ENVIRONMENTAL CONSULTING Pty Ltd

DETAILED SITE INVESTIGATION

PROPOSED CUDGEN CONNECTION DEVELOPMENT

November 2023

Prepared For: Cudgen Health Precinct Pty Ltd

Lot 6 DP 727425
741 Cudgen Road
Cudgen NSW

HMC2022.445.02

RE: Lot 6 DP 727425, 741 Cudgen Road, Cudgen NSW.

HMC Environmental Consulting Pty Ltd is pleased to present our report for a Detailed Site Investigation for the abovementioned site.

We trust this report meets with your requirements. If you require further information, please contact HMC Environmental Consulting directly on the numbers provided.

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Client:	Cudgen Health Precinct Pty Ltd		

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EXECUTIVE SUMMARY

BACKGROUND

The Cudgen Connection development is proposed for an existing agricultural property located at 741 Cudgen Road, Cudgen NSW. The proposed development is to create a health precinct adjacent to the new Tweed Valley Hospital and would comprise a range of health-related facilities and accommodation, along with community and recreation facilities. There is currently an existing dwelling located on the site and, several farm buildings, and ancillary structures which would be removed to accommodate the proposal.

A *Preliminary Site Investigation* (PSI) (HMC2022.445), including a desktop assessment of available information, and a detailed site inspection, was prepared by HMC Environmental Consulting (HMC) in August 2022. The report found that the property was subject to historic intensive agriculture across the site from prior to 1947 until prior to 1991, with the eastern part of the site also subject to a hydroponics operation. A commercial nursery previously operated on the south-eastern part of the site, fronting Cudgen Road. As the broadacre cropping, with associated agrichemical applications, had extended across the site, this area would be considered an area of potential concern (AoPC), and further investigation would be required. Targeted soil investigation would also be required across the former nursery area, and near the farm shed buildings. The PSI provided the following conclusions and recommendations:

"In relation to the proposed Cudgen Health Precinct and potential site contamination associated with current and former land use and considering the requirements of State Environmental Planning Policy (Resilience and Hazards) 2021, Lot 6 DP 727425, 741 Cudgen Road, Cudgen NSW, further investigation is required to assess areas of concern identified on the site.

Recommendation:

1. *That a Detailed Site Investigation be undertaken in accordance with the NSW EPA (2020) Consultants reporting on contaminated land – Contaminated land guidelines by a suitably qualified environmental consultant to assess areas of concern identified on the site."*

Following a review of the submitted PSI, Cudgen Health Precinct Pty Ltd (proponent) engaged HMC to undertake the required additional investigation including a soil investigation, to assess the identified areas of concern (AoC), to support the development proposal.

This report should be read in conjunction with the *Preliminary Site Investigation* Report HMC2022.445.02 prepared by HMC Environmental Consulting dated August 2022.

OBJECTIVES

The objectives of the Detailed Site Investigation (DSI) are to:

- To provide additional information to support the Preliminary Site Investigation (HMC2022.445.02) and assess and, where required, delineate the identified Areas of Concern (AoC) including:
  a. former cropping areas,
  b. current and demolished structures potentially used for storage/use of chemicals and/or fuel and oil,
  c. former commercial nursery areas.
- Determine the suitability of the subject site for the proposed *Cudgen Connection* Health and Community Precinct and need for further investigation or remediation.

SCOPE OF WORKS

The scope of work undertaken during the investigation included the following:

- Additional desktop assessment of current and former land use including a review of the following report:
  - *Preliminary Site Investigation for Proposed Cudgen Connection Development at Lot 6 DP 727425, 741 Cudgen Road, Cudgen NSW* prepared by HMC Environmental Consulting dated August 2022 (HMC2022.445.02)
- Soil investigation including:
  - Collection of 88 primary surface soil samples + 10 x QA/QC soil samples in the former broadacre cropping area, to be composited into 22 soil samples and laboratory analysis for potential contaminants of concern (PCoC) including total metals, and organochlorine/organophosphorus chemicals.
  - Collection of 14 primary surface soil samples + 2 x QA/QC soil samples across the former commercial nursery site and laboratory analysis for potential contaminants of concern (PCoC) including total metals, and organochlorine/organophosphorus chemicals.
  - Collection of 5 target primary surface soil samples soil samples around the former hydroponics shed site and laboratory analysis for potential contaminants of concern (PCoC) including total metals, organochlorine/organophosphorus chemicals, and petroleum hydrocarbons.
  - Collection of 2 primary surface soil samples outside the Areas of Concern (AoC) to be used as background soil concentrations, and laboratory analysis for potential contaminants of concern (PCoC) including total metals, and organochlorine/organophosphorus chemicals.
- Preparation of a Detailed Site Investigation report including:
  - review of previous site contamination reporting, and results of the site inspection.
  - assessment of potentially contaminating activities, PCoC and areas of concern (AoC).
  - review and interpretation of sample results against investigation criteria
  - conclusions and recommendations including suitability of site for the proposed Cudgen Connection Health and Community Precinct and need for further investigation, remediation, or ongoing site management.

CONCLUSIONS/RECOMMENDATIONS

The Detailed Site Investigation conclusions are based on the information described in this report and appendices, and the Preliminary Site Investigation (HMC 2022.445) dated August 2022 and should be read in conjunction with the complete reports, including limitations.

The *Cudgen Connection* Health and Community Precinct is proposed on an existing rural landholding located at Lot 6 DP 727425, 741 Cudgen Road, Cudgen NSW. The Preliminary Site Investigation provided information confirming that historic cropping had previously taken place generally over the entire site. A former organic hydroponics operation and a commercial nursery were also identified as other land uses on parts of the site.

A Soil and Analysis Quality Plan was prepared, and implemented, to assess total soil concentrations of potential contaminants of concern including pesticides, metals, and petroleum hydrocarbons. Surface samples recorded laboratory results showing all organochlorine and organophosphorus chemicals, together with BETX, and PAH were all below the investigation criteria for the proposed land use. Metal results were generally typical of background levels, and below the investigation criteria. Although several total chromium results slightly exceeded the criteria for chromium (VI) in the former broadacre cropping areas, the statistical analysis completed on the results showed that total chromium results complied with the investigation criteria for chromium (VI).

No asbestos containing material fragments were recorded on the soil surface surrounding the former packing shed/office. The building was clad with metal sheeting; however, internal lining may potentially include bonded asbestos containing material.

Based on the information presented, in relation to potential site contamination associated with the current and former land use, the proposed Cudgen Health Precinct to be located at Lot 6 DP 727425, 741 Cudgen

Road, Cudgen NSW, as shown in Appendix 1 and 2 of this report, is considered suitable for the proposed land use, subject to:

1. A survey of the existing former packing shed/office located in the south-east corner of the site to be undertaken for the presence of asbestos containing material in the building materials by a Safework NSW licensed contractor prior to demolition of this building. If asbestos containing material is suspected, the suspect material is to be removed and managed in accordance with Safework NSW requirements prior to general demolition. The survey is recommended to be conducted post-rezoning of the site and submitted with any application that involves the removal or disturbance of the former packing shed/office.

Based on the information presented, in relation to potential site contamination associated with the current and former land use, no further investigation or remediation is required for the proposed Cudgen Health Precinct site to be located at Lot 6 DP 727425, 741 Cudgen Road, Cudgen NSW.

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ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
ANZECC	Australian and New Zealand Environment and Conservation Council
AoPC	Area of potential concern
ARMCANZ	Agricultural and Resource Management Council of Australia and New Zealand
AS	Australian Standard
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended 2013)
Client	Cudgen Health Precinct Pty Ltd
CLM Act	*Contaminated Land Management Act 1997*
CRC CARE	Cooperative Research Centre for Contamination Assessment and Remediation of the environment
CSM	Conceptual site model
DQO	Data quality objective
DSI	Detailed Site Investigation
EIL	Ecological Investigation Level
EPA	Environment Protection Authority
ERA	Environmental Risk Assessment
HIL	Health Investigation Level
HMC	HMC Environmental Consulting
Investigation Area	Proposed development area and immediate surrounds
LOR	Laboratory level of reporting
mBGL	Metres below ground surface level
OEH	[NSW] Office of Environment and Heritage
PCoC	Potential Contaminant of Concern
PSI	Preliminary Site Investigation
QA/QC	Quality Assurance/quality control
RAP	Remedial Action Plan
SAQP	Sampling and analysis quality plan
Site	Lot 6 DP 727425, 741 Cudgen Road, Cudgen NSW
TCLP	Toxicity Characteristic Leaching Procedure

1 INTRODUCTION

1.1 BACKGROUND

The Cudgen Connection development is proposed for an existing agricultural property located at 741 Cudgen Road, Cudgen NSW. The proposed development is to create a health precinct adjacent to the new Tweed Valley Hospital and would comprise a range of health-related facilities and accommodation, along with community and recreation facilities. There is currently an existing dwelling located on the site and, several farm buildings, and ancillary structures which would be removed to accommodate the proposal.

A *Preliminary Site Investigation* (PSI) (HMC2022.445), including a desktop assessment of available information, and a detailed site inspection, was prepared by HMC Environmental Consulting (HMC) in August 2022. The report found that the property was subject to historic intensive agriculture across the site from prior to 1947 until prior to 1991, with the eastern part of the site also subject to a hydroponics operation. A commercial nursery previously operated on the south-eastern part of the site, fronting Cudgen Road. As the broadacre cropping, with associated agrichemical applications, had extended across the site, this area would be considered an area of potential concern (AoPC), and further investigation would be required. Targeted soil investigation would also be required across the former nursery area, and near the farm shed buildings. The PSI provided the following conclusions and recommendations:

"In relation to the proposed Cudgen Health Precinct and potential site contamination associated with current and former land use and considering the requirements of State Environmental Planning Policy (Resilience and Hazards) 2021, Lot 6 DP 727425, 741 Cudgen Road, Cudgen NSW, further investigation is required to assess areas of concern identified on the site.

Recommendation:

1. *That a Detailed Site Investigation be undertaken in accordance with the NSW EPA (2020) Consultants reporting on contaminated land – Contaminated land guidelines by a suitably qualified environmental consultant to assess areas of concern identified on the site."*

Cudgen Health Precinct Pty Ltd (proponent) engaged HMC to undertake the required additional investigation including a soil investigation, to assess the identified areas of potential concern (AoPC), to support the development proposal.

This report should be read in conjunction with the *Preliminary Site Investigation* Report HMC2022.445.02 prepared by HMC Environmental Consulting dated August 2022.

1.2 PROJECT DESCRIPTION

The proposed *Cudgen Connection* Health and Community Precinct would include a large range of health-related facilities and accommodation, along with community and recreational facilities, with a focus on providing health services, creating jobs and essential worker housing.

The site has previously been used for agricultural cropping and a commercial nursery business and horticulture (hydroponics). The site is currently used for residential only, with a small timber-framed dwelling located on the southern boundary, alongside a large shed which was formally used in the nursery operation. Other farm sheds and ancillary structures are located generally on the eastern part of the site. The prosed development of the site would include the demolition of the existing structures.

The concept plan provides the following features as per the plan in Appendix 2.

1. 3-storey residential units (36 units)

1a. Residential shared hub
2. 4-storey residential units (56 units)
3. 4-storey residential units (56 units)
4. 5-storey residential units (70 units)
5. 5-storey residential units (68 units)
6. Retail
7. Childcare centre & play area
8. 2-storey retail and community centre
9. 5-storey medical hotel
10. 5-storey mental health hospital
11. 7-storey private hospital & suites
12. 7-storey university

Also included in the concept plan are three park areas, two swimming pools and BBQ areas for the residential units, a community plaza and associated roadways, carparking, services and amenities.

Access to the site is provided via Cudgen Road to the south, and Tweed Coast Road to the west, with a connection to the Tweed Valley Hospital site to the east.

1.3 OBJECTIVE OF THE INVESTIGATION

The objectives of the Detailed Site Investigation (DSI) are to:

- To provide additional information to support the Preliminary Site Investigation (HMC2022.445.02) and assess and, where required, delineate the identified Areas of Concern (AoC) including:
  a. former cropping areas,
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- Determine the suitability of the subject site for the proposed *Cudgen Connection* Health and Community Precinct and need for further investigation or remediation.

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The scope of work undertaken during the investigation included the following:

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2 SITE INFORMATION

2.1 SITE IDENTIFICATION

Table 1 - Site Identification Summary

Street Address		741 Cudgen Road, Cudgen NSW
Allotment Description		Lot 6 DP 727425
Allotment size		5.7 Hectares
Property No.		4467
Local Government		Tweed Shire
Parish		Cudgen
County		Rous
Geographical Coordinates (MGA Zone 56)		Easting: 555250.31 m E Northing: 6873231.78 m S (Approximate centre of site).
Zoning		RU2 Rural Landscape
Land use - Existing		Residential (existing dwelling), vacant agricultural, and former nursery
Land use - Proposed		Cudgen Health Precinct including hospital/health uses as well as residential, retail/commercial and recreational uses.
Site Services		Power, Water, Sewage
Surrounding land uses	North	Uncleared native and regrowth bushland.
	East	Tweed Valley Hospital (Under construction)
	South	Residential, Agricultural (livestock grazing, sugar cane cropping)
	West	Residential, Agricultural (livestock grazing, sugar cane cropping)
Closest Sensitive Environment		Stormwater would flow generally north towards existing agricultural drains offsite, with discharge eventually into Tweed River approximately 3km north-west of the site.

Table 2 – Site Characteristics

Topography	Moderate sloping north Northern aspect towards away from Cudgen Road Approximately RL 4.07m AHD to RL 18.96m AHD across the site (Site Survey – B & P Surveys 2022)
Regional Geology (Hashimoto el al 2008)	Bedrock Geology Tv: Tertiary volcanic rocks: basalt, rhyolite, trachyte, gabbro, syenite
Soil Landscape (Morand, 1996)	Cudgen (cu) soil landscape (Expected)

	Well-drained Krasnozems. Table 4.1 shows no acid sulfate potential.
Australian Soil Classification	Ferrosols (FE) Soils with B2 horizons which are high in free iron oxide, and which lack strong texture contrast between A and B horizons These soils are almost entirely formed on either basic or ultrabasic igneous rocks, their metamorphic equivalents, or alluvium derived therefrom. Although these soils do not occupy large areas in Australia, they are widely recognised and often intensively used because of their favourable physical properties.
Regional Hydrogeology (TSC GIS)	Groundwater vulnerability is mapped as high. It is expected on this elevated site that groundwater would be intercepted at <5m depth. Groundwater flow direction would generally follow the topography of the site and flow north.
Groundwater Database Search	The online NSW Office of Water groundwater mapping (http://allwaterdata.water.nsw.gov.au/water.stm) shows numerous registered groundwater bores within 500m of the subject site. The closest registered bore is GW069108 approximately 120m south and registered for farming use. The standing water height is recorded at 16m depth.

3 PRELIMINARY SITE INVESTIGATION

HMC Environmental Consulting completed a *Preliminary Site Investigation* (HMC2022.445) in August 2022 on the property for the proposed *Cudgen Connection* Health and Community Precinct. The report included a site inspection, a desktop assessment of available historic aerial photography and mapping, hydrology and geology information, and a review of historic development applications provided by Tweed Shire Council.

Based on a search of available information, the property and surrounding area appears to have been generally cleared of native vegetation prior to 1942. The 1942 historic aerial photography shows that the property was covered by intensive broadacre cropping, and cropping was evident on the site until prior to 1991. Agrichemical applications associated with this land use are a potential contaminating activity.

A dwelling and packing shed (DA 702/87) were approved in 1987 and are visible in the 1991 historic aerial photography on the south-eastern corner of the site. The packing shed was approved to be converted into the "*Earth and Colour*" retail plant nursery in 2003, with the works, including the display areas, visible in the 2009 historic aerial photography. Nursery operations appear to have ceased prior to 2017, with all the display gardens cleared. The former packing shed later associated with the nursery operation would have included the use of agrichemicals during operations, a potentially contaminating activity. It is noted these operations occurred after the mid-1980s when persistent organochlorine pesticides were de-registered and would not have been available. Organophosphate pesticides, although toxic, degrade rapidly, especially in sub-tropical areas.

The north-eastern portion of the property has been subject to various land uses since prior to 1991. The 1991 historic aerial photography shows the "*A & B Hydroponics*" operations, with a large shed on the eastern boundary, and rows of hydroponic cropping. The hydroponic operation evolved, and the cropping ceased prior to 1991, with a new covered greenhouse structure visible on the north-eastern corner. Both the greenhouse structure, and the large shed were then removed prior to 2003. There were no development applications for these structures found in the Council search, nor any information on the operations during this period.

A greenhouse structure is visible in the area in the 2003 historic aerial, which may be the 'Hothouse' approved in 1999 (K99/0039) for the growing of hydroponic tomatoes. Two more greenhouses were constructed prior

to 2009 on the eastern boundary, both approved in 2003 (DA03/0321 & DA03/0654). These structures included the innovative rotating growing system. All three of these structures were removed prior to 2014. A new greenhouse was constructed towards the centre of the northern boundary in 2016, with a DA approved in 2017 for the "use of existing greenhouse in relation to existing agricultural activities". This greenhouse was removed prior to 2020. It was noted that the hydroponics operation was partially funded with an innovation grant in May 2002. The operation was recognised as using natural ingredients and being "pesticide free."

There are currently no active land uses occurring on the north-eastern portion of the property. Even though the hydroponics operation did not appear to include persistent agrichemical applications, the area was included in the broadacre cropping investigation.

4 SITE INSPECTION

A site inspection was undertaken by M. Tunks and M. Flanagan of HMC on 18 May 2022, during the preparation of the PSI. For the current investigation, a site inspection was undertaken by M. Tunks, H. Tunks and T. Richards of HMC on 31 October 2022 that included the soil investigation across the property.

The property is located on the northern side of Cudgen Road and bounded by Tweed Coast Road to the west. The large property is located immediately west of the new Tweed Valley Hospital, currently under construction. The property is accessed via a driveway from Cudgen Road on the south-eastern corner of the property.

There is currently a timber-framed dwelling located near the Cudgen Road frontage on the southern boundary, with significant vegetative growth surrounding the dwelling. Adjacent to the dwelling is a large metal shed which acted as the office and display for the former nursery. The shed is generally clean and tidy with no evidence of chemical or fuel staining on the intact, continuous concrete slab floor. The former nursery plant storage areas extended north from the shed, with areas of concrete and gravel groundcover, remnants of previous greenhouse structures and gazebos still present including a wooden deck and steps. Parts of the former nursery area have been overgrown by vegetation. As this structure was approved in 1987, bonded asbestos containing material (ACM) may be present in the internal linings. The exterior of the building is metal sheeting.

A former access track along the eastern boundary is now overgrown. Further north of the nursery was a large concrete slab with two small metal sheds and a large metal shed previously used in the hydroponics operations. One of the small sheds located on the concrete slab had a warning sign indicating that it was used for chemical storage, while the use of the other sheds is unknown, although there was some evidence of irrigation parts. Parallel to the concrete slab discussed above was another long rectangular slab. No structures remained on this area, but it is likely this concrete slab was associated with a previously demolished hydroponics greenhouse.

Another small shed was located on the northern boundary. It appears to have been a pump shed for the hydroponics operations, with tanks and pumps noted still remaining inside the structure. An underground storage tank was also noted. This would have formed part of the recirculating hydroponics operation.

The remainder of the property generally has exotic and native grass vegetative cover across the site. No other structures were noted. Access is restricted on the north-eastern corner where lantana thickets are present. Palm trees are lining the southern and eastern boundaries. The property has a depression running north-south in the central part of the site with drainage towards this from the eastern and western parts of the site and also towards the northern boundary.

4.1 Site photographs

See Appendix 5.

5 IDENTIFIED AREAS OF CONCERN AND CONTAMINANTS OF POTENTIAL CONCERN

Based on the Preliminary Site Investigation, three AoPC were identified. The property appears to have been covered by intensive broadacre cropping from prior to 1942 until prior to 1991. An organic hydroponics operation had occurred on the site from prior to 1991 with sheds and slabs still existing on the north-eastern portion of the property. A commercial nursery had operated on the south-easter corner of the site from 2003 until prior to 2017.

Large portions of the property, particularly along the boundaries, have been reclaimed by vegetation as the property was largely dormant in recent years. PCoC for each of the AoPC have been summarised in Table 3.

Table 3 - List of Potential Contaminants of Concern (PCoC) and Areas of Potential Concern (AoPC)

AoPC	PCoC	Description and common relationship
Historic land uses: Historic Cropping	Organochlorine and organophosphorus pesticides (OCP/OPP) – DDT and breakdown products	Pest control
	Heavy metals	Pest control, fungal control, weed control & fertiliser contaminants.
Former storage sheds	Above + petroleum hydrocarbons, benzene, toluene, ethyl benzene, xylene (BTEX), volatile and semi-volatile Total Recoverable Hydrocarbons (C6-C40), Polyaromatic hydrocarbons (PAH).	Fuel & oil storage, Agrichemical mixing or spill areas
Former Nursery	Heavy metals + organophosphorus pesticides (OPP)	Pest control, fungal control, weed control & fertiliser contaminants.

6 APPLICABLE INVESTIGATION LEVELS AND INVESTIGATION CRITERIA

6.1 SOIL CRITERIA

The Proposed Cudgen Connection Development would increase the number of persons occupying/visiting the site. Currently the site is vacant, rural land with an existing dwelling, and dormant sheds.

