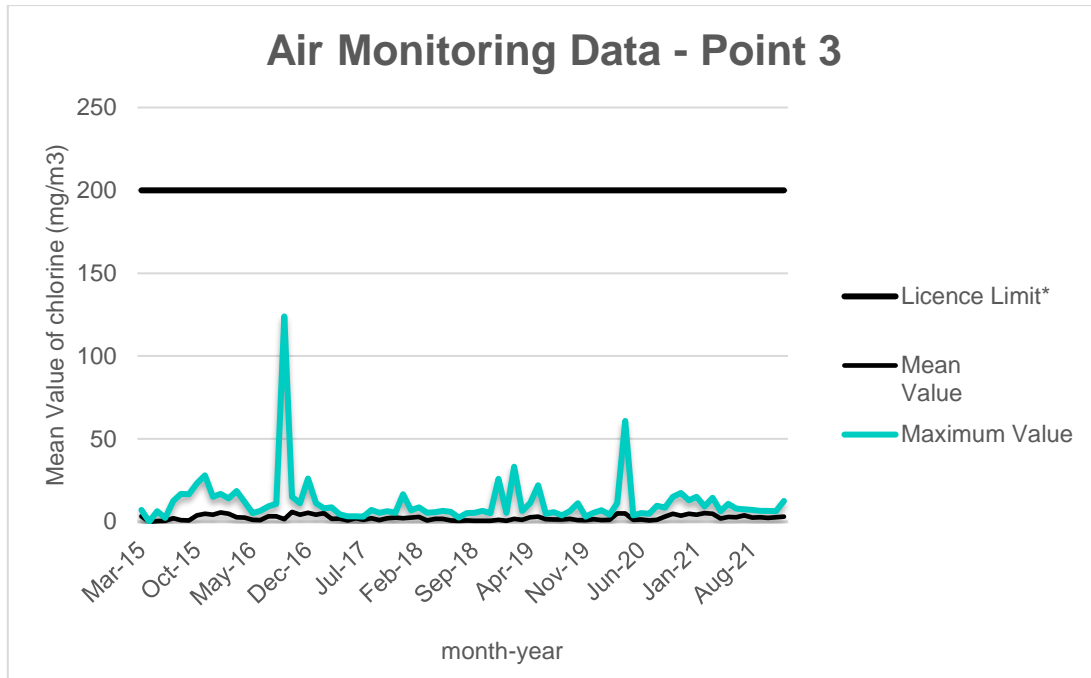


Figure 4: Point 3 Air Monitoring Data March 2015 - November 2021

* Statute limit as per Schedule 4 of POEO (Clean Air) Regulation

Note: Historical data is available through the Ixom website: <https://www.ixom.com/being-responsible/environmental-monitoring-data/botany>

9.2.3 Water Usage

Potable water is supplied to the Ixom Botany site through the BIP Site Utilities. Water usage for the reporting period is shown in Table 11.

Potable and recycled water consumption was higher over this reporting period than the last, likely due to the higher production and plant demand.

Table 11: Water Usage

	Previous Reporting Period (Dec 2019 – Nov 2020)	Current Reporting Period (Dec 2020 – Nov 2021)
Potable Water Consumed (KL)	98,564	106,336
Recycled Water Consumed (KL)	162,683	153,443
Water Incorporated in Product (KL)	136,735	137,028
Effluent Discharged to BIP Trade-Waste System (KL)	69,192	64,807

The Site Stormwater and Effluent System are managed by BIP Site Utilities.

Effluent from the Ixom ChlorAlkali Plant is collected and processed in one of two automated effluent treatment tanks. These tanks each accumulate the plant effluent then dose acid or caustic into the tanks to control the pH to a consistent and acceptable level. When the target pH is achieved, the tanks are discharged to the EP6 effluent collection pit where flow and pH are continuously measured and recorded. The effluent then joins the other effluent streams from the other facilities at the Botany Industrial Park and flows to the Site Utilities effluent system. In this facility, the effluent is monitored, and the pH adjusted where required to achieve permissible effluent standards before discharge from site.

The stormwater from the facility is collected through clearly labelled stormwater drains and flows to the Site Utilities stormwater system. The stormwater is continuously monitored for

flow and pH. If the pH of the stormwater exceeds the permissible limits, the stormwater is automatically diverted to the Site Utilities effluent system where it is further treated through a pH adjustment in order to meet the required specifications prior to discharge.

Figure 5 shows the monthly effluent discharge for the reporting period. There was a spike of the line which was due to number of days having heavy rainfalls.

