Waste and Reso	ource Recover	у						
Document	Revision	Date	Description	Author	Approved			
Control	3	30/11/2016	Revised to reflect contractual arrangements for construction. Acronym "PC" refers to "Principal Contractor"	JS/SL	JS			
Background	This Waste and Resource Recovery Plan (WRRP) is one of the Environmental Plans under the Environmental Management Strategy for the Clyde Terminal Conversion Project.							
Objectives	Ensure of	 Identify potential sources of waste generated and minimise and manage potential waste throughout the demolition and construction phases of the Project. Ensure compliance with relevant legislative and other requirements including the DC conditions, mitigation measures in the Environmental Impact Statement (EIS) and Response to Submissions (RTS) Report; and Environment Protection Licence (EPL) 570. 						
Performance Criteria Key Performance Indicators	Any was appropri Data and Complia Proper v Signage Establisl No non-e	 Waste generated from demolition and construction will be reused or recycled where practicable. Any waste leaving the Site during demolition and construction will be by approved methods for appropriate reuse, recycling treatment, where possible, or other appropriate disposal; where re-use or recycling is not possible. Data and reporting to indicate a Waste Tracking System implemented during demolition and construction phases of the Project. Compliant waste identification and segregation during demolition and construction phases of the Project. Proper waste stream segregation during demolition and construction to minimise the volume of waste disposed of as landfill. Signage and labelling of waste storage containers and areas. 						
Legislative		·	ith Waste Tracking System. SSD 5147 [14 January 2015]					
Requirements	Asbestos Management Asbestos handling, transport, dis and clearanc	control C16.T handle the recomposal e (a) Wo (b) Mo (c) Mo	The Applicant shall ensure that any asbestos encountered during construction and demolition is mored, transported and disposed of by appropriately qualified and licensed contractors in accordance we quirements of WorkCover and relevant guidelines, including: ork Health and Safety Regulation 2011; ordel Code of Practice – How to Manage and Control Asbestos in the Workplace, 2011 Safe Work Andel Code of Practice – How to Safely Remove Asbestos, 2011 Safe Work Australia; and otection of the Environment Operations (Waste) Regulation 2005.	ith				

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Waste and Resou	ırce Recovery	
	Waste Management	C51. The Applicant shall assess, classify and manage all liquid and non-liquid wastes generated at the site during construction, demolition and operation in accordance with the EPA's Waste Classification Guidelines Part 1: Classifying Waste, December 2009, or its latest version and dispose of all wastes to a facility that may lawfully accept the waste.
		C52. Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence under the POEO Act, if such a licence is required in relation to that waste
		C53. The Applicant shall manage the chemical fixation and treatment of organic solvents, contaminated blue metals and empty drums or macro-encapsulation of waste in accordance with the EPA Specific Immobilisation Approval and the EPA Waste Classification Guidelines Part 2: Immobilisation of Waste, April 2008, or its latest version.
		C54. The Applicant shall manage all materials and waste containing Scheduled Chemical Waste and polychlorinated biphenyls in accordance with the applicable Chemical Control Order or in accordance with a licence under the Environmentally Hazardous Chemicals Act, 1985.
		C55. The Applicant shall manage all materials and waste containing radioactive substances in accordance with the Radiation Control Act, 1990, Radiation Control Act 1990, Radiation Control Regulation, 2013 and the requirements of the EPA.
		C56. The Applicant shall retain all sampling and waste classification data for the life of the Development in accordance with the requirements of the EPA.
	Waste Management Plan	C57.The Applicant shall update and implement the Waste Management Plan for the site for construction, demolition and operation to the satisfaction of the Secretary. This Plan shall:
		(a) be approved by the Secretary prior to the commencement of construction and demolition and be provided to the EPA;
		(b) detail the type and quantity of waste to be generated by construction, demolition and operation;
		(c) detail the materials to be reused or recycled, either on or off site;
		(d) detail the procedures for handling, storage, collection of recycling and disposal of waste;
		(e) include measures to manage stockpiles, including ensuring stockpiles are covered or stored undercover on sealed and bunded areas, are no higher than 5 metres and have height markers installed; and
		(f) include the Management and Mitigation Measures included in Appendix C
Legislative	Environment Prote	ection Licence EPL 570 [21 May 2015]
Requirements	L5 Waste	L5.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.
		L5.2 This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if it requires an environment protection licence.