The proposed land use zoning the Cudgen Connection development concept included opportunity for residential accommodation. As this is the most sensitive land use, this is the exposure setting used for investigation criteria. The proposed Cudgen Health Precinct would increase occupancy, and therefore, the exposure to any PCoC would be increased. Final exposure would depend on the proposed land use, soil exposure, and the soil concentrations of PCoC. The applicable exposure settings for potential exposure of persons to soil, and soil disturbance associated with the potential land use on and around the Proposed Cudgen Connection Development (investigation area) would be:

- **Health investigation level (HIL A)** residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake, (no poultry), also includes children's day care centres, preschools, and primary schools.

- **Ecological investigation level (EIL)** Urban residential/public open space is broadly equivalent to the HIL A, HIL B and HIL C land use scenarios.

- **Health Screening Levels (HSL A)** Low - high density residential (assessing fuel/oil contaminants only).

- **Ecological Screening Level (ESL)** Urban residential areas and public open space (assessing fuel/oil contaminants only).

- **Management Limits** (ML) Residential, parkland and public open space (assessing fuel/oil contaminants only).

The following guidance notes were considered in the preparation of this report:

- *National Environmental Protection (Assessment of Site Contamination) Measure 1999* (April 2013), EPHC 2013, Canberra.

  (Schedule B)
  - *(1) Guidelines on the Investigation Levels for Soil and Groundwater, and*
  - *(2) Guidelines on Site Characterisation*

In NSW the Measure is now being implemented by way of endorsement under section 105 of the Contaminated Land Management Act 1997. This will provide expanded technical guidance to site auditors, contaminated land consultants, planning authorities and the public when assessing a contaminated site.

- NSW EPA (2022) *Sampling design part 1 - application – Contaminated land guidelines* were followed during design of the sampling and analysis plan and predetermination of data quality objectives (DQOs).
- SEPP (2021) *State Environmental Planning Policy (Resilience and Hazards)*– provided guidance on project objectives.'
- NSW EPA (2020) *Consultants reporting on contaminated land - Contaminated land guidelines* were followed throughout the investigations and during preparation of this report.
- NSW DEC (2005*) Contaminated Sites - Guidelines for Assessing Former Orchards and Market Gardens* were used to assist in sampling and analysis plan and preliminary screening criteria.
- NSW EPA (1997) *Contaminated Sites – Guidelines for Assessing Banana Plantation Sites*.

Table 4 - Investigation Criteria (Soil & Sediment)

Analyte	HIL A [1]	EIL [2]	HSL [3]	ESL [4]	ML [5]
Metals/Metalloids (mg/kg)					
Arsenic	100	100			
Chromium	100 (VI)	400 (III)			
Copper	6000	210			
Nickel	400	270			
Zinc	7400	270			
Cadmium	20				

Lead	300	1100			
Mercury (inorganic)	40				
Organochlorine/Organophosphorus Chemicals (mg/kg)					
Chlordane	50				
Dieldrin + Aldrin	6				
DDT+DDD+DDE	240	180			
Heptachlor	6				
Chlorpyrifos	160				
Endosulfan	270				
Endrin	10				
BTEX (mg/kg)					
Benzene			0.7	65	
Toluene			480	105	
Ethyl Benzene			NL	125	
Total Xylenes			110	45	
Total Petroleum Hydrocarbons					
F1 C_6-C_{10}			50	180	800
F2 >C_{10}-C_{16}			280	120	1000
F3 >C_{16}-C_{34}				1300	3500
F4 >C_{34}-C_{40}				5600	10000
Polyaromatic Hydrocarbons					
Napthalene		170	4	170	
Benzo-pyrene				0.7	
Carcinogenic PAHs (as BaP TEQ)	3				
Total PAH	300				

(1) Health Investigation Levels for residential "A" land use (HIL A) as stated in Table 1A (1) of Schedule B (1) Guideline of Investigation Levels for Soil and Groundwater within the National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended and in force from 16 May 2013

(2) Ecological Investigation Levels (EILs) for Residential (CEC 20cmol/kg) as stated in Tables 1B(1)-1B(5) of Schedule B (1) Guideline of Investigation Levels for Soil and Groundwater within the National Environment Protection (Assessment of Site Contamination) Measure 1999 as amended and in force from 16 May 2013

(3) Health Screening Levels for fine soil in Table 1A(3) of *Schedule B (1) Guideline of Investigation Levels for Soil and Groundwater* within the *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended and in force from 16 May 2013

(4) Ecological Screening Levels for fine soil,in Tables 1B(6) of *Schedule B (1) Guideline of Investigation Levels for Soil and Groundwater* within the *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended and in force from 16 May 2013.

(5) Management Limits for fine soil Table 1B(7) of *Schedule B (1) Guideline of Investigation Levels for Soil and Groundwater* within the *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended and in force from 16 May 2013

6.2 RELEVANT ENVIRONMENTAL MEDIA

Based on the site history, topography and soils, the relevant environmental media would generally be the surface soil, on and around the Proposed Cudgen Connection Development location, where soil might be disturbed during earthworks associated with the construction of the development, or subject to movement due to erosion (rain) or wind (dust). In this circumstance, the upper part of the soil profile would be most likely to be disturbed.

6.3 INVESTIGATION CRITERIA

The investigation criteria are based on the Health Investigation Level deemed relevant for the proposed land use in clayey soil. The Ecological Investigation Level applies to ecological receptors and are relevant within 2m of the ground surface. For the proposed development, EILs may not be relevant where extensive earthworks extending greater than 2m depth to provide final landform, would be expected in areas across the site.

The site is also located on the elevated Cudgen plateau, in red volcanic clayey soil, where groundwater was expected to be at greater than 5m depth. No groundwater investigation was completed during this preliminary investigation. If surface soil investigation recorded elevated PCoC then the groundwater regime would be further assessed and, if warranted, groundwater investigation including collection of representative samples would be implemented.

ASC NEPM (2013) recommends that "*at the very least, the maximum and the 95% UCL of the arithmetic mean contaminant concentration should be compared to the relevant Tier 1 screening criteria*" and also that "*the results should also meet the following criteria:*

- *the standard deviation of the results should be less than 50% of the relevant investigation or screening level, and*
- *no single value should exceed 250% of the relevant investigation or screening level*".

The 95% UCL of the arithmetic mean provides a 95% confidence level that the true population mean will be less than, or equal to, this value. The 95% UCL is a useful mechanism to account for uncertainty in whether the data set is large enough for the mean to provide a reliable measure of central tendency.

6.4 ORGANOCHLORINE CHEMICALS

Organochlorines are persistent and degrade over many years. The use of organochlorine (OC) chemicals built up during the 1950's, peaked around 1975 and was largely phased out by 1990. A summary of the de-registration is shown below:

Organochlorines in Australia – Stanford Harrison, Department of Primary Industries & Energy, Commonwealth of Australia (https://www.lindane.org/_world/countries/australia.htm)

- By 1981 most agricultural uses of OCs had been deregistered except for some tropical and minor uses
- A few minor DDT uses remained by 1981, deregistered for cotton
- Endrin was deregistered in 1981
- Aldrin & Dieldrin were deregistered in 1985.
- By the end of 1985 virtually every one of the pest/crops/chemical combinations has been deregistered.
- OC Stock recall programs commenced in 1987
- Import prohibition on OCs into Australia in 1987
- All remaining OCs including heptachlor and chlordane (termite protection only) were phased out by June 1995
- Termiticides were largely terminated by 1995. The use of OCs as termiticides were the last registered uses in Australia.

6.5 HYDROPONICS CHEMICALS

The following chemicals used in hydroponics operations are included in the A B Hydroponics website (https://abnutrients.com.au/). The website generally focusses on organic solutions for pest and disease control.

As noted in Table 5 these chemicals degrade rapidly in aerobic soil with a half-life up to 56 days.

Table 5 – Typical Hydroponics Chemicals

Chemical	Active Ingredients	Half Life (days)
KILL-A-MITE	Abamectin	7[1]
Scarid 10	Deltamethrin	31 – 36[2]
Banrot 400WP	Etridiazole	4 – 33[3]
	Thiophanate-methyl	7[4]
Rot Stop	Metalaxyl-m	14 – 56[5]

(1) *U.S. Environmental Protection Agency. Pesticide Fact Sheet Number 89.2: Avermectin B1. Office of Pesticides and Toxic Substances, Washington, DC, 1990.10-143.*
(2) *Tomlin, C. D. S. The Pesticide Manual: A World Compendium, 14th ed.; British Crop Protection Council: Farnham, UK, 2006; pp 286-287.*
(3) *National Center for Biotechnology Information (2022). PubChem Compound Summary for CID 17432, Etridiazole.*
(4) *Blume HP, Ahlsdorf B; Ecotox Environ Safety 26: 313-332 (1993)*
(5) *U.S. Environmental Protection Agency. EFED List A Summary Report for Metalaxyl Chemical #113501. Environmental Fate and Effects Division, Washington, DC, 1994*

6.6 Data quality objectives

- State the Problem
  - Historic aerial photography shows site has been subject to potentially contaminating activities since prior to 1942.
  - Activities have included broadacre cropping, hydroponics operations, and commercial nursery with associated agrichemical use.
  - Hydroponics and nursery were operating after the 1980s where non-persistent agrichemicals would have been used. These chemicals, although potentially toxic metabolise and degrade rapidly. The hydroponics operation was also subject to funding grants where the applicant noted that the operation was organic and "pesticide free".
- Identify the Decisions/Goals
  - PCoC total soil concentrations to meet adopted investigation criteria based on future land use.

To resolve the problem stated in Step 1, the following decisions require consideration:

- Assess all potential exposure pathways
- Assess if any potentially unacceptable risks to human health and/or the environment are present due to the completeness of the identified potential pathways.
- Ensure adequate soil investigation has been undertaken to collect sufficient data in order to characterise the site
- Ensure the conclusions and recommendations derived as a result of assessment work completed are defendable.

- Identify Information Inputs
  - Soil organochlorine, organophosphate, and metal concentrations (former cropping area, hydroponics areas, and nursery),
  - Sampling depth and location 0-100mm based on NSW EPA (2022) – Sampling design part 1 – application (section 5.3.1)
  - Soil texture
  - Field measurements - visual and olfactory

- Investigation criteria generally based on residential land use for clay (fine) soil (<2m depth) as shown in Table 4.
- Soil sampling data including: bore logs showing lithology, tabulated concentrations of dieldrin compared against the adopted assessment criteria, dieldrin leachability results through the soil profile, and a figure showing spatial distribution of the sample locations and exceedances.

- Define the Study Boundaries
  - The investigation area generally covers the entire property. The NSW EPA (2022) guidelines were used to calculate the sampling intensity for the former cropping areas (compositing), and nursery areas. A more intensive, targeted sampling approach was used for the current and former shed locations.
- Develop the Analytical Approach
  - If total soil concentrations of PCoC are reported above the adopted assessment criteria, then further assessment, management or remediation will be required;
  - If total soil concentrations are reported below the adopted assessment criteria, then the soil can remain in-situ, and the investigation area would be suitable for the proposed development.
  - If the bounds (laterally and vertically) of any PCoC-impacted soil can be mapped without unknowns and all potentially impacted areas can be identified, then the contamination will be considered adequately delineated;
  - If soil PCoC concentrations, are below the adopted assessment criteria, then PCoC leachate would not be considered to be impacting on groundwater or migrating in groundwater from the source on this clay soil site with groundwater estimated at >5m depth.
  - If no data gaps are identified in the CSM then it will be considered that the potential exposure pathways have been adequately assessed and potential complete exposure pathways identified.
- Specify the Acceptance Criteria
  - Investigation criteria – 95% UCL < HIL A & EIL, Standard Deviation <50% HIL A & EIL, maximum sample concentration <250% HIL A& EIL. - see Table 9
- Investigation Criteria
  - See Table 9
- Optimise the Design
  - Vary design based on site conditions and results

7 SAMPLING AND ANALYSIS PLAN AND SAMPLING METHODOLOGY

7.1 SAMPLING, ANALYSIS AND DATA QUALITY OBJECTIVES

The following sampling, analysis and data quality objectives have been adopted for this site investigation:

- To collect the minimum number of soil samples across the investigation area to assess whether total concentrations of PCoC are present and meet the soil investigation criteria for the proposed land use.
- To employ quality assurance when sampling, assessing, and during evaluation of the subject soils.
- To ensure that decontamination techniques are applied during the sampling procedure and that no cross contamination of samples occurs.

7.2 SOIL SAMPLING AND ANALYSIS PROGRAM

A sampling and analysis quality plan (SAQP), and a sampling and analysis program, were developed to assess the site for PCoC associated with chemical use in soil previously subjected to cropping, hydroponics, nursery and around the current and former shed locations.

HMC had previously reviewed the following prepared for the adjacent Tweed Valley Hospital (TVH) site

- *Preliminary and Detailed Site Investigation – 771 Cudgen Road, Cudgen, NSW 2487*, prepared by OCTIEF Pty Ltd, dated 17 October 2018.
- *Site Audit Report 0503-1901 771 Cudgen Road Cudgen NSW* prepared by JBS&G Australia Pty Ltd dated 4 February 2019

These reports were used to help formulate an approach for the current proposal on similar broadacre cropping land.

For the TVH site, the NSW DEC (2005*) Contaminated Sites - Guidelines for Assessing Former Orchards and Market Gardens* were used, including sample compositing (max. 4 sub-samples/composite). As the compositing approach was endorsed by the Site Auditor, this method was similarly used on the broadacre areas where the soil was found to be very homogenous and subject to long term tilling.

A systematic sampling approach was adopted for the former cropping area that previously extended over the entire site, with the hydroponics and nursery operations occurring later. Eighty-eight (88) primary soil samples plus 5 x QA/QC's were collected from the former cropping investigation area. These samples were then composited in groups of four to create twenty-two (22) composite samples. Each composite location was marked with a timber stake. Samples were collected at each cardinal point approximately 10m from the stake, thus ensuring a maximum separation of 20m between each sub-sample.

A strategic targeted sampling approach was adopted for the former nursery and former hydroponics storage sheds. Fourteen (14) primary soil samples plus 2 x QA/QC's were collected from the area in and around the former nursery, while five (5) primary soil samples were collected from the area around the former hydroponics sheds.

Surface soil sampling was adopted as any soil exposure would be to the surface soil and any agrichemical application or spillages would be to the ground surface. NSW EPA (1997) recommends 0-150mm sampling interval for former cultivated cropping areas.

The sampling was completed on 31 October 2022 for the investigation area as shown in Appendix 8.

The following basic measures were undertaken by HMC Environmental Consulting to conform to the minimum standards for field quality assurance and quality control procedures for the samples collected:

- Soil sampling was undertaken by M. Tunks, H. Tunks and T. Richards of HMC Environmental Consulting, with experience in site contamination investigations.
- Clean stainless-steel trowels were used to collect samples from immediately below the root zone and detritus layer, where present, (former cropping - 0-150mm) using disposable nitrile gloves. The trowels were decontaminated between samples by pressure cleaning (12V) thoroughly with clean water, scrubbing with Decon 90 cleanser, and finally re-rinsing with clean water.
- Field quality assurance and quality control (QA/QC) protocols implemented included details of collection and analysis of field duplicate and triplicate samples.
- Chain of custody documentation was completed.
- The laboratory results and quality assurance and quality control reports including a description of the analytical methods used and reporting for surrogates was also completed.

A walkover survey of the existing shed and former shed locations was also completed to assess the soil surface for ACM fragments. These sheds were partially surrounded with concrete paving and metal external cladding and roofing material. Due to the age of the structures it is unlikely bonded ACM was present. No ACM was recorded in areas surrounding the existing structure locations.

8 QUALITY ASSURANCE AND QUALITY CONTROL

Sampling was undertaken in accordance with the SAQP (see section 7).

Table 6 – Soil Quality Control Samples

Primary Sample ID	Type	Quality Control Sample ID	Laboratory	Analytes
CD7A	Duplicate	CDDUP 1	ALS, Brisbane	OCPs, OPPs, and Metals
	Triplicate	CDTRIP 1	ALS, Sydney	
CD17A	Duplicate	CDDUP 2	ALS, Brisbane	
	Triplicate	CDTRIP 2	ALS, Sydney	
CD21A	Duplicate	CDDUP 3	ALS, Brisbane	
	Triplicate	CDTRIP 3	ALS, Sydney	
CD9A	Duplicate	CDDUP 4	ALS, Brisbane	
	Triplicate	CDTRIP 4	ALS, Sydney	
CD2A	Duplicate	CDDUP 5	ALS, Brisbane	
	Triplicate	CDTRIP 5	ALS, Sydney	
CDN3	Duplicate	CDDUP 6	ALS, Brisbane	
	Triplicate	CDTRIP 6	ALS, Sydney	
TRIP SPIKE 1	Trip Spike	TRIP SPIKE 1	ALS, Brisbane	BTEXN, TPH F1, TPH F2
TRIP SPIKE 10	Trip Spike	TRIP SPIKE 10	ALS, Brisbane	
TRIP BLANK 100625	Trip Blank	TRIP BLANK 100625	ALS, Brisbane	
TRIP BLANK 100626	Trip Blank	TRIP BLANK 100626	ALS, Brisbane	

The laboratory results and quality control reports include a description of the analytical methods used and reporting for surrogates used by ALS Environmental.

Table 7 - Data Quality Indicators

Data Quality Indicator	Criteria	Comment
Precision		
Laboratory matrix duplicate relative percentage differences (RPDs) within criteria	Limits set by the laboratory: Soil results <10 times the LOR: No limit Soil results between 10-20 times the LOR: RPD must lie between 0-50% Soil results >20 times the LOR: RPD must lie between 0-30%	All soil results recorded an RPD within the prescribed limits.
Field duplicate RPDs within criteria	In accordance with AS4482.1 (2005), RPD results ≥50% will be considered to exceed the data quality objectives (DQO) of the assessment. However, based on industry best practice, RPD results will be discounted if both sample results used to calculate the RPD are below the laboratory's limit of reporting (LOR) or less than 10 times the LOR.	Generally, all field duplicate and triplicate results <50% RPD or less than 10 times the LOR. The field duplicate result for CB2A lead was 71.65% RPD. The field triplicate results for CB2A Endosulfan and Total >C10-C40 were 172.97% RPD and 66.67% RPD respectively.

Accuracy		
Matrix spike sample results reported with prescribed limits	Limits set by the laboratory: Results to be between 70-130%.	Generally, all results were all between 70-130%.
Surrogate spike sample results reported with prescribed limits	Limits set by the laboratory: Recoveries must lie between 50-150%.	Surrogate spike sample results reported within the prescribed limits.
Laboratory method blanks reported with prescribed limits	Concentrations of targeted parameters should be below the laboratory's limit of reporting (LOR).	Laboratory method blanks reported with prescribed limits.
All analysis NATA accredited	Analysis to be completed by a NATA accredited laboratory.	All analysis NATA accredited
Representativeness		
Samples delivered to laboratory within sample holding times, chilled and with correct preservative	Target temp <4°C. Samples to be submitted to the laboratory within the designated holding times. Different holding times exist for different parameters. Samples to meet the preservation requirements set by the laboratory.	Samples delivered to laboratory within sample holding times, chilled and with correct preservative
Required number of field duplicates and sample blanks taken	Intra and inter laboratory duplicates are to be collected at a ratio of one duplicate pair per 20 samples. One rinse blank and field blank to be collected per day as required. One trip blank to be collected per cooler where analysis of volatile compounds is proposed.	Required number of field duplicates and sample blanks taken Required number of rinsate samples taken.
Sample blanks reported results below detection limits	Concentrations of targeted parameters to be below the laboratory's limit of reporting (LOR).	The sample blank results were below the LOR
Samples collected in accordance with regulatory and HMC procedures	Samples to be collected in general accordance with standard operating procedures (SOPs) which are based on applicable regulatory guidance and industry best practice.	Samples collected in accordance with regulatory and HMC procedures
Comparability		
Same standard operation procedures (SOPs) applied	The same SOPs to be adopted for each sampling event.	Same standard operation procedures (SOPs) applied during each sampling event

during each sampling event		
LORs below the adopted assessment criteria	The laboratory's LOR is to be below the adopted assessment criteria.	LORs below the adopted assessment criteria
LORs below the adopted assessment criteria	The sampler is to be a Suitably Qualified Person (SQP)	SQP collected samples
Same type of sample preservation and analysis techniques	The same type of sample preservation and analysis techniques are to be applied to all samples. This information is to be provided within laboratory reports.	Same type of sample preservation and analysis techniques applied to all samples
Completeness		
All laboratory data reviewed and presented in the report (i.e., COCs, SRNs, COAs and QCRs)	All information provided by the laboratory is to be provided in the final report.	All laboratory data reviewed and presented in the report
All sample results reported	All sample results are to be reported and discussed.	All sample results reported
Sample blanks data reported	All sample blank data is to be reported.	Sample blanks not required
Relative percent differences (RPDs) calculated	RPDs to be calculated for all sets of field duplicates.	Relative percent differences (RPDs) calculated
Laboratory duplicates reported	All laboratory duplicate results are to be reported.	Laboratory duplicates/triplicates reported
NATA stamp on reports	NATA stamps to be shown on all laboratory reports.	NATA stamp on reports

9 FIELD AND ANALYTICAL RESULTS

9.1 FIELDWORK

Systematic and strategic field sampling was conducted by experienced environmental scientists on 31 October 2022.