9.2.4 Effluent Discharge

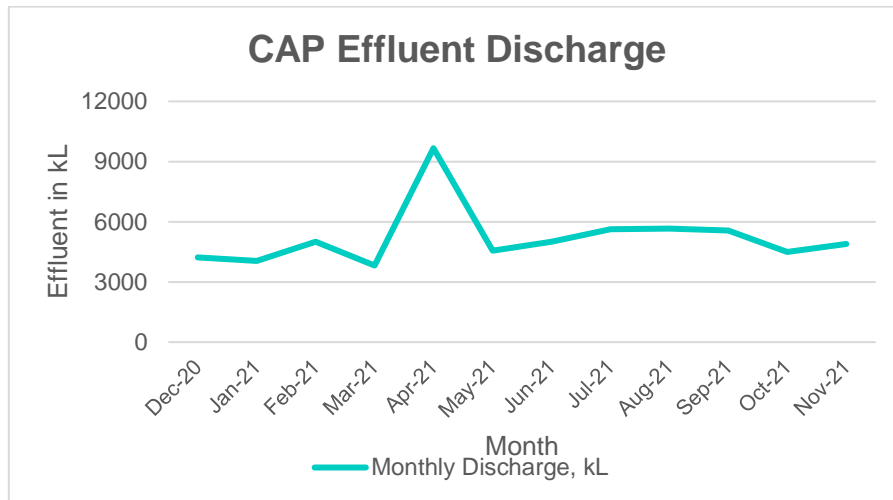


Figure 5: Effluent Discharged from Ixom CAP - Monthly

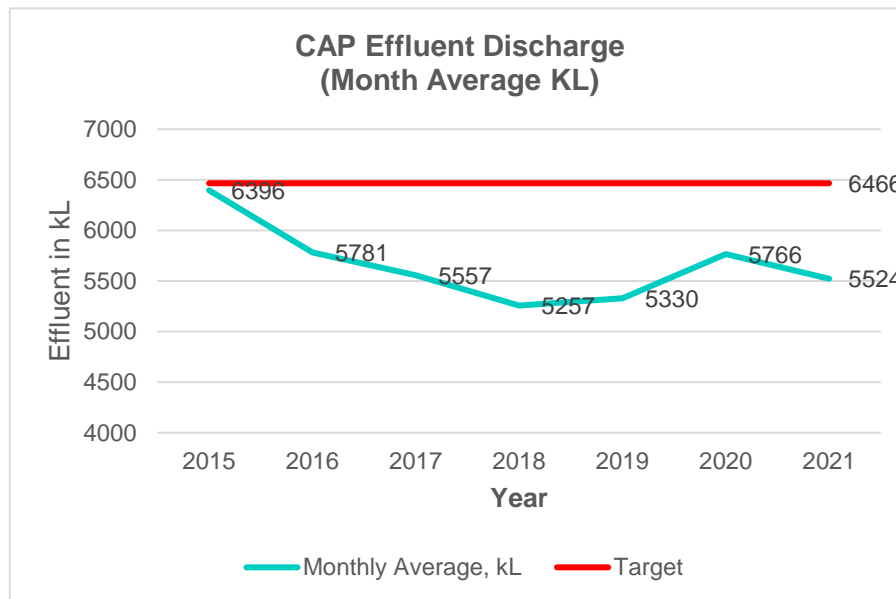
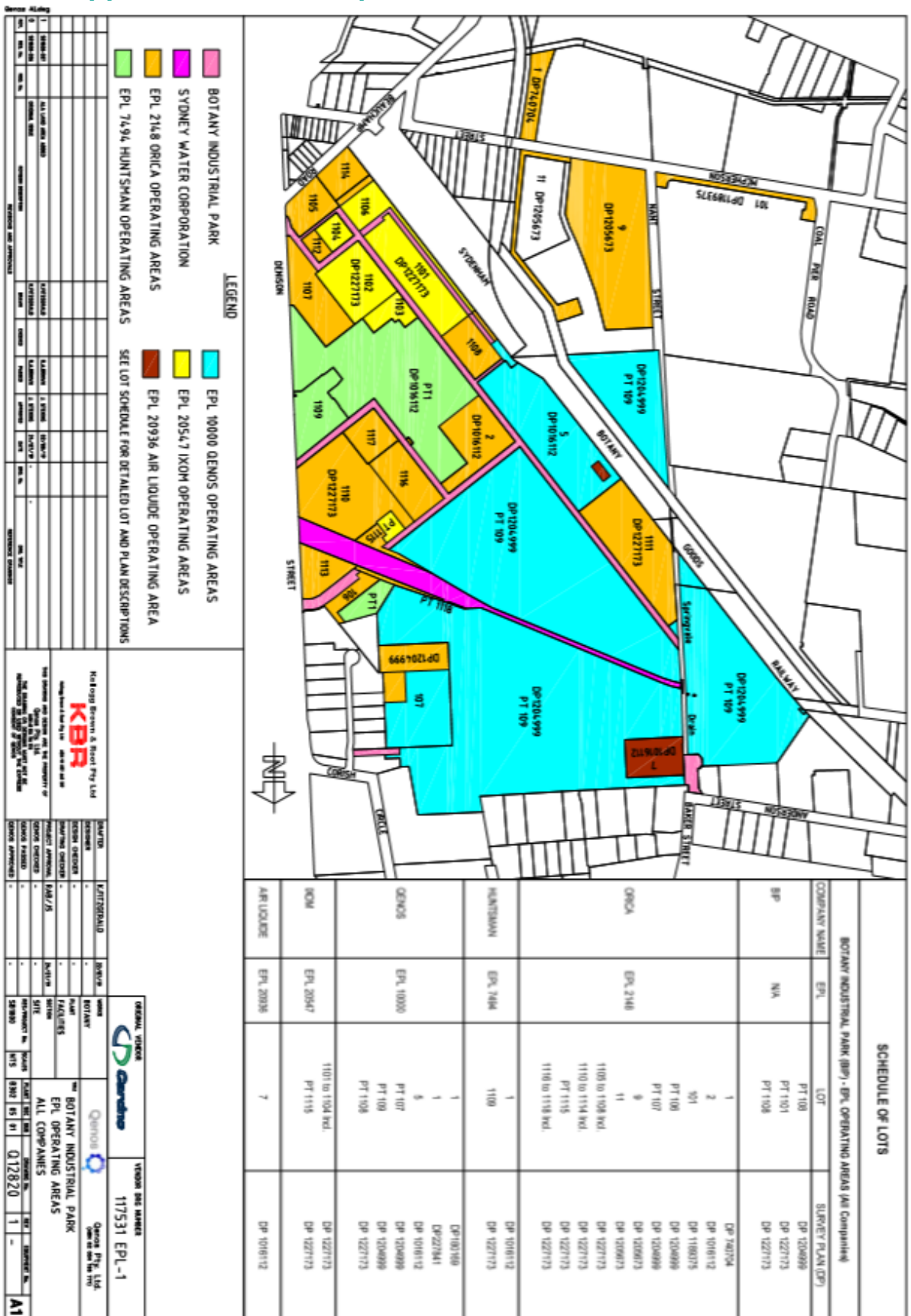