Table 8 – Sample Locations

Sample	Sub-Samples	Location	Depth (mm)	ID	Soil Description	Laboratory Program
CD1	CD1A, CD1B, CD1C, CD1D	The extent of the	0-150mm	Composite Samples	Moist, Reddish	OCPs, OPPs, and Metals

CD2	CD2A, CD2B, CD2C, CD2D	former cropping area Systematic surface soil sampling			Brown to Dark Brown, clay loam/light clay soil	
CD3	CD3A, CD3B, CD3C, CD3D					
CD4	CD4A, CD4B, CD4C, CD4D					
CD5	CD5A, CD5B, CD5C, CD5D					
CD6	CD6A, CD6B, CD6C, CD6D					
CD7	CD7A, CD7B, CD7C, CD7D					
CD8	CD8A, CD8B, CD8C, CD8D					
CD9	CD9A, CD9B, CD9C, CD9D					
CD10	CD10A, CD10B, CD10C, CD10D					
CD11	CD11A, CD11B, CD11C, CD11D					
CD12	CD12A, CD12B, CD12C, CD12D					
CD13	CD13A, CD13B, CD13C, CD13D					
CD14	CD14A, CD14B, CD14C, CD14D					
CD15	CD15A, CD15B, CD15C, CD15D					
CD16	CD16A, CD16B, CD16C, CD16D					
CD17	CD17A, CD17B, CD17C, CD17D					
CD18	CD18A, CD18B, CD18C, CD18D					
CD19	CD19A, CD19B, CD19C, CD19D					
CD20	CD20A, CD20B, CD20C, CD20D					
CD21	CD21A, CD21B, CD21C, CD21D					
CD22	CD22A, CD22B, CD22C, CD22D					
CDN1		The immediate surrounds of the former nursery Strategic surface soil sampling		Primary Samples	Generally Brown clay loam.	
CDN2						
CDN3						
CDN4						
CDN5						
CDN6						
CDN7						
CDN8						

CDN9						
CDN10						
CDN11						
CDN12						
CDN13						
CDN14						
CDS1A		The immediate surrounds of the farm storage sheds Strategic surface soil sampling			Brown Sandy loam	OCPs, OPPs, Metals, PAH, TRH and BTEX
CDS2A						
CDS3A						
CDS4A						
CDS5A						
CDBG2		Outside of AoC			Dark Reddish Brown clay loam	OCPs, OPPs, and Metals
CDBG2						

A total of 109 primary surface (0-150mm) soil samples (plus 12 x QA/QC) soil samples were recovered and placed in laboratory supplied glass jars. The primary samples, together with the QA/QC samples,4 x field rinsates, 2 x trip spikes and 2 x trip blanks were placed in coolers (<5°C) and transported to the HMC office for refrigerated storage prior to delivery to ALS Environmental laboratory for analysis for PCoC.

Refer to Appendix 8 for the site plan and sampling locations.

9.2 ANALYTICAL TESTING

Laboratory analytical services were provided by ALS Environmental, Brisbane & Sydney.

9.3 SOIL PROGRAM

A total of 109 primary samples were submitted for analysis.

9.3.1 Former Broadacre Cropping and Hydroponics Area

Eighty-eight (88) samples were composited into 22 composites and were analysed for the following:

- Organochlorine/organophosphorus pesticides
- Metals - arsenic (As), cadmium (Cd), copper (Cu), chromium (Cr), nickel (Ni), lead (Pb), zinc (Zn), mercury (Hg)

9.3.2 Former Commercial Nursery Area

Sixteen (16) samples were analysed for the following:

- Organochlorine/organophosphorus pesticides
- Metals - arsenic (As), cadmium (Cd), copper (Cu), chromium (Cr), nickel (Ni), lead (Pb), zinc (Zn), mercury (Hg)

9.3.3 Existing Farm Sheds/Hydroponics

Five (5) samples were analysed for the following:

- Organochlorine/organophosphorus pesticides

- Metals - arsenic (As), cadmium (Cd), copper (Cu), chromium (Cr), nickel (Ni), lead (Pb), zinc (Zn), mercury (Hg)
- Petroleum Hydrocarbons - Benzene, toluene, ethyl benzene, xylene (BTEX), volatile and semi-volatile Total Recoverable Hydrocarbons (C6-C40), Polyaromatic hydrocarbons (PAH).

9.3.4 Asbestos

Visual only in the vicinity of the existing packing shed/office. It appears other structures existing and demolished were metal clad. No indication of ACM use in sheds generally constructed after 1990. Former packing shed/office building was constructed around 1987 but has metal cladding.

9.4 PRIMARY AND REPLICATE RESULTS

9.4.1 Former Broadacre Sampling Results

The laboratory analysis of the selected primary samples is summarised in Table 9.

Table 9 – Broadacre (composited) Laboratory Results Summary (31 October 2022)

Parameter	Number of composite samples	LOR (mg/kg)	Criteria Exceedances	Range (mg/kg)	Typical Background (Olszowy et al, 1995) mg/kg
METALS/METALLOIDS					
Arsenic	22	5	0	<5-6	5-53
Chromium	22	2	**3**	**9-35** (1)	5-56
Copper	22	5	0	5-26	3-412
Nickel	22	2	0	4-14	5-38
Zinc	22	5	0	19-210	5-92
Cadmium	22	1	0	<1	nd
Lead	22	5	0	<5-8	5-56
Mercury (inorganic)	22	0.1	0	<0.1-0.2	nd
ORGANOCHLORINE/ORGANOPHOSPHORUS					
Chlordane	22	0.05	0	<0.05	
Dieldrin + Aldrin	22	0.05	0	<0.05	
DDT+DDD+DDE	22	0.05	0	<0.05	
Heptachlor	22	0.05	0	<0.05	
Chlorpyrifos	22	0.05	0	<0.05	
Endosulfan	22	0.05	0	<0.05	
Endrin	22	0.05	0	<0.05	

(1) Chromium Investigation criteria is chromium (VI) results are total chromium.
* Investigation criteria adjusted to represent the composited samples.
* Investigation criteria exceedances are in bold.

For the composite sample results (broadacre cropping area only), results were compared to the investigation criteria adjusted for the number of sub-samples within the composite sample. In this sampling program, each composite sample was formed from 4 sub-samples, so the investigation criteria was divided by 4 to calculate the adjusted investigation criteria.

9.4.2 Statistical Analysis

A review of the results shows that the total chromium results were generally below the investigation criteria for the potential residential land use, except for the three locations which slightly exceeded the adjusted HIL A criteria of 25 mg/kg for chromium (VI). Chromium (VI) is not likely to be present on this site, and the total

chromium results for the discrete samples (sub-samples within composite) used to assess the QA/QC results, were all below the investigation criteria for Chromium (VI).

The most elevated recorded concentration was within Composite CD2 with a concentration of 35mg/kg, which is below the 250% adjusted criteria (63 mg/kg) for a single result. Statistical analysis was performed on these results, and it complies with the 95% UCL (17.7 mg/kg = <adjusted criteria) and the standard deviation (7.5 mg/kg = <50% adjusted criteria).

To assess the distribution of the total lead concentration results, statistical analysis was completed including:

- Maximum
- Standard deviation
- Mean
- 95% upper confidence level (95% UCL).

Using ProUCL 5.1 statistical software, the following results were calculated:

Table 10 – Broadacre Statistical Analysis Summary

Parameter	Total Chromium Results	Chromium (VI) Criteria (Adjusted HIL A [1])
No. of results (n)	22	
Maximum	35	63
Mean	15	
Standard Deviation	7.5	12.5
95% UCL [2]	17.7	25

(1) Health Investigation Levels for residential "A" land use (HIL A) as stated in Table 1A (1) of *Schedule B (1) Guideline of Investigation Levels for Soil and Groundwater* within the *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended and in force from 16 May 2013 – Adjusted for composited samples

(2) 95% upper confidence limit of the arithmetic mean

The statistical analysis shows that the results for total chromium concentration in the former cropping area comply with the adjusted investigation criteria.

9.4.3 Soil Investigation Conclusions

The Soil and Analysis Quality Plan was implemented, all organochlorine and organophosphorus, along with cadmium results were below the LOR and, therefore, below the adjusted investigation criteria. Generally, all other metals results were in low concentrations, and below the investigation criteria.

There were elevated concentrations of total chromium in three locations which slightly exceeded the adjusted HIL A investigation criteria for chromium (VI). Chromium (VI) is not likely to be present on this site, however the total chromium results were used as a screening method. The statistical analysis on the results show that the concentrations comply with the adjusted investigation criteria.

9.4.4 Former Nursery Area Results

The laboratory analysis of the selected primary samples is summarised in Table 11.

Table 11 – Nursery Laboratory Results Summary (31 October 2022)

Parameter	Number of samples	LOR (mg/kg)	Criteria Exceedances	Range (mg/kg)	Typical Background (Olszowy et al, 1995) mg/kg
METALS/METALLOIDS					
Arsenic	14	5	0	<5-10	5-53
Chromium	14	2	0	3-14	5-56
Copper	14	5	0	<5-28	3-412
Nickel	14	2	0	<2-8	5-38
Zinc	14	5	0	6-298	5-92
Cadmium	14	1	0	<1-2	nd
Lead	14	5	0	<5-16	5-56
Mercury (inorganic)	14	0.1	0	<0.1-0.2	nd
ORGANOCHLORINE/ORGANOPHOSPHORUS					
Chlordane	14	0.05	0	<0.05	
Dieldrin + Aldrin	14	0.05	0	<0.05	
DDT+DDD+DDE	14	0.05	0	<0.05	
Heptachlor	14	0.05	0	<0.05	
Chlorpyrifos	14	0.05	0	<0.05	
Endosulfan	14	0.05	0	<0.05	
Endrin	14	0.05	0	<0.05	

* Health Investigation Levels for residential "A" land use (HIL A) for clay as stated in Table 1A (1) of *Schedule B (1) Guideline of Investigation Levels for Soil and Groundwater* within the *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended and in force from 16 May 2013
* Investigation criteria exceedances are in bold

9.4.5 Statistical Analysis

All results were below the investigation criteria, and therefore statistical analysis was not required.

9.4.6 Soil Investigation Conclusions

The Soil and Analysis Quality Plan was implemented, and all organochlorine and organophosphorus results were below the LOR and, therefore, below the investigation criteria.

There were low concentrations of metals, typical of background concentrations, and therefore below the investigation criteria.

9.4.7 Former Hydroponics Area Sampling Results

The laboratory analysis of the selected primary samples is summarised in Table 12.

Table 12 – Hydroponics Sheds Laboratory Results Summary (31 October 2022)

Parameter	Number of samples	LOR (mg/kg)	Criteria Exceedances	Range (mg/kg)	Typical Background (Olszowy et al, 1995) mg/kg
METALS/METALLOIDS					
Arsenic	5	5	0	<5-5	5-53
Chromium	5	2	0	8-53	5-56
Copper	5	5	0	11-33	3-412
Nickel	5	2	0	5-24	5-38
Zinc	5	5	0	81-445	5-92
Cadmium	5	1	0	<1-1	nd

Lead	5	5	0	<5-12	5-56
Mercury (inorganic)	5	0.1	0	<0.1-0.1	nd
ORGANOCHLORINE/ORGANOPHOSPHORUS					
Chlordane	5	0.05	0	<0.05	
Dieldrin + Aldrin	5	0.05	0	<0.05	
DDT+DDD+DDE	5	0.05	0	<0.05	
Heptachlor	5	0.05	0	<0.05	
Chlorpyrifos	5	0.05	0	<0.05	
Endosulfan	5	0.05	0	<0.05	
Endrin	5	0.05	0	<0.05	
BTEX					
Benzene (mg/kg)	5	0.2	0	<0.2	
Toluene (mg/kg)	5	0.5	0	<0.5	
Ethyl Benzene (mg/kg)	5	0.5	0	<0.5	
Total Xylenes	5	0.5	0	<0.5	
TOTAL PETROLEUM HYDROCARBONS					
C6-C10	5	10	0	<10-16	
>C10-C16	5	50	0	<50	
>C16-C34	5	100	0	<100-210	
>C34-C40	5	100	0	<100	
Total >C10-C40	5	50	0	<50-210	
POLYAROMATIC HYDROCARBONS					
Napthalene	5	0.5	0	<0.5	
Benzo-pyrene	5	0.5	0	<0.5	
Total PAH	5	0.5	0	<0.5	

* Health Investigation Levels for residential "A" land use (HIL A) for clay as stated in Table 1A (1) of *Schedule B (1) Guideline of Investigation Levels for Soil and Groundwater* within the *National Environment Protection (Assessment of Site Contamination) Measure 1999* as amended and in force from 16 May 2013
* Investigation criteria exceedances are in bold

9.4.8 Statistical Analysis

All results were below the investigation criteria, and therefore statistical analysis was not required.

9.4.9 Soil Investigation Conclusions

The Soil and Analysis Quality Plan was implemented, and all organochlorine, organophosphorus, BETX and PAH results were below the LOR and, therefore, below the investigation criteria. There were low concentrations of TPH and metals which were generally all below the investigation criteria.

There were low concentrations of total petroleum hydrocarbons, however all results were below the investigation criteria.

9.4.10 Asbestos

The existing former packing shed/office located in the south-eastern corner of the site was approved in 1987 and is clad with metal sheeting. All other structures were approved after this date when hazardous asbestos in building materials had been banned. A walkover survey was completed around the existing packing shed/office. M Tunks of HMC completed the visual observation survey and did not detect any fragments of asbestos containing material surrounding the building.

Asbestos may be present in this existing building and a survey by a suitably qualified Safework NSW licensed contractor would be completed prior to demolition.

9.5 QA/QC LABORATORY DATA REVIEW

9.5.1 Relative percent difference (RPD)

The results show very good correlation between the primary samples and the field replicate and triplicates. Correlation was within the recommended 0-50% range or was below 10 times the LOR.

9.5.2 Rinsate Samples

Generally, all concentrations in the rinsate samples were below the LOR and therefore do not indicate cross-contamination in the submitted samples. Very slight detections of TRH were recorded in CDRS4, however, due to the low concentrations, it is not indicative of significant cross-contamination and there were no criteria exceedances in the sample results.

9.6 SOIL INVESTIGATION SUMMARY

The Soil and Analysis Quality Plan was implemented, and all organochlorine, organophosphorus, BETX and PAH results were below the LOR and, therefore, below the investigation criteria. There were low concentrations of metals and total petroleum hydrocarbons, however generally all results were below the investigation criteria and consistent with typical background concentrations.

During the broadacre sampling, there were concentrations of total chromium in three locations which slightly exceeded the adjusted HIL A investigation criteria for chromium (VI). However, the statistical analysis on the results show that the total concentrations (no speciation) still comply with the investigation criteria.

The sampling around the former nursery area and the former hydroponics operation area returned all organochlorine and organophosphorus results below the LOR and, therefore, below the investigation criteria. There were low concentrations of metals, typical of background concentrations, and therefore below the investigation criteria. There were slight detections in total petroleum hydrocarbons around the former hydroponics area however they were below the investigation criteria.

10 CONCEPTUAL SITE MODEL

Table 13 - Conceptual Site Model

POTENTIAL SOURCE	PATHWAY	EXPOSURE ROUTE	RECEPTOR	OUTCOME
Historic agricultural/commercial activities including broadacre cropping, hydroponics operations and commercial nursery.	Surface water runoff	Chemical/sediment entering local water ways	Ecological receptors	Soil concentrations of PCoC were below the investigation criteria for the proposed land use.
	Exposed surface soil	Dermal contact to exposed soil during earthworks, proposed building occupation and recreational use	Site worker, Occupier, Visitor	
	Atmospheric dispersion	Inhalation of soil exposed during earthworks and in exposed bare soil areas		
	Leaching to groundwater	Groundwater movement off-site to beneficial users or ecological receptors	Beneficial users/Ecological receptor	

Potential hazardous building materials	Atmospheric dispersion	Inhalation of asbestos fibres during demolition	Site worker, Visitor	Bonded ACM may be present in existing former packing shed/office. Survey to be completed prior to demolition by Safework NSW licensed contractor and any suspected ACM to be removed prior to general demolition

11 DISCUSSION

It is proposed to develop the existing rural property into the *Cudgen Connection* Health and Community Precinct which will include a large range of health-related facilities and accommodation, along with community and recreational facilities, with a focus on creating jobs and essential worker housing. The *Preliminary Site Investigation* (HMC2022.445) identified several areas of concern (AoC) including former cropping areas, a former commercial nursery area, and former hydroponics operation site. Further investigation of these AoC has now been completed.

The results from the soil investigation across the property showed the former cropping area generally to be free of potential contaminants of concern (PCoC) exceeding the investigation criteria for residential use. Slightly elevated concentrations of total chromium were recorded in the broadacre cropping area, however the results are unlikely to be chromium (VI) and the statistical analysis of the results (assuming all chromium (VI)) was completed on the results, and they were shown to be below the investigation criteria.

12 CONCLUSIONS AND RECOMMENDATIONS

The Detailed Site Investigation conclusions are based on the information described in this report and appendices, and the Preliminary Site Investigation (HMC 2022.445) dated August 2022 and should be read in conjunction with the complete reports, including limitations.

The *Cudgen Connection* Health and Community Precinct is proposed on an existing rural landholding located at Lot 6 DP 727425, 741 Cudgen Road, Cudgen NSW. The Preliminary Site Investigation provided information confirming that historic cropping had previously taken place generally over the entire site. A former organic hydroponics operation and a commercial nursery were other land uses identified on parts of the site.

A Soil and Analysis Quality Plan was prepared, and implemented, to assess total soil concentrations of potential contaminants of concern including pesticides, metals, and petroleum hydrocarbons. Surface samples recorded laboratory results showing all organochlorine and organophosphorus chemicals, together with BETX, and PAH were all below the investigation criteria for the proposed land use. Metal results were generally typical of background levels, and below the investigation criteria. Although several total chromium results slightly exceeded the criteria for chromium (VI) in the former broadacre cropping areas, the statistical analysis completed on the results showed that total chromium results complied with the investigation criteria for chromium (VI).

No asbestos containing material fragments were recorded on the soil surface surrounding the former packing shed/office. The building was clad with metal sheeting; however, internal lining may potentially include bonded asbestos containing material.

Based on the information presented, in relation to potential site contamination associated with the current and former land use, the proposed Cudgen Health Precinct to be located at Lot 6 DP 727425, 741 Cudgen Road, Cudgen NSW, as shown in Appendix 1 and 2 of this report, is considered suitable for the proposed land use, subject to:

1. A survey of the existing former packing shed/office located in the south-east corner of the site to be undertaken for the presence of asbestos containing material in the building materials by a Safework NSW licensed contractor prior to demolition of this building. If asbestos containing material is suspected, the suspect material is to be removed and managed in accordance with Safework NSW requirements prior to general demolition. The survey is recommended to be conducted post-rezoning of the site and submitted with any application that involves the removal or disturbance of the former packing shed/office.

Based on the information presented, in relation to potential site contamination associated with the current and former land use, no further investigation or remediation is required for the proposed Cudgen Health Precinct site to be located at Lot 6 DP 727425, 741 Cudgen Road, Cudgen NSW.

13 LIMITATIONS

Any conclusions presented in this report are relevant to the site condition at the time of inspection and legislation enacted as at date of this report. Actions or changes to the site after time of inspection or in the future will void this report as will changes in relevant legislation.

The findings of this report are based on the objectives and scope of work outlined in Section 1. HMC Environmental has performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental assessment profession. No warranties or guarantees expressed or implied, are given. This report does not comment on any regulatory issues arising from the findings, for which a legal opinion should be sought. This report relates only to the objectives and scope of work stated and does not relate to any other works undertaken for the client. The report and conclusions are based on the information obtained at the time of the assessment.

The site history and associated uses, areas of use, and potential contaminants were determined based on the activities described in the scope of work. Additional site information held by the client, regulatory authorities or in the public domain, which was not provided to HMC Environmental or was not sourced by HMC Environmental under the scope of work, may identify additional uses, areas of use and/or potential contaminants. The information sources referenced have been used to determine the site history.

Whilst HMC Environmental has used reasonable care to avoid reliance on data and information that is inaccurate and unsuitable, HMC Environmental is not able to verify the accuracy or completeness of all information and data made available. Further chemicals or categories of chemicals may exist at the sites, which were not identified in the site history, and which may not be expected at the site. The absence of any identified hazardous or toxic materials on the subject land should not be interpreted as a warranty or guarantee that such materials do not exist on the site. If additional certainty is required, additional site history or desktop studies, or environmental sampling and analysis should be commissioned.

The results of this assessment are based upon site inspections and fieldwork conducted by HMC Environmental personnel and information provided by the client. All conclusions regarding the investigation area are the professional opinions of the HMC Environmental personnel involved with the project, subject to the qualifications made above. HMC Environmental assume no responsibility or liability for errors in any data obtained from regulatory agencies, information from sources outside of HMC Environmental, or developments resulting from situations outside the scope of this project.

14 SIGNATURE

This report has been prepared by Mark Tunks of HMC Environmental Consulting, a suitably qualified environmental consultant, in accordance with the NSW EPA (2020) *Consultants reporting on contaminated land – Contaminated land guidelines*. Note that HMC Environmental Consulting holds current Professional Indemnity Insurance to 4th August 2023.

28 November 2023
Completion Date

Mark Tunks
Principal

15 REFERENCES

Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC guidelines) published by the Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council, January 1992

Hashimoto T.R & Troedson A.I. 2008 *Tweed Heads 1:100 000 and 1:25 000, Coastal Quaternary Geology Map Series*. Geological Survey of New South Wales, Maitland

Morand, D.T., Soil Landscapes of the Murwillumbah-Tweed Heads 1:100 000 Sheet, 1996

NEPC, 2013. National Environment Protection (Assessment of Site Contamination) Measure 1999 Schedule B (1) Guideline on the Investigation Levels for Soil and Groundwater, National Environment Protection Council Service Corporation, as amended 16 May 2013

NSW Environment Protection Authority (2020) Consultants reporting on contaminated land - Contaminated land guidelines.

State Environmental Planning Policy (Resilience and Hazards) 2021

16 GLOSSARY

Added contaminant limit (ACL) is the added concentration of a contaminant above which further appropriate investigation and evaluation of the impact on ecological values will be required. ACL values are generated in the process of deriving ecological investigation levels (EILs).

Ambient background concentration (ABC) of a contaminant is the soil concentration in a specified locality that is the sum of the naturally occurring background and the contaminant levels that have been introduced from diffuse or non-point sources by general anthropogenic activity not attributable to industrial, commercial or agricultural activities.

An **area of ecological significance** is one where the planning provisions or land use designation is for the primary intention of conserving and protecting the natural environment. This would include national parks, state parks, and wilderness areas and designated conservation areas.

Bioavailability is a generic term defined as the fraction of a contaminant that is absorbed into the body following dermal contact, ingestion or inhalation.

Bonded asbestos-cement-material (bonded ACM) comprises bonded asbestos containing material which is in sound condition (although possibly broken or fragmented) and is restricted to material that cannot pass a 7 mm x 7 mm sieve. This sieve size is selected as it approximates the thickness of common asbestos cement sheeting and for fragments to be smaller than this would imply a high degree of damage and potential for fibre release.

Conceptual site model (CSM) is a description of a site including the environmental setting, geological, hydrogeological and soil characteristics together with the nature and distribution of contaminants. Potentially exposed populations and exposure pathways are identified. Presentation is usually graphical or tabular with accompanying explanatory text.

Contamination means the condition of land or water where any chemical substance or waste has been added as a direct or indirect result of human activity at above background level and represents, or potentially represents, an adverse health or environmental impact.

Ecological investigation levels (EILs) are the concentrations of contaminants above which further appropriate investigation and evaluation will be required. EILs depend on specific soil physicochemical properties and land use scenarios and generally apply to the top 2 m of soil. EILs may also be referred to as soil quality guidelines in Schedules B5b and B5c.

Health investigation levels (HILs) are the concentrations of a contaminant above which further appropriate investigation and evaluation will be required. HILs are generic to all soil types and generally apply to the top 3 m of soil.

Health risk assessment (HRA) is the process of estimating the potential impact of a chemical, biological or physical agent on a specified human population system under a specific set of conditions.

Investigation levels and **screening levels** are the concentrations of a contaminant above which further appropriate investigation and evaluation will be required. Investigation and screening levels provide the basis of Tier 1 risk assessment.

Multiple-lines-of-evidence approach is the process for evaluating and integrating information from different sources of data and uses best professional judgement to assess the consistency and plausibility of the conclusions which can be drawn.

Risk assessment is the process of estimating the potential impact of a chemical, physical, microbiological or psychosocial hazard on a specified human population or ecological system under a specific set of conditions and for a certain timeframe.

Risk management is a decision-making process involving consideration of political, social, economic and technical factors with relevant risk assessment information relating to a hazard to determine an appropriate course of action.

Screening is the process of comparison of site data to screening criteria to obtain a rapid assessment of contaminants of potential concern.

Tier 1 assessment is a risk-based analysis comparing site data with investigation and screening levels for various land uses to determine the need for further assessment or development of an appropriate management strategy.

APPENDIX 1 - LOCATION MAPS

Figure 1 - Surrounding Area (Source: Nearmap 2022)

Figure 2 – Subject Site (Source: Nearmap 2022

APPENDIX 2 - SITE PLAN PROPOSED DEVELOPMENT

DEVELOPMENT SUMMARY:

HEALTH, UNIVERSITY AND MEDICAL HOTEL - APPROXIMATELY 28 829 m²

RETAIL, CHILDCARE AND COMMUNITY CENTRE - APPROXIMATELY 3709 m²

ESSENTIAL WORKER HOUSING, APPROXIMATELY 286 UNITS, 24 061 m²

PARKLAND AND GREEN SPACES - APPROXIMATELY 13 626 m²

COTTEEPARKER

N

0 15 30 45 60 75

SCALE 1: 750 @ A1
SCALE 1: 1500 @ A3

Centuria DIGITAL INFRATECH

CONCEPT MASTERPLAN

PROJ. NAME 741 Cudgen Road | PROJ. NO. 20006148 | SHEET NO. 10003 | REV. 04

BIMcloud: CPACLDBIMM01 - BIMcloud/2000/6148 Cudgen Rd Master: 21/11/2023: 5:13 PM

APPENDIX 3 - GEOLOGY AND SOIL LANDSCAPE

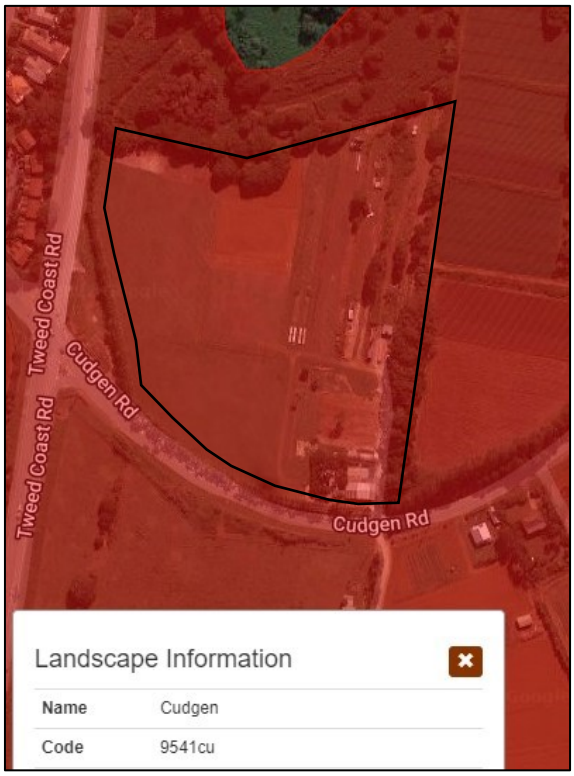

Figure 3 – Soil Landscape Map (Source: http://www.environment.nsw.gov.au/eSpadeWebApp/)

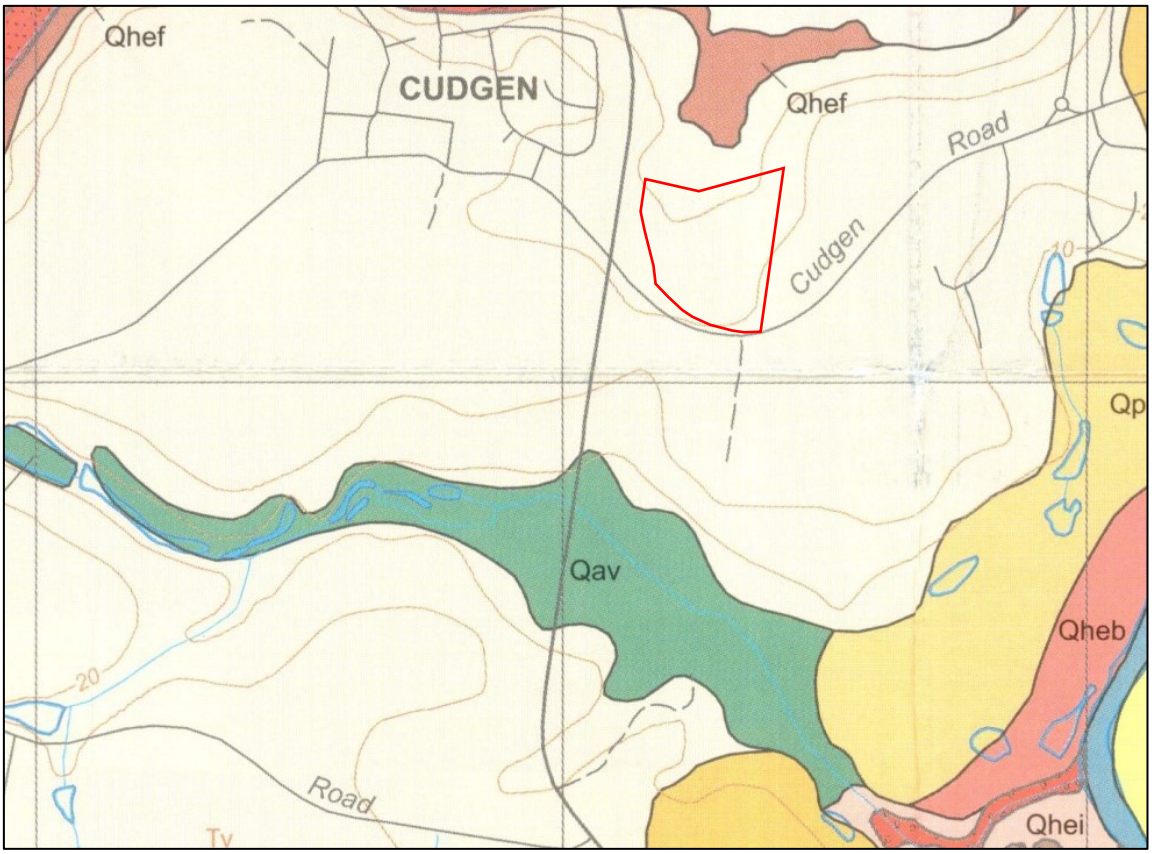

Figure 4 - Geology Map (Source Hashimoto et al)

APPENDIX 4 - HISTORICAL AERIAL PHOTOGRAPHY

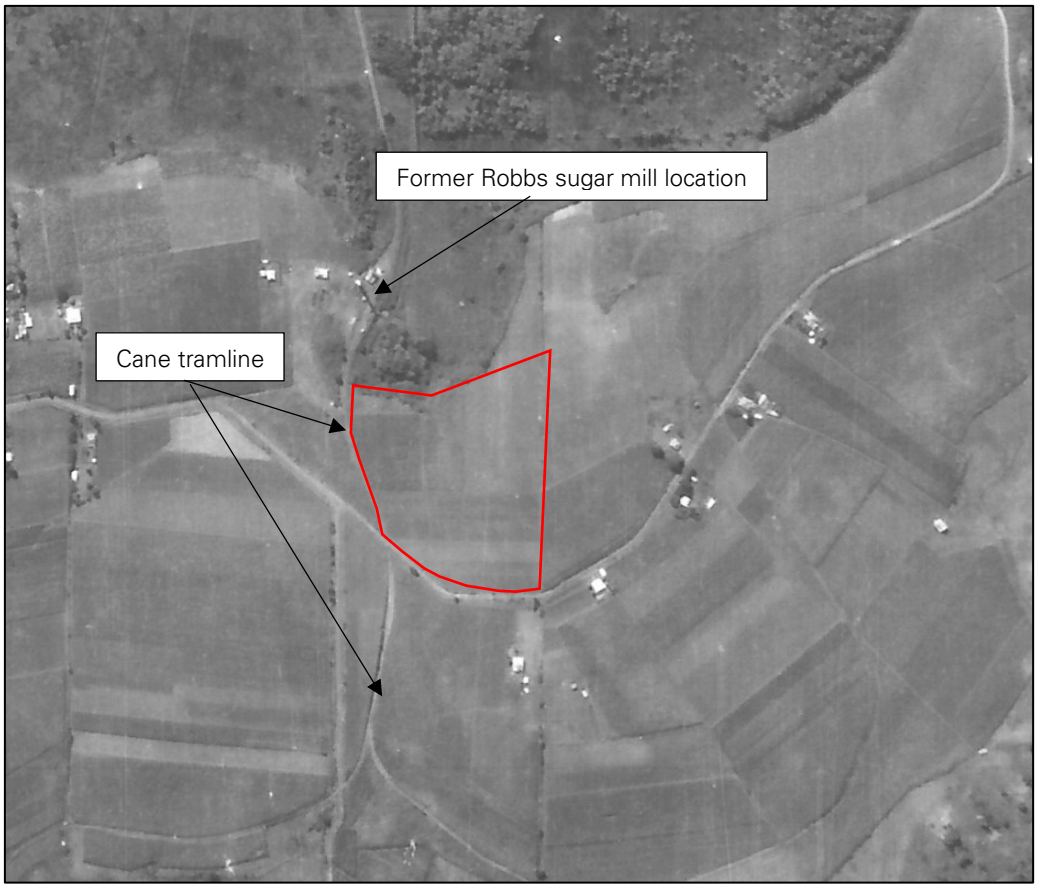

Figure 5 – Historical Aerial 1947 (Geoscience Australia)

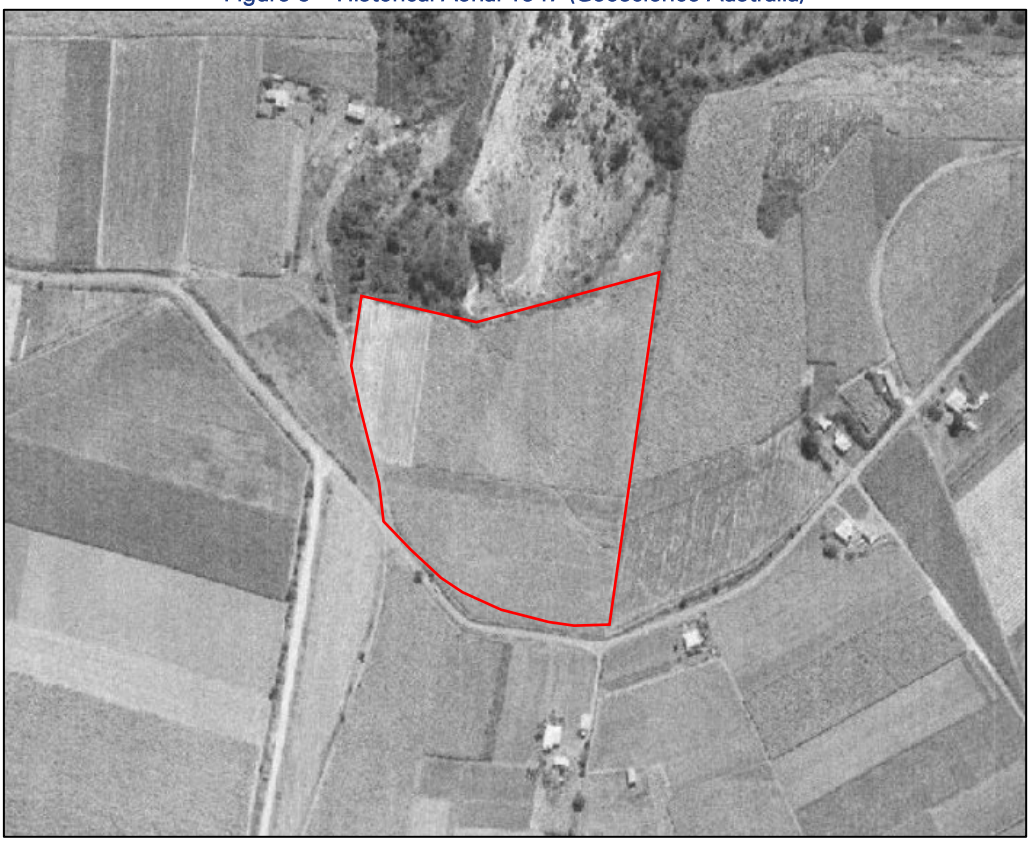

Figure 6 - Historical Aerial 1962 (NSW Spatial Services Historical Imagery https://portal.spatial.nsw.gov.au)

Figure 7 - Historical Aerial 1972 (NSW Spatial Services Historical Imagery https://portal.spatial.nsw.gov.au)

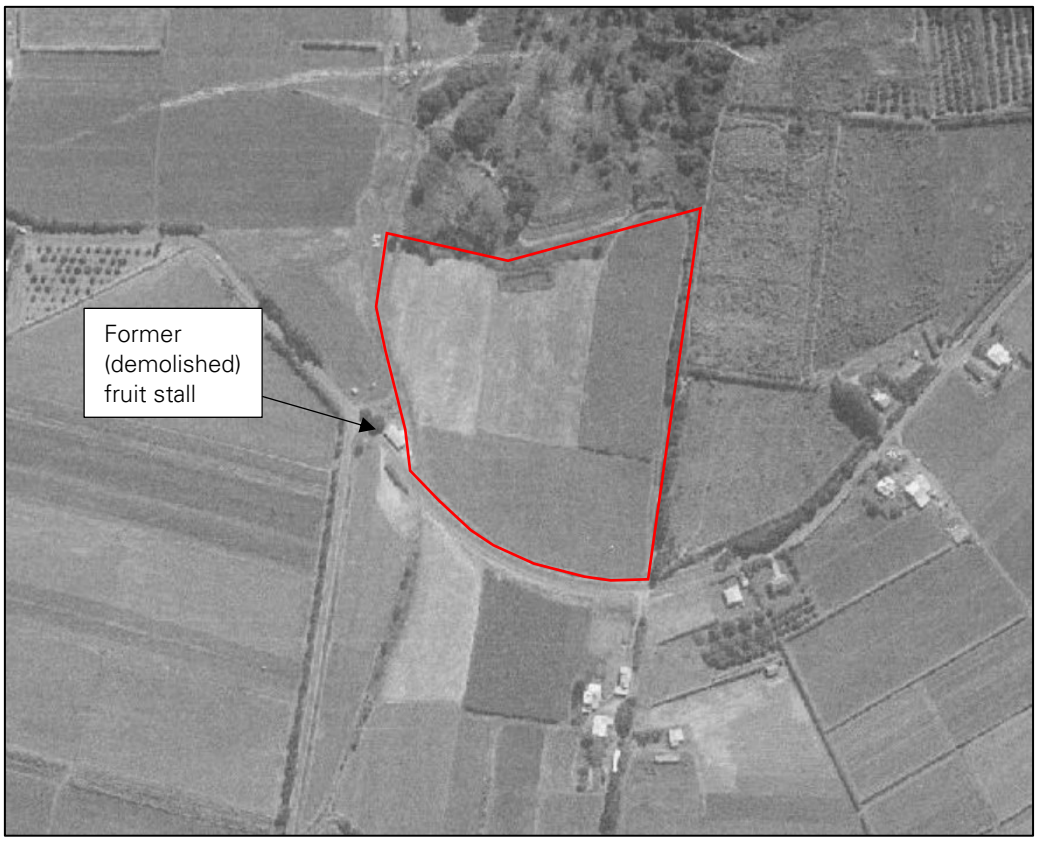

Figure 8 – Historic Aerial 1987 (NSW Spatial Services Historical Imagery https://portal.spatial.nsw.gov.au)

Figure 9 – Historic Aerial 1991 (NSW Spatial Services Historical Imagery https://portal.spatial.nsw.gov.au)

Figure 10 – Historic Aerial 1997 (NSW Spatial Services Historical Imagery https://portal.spatial.nsw.gov.au)

Figure 11 – Historic Aerial 2003 (Google Earth)

Figure 12 – Historic Aerial 2009 (Google Earth)

Figure 13 – Historic Aerial 2017 (Google Earth)

Figure 14 – Historic Aerial 2021 (Google Earth)

APPENDIX 5 - PHOTOGRAPHIC LOG

Photo No. 1	Date 18/05/2022

Description:
View SW of the existing raised weatherboard dwelling on the southeast corner of the site.

Photo No. 2	Date 18/05/2022

Description:
View E of the large metal shed on the southeast corner of the property, formerly used as a nursery. The dirt driveway access to the adjacent dwelling is also visible.

Photo No. 3	Date 18/05/2022

Description:
View S of the existing metal shed formally used as a nursery. The eastern portion of the shed (as seen in the photo) was used as office space for the nursery operations.

Photo No. 4	Date 18/05/2022

Description:
View N of a former nursery structure which has now been heavily overgrown with vegetation.

Photo No. 5	Date 18/05/2022

Description:
View SE of the former nursery yards which is now heavily overgrown with vegetation. Numerous supports for former structures visible, with the display shed & offices visible behind.

Photo No. 6	Date 18/05/2022

Description:
View of the overgrown decked area of the former nursery extending off the northern portion of the nursery structures.

Photo No. 7	Date 18/05/2022

Description:
View N of three existing sheds on the eastern boundary of the site, to the north of the former nursery. The sheds are located on a large concrete slab and were most likely used for the former hydroponics operations.

Photo No. 8	Date 18/05/2022

Description:
A photo of one of the small existing sheds on the eastern boundary of the site. The shed has an "Authorised Personnel Only" sign existing on it with the symbols for hazardous and corrosive materials indicating that it was formally used for chemical storage.