Figure 6: Year on year change in effluent discharged from site

9.3 Appendix C – Site Map



9.4 Appendix D – Declaration

Compliance Report Declaration form

Table 12: Declaration	
Name of operation/ project	Ixom Botany ChlorAlkali Plant
Development consent / project approval #	DA35/98 (ref R98/00010)
Description of consent/ project	Replacement of Chlor-Alkali plant at Botany
Development consent / project address	16-20 Beauchamp Road, Matraville NSW 2036
Name of Operator	Ixom Operations Pty Ltd
Compliance Report	Annual Report 2021
Annual Review End Date	30 November 2021
<p>I declare that I have reviewed relevant evidence and prepared the contents of the attached Compliance Report and to the best of my knowledge:</p> <ul style="list-style-type: none"> • the Compliance Report has been prepared in accordance with all relevant conditions of consent; • the Compliance Report has been prepared in accordance with the Compliance Reporting Post Approval Requirements; • the findings of the Compliance Report are reported truthfully, accurately and completely; • due diligence and professional judgement have been exercised in preparing the Compliance Report; and • the Compliance Report is an accurate summary of the compliance status of the development. <p><i>Note.</i></p> <p>a) Under section 10.6 of the Environmental Planning and Assessment Act 1979 a person must not include false or misleading information (or provide information for inclusion in) a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is false or misleading in a material respect. The proponent of an approved project must not fail to include information in (or provide information for inclusion in) a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is materially relevant to the monitoring or audit. The maximum penalty is, in the case of a corporation, \$1 million and for an individual, \$250,000; and</p> <p>b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 307B (giving false or misleading information – maximum penalty 2 years' imprisonment or 200 penalty units, or both).</p>	
Name of Authorising reporting officer	Ian Parker
Title of Authorised Reporting Officer	Regional Manufacturing Manager NEA and WA
Signature of Authorised Reporting Officer	
Company and Address	Ixom Operations Pty Ltd 1 Nicholson Street, East Melbourne, VIC 3002