Photo No. 9	Date 18/05/2022
Description: View N overlooking a large existing rectangular concrete slab to the west of the previous slab and sheds. Desktop analysis indicates that a previously demolished greenhouse structure used in the former hydroponics operations was located on the slab.	

Photo No. 10	Date 18/05/2022
Description: View NE of a small metal shed located on the northern boundary of the site. Historic DA plans indicate that the shed was a pump house, which is supported by the tanks and pumps still existing located inside the shed.	

Photo No. 11	Date 18/05/2022
Description: View W from the existing dwelling along the southern boundary of the subject site. The area is clear of any structures or land use and is currently generally overgrown pasture grass.	

Photo No. 12	Date 18/05/2022
Description: View NW across the property from the eastern boundary. The visible area is clear of any structures or land use and is currently generally overgrown pasture grass.	

Photo No. 13	Date 18/05/2022

Description:
View NE from the Cudgen Road frontage towards to northern boundary. The visible area is clear of any structures or land use and is currently generally overgrown pasture grass. The new Tweed Valley Hospital is also visible to the east, currently under construction.

Photo No. 14	Date 18/05/2022

Description:
View E from the Tweed Coast Road frontage along the northern portion of the site which is generally overgrown pasture grass and vegetation.

APPENDIX 6 - LABORATORY RESULTS SUMMARY

Table 14 - Laboratory Results for Broadacre Sampling

Analyte grouping/ Analyte (mg/kg)	ASSESSMENT CRITERIA				LOR																									
	HIL A	HIL A COMP	EIL	EIL COMP																										
Sample ID						COMP CD1	COMP CD2	COMP CD3	COMP CD4	COMP CD5	COMP CD6	COMP CD7	COMP CD8	COMP CD9	COMP CD10	COMP CD11	COMP CD12	COMP CD13	COMP CD14	COMP CD15	COMP CD16	COMP CD17	COMP CD18	COMP CD19	COMP CD20	COMP CD21	COMP CD22	CD2A	CD7A	CD9A	CD17A	CD21A
Total Metals																														
Arsenic	100	25	100	25	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6	6	<5	<5	<5	<5	<5	<5
Cadmium	20	5			0.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	100	25	400	100	2	13	35	28	18	11	9	13	15	21	31	14	12	10	18	9	9	9	11	11	10	11	12	38	13	26	10	8
Copper	6000	1500	210	52.5	5	5	10	12	9	10	14	12	13	12	13	13	10	12	14	13	14	8	8	26	24	22	14	9	11	13	6	6
Lead	300	75	1100	275	5	<5	7	8	<5	<5	<5	<5	<5	<5	6	<5	<5	<5	<5	<5	<5	<5	<5	7	<5	<5	6	<5	8	<5	<5
Nickel	400	100	270	67.5	2	4	9	8	6	6	7	7	8	7	11	5	5	5	6	12	14	9	6	7	7	8	8	10	7	9	5	5
Zinc	7400	1850	270	67.5	5	19	33	36	32	49	69	63	63	33	45	29	38	36	38	40	44	30	32	137	201	210	70	36	54	44	27	45
Mercury	40	10			0.1	0.1	0.1	0.1	<0.1	<0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	<0.1	<0.1	0.1	0.1	0.1	0.1	<0.1	0.1	0.1	0.1	0.2	0.1	0.1
Organochlorine Pesticides (OC)																														
Heptachlor	6	1.5			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin					0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Chlordane	50	12.5			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin					0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE					0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	10	2.5			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan	270	67.5			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD					0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT					0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of DDD + DDE + DDT	240	60			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sum of Aldrin + Dieldrin	6	1.5			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Organophosphorus Pesticides (OP)																														
Chlorpyrifos	160	40			0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Table 15 - Laboratory Results for QA/QC

Analyte grouping/ Analyte (mg/kg)	ASSESSMENT CRITERIA		LOR																	
	HIL A	EIL																		
Sample ID				CD7A	CDDUP 1	CDTRIP 1	CD17A	CDDUP 2	CDTRIP 2	CD21A	CDDUP 3	CDTRIP 3	CD9A	CDDUP 4	CDTRIP 4	CD2A	CDDUP 5	CDTRIP 5	CDN3	CDDUP 6	CDTRIP 6
Total Metals																				
Arsenic	100	100	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Cadmium	20		0.4	<1	1	2	<1	<1	1	<1	1	2	<1	<1	2	<1	<1	1	1	1	1
Chromium	100	400	2	13	11	11	10	10	13	8	8	10	26	20	32	38	30	50	10	8	9
Copper	6000	210	5	11	12	17	6	6	9	6	8	10	13	13	18	9	10	12	16	14	18
Lead	300	1100	5	<5	<5	6	<5	<5	<5	<5	<5	<5	8	6	10	6	6	8	<5	<5	6
Nickel	400	270	2	7	6	8	5	5	8	5	6	6	9	7	11	10	8	15	7	6	10
Zinc	7400	270	5	54	50	71	27	27	45	45	49	67	44	34	58	36	29	47	64	61	95
Mercury	40		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2

Table 16 - Laboratory Results for Nursery, Hydroponics and Background Sampling

Analyte grouping/ Analyte (mg/kg)	ASSESSMENT CRITERIA				LOR																		
	HIL A	HSL A Clay	EIL	ESL																			
Sample ID						CDN1	CDN2	CDN3	CDN4	CDN5	CDN6	CDN7	CDN8	CDN9	CDN10	CDN11	CDN12	CDN13	CDN14	CDBG1	CDBG2	CDS1A	CDS2A	CDS3A	CDS4A	CDS5A
Total Metals																										
Arsenic	100		100		5	5	<5	<5	<5	6	10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	<5	<5	<5
Cadmium	20				0.4	<1	<1	1	1	<1	2	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	1	1	<1	<1	<1
Chromium	100		400		2	9	6	10	9	3	14	7	3	13	6	9	9	6	4	6	16	16	53	24	8	14
Copper	6000		210		5	18	8	16	14	7	28	19	<5	23	17	19	24	15	10	14	17	26	33	22	20	11
Lead	300		1100		5	<5	<5	<5	<5	<5	<5	<5	<5	6	8	16	6	<5	<5	8	12	5	12	7	6	<5
Nickel	400		270		2	5	<2	7	6	<2	8	5	<2	5	3	6	7	3	3	6	7	10	24	12	6	5
Zinc	7400		270		5	67	28	64	56	9	88	145	6	125	99	127	298	223	60	54	49	209	445	405	114	81
Mercury	40				0.1	<0.1	<0.1	0.2	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Organochlorine Pesticides (OC)																										
Heptachlor	6				0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin					0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Chlordane	50				0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin					0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE					0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	10				0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan	270				0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD					0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT					0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sum of DDD + DDE + DDT	240				0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sum of Aldrin + Dieldrin	6				0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Organophosphorus Pesticides (OP)																										
Chlorpyrifos	160				0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BTEXN																										
Benzene		0.8		65																			<0.2	<0.2	<0.2	<0.2	<0.2
Toluene		560		105																			<0.5	<0.5	<0.5	<0.5	<0.5
Ethyl Benzene		NL		120																			<0.5	<0.5	<0.5	<0.5	<0.5
Total Xylenes		130		45																			<0.5	<0.5	<0.5	<0.5	<0.5
Total Petroleum Hydrocarbons																										
C6 – C9 Fraction		60		180																			<10	<10	16	<10	<10
>C10 – C16 Fraction		330		120																			<50	<50	<50	<50	<50
>C16 – C34 Fraction				1300																			160	210	130	110	<100
>C34 – C40 Fraction				5600																			<100	<100	<100	<100	<100
Total >C10 – C40																							160	210	130	110	<50
Polynuclear Aromatic Hydrocarbons																										
Napthalene		6																					<1	<1	<1	<1	<1
Benzo-pyrene																							<0.5	<0.5	<0.5	<0.5	<0.5
Total PAH																							<0.5	<0.5	<0.5	<0.5	<0.5

APPENDIX 7 - LABORATORY RESULTS

RPD

Table 17 - Relative Percentage Difference (RPD%)

	CD7A	CDDUP 1	Mean	RPD%	CD7A	CDTRIP 1	Mean	RPD%
Metals/Metalloids (mg/kg)								
Arsenic	<5	<5	<5	-	<5	<5	<5	-
Chromium (total)	<1	1	1	-	<1	2	1.5	66.7
Copper	13	11	12	16.7	13	11	12	16.7
Nickel	11	12	11.5	8.7	11	17	14	42.9
Zinc	<5	<5	<5	-	<5	6	5.5	18.2
Cadmium	7	6	6.5	15.4	7	8	7.5	13.3
Lead	54	50	52	7.7	54	71	62.5	27.2
Mercury (inorganic)	0.1	0.1	0.1	-	0.1	0.1	0.1	-
	CD17A	CDDUP 2	Mean	RPD%	CD17A	CDTRIP 2	Mean	RPD%
Metals/Metalloids (mg/kg)								
Arsenic	<5	<5	<5	-	<5	<5	<5	-
Chromium (total)	<1	<1	<1	-	<1	1	1	-
Copper	10	10	10	-	10	13	11.5	26.1
Nickel	6	6	6	-	6	9	7.5	10
Zinc	<5	<5	<5	-	<5	<5	<5	-
Cadmium	5	5	5	-	5	8	6.5	41.5
Lead	27	27	27	-	27	45	36	50
Mercury (inorganic)	0.1	0.1	0.1	-	0.1	0.1	0.1	-
	CD21A	CDDUP 3	Mean	RPD%	CD21A	CDTRIP 3	Mean	RPD%
Metals/Metalloids (mg/kg)								
Arsenic	<5	<5	<5	-	<5	<5	<5	-
Chromium (total)	<1	1	1	-	<1	2	1.5	66.7
Copper	8	8	8	-	8	10	9	22.2
Nickel	6	8	7	28.6	6	10	8	50
Zinc	<5	<5	<5	-	<5	<5	<5	-
Cadmium	5	6	5.5	18.2	5	6	5.5	18.2
Lead	45	49	47	8.5	45	67	56	39.3
Mercury (inorganic)	0.1	0.1	0.1	-	0.1	0.1	0.1	-
	CD9A	CDDUP 4	Mean	RPD%	CD9A	CDTRIP 4	Mean	RPD%
Metals/Metalloids (mg/kg)								
Arsenic	<5	<5	<5	-	<5	<5	<5	-
Chromium (total)	<1	<1	<1	-	<1	2	1.5	66.7
Copper	26	20	23	26.1	26	32	29	20.7
Nickel	13	13	13	-	13	18	15.5	32.3
Zinc	8	6	7	58.6	8	10	9	-
Cadmium	9	7	8	25	9	11	10	20
Lead	44	34	39	25.6	44	58	51	27.5
Mercury (inorganic)	0.2	0.1	0.15	66.7	0.2	0.2	0.2	-

	CD2A	CDDUP 5	Mean	RPD%	CD2A	CDTRIP 5	Mean	RPD%
Metals/Metalloids (mg/kg)								
Arsenic	<5	<5	<5	-	<5	<5	<5	-
Chromium (total)	<1	<1	<1	-	<1	1	<1	-
Copper	38	30	34	23.5	38	50	44	27.3
Nickel	9	10	9.5	10.5	9	12	10.5	28.6
Zinc	6	6	6	-	6	8	7	28.6
Cadmium	10	8	9	22.2	10	15	12.5	40
Lead	36	29	32.5	21.5	36	47	41.5	26.5
Mercury (inorganic)	0.1	0.1	0.1	-	0.1	0.2	0.15	66.7
	CDN3	CDDUP 6	Mean	RPD%	CDN3	CDTRIP 6	Mean	RPD%
Metals/Metalloids (mg/kg)								
Arsenic	<5	<5	<5	-	<5	<5	<5	-
Chromium (total)	1	1	<1	-	1	1	<1	-
Copper	10	8	9	22.2	10	9	9.5	10.5
Nickel	16	14	15	13.3	16	18	17	11.8
Zinc	<5	<5	<5	-	<5	6	5.5	18.2
Cadmium	7	6	6.5	15.4	7	10	8.5	35.3
Lead	64	61	62.5	4.8	64	95	79.5	39
Mercury (inorganic)	0.2	0.1	0.15	66.7	0.2	0.2	0.2	-

APPENDIX 8 - INVESTIGATION AREA - SAMPLING LOCATIONS PLAN

DETAILED SITE INVESTIGATION
BROADACRE SAMPLING LOCATIONS

HMC Sampling Locations 31_10_2022

Composite Sampling Design

Job:	HMC2022.445.02
Date:	November 2022
Version:	
Drawn:	MF
Base:	Nearmap 2022

Lot 6 DP 727425
741 Cudgen Road
Cudgen NSW

HMC Environmental Consulting Pty Ltd
Tweed Heads NSW
0755368863
www.hmcenvironment.com.au
admin@hmcenvironment.com.au

CDS1
CDS2
CDS3
CDS5
CDS4
CDN1
CDN2
CDN3
CDN4
CDN5
CDN6
CDN7
CDN8
CDN14
CDN12
CDN11
CDN13
CDN9
CDN10
Nursery
0m
25m
50m
N

DETAILED SITE INVESTIGATION TARGETTED SAMPLING LOCATIONS

HMC Nursery Sampling Locations 31_10_2022

HMC Hydroponics Shed Sampling Locations 31_10_2022

Former Nursery Location

Former Nursery Yards

Job:	HMC2022.445.02
Date:	November 2022
Version:	
Drawn:	MF
Base:	Nearmap 2022

Lot 6 DP 727425
741 Cudgen Road
Cudgen NSW

HMC Environmental Consulting Pty Ltd
Tweed Heads NSW
0755368863
www.hmcenvironment.com.au
admin@hmcenvironment.com.au

APPENDIX 9 - CHAIN OF CUSTODY

CHAIN OF CUSTODY

ALS Laboratory: please tick →

ADELAIDE 3/1 Burma Road Pooraka SA 5095 Ph: 08 8162 9130 E: adelaide@alsglobal.com

BRISBANE 2 Byth Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

GLADSTONE 48 Callemondah Drive Gladstone QLD 4680 Ph: 07 4979 7944 E: ALSEnviro.Gladstone@alsglobal.com

MACKAY Unit 2/20 Caterpillar Drive Paget QLD 4740 Ph: 07 4962 5795 E: ALSEnviro.Mackay@alsglobal.com

MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

MUDGEE 1/29 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

NEWCASTLE 5/585 Maitland Road Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E: nowra@alsglobal.com

PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: ALSEnviro.Townsville@alsglobal.com

WOLLONGONG 1/19-21 Ralph Black Drive, Nth Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: HMC Environmental Consulting Pty Ltd	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☑ Standard TAT (List due date):	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Tweed Heads		☐ Non Standard or urgent TAT (List due date):	Custody Seal Intact? Yes No N/A
PROJECT: CUDGEN ROAD CUDGEN **PROJECT NO.:**	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: HMC2022.445	**COUNTRY OF ORIGIN:**	COC: (1) 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: MARK TUNKS **CONTACT PH:** 0755 368863		OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Mark Tunks HMC **SAMPLER MOBILE:** 0408 279212	**RELINQUISHED BY:** M. TUNKS	**RECEIVED BY:** awelcin	**RELINQUISHED BY:** **RECEIVED BY:**
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**			
Email Reports to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au	DATE/TIME: 1.30pm 1/11/22	DATE/TIME: 2/11 1233	DATE/TIME: DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL BOTTLES	ENO20 - COMPOSITING	S-12 (OC/OP)	S-2 (METALS)	S-7 (TRH/BTEXN/PAH)	W-2T (METALS)	W-12 (OC/OP)	W-7 (TRH/BTEXN/PAH)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
1	CD1A	31/10/2022 0:00	S	ST	1	X								
2	CD1B	31/10/2022 0:00	S	ST	1	X								
3	CD1C	31/10/2022 0:00	S	ST	1	X								
4	CD1D	31/10/2022 0:00	S	ST	1	X								
5	CD2A	31/10/2022 0:00	S	ST	1	X	X	X						
6	CD2B	31/10/2022 0:00	S	ST	1	X								
7	CD2C	31/10/2022 0:00	S	ST	1	X								
8	CD2D	31/10/2022 0:00	S	ST	1	X								
9	CD3A	31/10/2022 0:00	S	ST	1	X								
10	CD3B	31/10/2022 0:00	S	ST	1	X								
11	CD3C	31/10/2022 0:00	S	ST	1	X								
12	CD3D	31/10/2022 0:00	S	ST	1	X								
13	CD4A	31/10/2022 0:00	S	ST	1	X								
14	CD4B	31/10/2022 0:00	S	ST	1	X								
15	CD4C	31/10/2022 0:00	S	ST	1	X								
16	CD4D	31/10/2022 0:00	S	ST	1	X								
17	CD5A	31/10/2022 0:00	S	ST	1	X								
18	CD5B	31/10/2022 0:00	S	ST	1	X								
				TOTAL	18	18	1	1						

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; U = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

Environmental Division
Brisbane
Work Order Reference
EB2232525

Telephone : +61-7-3243 7222

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 3/1 Burma Road Pooraka SA 5095 Ph: 08 8162 9130 E: adelaide@alsglobal.com

☐BRISBANE 2 Byth Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 48 Callemondah Drive Gladstone QLD 4680 Ph: 07 4978 7944 E: ALSEnviro.Gladstone@alsglobal.com

☐MACKAY Unit 2/20 Caterpillar Drive Paget QLD 4740 Ph: 07 4952 5795 E: ALSEnviro.Mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 1/29 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5/585 Maitland Road Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: ALSEnviro.Townsville@alsglobal.com

☐WOLLONGONG 1/19-21 Ralph Black Drive, Nth Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: HMC Environmental Consulting Pty Ltd	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☑ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Tweed Heads		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: CUDGEN ROAD CUDGEN **PROJECT NO.:**	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: HMC2022.445	**COUNTRY OF ORIGIN:**	COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: MARK TUNKS **CONTACT PH:** 0755 368863		OF: 1 2 3 4 5 6 7	Other comment:

SAMPLER: Mark Tunks HMC **SAMPLER MOBILE:** 0408 279212	**RELINQUISHED BY:** M. Tunks.	**RECEIVED BY:** Alicia V	**RELINQUISHED BY:**	**RECEIVED BY:**
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**				
Email Reports to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au	DATE/TIME: 1.30pm. 1/11/22	DATE/TIME: 2/11 1233	DATE/TIME:	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au				

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL BOTTLES	ENO20 - COMPOSITING	S-12 (OC/OP)	S-2 (METALS)	S-21 (TRH/BTEXN/PAH/ Pb)	W-27 (METALS)	W-12 (OC/OP)	W-21 (TRH/BTEXN/PAH/ Pb)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
19	CD5C	31/10/2022 0:00	S	ST	1	X								
20	CD5D	31/10/2022 0:00	S	ST	1	X								
21	CD6A	31/10/2022 0:00	S	ST	1	X								
22	CD6B	31/10/2022 0:00	S	ST	1	X								
23	CD6C	31/10/2022 0:00	S	ST	1	X								
24	CD6D	31/10/2022 0:00	S	ST	1	X								
25	CD7A	31/10/2022 0:00	S	ST	1	X	X	X						
26	CD7B	31/10/2022 0:00	S	ST	1	X								
27	CD7C	31/10/2022 0:00	S	ST	1	X								
28	CD7D	31/10/2022 0:00	S	ST	1	X								
29	CD8A	31/10/2022 0:00	S	ST	1	X								
30	CD8B	31/10/2022 0:00	S	ST	1	X								
31	CD8C	31/10/2022 0:00	S	ST	1	X								
32	CD8D	31/10/2022 0:00	S	ST	1	X								
				TOTAL	14	14	1	1						

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

…AIN OF CUSTODY

…S Laboratory: *please tick* →

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☐WOLLONGONG 1/19-21 Ralph Black Drive, Nth Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

…ental Consulting Pty Ltd	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g.. Ultra Trace Organics)	☑ Standard TAT **(List due date):** ☐ Non Standard or urgent TAT **(List due date):**
PROJECT: …N ROAD CUDGEN **PROJECT NO.:**	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)**
ORDER NUMBER: HMC2022.445	**COUNTRY OF ORIGIN:**	COC: 1 2 3 4 5 6 7
PROJECT MANAGER: MARK TUNKS **CONTACT PH: 0755 368863**		OF: 1 2 3 4 5 6 7

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comment:			

SAMPLER: Mark Tunks HMC **SAMPLER MOBILE: 0408 279212**	**RELINQUISHED BY:** M. Tunks	**RECEIVED BY:** alicia V	**RELINQUISHED BY:**	**RECEIVED BY:**
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**				
Email Reports to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au	**DATE/TIME:** 1:30pm 1/11/22	**DATE/TIME:** 2/11 1233	**DATE/TIME:**	**DATE/TIME:**
Email Invoice to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au				

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	**SAMPLE ID**	**DATE / TIME**	**MATRIX**	**TYPE & PRESERVATIVE** *(refer to codes below)*	**TOTAL BOTTLES**	**EN020 - COMPOSITING**	**S-12 (OC/OP)**	**S-2 (METALS)**	**S-21 (TRH/BTEXN/PAH/ Pb)**	**W-2T (METALS)**	**W-12 (OC/OP)**	**W-21 (TRH/BTEXN/PAH/ Pb)**		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
33	CD9A	31/10/2022 0:00	S	ST	1	X	X	X						
34	CD9B	31/10/2022 0:00	S	ST	1	X								
35	CD9C	31/10/2022 0:00	S	ST	1	X								
36	CD9D	31/10/2022 0:00	S	ST	1	X								
37	CD10A	31/10/2022 0:00	S	ST	1	X								
38	CD10B	31/10/2022 0:00	S	ST	1	X								
39	CD10C	31/10/2022 0:00	S	ST	1	X								
40	CD10D	31/10/2022 0:00	S	ST	1	X								
41	CD11A	31/10/2022 0:00	S	ST	1	X								
42	CD11B	31/10/2022 0:00	S	ST	1	X								
43	CD11C	31/10/2022 0:00	S	ST	1	X								
44	CD11D	31/10/2022 0:00	S	ST	1	X								
45	CD12A	31/10/2022 0:00	S	ST	1	X								
46	CD12B	31/10/2022 0:00	S	ST	1	X								
				TOTAL	14	14	1	1						

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

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☐NEWCASTLE 5/585 Maitland Road Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

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☐WOLLONGONG 1/19-21 Ralph Black Drive, Nth Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: HMC Environmental Consulting Pty Ltd	**TURNAROUND REQUIREMENTS :** ☑ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Tweed Heads	(Standard TAT may be longer for some tests e.g., Ultra Trace Organics) ☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: CUDGEN ROAD CUDGEN **PROJECT NO.:**	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)** Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: HMC2022.445	**COUNTRY OF ORIGIN:**	COC: 1 2 3 4 5 6 7 Random Sample Temperature on Receipt: °C
PROJECT MANAGER: MARK TUNKS **CONTACT PH: 0755 368863**		OF: 1 2 3 4 5 6 7 Other comment:

SAMPLER: Mark Tunks HMC **SAMPLER MOBILE: 0408 279212**	**RELINQUISHED BY:** M. TONKS	**RECEIVED BY:** alicia ✓	**RELINQUISHED BY:**
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**	DATE/TIME: 1:30pm 1/11/22	DATE/TIME: 2/11 1233	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au			**RECEIVED BY:**
Email Invoice to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au			DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL BOTTLES	ENO20 - COMPOSITING	S-12 (OC/OP)	S-2 (METALS)	S-21 (TRH/BTEXN/PAH/ Pb)	W-2T (METALS)	W-12 (OC/OP)	W-21 (TRH/BTEXN/PAH/ Pb)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
41	COMP CD1	31/10/2022 0:00	S				X	X						COMP CD1 (CD1A,CD1B,CD1C,CD1D)
42	COMP CD2	31/10/2022 0:00	S				X	X						COMP CD2 (CD2A,CD2B,CD2C,CD2D)
43	COMP CD3	31/10/2022 0:00	S				X	X						COMP CD3 (CD3A,CD3B,CD3C,CD3D)
44	COMP CD4	31/10/2022 0:00	S				X	X						COMP CD4 (CD4A,CD4B,CD4C,CD4D)
45	COMP CD5	31/10/2022 0:00	S				X	X						COMP CD5 (CD5A,CD5B,CD5C,CD5D)
46	COMP CD6	31/10/2022 0:00	S				X	X						COMP CD6 (CD6A,CD6B,CD6C,CD6D)
47	COMP CD7	31/10/2022 0:00	S				X	X						COMP CD7 (CD7A,CD7B,CD7C,CD7D)
48	COMP CD8	31/10/2022 0:00	S				X	X						COMP CD8 (CD8A,CD8B,CD8C,CD8D)
49	COMP CD9	31/10/2022 0:00	S				X	X						COMP CD9 (CD9A,CD9B,CD9C,CD9D)
50	COMP CD10	31/10/2022 0:00	S				X	X						COMP CD10 (CD10A,CD10B,CD10C,CD10D)
				TOTAL			10	10						

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

CHAIN OF CUSTODY

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CLIENT: HMC Environmental Consulting Pty Ltd	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☑ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Tweed Heads		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: CUDGEN ROAD CUDGEN **PROJECT NO.:**	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: HMC2022.445	**COUNTRY OF ORIGIN:**	COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: MARK TUNKS **CONTACT PH:** 0755 368863		OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Mark Tunks HMC **SAMPLER MOBILE:** 0408 279212	**RELINQUISHED BY:** M. TUNKS	**RECEIVED BY:** alicia V	**RELINQUISHED BY:** **RECEIVED BY:**
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**	DATE/TIME: 1:30pm 1/11/22	DATE/TIME: 2/11 1233	DATE/TIME: DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au			
Email Invoice to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL BOTTLES	ENO20 - COMPOSITING	S-12 (OC/OP)	S-2 (METALS)	S-21 (TRH/BTEXN/PAH/Pb)	W-2T (METALS)	W-12 (OC/OP)	W-21 (TRH/BTEXN/PAH/Pb)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
~~33~~	CD9A	31/10/2022 0:00	S	ST	1	X	X	X						
~~34~~	CD9B	31/10/2022 0:00	S	ST	1	X								
~~35~~	CD9C	31/10/2022 0:00	S	ST	1	X								
~~36~~	CD9D	31/10/2022 0:00	S	ST	1	X								
~~37~~	CD10A	31/10/2022 0:00	S	ST	1	X								
~~38~~	CD10B	31/10/2022 0:00	S	ST	1	X								
~~39~~	CD10C	31/10/2022 0:00	S	ST	1	X								
~~40~~	CD10D	31/10/2022 0:00	S	ST	1	X								
41	CD11A	31/10/2022 0:00	S	ST	1	X								
42	CD11B	31/10/2022 0:00	S	ST	1	X								
43	CD11C	31/10/2022 0:00	S	ST	1	X								
44	CD11D	31/10/2022 0:00	S	ST	1	X								
45	CD12A	31/10/2022 0:00	S	ST	1	X								
46	CD12B	31/10/2022 0:00	S	ST	1	X								
				TOTAL	14	14	1	1						

Environmental Division
Brisbane
Work Order Reference
EB2232529

Telephone : ~ 61-7-3243 7222

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V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass; Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

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CLIENT: HMC Environmental Consulting Pty Ltd	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☑ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Tweed Heads		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: CUDGEN ROAD CUDGEN **PROJECT NO.:**	**ALS QUOTE NO.:**	COC SEQUENCE NUMBER (Circle)	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: HMC2022.445	**COUNTRY OF ORIGIN:**	COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: MARK TUNKS **CONTACT PH:** 0755 368863		OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Mark Tunks HMC **SAMPLER MOBILE:** 0408 279212	**RELINQUISHED BY:** M.TONKS	**RECEIVED BY:** alicia ✓	**RELINQUISHED BY:** **RECEIVED BY:**
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**	DATE/TIME: 1·30pm 1/11/22	DATE/TIME: 2/11 1233	DATE/TIME: DATE/TIME:
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COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

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LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL BOTTLES	ENC20 - COMPOSITING	S-12 (OC/OP)	S-2 (METALS)	S-21 (TRH/BTEX/PAH/ Pb)	W-2T (METALS)	W-12 (OC/OP)	W-21 (TRH/BTEX/PAH/ Pb)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
47	CD12C	31/10/2022 0:00	S	ST	1	X								
48	CD12D	31/10/2022 0:00	S	ST	1	X								
49	CD13A	31/10/2022 0:00	S	ST	1	X								
50	CD13B	31/10/2022 0:00	S	ST	1	X								
51	CD13C	31/10/2022 0:00	S	ST	1	X								
52	CD13D	31/10/2022 0:00	S	ST	1	X								
53	CD14A	31/10/2022 0:00	S	ST	1	X								
54	CD14B	31/10/2022 0:00	S	ST	1	X								
55	CD14C	31/10/2022 0:00	S	ST	1	X								
56	CD14D	31/10/2022 0:00	S	ST	1	X								
57	CD15A	31/10/2022 0:00	S	ST	1	X								
58	CD15B	31/10/2022 0:00	S	ST	1	X								
59	CD15C	31/10/2022 0:00	S	ST	1	X								
60	CD15D	31/10/2022 0:00	S	ST	1	X								
				TOTAL	14	14								

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 3/1 Burma Road Pooraka SA 5095 Ph: 08 8162 5130 E: adelaide@alsglobal.com

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☐WOLLONGONG 1/19-21 Ralph Black Drive, Nth Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: HMC Environmental Consulting Pty Ltd	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☑ Standard TAT **(List due date):**
OFFICE: Tweed Heads		☐ Non Standard or urgent TAT **(List due date):**
PROJECT: CUDGEN ROAD CUDGEN **PROJECT NO.:**	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)**
ORDER NUMBER: HMC2022.445	**COUNTRY OF ORIGIN:**	COC: 1 2 3 4 5 6 7
PROJECT MANAGER: MARK TUNKS **CONTACT PH:** 0755 368863		OF: 1 2 3 4 5 6 7
SAMPLER: Mark Tunks HMC **SAMPLER MOBILE:** 0408 279212	**RELINQUISHED BY:** M. TUNKS	**RECEIVED BY:** Alicia
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**	DATE/TIME: 1:30pm 1/11/22	DATE/TIME: 2/11 1233
Email Reports to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au	**RELINQUISHED BY:**	**RECEIVED BY:**
Email Invoice to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au	DATE/TIME:	DATE/TIME:

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comment:			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL BOTTLES	EN020 - COMPOSITING	S-12 (OC/OP)	S-2 (METALS)	S-21 (TRH/BTEXN/PAH/ Pb)	W-2T (METALS)	W-12 (OC/OP)	W-21 (TRH/BTEXN/PAH/ Pb)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
61	CD16A	31/10/2022 0:00	S	ST	1	X								
62	CD16B	31/10/2022 0:00	S	ST	1	X								
63	CD16C	31/10/2022 0:00	S	ST	1	X								
64	CD16D	31/10/2022 0:00	S	ST	1	X								
65	CD17A	31/10/2022 0:00	S	ST	1	X	X	X						
66	CD17B	31/10/2022 0:00	S	ST	1	X								
67	CD17C	31/10/2022 0:00	S	ST	1	X								
68	CD17D	31/10/2022 0:00	S	ST	1	X								
69	CD18A	31/10/2022 0:00	S	ST	1	X								
70	CD18B	31/10/2022 0:00	S	ST	1	X								
71	CD18C	31/10/2022 0:00	S	ST	1	X								
72	CD18D	31/10/2022 0:00	S	ST	1	X								
73	CD19A	31/10/2022 0:00	S	ST	1	X								
74	CD19B	31/10/2022 0:00	S	ST	1	X								
				TOTAL	14	14	1	1						

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

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CLIENT: HMC Environmental Consulting Pty Ltd	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☑ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Tweed Heads		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: CUDGEN ROAD CUDGEN **PROJECT NO.:**	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: HMC2022.445	**COUNTRY OF ORIGIN:**	COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: MARK TUNKS **CONTACT PH:** 0755 368863		OF: 1 2 3 4 5 6 7	Other comment:

SAMPLER: Mark Tunks HMC **SAMPLER MOBILE:** 0408 279212	**RELINQUISHED BY:** M. TONKS	**RECEIVED BY:** alicia V	**RELINQUISHED BY:**
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**			**RECEIVED BY:**
Email Reports to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au	DATE/TIME: 1·30pm 1/11/22.	DATE/TIME: 2/11 1233	DATE/TIME:
Email Invoice to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au			DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	**SAMPLE DETAILS** MATRIX: Solid(S) Water(W)			**CONTAINER INFORMATION**		**ANALYSIS REQUIRED including SUITES** (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								**Additional Information**
LAB ID	**SAMPLE ID**	**DATE / TIME**	**MATRIX**	**TYPE & PRESERVATIVE** *(refer to codes below)*	**TOTAL BOTTLES**	**EN020 - COMPOSITING**	**S-12 (OC/OP)**	**S-2 (METALS)**	**S-21 (TRH/BTEXN/PAH/ Pb)**	**W-2T (METALS)**	**W-12 (OC/OP)**	**W-21 (TRH/BTEXN/PAH/ Pb)**		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
75	CD19C	31/10/2022 0:00	S	ST	1	X								
76	CD19D	31/10/2022 0:00	S	ST	1	X								
77	CD20A	31/10/2022 0:00	S	ST	1	X								
78	CD20B	31/10/2022 0:00	S	ST	1	X								
79	CD20C	31/10/2022 0:00	S	ST	1	X								
80	CD20D	31/10/2022 0:00	S	ST	1	X								
81	CD21A	31/10/2022 0:00	S	ST	1	X	X	X						
82	CD21B	31/10/2022 0:00	S	ST	1	X								
83	CD21C	31/10/2022 0:00	S	ST	1	X								
84	CD21D	31/10/2022 0:00	S	ST	1	X								
85	CD22A	31/10/2022 0:00	S	ST	1	X								
86	CD22B	31/10/2022 0:00	S	ST	1	X								
87	CD22C	31/10/2022 0:00	S	ST	1	X								
88	CD22D	31/10/2022 0:00	S	ST	1	X								
				TOTAL	14	14	1	1						

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

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CLIENT: HMC Environmental Consulting Pty Ltd	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☑ Standard TAT **(List due date):**	**FOR LABORATORY USE ONLY (Circle)**
OFFICE: Tweed Heads		☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: CUDGEN ROAD CUDGEN **PROJECT NO.:**	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: HMC2022.445	**COUNTRY OF ORIGIN:**	COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: MARK TUNKS **CONTACT PH:** 0755 368863		OF: 1 2 3 4 5 6 7	Other comment:

SAMPLER: Mark Tunks HMC **SAMPLER MOBILE:** 0408 279212	**RELINQUISHED BY:** M. TUNKS	**RECEIVED BY:** Alicia V	**RELINQUISHED BY:**
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**	DATE/TIME: 1.30pm 1/11/22	DATE/TIME: 2/11 1233	DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au			**RECEIVED BY:**
Email Invoice to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au			DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL BOTTLES	ENO20 - COMPOSITING	S-12 (OC/OP)	S-2 (METALS)	S-21 (TRH/BTEXN/PAH/Pb)	W-2T (METALS)	W-12 (OC/OP)	W-21 (TRH/BTEXN/PAH/Pb)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
89	CDN1A	31/10/2022 0:00	S	ST	1		X	X						
90	CDN2A	31/10/2022 0:00	S	ST	1		X	X						
91	CDN3A	31/10/2022 0:00	S	ST	1		X	X						
92	CDN4A	31/10/2022 0:00	S	ST	1		X	X						
93	CDN5A	31/10/2022 0:00	S	ST	1		X	X						
94	CDN6A	31/10/2022 0:00	S	ST	1		X	X						
95	CDN7A	31/10/2022 0:00	S	ST	1		X	X						
96	CDN8A	31/10/2022 0:00	S	ST	1		X	X						
97	CDN9A	31/10/2022 0:00	S	ST	1		X	X						
98	CDN10A	31/10/2022 0:00	S	ST	1		X	X						
99	CDN11A	31/10/2022 0:00	S	ST	1		X	X						
100	CDN12A	31/10/2022 0:00	S	ST	1		X	X						
101	CDN13A	31/10/2022 0:00	S	ST	1		X	X						
102	CDN14A	31/10/2022 0:00	S	ST	1		X	X						
				TOTAL	14		14	14						

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
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OFFICE: Tweed Heads	(Standard TAT may be longer for some tests e.g., Ultra Trace Organics) ☐ Non Standard or urgent TAT **(List due date):**	Custody Seal Intact? Yes No N/A
PROJECT: CUDGEN ROAD CUDGEN **PROJECT NO.:**	**ALS QUOTE NO.:**	Free ice / frozen ice bricks present upon receipt? Yes No N/A
ORDER NUMBER: HMC2022.445	**COUNTRY OF ORIGIN:**	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: MARK TUNKS **CONTACT PH:** 0755 368863	COC SEQUENCE NUMBER (Circle) COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Mark Tunks HMC **SAMPLER MOBILE:** 0408 279212	**RELINQUISHED BY:** M.TUNKS	**RECEIVED BY:** alicia V
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**	DATE/TIME: 1:30pm 1/11/22.	DATE/TIME: 2/11 1233
Email Reports to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au	**RELINQUISHED BY:**	**RECEIVED BY:**
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COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL BOTTLES	ENO20 - COMPOSITING	S-12 (OC/OP)	S-2 (METALS)	S-7 (TRH/BTEXN/PAH)	W-2T (METALS)	W-12 (OC/OP)	W-7 (TRH/BTEXN/PAH)	S-4SGBTEXN/F1/F2	Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
103	CDBG1	31/10/2022 0:00	S	ST	1			X						
104	CDBG2	31/10/2022 0:00	S	ST	1			X						
105	CDS1A	31/10/2022 0:00	S	ST	1		X	X	X					
106	CDS2A	31/10/2022 0:00	S	ST	1		X	X	X					
107	CDS3A	31/10/2022 0:00	S	ST	1		X	X	X					
108	CDS4A	31/10/2022 0:00	S	ST	1		X	X	X					
109	CDS5A	31/10/2022 0:00	S	ST	1		X	X	X					
110	TRIP BLANK 100626		S		1								X	
111	TRIP BLANK 100625		S		1								X	
112	TRIP SPIKE 1		S		1								X	
113	TRIP SPIKE 10		S		1								X	
114	CDRS1	31/10/2022 0:00	W	N,AG	2					X	X			
115	CDRS2	31/10/2022 0:00	W	N,AG	2					X	X			
116	CDRS3	31/10/2022 0:00	W	N,AG	2					X	X			
117	CDRS4	31/10/2022 0:00	W	N,AG,VOA	3					X	X	X		
				TOTAL	20		5	7	5	4	4	1	4	

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ORDER NUMBER: HMC2022.445	COUNTRY OF ORIGIN:	COC: 1 2 3 4 5 6 7	Random Sample Temperature on Receipt: °C
PROJECT MANAGER: MARK TUNKS CONTACT PH: 0755 368863		OF: 1 2 3 4 5 6 7	Other comment:
SAMPLER: Mark Tunks HMC SAMPLER MOBILE: 0408 279212	RELINQUISHED BY: M. TUNKS	RECEIVED BY: Alicia V	RELINQUISHED BY: / RECEIVED BY:
COC Emailed to ALS? (YES / NO) EDD FORMAT (or default):	DATE/TIME: 1.30pm 1/11/22	DATE/TIME: 2/11 1233	DATE/TIME: / DATE/TIME:
Email Reports to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au			
Email Invoice to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au			

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE (refer to codes below)	TOTAL BOTTLES	ENO20 - COMPOSITING	S-12 (OC/OP)	S-2 (METALS)	S-21 (TRH/BTEX/PAH/Pb)	W-2T (METALS)	W-12 (OC/OP)	W-21 (TRH/BTEX/PAH/Pb)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
118	CDTRIP 1	31/10/2022 0:00	S	ST			X	X						INTER LAB
119	CDTRIP 2	31/10/2022 0:00	S	ST			X	X						INTER LAB
120	CDTRIP 3	31/10/2022 0:00	S	ST			X	X						INTER LAB
121	CDTRIP 4	31/10/2022 0:00	S	ST			X	X						INTER LAB
122	CDTRIP 5	31/10/2022 0:00	S	ST			X	X						INTER LAB
123	CDTRIP 6	31/10/2022 0:00	S	ST			X	X						INTER LAB
124	CDDUP 1	31/10/2022 0:00	S	ST			X	X						
125	CDDUP 2	31/10/2022 0:00	S	ST			X	X						
126	CDDUP 3	31/10/2022 0:00	S	ST			X	X						
127	CDDUP 4	31/10/2022 0:00	S	ST			X	X						
128	CDDUP 5	31/10/2022 0:00	S	ST			X	X						
129	CDDUP6	31/10/2022 0:00	S	ST			X	X						
				TOTAL			12	12						

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

CHAIN OF CUSTODY

ALS Laboratory: please tick →

☐ADELAIDE 3/1 Burma Road Pooraka SA 5095 Ph: 08 8162 5130 E: adelaide@alsglobal.com

☐BRISBANE 2 Byth Street Stafford QLD 4053 Ph: 07 3243 7222 E: samples.brisbane@alsglobal.com

☐GLADSTONE 46 Callemondah Drive Gladstone QLD 4680 Ph: 07 4978 7944 E: ALSEnviro.Gladstone@alsglobal.com

☐MACKAY Unit 2/20 Caterpillar Drive Paget QLD 4740 Ph: 07 4952 5795 E: ALSEnviro.Mackay@alsglobal.com

☐MELBOURNE 2-4 Westall Road Springvale VIC 3171 Ph: 03 8549 9600 E: samples.melbourne@alsglobal.com

☐MUDGEE 1/29 Sydney Road Mudgee NSW 2850 Ph: 02 6372 6735 E: mudgee.mail@alsglobal.com

☐NEWCASTLE 5/585 Maitland Road Mayfield West NSW 2304 Ph: 02 4014 2500 E: samples.newcastle@alsglobal.com

☐NOWRA 4/13 Geary Place North Nowra NSW 2541 Ph: 02 4423 2063 E: nowra@alsglobal.com

☐PERTH 10 Hod Way Malaga WA 6090 Ph: 08 9209 7655 E: samples.perth@alsglobal.com

☐SYDNEY 277-289 Woodpark Road Smithfield NSW 2164 Ph: 02 8784 8555 E: samples.sydney@alsglobal.com

☐TOWNSVILLE 14-15 Desma Court Bohle QLD 4818 Ph: 07 4796 0600 E: ALSEnviro.Townsville@alsglobal.com

☐WOLLONGONG 1/19-21 Ralph Black Drive, Nth Wollongong NSW 2500 Ph: 02 4225 3125 E: wollongong@alsglobal.com

CLIENT: HMC Environmental Consulting Pty Ltd	**TURNAROUND REQUIREMENTS :** (Standard TAT may be longer for some tests e.g., Ultra Trace Organics)	☑ Standard TAT **(List due date):** ☐ Non Standard or urgent TAT **(List due date):**
OFFICE: Tweed Heads		
PROJECT: CUDGEN ROAD CUDGEN **PROJECT NO.:**	**ALS QUOTE NO.:**	**COC SEQUENCE NUMBER (Circle)** COC: 1 2 3 4 5 6 7 OF: 1 2 3 4 5 6 7
ORDER NUMBER: HMC2022.445	**COUNTRY OF ORIGIN:**	
PROJECT MANAGER: MARK TUNKS **CONTACT PH:** 0755 368863		
SAMPLER: Mark Tunks HMC **SAMPLER MOBILE:** 0408 279212		
COC Emailed to ALS? (YES / NO) **EDD FORMAT (or default):**		
Email Reports to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au		
Email Invoice to (will default to PM if no other addresses are listed): admin@hmcenvironment.com.au		

FOR LABORATORY USE ONLY (Circle)

Custody Seal Intact?	Yes	No	N/A
Free ice / frozen ice bricks present upon receipt?	Yes	No	N/A
Random Sample Temperature on Receipt:		°C	
Other comment:			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
M. TUNKS	alicia V		
DATE/TIME: 1:30pm 1/11/22	DATE/TIME: 2/11 1233	DATE/TIME:	DATE/TIME:

COMMENTS/SPECIAL HANDLING/STORAGE OR DISPOSAL:

ALS USE ONLY	SAMPLE DETAILS MATRIX: Solid(S) Water(W)			CONTAINER INFORMATION		ANALYSIS REQUIRED including SUITES (NB. Suite Codes must be listed to attract suite price) Where Metals are required, specify Total (unfiltered bottle required) or Dissolved (field filtered bottle required).								Additional Information
LAB ID	SAMPLE ID	DATE / TIME	MATRIX	TYPE & PRESERVATIVE *(refer to codes below)*	TOTAL BOTTLES	ENO20 - COMPOSITING	S-12 (OC/OP)	S-2 (METALS)	S-21 (TRH/BTEX/NPAH/ Pb)	W-2T (METALS)	W-12 (OC/OP)	W-21 (TRH/BTEX/NPAH/ Pb)		Comments on likely contaminant levels, dilutions, or samples requiring specific QC analysis etc.
130	COMP CD11	31/10/2022 0:00	S				X	X						COMP CD11 (CD11A,CD11B,CD11C,CD11D)
131	COMP CD12	31/10/2022 0:00	S				X	X						COMP CD12 (CD12A,CD12B,CD12C,CD12D)
132	COMP CD13	31/10/2022 0:00	S				X	X						COMP CD13 (CD13A,CD13B,CD13C,CD13D)
133	COMP CD14	31/10/2022 0:00	S				X	X						COMP CD14 (CD14A,CD14B,CD14C,CD14D)
134	COMP CD15	31/10/2022 0:00	S				X	X						COMP CD15 (CD15A,CD15B,CD15C,CD15D)
135	COMP CD16	31/10/2022 0:00	S				X	X						COMP CD16 (CD16A,CD16B,CD16C,CD16D)
136	COMP CD17	31/10/2022 0:00	S				X	X						COMP CD17 (CD17A,CD17B,CD17C,CD17D)
137	COMP CD18	31/10/2022 0:00	S				X	X						COMP CD18 (CD18A,CD18B,CD18C,CD18D)
138	COMP CD19	31/10/2022 0:00	S				X	X						COMP CD19 (CD19A,CD19B,CD19C,CD19D)
139	COMP CD20	31/10/2022 0:00	S				X	X						COMP CD20 (CD20A,CD20B,CD20C,CD20D)
140	COMP CD21	31/10/2022 0:00	S				X	X						COMP CD21 (CD21A,CD21B,CD21C,CD21D)
141	COMP CD22	31/10/2022 0:00	S				X	X						COMP CD22 (CD22A,CD22B,CD22C,CD22D)
				TOTAL			12	12						

Water Container Codes: P = Unpreserved Plastic; N = Nitric Preserved Plastic; ORC = Nitric Preserved ORC; SH = Sodium Hydroxide/Cd Preserved; S = Sodium Hydroxide Preserved Plastic; AG = Amber Glass Unpreserved; AP - Airfreight Unpreserved Plastic
V = VOA Vial HCl Preserved; VB = VOA Vial Sodium Bisulphate Preserved; VS = VOA Vial Sulfuric Preserved; AV = Airfreight Unpreserved Vial SG = Sulfuric Preserved Amber Glass; H = HCl preserved Plastic; HS = HCl preserved Speciation bottle; SP = Sulfuric Preserved Plastic; F = Formaldehyde Preserved Glass;
Z = Zinc Acetate Preserved Bottle; E = EDTA Preserved Bottles; ST = Sterile Bottle; ASS = Plastic Bag for Acid Sulphate Soils; B = Unpreserved Bag; LI = Lugols Iodine Preserved Bottles; STT = Sterile Sodium Thiosulfate Preserved Bottles.

APPENDIX 10 - LABORATORY CERTIFICATES

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2232525**	Page	: 1 of 9
Client	: **HMC ENVIRONMENTAL**	Laboratory	: Environmental Division Brisbane
Contact	: MARK TUNKS	Contact	: Customer Services EB
Address	: SUITE 29, LEVEL 2 75-77 WHARF STREET TWEED HEADS 2485	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: 07 5536 8863	Telephone	: +61-7-3243 7222
Project	: CUDGEN ROAD CUDGEN	Date Samples Received	: 02-Nov-2022 12:33
Order number	: HMC2022.445	Date Analysis Commenced	: 04-Nov-2022
C-O-C number	: ----	Issue Date	: 14-Nov-2022 17:42
Sampler	: ----		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 50		
No. of samples analysed	: 13		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
Timothy Creagh	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- **SPLIT WORK ORDER: It should be noted that ALS has split this work order over the following work orders EB2232525, EB2232527 due to the size of the sample numbers. For any further information regarding this processing of samples please contact ALS client services division on ALSEnviro.Brisbane@alsglobal.com**
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EG005T (Total Metals by ICP-AES): EB2232318-011 shows poor duplicate results due to sample heterogeneity. This has been confirmed by visual inspection.
- EG005T (Total Metals by ICP-AES): COMP CD3 (EB2232525-043) shows poor matrix spike recovery due to sample heterogeneity. This has been confirmed by visual inspection.

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

			Sample ID	CD2A	CD7A	CD9A	COMP CD1 COMP CD1 (CD1A, CD1B, CD1C, CD1D)	COMP CD2 COMP CD2 (CD2A, CD2B, CD2C, CD2D)
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232525-005	EB2232525-025	EB2232525-033	EB2232525-041	EB2232525-042
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**33.8**	**28.8**	**30.0**	**21.9**	**32.6**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	**38**	**13**	**26**	**13**	**35**
Copper	7440-50-8	5	mg/kg	**9**	**11**	**13**	**5**	**10**
Lead	7439-92-1	5	mg/kg	**6**	<5	**8**	<5	**7**
Nickel	7440-02-0	2	mg/kg	**10**	**7**	**9**	**4**	**9**
Zinc	7440-66-6	5	mg/kg	**36**	**54**	**44**	**19**	**33**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**0.1**	**0.1**	**0.2**	**0.1**	**0.1**
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	CD2A	CD7A	CD9A	COMP CD1 COMP CD1 (CD1A, CD1B, CD1C, CD1D)	COMP CD2 COMP CD2 (CD2A, CD2B, CD2C, CD2D)
				Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
					EB2232525-005	EB2232525-025	EB2232525-033	EB2232525-041	EB2232525-042
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**98.4**	**102**	**101**	**99.2**	**109**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**108**	**118**	**120**	**120**	**130**

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	COMP CD3 COMP CD3 (CD3A, CD3B, CD3C, CD3D)	COMP CD4 COMP CD4 (CD4A, CD4B, CD4C, CD4D)	COMP CD5 COMP CD5 (CD5A, CD5B, CD5C, CD5D)	COMP CD6 COMP CD6 (CD6A, CD6B, CD6C, CD6D)	COMP CD7 COMP CD7 (CD7A, CD7B, CD7C, CD7D)
			Sampling date / time		31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
					EB2232525-043	EB2232525-044	EB2232525-045	EB2232525-046	EB2232525-047
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**32.7**	**31.1**	**30.8**	**28.6**	**27.8**
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		**28**	**18**	**11**	**9**	**13**
Copper	7440-50-8	5	mg/kg		**12**	**9**	**10**	**14**	**12**
Lead	7439-92-1	5	mg/kg		**8**	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg		**8**	**6**	**6**	**7**	**7**
Zinc	7440-66-6	5	mg/kg		**36**	**32**	**49**	**69**	**63**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		**0.1**	<0.1	<0.1	**0.1**	**0.1**
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	COMP CD3 COMP CD3 (CD3A, CD3B, CD3C, CD3D)	COMP CD4 COMP CD4 (CD4A, CD4B, CD4C, CD4D)	COMP CD5 COMP CD5 (CD5A, CD5B, CD5C, CD5D)	COMP CD6 COMP CD6 (CD6A, CD6B, CD6C, CD6D)	COMP CD7 COMP CD7 (CD7A, CD7B, CD7C, CD7D)
			Sampling date / time		31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
					EB2232525-043	EB2232525-044	EB2232525-045	EB2232525-046	EB2232525-047
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**106**	**113**	**108**	**105**	**112**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**129**	**128**	**129**	**122**	**132**

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	COMP CD8 COMP CD8 (CD8A, CD8B, CD8C, CD8D)	COMP CD9 COMP CD9 (CD9A, CD9B, CD9C, CD9D)	COMP CD10 COMP CD10 (CD10A, CD1B, CD10C, CD10D)	----	----
				Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	----	----
					EB2232525-048	EB2232525-049	EB2232525-050	--------	--------
					Result	Result	Result	----	----
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**28.0**	**28.5**	**31.2**	----	----
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg		**15**	**21**	**31**	----	----
Copper	7440-50-8	5	mg/kg		**13**	**12**	**13**	----	----
Lead	7439-92-1	5	mg/kg		<5	<5	**6**	----	----
Nickel	7440-02-0	2	mg/kg		**8**	**7**	**11**	----	----
Zinc	7440-66-6	5	mg/kg		**63**	**33**	**45**	----	----
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		**0.1**	**0.1**	**0.2**	----	----
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ **Total Chlordane (sum)**	----	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	----	----

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	COMP CD8 COMP CD8 (CD8A, CD8B, CD8C, CD8D)	COMP CD9 COMP CD9 (CD9A, CD9B, CD9C, CD9D)	COMP CD10 COMP CD10 (CD10A, CD1B, CD10C, CD10D)	----	----
				Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	----	----
					EB2232525-048	EB2232525-049	EB2232525-050	--------	--------
					Result	Result	Result	----	----
EP068A: Organochlorine Pesticides (OC) - Continued									
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**108**	**102**	**110**	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**132**	**120**	**128**	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	138
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	23	134

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **EB2232529**	Page	: 1 of 31
Client	: **HMC ENVIRONMENTAL**	Laboratory	: Environmental Division Brisbane
Contact	: MARK TUNKS	Contact	: Customer Services EB
Address	: SUITE 29, LEVEL 2 75-77 WHARF STREET TWEED HEADS 2485	Address	: 2 Byth Street Stafford QLD Australia 4053
Telephone	: 07 5536 8863	Telephone	: +61-7-3243 7222
Project	: CUDGEN ROAD CUDGEN	Date Samples Received	: 02-Nov-2022 12:33
Order number	: HMC2022.445	Date Analysis Commenced	: 04-Nov-2022
C-O-C number	: ----	Issue Date	: 14-Nov-2022 14:01
Sampler	: MARK TUNKS		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 97		
No. of samples analysed	: 51		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics, Stafford, QLD
Matt Frost	Assistant Laboratory Manager	Brisbane Organics, Stafford, QLD
Timothy Creagh	2IC Organic Chemist	Brisbane Organics, Stafford, QLD

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- **SPLIT WORK ORDER: It should be noted that ALS has split this work order over the following work orders EB2232525, EB2232527 due to the size of the sample numbers. For any further information regarding this processing of samples please contact ALS client services division on ALSEnviro.Brisbane@alsglobal.com**
- EP075 (SIM): Where reported, Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero.
- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a.h)anthracene (1.0), Benzo(g.h.i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG005T (Total Metals by ICP-AES): EB2232525-043 shows poor matrix spike recovery due to sample heterogeneity. This has been confirmed by visual inspection.
- EG005T (Total Metals by ICP-AES): CD21A (EB2232529-081) shows poor matrix spike recovery due to sample heterogeneity. This has been confirmed by visual inspection.
- EG005T (Total Metals by ICP-AES): CDS4A (EB2232529-108) shows poor matrix spike recovery due to sample heterogeneity. This has been confirmed by visual inspection.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CD17A	CD21A	CDN1	CDN2	CDN3
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-065	EB2232529-081	EB2232529-089	EB2232529-090	EB2232529-091
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	27.3	24.7	13.4	3.7	23.1
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	1
Chromium	7440-47-3	2	mg/kg	10	8	9	6	10
Copper	7440-50-8	5	mg/kg	6	6	18	8	16
Lead	7439-92-1	5	mg/kg	<5	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg	5	5	5	<2	7
Zinc	7440-66-6	5	mg/kg	27	45	67	28	64
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	0.1	<0.1	<0.1	0.2
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CD17A	CD21A	CDN1	CDN2	CDN3
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-065	EB2232529-081	EB2232529-089	EB2232529-090	EB2232529-091
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**99.0**	**101**	**92.7**	**93.3**	**93.0**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**112**	**116**	**108**	**111**	**113**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDN4	CDN5	CDN6	CDN7	CDN8
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-092	EB2232529-093	EB2232529-094	EB2232529-095	EB2232529-096
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**29.9**	**7.6**	**20.8**	**17.3**	**4.2**
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	**6**	**10**	<5	<5
Cadmium	7440-43-9	1	mg/kg	**1**	<1	**2**	<1	<1
Chromium	7440-47-3	2	mg/kg	**9**	**3**	**14**	**7**	**3**
Copper	7440-50-8	5	mg/kg	**14**	**7**	**28**	**19**	<5
Lead	7439-92-1	5	mg/kg	<5	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg	**6**	<2	**8**	**5**	<2
Zinc	7440-66-6	5	mg/kg	**56**	**9**	**88**	**145**	**6**
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**0.1**	<0.1	<0.1	<0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDN4	CDN5	CDN6	CDN7	CDN8
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-092	EB2232529-093	EB2232529-094	EB2232529-095	EB2232529-096
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**96.3**	**94.5**	**102**	**101**	**123**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**119**	**111**	**122**	**122**	**145**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDN9	CDN10A	CDN11A	CDN12A	CDN13A
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-097	EB2232529-098	EB2232529-099	EB2232529-100	EB2232529-101
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	3.9	7.2	21.0	24.1	12.7
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	1	<1
Chromium	7440-47-3	2	mg/kg	13	6	9	9	6
Copper	7440-50-8	5	mg/kg	23	17	19	24	15
Lead	7439-92-1	5	mg/kg	6	8	16	6	<5
Nickel	7440-02-0	2	mg/kg	5	3	6	7	3
Zinc	7440-66-6	5	mg/kg	125	99	127	298	223
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDN9	CDN10A	CDN11A	CDN12A	CDN13A
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-097	EB2232529-098	EB2232529-099	EB2232529-100	EB2232529-101
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**98.4**	**110**	**102**	**107**	**103**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**119**	**128**	**124**	**132**	**126**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDN14A	CDBG1	CDBG2	CDS1A	CDS2A
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-102	EB2232529-103	EB2232529-104	EB2232529-105	EB2232529-106
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	10.0	30.0	20.7	33.5	26.9
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	5
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	1	1
Chromium	7440-47-3	2	mg/kg	4	6	16	16	53
Copper	7440-50-8	5	mg/kg	10	14	17	26	33
Lead	7439-92-1	5	mg/kg	<5	8	12	5	12
Nickel	7440-02-0	2	mg/kg	3	6	7	10	24
Zinc	7440-66-6	5	mg/kg	60	54	49	209	445
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	0.1	<0.1	0.1	<0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDN14A	CDBG1	CDBG2	CDS1A	CDS2A
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-102	EB2232529-103	EB2232529-104	EB2232529-105	EB2232529-106
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	----	----	----	<0.5	<0.5
Acenaphthylene	208-96-8	0.5	mg/kg	----	----	----	<0.5	<0.5
Acenaphthene	83-32-9	0.5	mg/kg	----	----	----	<0.5	<0.5
Fluorene	86-73-7	0.5	mg/kg	----	----	----	<0.5	<0.5
Phenanthrene	85-01-8	0.5	mg/kg	----	----	----	<0.5	<0.5
Anthracene	120-12-7	0.5	mg/kg	----	----	----	<0.5	<0.5
Fluoranthene	206-44-0	0.5	mg/kg	----	----	----	<0.5	<0.5
Pyrene	129-00-0	0.5	mg/kg	----	----	----	<0.5	<0.5
Benz(a)anthracene	56-55-3	0.5	mg/kg	----	----	----	<0.5	<0.5
Chrysene	218-01-9	0.5	mg/kg	----	----	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDN14A	CDBG1	CDBG2	CDS1A	CDS2A
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-102	EB2232529-103	EB2232529-104	EB2232529-105	EB2232529-106
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	----	----	----	<0.5	<0.5
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	----	----	----	<0.5	<0.5
Benzo(a)pyrene	50-32-8	0.5	mg/kg	----	----	----	<0.5	<0.5
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	----	----	----	<0.5	<0.5
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	----	----	----	<0.5	<0.5
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	----	----	----	<0.5	<0.5
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	----	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	----	----	----	<0.5	<0.5
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	----	----	----	**0.6**	**0.6**
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	----	----	----	**1.2**	**1.2**
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	----	----	----	<10	<10
C10 - C14 Fraction	----	50	mg/kg	----	----	----	<50	<50
C15 - C28 Fraction	----	100	mg/kg	----	----	----	**100**	**130**
C29 - C36 Fraction	----	100	mg/kg	----	----	----	<100	**120**
^ C10 - C36 Fraction (sum)	----	50	mg/kg	----	----	----	**100**	**250**
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	----	----	----	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	----	----	----	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	----	----	----	<50	<50
>C16 - C34 Fraction	----	100	mg/kg	----	----	----	**160**	**210**
>C34 - C40 Fraction	----	100	mg/kg	----	----	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	----	----	----	**160**	**210**
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	----	----	----	<50	<50
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	----	----	----	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	----	----	----	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	----	----	----	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	----	----	----	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	----	----	----	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	----	----	----	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	----	----	----	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDN14A	CDBG1	CDBG2	CDS1A	CDS2A
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-102	EB2232529-103	EB2232529-104	EB2232529-105	EB2232529-106
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Naphthalene	91-20-3	1	mg/kg	----	----	----	<1	<1
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	112	95.6	97.9	105	110
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	131	114	118	125	139
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	----	----	----	106	101
2-Chlorophenol-D4	93951-73-6	0.5	%	----	----	----	98.5	84.9
2.4.6-Tribromophenol	118-79-6	0.5	%	----	----	----	77.4	72.0
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	----	----	----	99.4	80.9
Anthracene-d10	1719-06-8	0.5	%	----	----	----	105	108
4-Terphenyl-d14	1718-51-0	0.5	%	----	----	----	109	110
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	----	----	----	77.1	89.6
Toluene-D8	2037-26-5	0.2	%	----	----	----	75.4	87.2
4-Bromofluorobenzene	460-00-4	0.2	%	----	----	----	91.4	82.0

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDS3A	CDS4A	CDS5A	TRIP BLANK 100626	TRIP BLANK 100625
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-107	EB2232529-108	EB2232529-109	EB2232529-110	EB2232529-111
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**29.6**	**27.3**	**18.1**	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----
Chromium	7440-47-3	2	mg/kg	**24**	**8**	**14**	----	----
Copper	7440-50-8	5	mg/kg	**22**	**20**	**11**	----	----
Lead	7439-92-1	5	mg/kg	**7**	**6**	<5	----	----
Nickel	7440-02-0	2	mg/kg	**12**	**6**	**5**	----	----
Zinc	7440-66-6	5	mg/kg	**405**	**114**	**81**	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDS3A	CDS4A	CDS5A	TRIP BLANK 100626	TRIP BLANK 100625
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-107	EB2232529-108	EB2232529-109	EB2232529-110	EB2232529-111
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	----	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDS3A	CDS4A	CDS5A	TRIP BLANK 100626	TRIP BLANK 100625
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-107	EB2232529-108	EB2232529-109	EB2232529-110	EB2232529-111
				Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued								
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	**0.6**	**0.6**	**0.6**	----	----
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	**1.2**	**1.2**	**1.2**	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	<10	<10
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	**16**	<10	<10	<10	<10
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	**16**	<10	<10	<10	<10
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	----
>C16 - C34 Fraction	----	100	mg/kg	**130**	**110**	<100	----	----
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	**130**	**110**	<50	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDS3A	CDS4A	CDS5A	TRIP BLANK 100626	TRIP BLANK 100625
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-107	EB2232529-108	EB2232529-109	EB2232529-110	EB2232529-111
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	<1	<1
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	105	110	109	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	138	145	144	----	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	0.5	%	104	96.7	113	----	----
2-Chlorophenol-D4	93951-73-6	0.5	%	82.5	71.5	104	----	----
2.4.6-Tribromophenol	118-79-6	0.5	%	92.0	67.6	98.2	----	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	0.5	%	77.8	74.7	101	----	----
Anthracene-d10	1719-06-8	0.5	%	106	109	110	----	----
4-Terphenyl-d14	1718-51-0	0.5	%	108	112	114	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	80.0	85.3	97.9	102	102
Toluene-D8	2037-26-5	0.2	%	79.0	80.6	93.0	101	97.4
4-Bromofluorobenzene	460-00-4	0.2	%	94.7	79.8	87.0	93.0	93.1

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TRIP SPIKE 1	TRIP SPIKE 10	CDDUP 1	CDDUP 2	CDDUP 3
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-112	EB2232529-113	EB2232529-124	EB2232529-125	EB2232529-126
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	----	----	27.3	27.4	27.2
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	----	----	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	----	----	1	<1	1
Chromium	7440-47-3	2	mg/kg	----	----	11	10	8
Copper	7440-50-8	5	mg/kg	----	----	12	6	8
Lead	7439-92-1	5	mg/kg	----	----	<5	<5	<5
Nickel	7440-02-0	2	mg/kg	----	----	6	5	6
Zinc	7440-66-6	5	mg/kg	----	----	50	27	49
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	----	----	0.1	0.1	0.1
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TRIP SPIKE 1	TRIP SPIKE 10	CDDUP 1	CDDUP 2	CDDUP 3
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-112	EB2232529-113	EB2232529-124	EB2232529-125	EB2232529-126
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	----	----	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	----	----	<0.05	<0.05	<0.05
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	**38**	**53**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	**48**	**66**	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	**28**	**39**	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	**0.6**	**0.5**	----	----	----
Toluene	108-88-3	0.5	mg/kg	**8.0**	**9.8**	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	**1.6**	**2.2**	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	TRIP SPIKE 1	TRIP SPIKE 10	CDDUP 1	CDDUP 2	CDDUP 3
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	EB2232529-112	EB2232529-113	EB2232529-124	EB2232529-125	EB2232529-126
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	**7.2**	**10.1**	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	**2.8**	**4.0**	----	----	----
^ Sum of BTEX	----	0.2	mg/kg	**20.2**	**26.6**	----	----	----
^ Total Xylenes	----	0.5	mg/kg	**10.0**	**14.1**	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	----	----	**106**	**125**	**106**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	----	----	**124**	**136**	**127**
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**95.9**	**95.5**	----	----	----
Toluene-D8	2037-26-5	0.2	%	**98.9**	**96.6**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**91.1**	**94.0**	----	----	----

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

				Sample ID	CDDUP 4	CDDUP 5	CDDUP 6	COMP CD11 COMP CD11 (CD11A, CD11B, CD11C, CD11D)	COMP CD12 COMP CD12 (CD12A, CD12B, CD12C, CD12D)
				Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit		EB2232529-127	EB2232529-128	EB2232529-129	EB2232529-130	EB2232529-131
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**27.6**	**32.8**	**26.3**	**25.8**	**24.1**
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	**1**	<1	<1
Chromium	7440-47-3	2	mg/kg		**20**	**30**	**8**	**14**	**12**
Copper	7440-50-8	5	mg/kg		**13**	**10**	**14**	**13**	**10**
Lead	7439-92-1	5	mg/kg		**6**	**6**	<5	<5	<5
Nickel	7440-02-0	2	mg/kg		**7**	**8**	**6**	**5**	**5**
Zinc	7440-66-6	5	mg/kg		**34**	**29**	**61**	**29**	**38**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		**0.1**	**0.1**	**0.1**	**0.1**	**0.1**
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	CDDUP 4	CDDUP 5	CDDUP 6	COMP CD11 COMP CD11 (CD11A, CD11B, CD11C, CD11D)	COMP CD12 COMP CD12 (CD12A, CD12B, CD12C, CD12D)
				Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
					EB2232529-127	EB2232529-128	EB2232529-129	EB2232529-130	EB2232529-131
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**106**	**109**	**119**	**106**	**110**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**133**	**137**	**142**	**124**	**128**

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	COMP CD13 COMP CD13 (CD13A, CD13B, CD13C, CD13D)	COMP CD14 COMP CD14 (CD14A, CD11B, CD14C, CD14D)	COMP CD15 COMP CD15 (CD15A, CD15B, CD15C, CD15D)	COMP CD16 COMP CD16 (CD16A, CD16B, CD16C, CD16D)	COMP CD17 COMP CD17 (CD17A, CD17B, CD17C, CD17D)
				Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
					EB2232529-132	EB2232529-133	EB2232529-134	EB2232529-135	EB2232529-136
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**22.4**	**29.0**	**19.1**	**21.6**	**21.0**
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		**10**	**18**	**9**	**9**	**9**
Copper	7440-50-8	5	mg/kg		**12**	**14**	**13**	**14**	**8**
Lead	7439-92-1	5	mg/kg		<5	<5	<5	<5	<5
Nickel	7440-02-0	2	mg/kg		**5**	**6**	**12**	**14**	**9**
Zinc	7440-66-6	5	mg/kg		**36**	**38**	**40**	**44**	**30**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		**0.1**	**0.2**	<0.1	<0.1	**0.1**
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	COMP CD13 COMP CD13 (CD13A, CD13B, CD13C, CD13D)	COMP CD14 COMP CD14 (CD14A, CD11B, CD14C, CD14D)	COMP CD15 COMP CD15 (CD15A, CD15B, CD15C, CD15D)	COMP CD16 COMP CD16 (CD16A, CD16B, CD16C, CD16D)	COMP CD17 COMP CD17 (CD17A, CD17B, CD17C, CD17D)
				Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
					EB2232529-132	EB2232529-133	EB2232529-134	EB2232529-135	EB2232529-136
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**111**	**106**	**106**	**106**	**112**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**127**	**114**	**124**	**124**	**123**

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	COMP CD18 COMP CD18 (CD18A, CD18B, CD18C, CD18D)	COMP CD19 COMP CD19 (CD19A, CD19B, CD19C, CD19D)	COMP CD20 COMP CD20 (CD20A, CD20B, CD20C, CD20D)	COMP CD21 COMP CD21 (CD21A, CD21B, CD21C, CD21D)	COMP CD22 COMP CD22 (CD22A, CD22B, CD22C, CD22D)
				Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
					EB2232529-137	EB2232529-138	EB2232529-139	EB2232529-140	EB2232529-141
					Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%		**22.8**	**17.1**	**29.4**	**24.9**	**19.8**
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg		<5	<5	**6**	**6**	<5
Cadmium	7440-43-9	1	mg/kg		<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg		**11**	**11**	**10**	**11**	**12**
Copper	7440-50-8	5	mg/kg		**8**	**26**	**24**	**22**	**14**
Lead	7439-92-1	5	mg/kg		<5	<5	**7**	<5	<5
Nickel	7440-02-0	2	mg/kg		**6**	**7**	**7**	**8**	**8**
Zinc	7440-66-6	5	mg/kg		**32**	**137**	**201**	**210**	**70**
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg		**0.1**	**0.1**	**0.1**	<0.1	**0.1**
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Total Chlordane (sum)**	----	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Endosulfan (sum)**	115-29-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: **SOIL**
(Matrix: **SOIL**)

Compound	CAS Number	LOR	Unit	Sample ID	COMP CD18 COMP CD18 (CD18A, CD18B, CD18C, CD18D)	COMP CD19 COMP CD19 (CD19A, CD19B, CD19C, CD19D)	COMP CD20 COMP CD20 (CD20A, CD20B, CD20C, CD20D)	COMP CD21 COMP CD21 (CD21A, CD21B, CD21C, CD21D)	COMP CD22 COMP CD22 (CD22A, CD22B, CD22C, CD22D)
				Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
					EB2232529-137	EB2232529-138	EB2232529-139	EB2232529-140	EB2232529-141
					Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDT	50-29-3	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Methoxychlor	72-43-5	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg		<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg		<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%		**110**	**102**	**106**	**109**	**99.0**
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%		**125**	**123**	**131**	**136**	**119**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	ALS CONTROL SPIKE 1	ALS CONTROL SPIKE 10	----	----	----
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	----	----	----
Compound	CAS Number	LOR	Unit	EB2232529-142	EB2232529-143	--------	--------	--------
				Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	10	mg/kg	**44**	**60**	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	**55**	**75**	----	----	----
^ **C6 - C10 Fraction minus BTEX (F1)**	C6_C10-BTEX	10	mg/kg	**33**	**45**	----	----	----
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	**0.6**	**0.7**	----	----	----
Toluene	108-88-3	0.5	mg/kg	**8.5**	**11.4**	----	----	----
Ethylbenzene	100-41-4	0.5	mg/kg	**1.8**	**2.4**	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	**7.8**	**11.1**	----	----	----
ortho-Xylene	95-47-6	0.5	mg/kg	**3.1**	**4.4**	----	----	----
^ **Sum of BTEX**	----	0.2	mg/kg	**21.8**	**30.0**	----	----	----
^ **Total Xylenes**	----	0.5	mg/kg	**10.9**	**15.5**	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	<1	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	0.2	%	**91.8**	**91.5**	----	----	----
Toluene-D8	2037-26-5	0.2	%	**99.8**	**97.1**	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	**98.6**	**92.7**	----	----	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CDRS1	CDRS2	CDRS3	CDRS4	----
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	----
Compound	CAS Number	LOR	Unit	EB2232529-114	EB2232529-115	EB2232529-116	EB2232529-117	--------
				Result	Result	Result	Result	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
beta-BHC	319-85-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
gamma-BHC	58-89-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
delta-BHC	319-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Heptachlor	76-44-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Aldrin	309-00-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Dieldrin	60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
4.4`-DDE	72-55-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Endrin	72-20-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
beta-Endosulfan	33213-65-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
4.4`-DDD	72-54-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
4.4`-DDT	50-29-3	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
Endrin ketone	53494-70-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Methoxychlor	72-43-5	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
^ Total Chlordane (sum)	----	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Diazinon	333-41-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
Malathion	121-75-5	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Fenthion	55-38-9	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CDRS1	CDRS2	CDRS3	CDRS4	----
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	----
Compound	CAS Number	LOR	Unit	EB2232529-114	EB2232529-115	EB2232529-116	EB2232529-117	--------
				Result	Result	Result	Result	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Parathion	56-38-2	2.0	µg/L	<2.0	<2.0	<2.0	<2.0	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Ethion	563-12-2	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	<0.5	<0.5	<0.5	----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	1.0	µg/L	----	----	----	<1.0	----
Acenaphthylene	208-96-8	1.0	µg/L	----	----	----	<1.0	----
Acenaphthene	83-32-9	1.0	µg/L	----	----	----	<1.0	----
Fluorene	86-73-7	1.0	µg/L	----	----	----	<1.0	----
Phenanthrene	85-01-8	1.0	µg/L	----	----	----	<1.0	----
Anthracene	120-12-7	1.0	µg/L	----	----	----	<1.0	----
Fluoranthene	206-44-0	1.0	µg/L	----	----	----	<1.0	----
Pyrene	129-00-0	1.0	µg/L	----	----	----	<1.0	----
Benz(a)anthracene	56-55-3	1.0	µg/L	----	----	----	<1.0	----
Chrysene	218-01-9	1.0	µg/L	----	----	----	<1.0	----
Benzo(b+j)fluoranthene	205-99-2 205-82-3	1.0	µg/L	----	----	----	<1.0	----
Benzo(k)fluoranthene	207-08-9	1.0	µg/L	----	----	----	<1.0	----
Benzo(a)pyrene	50-32-8	0.5	µg/L	----	----	----	<0.5	----
Indeno(1.2.3.cd)pyrene	193-39-5	1.0	µg/L	----	----	----	<1.0	----
Dibenz(a.h)anthracene	53-70-3	1.0	µg/L	----	----	----	<1.0	----
Benzo(g.h.i)perylene	191-24-2	1.0	µg/L	----	----	----	<1.0	----
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	µg/L	----	----	----	<0.5	----
^ Benzo(a)pyrene TEQ (zero)	----	0.5	µg/L	----	----	----	<0.5	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	----	----	<20	----
C10 - C14 Fraction	----	50	µg/L	----	----	----	<50	----
C15 - C28 Fraction	----	100	µg/L	----	----	----	380	----
C29 - C36 Fraction	----	50	µg/L	----	----	----	100	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)			Sample ID	CDRS1	CDRS2	CDRS3	CDRS4	----
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	----
Compound	CAS Number	LOR	Unit	EB2232529-114	EB2232529-115	EB2232529-116	EB2232529-117	--------
				Result	Result	Result	Result	----
EP080/071: Total Petroleum Hydrocarbons - Continued								
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	----	----	480	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	----	----	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	----	----	<20	----
>C10 - C16 Fraction	----	100	µg/L	----	----	----	230	----
>C16 - C34 Fraction	----	100	µg/L	----	----	----	270	----
>C34 - C40 Fraction	----	100	µg/L	----	----	----	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	----	----	500	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	----	----	230	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	----	----	<1	----
Toluene	108-88-3	2	µg/L	----	----	----	<2	----
Ethylbenzene	100-41-4	2	µg/L	----	----	----	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	----	----	<2	----
ortho-Xylene	95-47-6	2	µg/L	----	----	----	<2	----
^ Total Xylenes	----	2	µg/L	----	----	----	<2	----
^ Sum of BTEX	----	1	µg/L	----	----	----	<1	----
Naphthalene	91-20-3	5	µg/L	----	----	----	<5	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	48.6	60.2	50.4	72.5	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	54.5	68.2	60.1	82.8	----
EP075(SIM)S: Phenolic Compound Surrogates								
Phenol-d6	13127-88-3	1.0	%	----	----	----	32.8	----
2-Chlorophenol-D4	93951-73-6	1.0	%	----	----	----	78.6	----
2.4.6-Tribromophenol	118-79-6	1.0	%	----	----	----	58.4	----
EP075(SIM)T: PAH Surrogates								
2-Fluorobiphenyl	321-60-8	1.0	%	----	----	----	73.1	----
Anthracene-d10	1719-06-8	1.0	%	----	----	----	74.7	----
4-Terphenyl-d14	1718-51-0	1.0	%	----	----	----	73.1	----
EP080S: TPH(V)/BTEX Surrogates								
1.2-Dichloroethane-D4	17060-07-0	2	%	----	----	----	100	----

Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	CDRS1	CDRS2	CDRS3	CDRS4	----
				Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	----
Compound	CAS Number	LOR	Unit		EB2232529-114	EB2232529-115	EB2232529-116	EB2232529-117	--------
					Result	Result	Result	Result	----
EP080S: TPH(V)/BTEX Surrogates - Continued									
Toluene-D8	2037-26-5	2	%		----	----	----	**99.3**	----
4-Bromofluorobenzene	460-00-4	2	%		----	----	----	**101**	----

Surrogate Control Limits

Sub-Matrix: **SOIL**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	10	138
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	23	134
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	35	154
2-Chlorophenol-D4	93951-73-6	42	153
2.4.6-Tribromophenol	118-79-6	26	157
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	34	156
Anthracene-d10	1719-06-8	37	153
4-Terphenyl-d14	1718-51-0	42	172
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	53	134
Toluene-D8	2037-26-5	60	131
4-Bromofluorobenzene	460-00-4	59	127

Sub-Matrix: **WATER**

Compound	CAS Number	Recovery Limits (%) Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	45	139
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	45	139
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	10	72
2-Chlorophenol-D4	93951-73-6	27	130
2.4.6-Tribromophenol	118-79-6	19	181
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	14	146
Anthracene-d10	1719-06-8	35	137
4-Terphenyl-d14	1718-51-0	36	154
EP080S: TPH(V)/BTEX Surrogates			
1.2-Dichloroethane-D4	17060-07-0	66	138
Toluene-D8	2037-26-5	79	120
4-Bromofluorobenzene	460-00-4	74	118

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **ES2240416**	Page	: 1 of 7
Client	: **HMC ENVIRONMENTAL**	Laboratory	: Environmental Division Sydney
Contact	: MARK TUNKS	Contact	: Customer Services ES
Address	: SUITE 29, LEVEL 2 75-77 WHARF STREET TWEED HEADS 2485	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: 07 5536 8863	Telephone	: +61-2-8784 8555
Project	: CUDGEN ROAD CUDGEN	Date Samples Received	: 09-Nov-2022 11:00
Order number	: HMC2022.445	Date Analysis Commenced	: 11-Nov-2022
C-O-C number	: ----	Issue Date	: 15-Nov-2022 16:13
Sampler	: MARK TUNKS		
Site	: ----		
Quote number	: EN/222		
No. of samples received	: 6		
No. of samples analysed	: 6		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDTRIP 1	CDTRIP 2	CDTRIP 3	CDTRIP 4	CDTRIP 5
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	ES2240416-001	ES2240416-002	ES2240416-003	ES2240416-004	ES2240416-005
				Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	27.9	25.5	23.9	29.2	32.0
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	<5	<5
Cadmium	7440-43-9	1	mg/kg	2	1	2	2	1
Chromium	7440-47-3	2	mg/kg	11	13	10	32	50
Copper	7440-50-8	5	mg/kg	17	9	10	18	12
Lead	7439-92-1	5	mg/kg	6	<5	<5	10	8
Nickel	7440-02-0	2	mg/kg	8	8	6	11	15
Zinc	7440-66-6	5	mg/kg	71	45	67	58	47
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	0.1	0.1	0.1	0.2	0.2
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDTRIP 1	CDTRIP 2	CDTRIP 3	CDTRIP 4	CDTRIP 5
			Sampling date / time	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00	31-Oct-2022 00:00
Compound	CAS Number	LOR	Unit	ES2240416-001	ES2240416-002	ES2240416-003	ES2240416-004	ES2240416-005
				Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**66.7**	**70.8**	**71.1**	**70.6**	**70.1**
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**87.9**	**53.6**	**86.1**	**94.6**	**92.5**

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDTRIP 6	----	----	----	----
			Sampling date / time	31-Oct-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2240416-006	--------	--------	--------	--------
				Result	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**24.0**	----	----	----	----
EG005(ED093)T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	**1**	----	----	----	----
Chromium	7440-47-3	2	mg/kg	**9**	----	----	----	----
Copper	7440-50-8	5	mg/kg	**18**	----	----	----	----
Lead	7439-92-1	5	mg/kg	**6**	----	----	----	----
Nickel	7440-02-0	2	mg/kg	**10**	----	----	----	----
Zinc	7440-66-6	5	mg/kg	**95**	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	**0.2**	----	----	----	----
EP068A: Organochlorine Pesticides (OC)								
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	----	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	----	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	<0.05	----	----	----	----
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	----	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor	76-44-8	0.05	mg/kg	<0.05	----	----	----	----
Aldrin	309-00-2	0.05	mg/kg	<0.05	----	----	----	----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	----	----	----	----
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	----	----	----	----
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	----	----	----	----
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	----	----	----	----
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	----	----	----	----
Dieldrin	60-57-1	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	----	----	----	----
Endrin	72-20-8	0.05	mg/kg	<0.05	----	----	----	----
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	----	----	----	----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	----	----	----	----
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	----	----	----	----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	----	----	----	----
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	----	----	----	----
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	----	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CDTRIP 6	----	----	----	----
			Sampling date / time	31-Oct-2022 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES2240416-006	--------	--------	--------	--------
				Result	----	----	----	----
EP068A: Organochlorine Pesticides (OC) - Continued								
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	----	----	----	----
^ **Sum of Aldrin + Dieldrin**	309-00-2/60-57-1	0.05	mg/kg	<0.05	----	----	----	----
^ **Sum of DDD + DDE + DDT**	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	----	----	----	----
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	----	----	----	----
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	----	----	----	----
Dimethoate	60-51-5	0.05	mg/kg	<0.05	----	----	----	----
Diazinon	333-41-5	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	----	----	----	----
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	----	----	----	----
Malathion	121-75-5	0.05	mg/kg	<0.05	----	----	----	----
Fenthion	55-38-9	0.05	mg/kg	<0.05	----	----	----	----
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	----	----	----	----
Parathion	56-38-2	0.2	mg/kg	<0.2	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	----	----	----	----
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	----	----	----	----
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	----	----	----	----
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	----	----	----	----
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	----	----	----	----
Ethion	563-12-2	0.05	mg/kg	<0.05	----	----	----	----
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	----	----	----	----
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.05	%	**67.9**	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.05	%	**92.1**	----	----	----	----

Surrogate Control Limits

Sub-Matrix: **SOIL**		Recovery Limits (%)	
Compound	*CAS Number*	*Low*	*High*
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143