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Waste and Reso	urce Recovery	
Legislative	L5 Waste	L5.3 Except as provided by any other condition of this licence, only the Hazardous and/or Liquid and/or Restricted Solid waste listed below may be generated and/or stored at the premises.
Requirements		a) A100 Waste resulting from surface treatment of metals and plastics;
•		b) B100 Acidic solutions or acids in solid form;
		c) C100 Basic solutions or bases in solid form;
		d) D120 Mercury; mercury compounds;
		e) D140 Chromium compounds (hexavalent and trivalent);
		f) D210 Nickel compounds;
		g) D220 Lead; lead compounds;
		h) D270 Vanadium compounds;
		i) D330 Inorganic sulfides;
		j) D360 Phosphorus compounds excluding mineral phosphates;
		k) F100 Waste from the production, formulation and use of inks, dyes, pigments, paints, lacquers and varnish;
		I) G110 Organic solvents excluding halogenated solvents; m) J100 Waste mineral oils unfit for their original intended use;
		, and the state of
		n) J120 Waste oil/water, hydrocarbons/water mixtures or emulsions;
		o) J160 Waste tarry residues arising from refining, distillation, and any pyrolytic treatment;
		p) M100 Waste substances and articles containing or contaminated with polychlorinated biphenyls (PCB's), polychlorinated napthalenes (PCN's), polyterpheny (PCT's) and/or polybrominated biphenyls (PBB's).
		q) M150 Phenols, phenol compounds including chlorophenols;
		r) M250 Surface active agents (surfactants), containing principally organic constituents and which may
		contain metals and inorganic materials;
		s) M260 Highly odorous organic chemicals (including mercaptans and acrylates);
		t) N100 Containers and drums which are contaminated with residues of substances referred to in this list;
		u) N120 Soils contaminated with a waste;
		v) N140 Fire debris and fire wash waters;
		w) N160 Encapsulated, chemically-fixed, solidified or polymerised wastes;
		x) N190 Filter cake;
		y) N230 Ceramic-based fibres with physicochemical characteristics similar to those of asbestos;
		z) R100 Clinical and related wastes;
		aa) T190 (or N205) Residues from industrial waste treatment/disposal operations;
		bb) Z100 Organic compounds nos (i.e. aliphatic nitrogen compounds); and
		cc) Z110 Inorganic compounds nos.

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Waste and Resou	ırce Recovery	
Legislative Requirements	L5 Waste	L5.7 Except as provided by any other condition of this licence, only the Hazardous and/or Liquid and/or Restricted Solid waste listed below may be treated, processed, reprocessed or disposed of at the premises. a) A100 Waste resulting from the surface treatment of metals and plastics, b) C100 Basic solutions or bases in solid form, c) J120 Waste oil/water, hydrocarbons/water mixtures or emulsions, d) M260 Highly odorous organic chemicals (including mercaptans and acrylates), e) N120 Soils contaminated with a controlled waste, f) N160 Encapsulated, chemically-fixed, solidified or polymerised wastes, and g) T190 Residues from industrial waste treatment/disposal operations. L5.10 After onsite treatment to reduce hydrocarbon contamination of soil or sediment to less than 1% on a weight basis, such treated waste may be disposed of onsite in the area marked "Treated Material Onsite Disposal Site (TPH < 1%)" as shown on drawing number CLR_012667_0004 Rev F titled "Clyde Terminal EPL 570 Licenced discharge points." Note: The licensee must comply with the conditions as specified in this licence or where no specific conditions are outlined in this licence, the
	L7 Other limit conditions	Iicensee must comply with the Protection of the Environment Operations (Waste) Regulation 1996. Note: The licensee must comply with the conditions as specified in this license or where no specific conditions are outlined in this licence, the licensee must comply with the "Chemical Control Order in Relation to Materials and Waste Containing Polychlorinated Biphenyl, 1997".
	O5 Processes and Management	O5.1 The licensee must ensure that any liquid and/or non-liquid waste generated and/or stored and/or treated and/or processed and/or reprocessed and/or disposed at the premises is assessed and classified in accordance with the DECC Waste Classification Guidelines as in force from time to time.
		O5.4 Soil contaminated with hydrocarbons must be treated in the landfarm area as defined by the shaded area labelled "Landfarm" on drawing number CLR_012667_0004 Rev F titled "Clyde Terminal, EPL No 570, Licenced Discharge Points"
		O5.5 Treated soil contaminated with hydrocarbons must be disposed of in the disposal area as defined by the shaded area labelled "Treated Material Onsite Disposal Site (TPH<1%)" on drawing number CLR_012667_0004 titled "Clyde Terminal, EPL 570 Licence Discharge Points" or taken offsite to a place that can lawfully accept that class of waste.

Waste and Reso	urce Recovery				
	O6 Waste Management	O6.1 The licensee must ensure that was	ste identified for recycl	ing is stored separately fro	m other waste.
		O6.2 All above ground tanks containing containment system in place.	material that is likely to	o cause environmental hai	m must be bunded or have an alternative spill
		O6.3 The licensee must ensure that sui on all tanks, ponds or clarifiers and asso			ves with interlock control, one way valves) are installed f waste.
			drawing number CLR_	012667_0004 Rev F titled	farm as defined by the shaded area labelled "Sludge "Clyde Terminal, EPL No 570 Licenced Discharge
Predicted impacts in the	Source		Classification	Estimated Quantity	Proposed Management
EIS		Scrap metal	General Solid	~28,000t	Recycle
		Concrete	General Solid	~50,000m ³	Recycle
	Spend erosion ar	nd sediment control materials and geobags	Restricted Solid	~2t	Landfill
		Fencing	General Solid	~10t	Landfill
		Soil	General Solid	~20t	Landfill
		Contaminated soil	Restricted Solid	~1,000m ³	Onsite or offsite disposal
	-	Timber, glass and plastics	General Solid	~500m ³	Recycle/Landfill
		Asbestos	Special Waste	~100m³	Offsite disposal by a licensed waste contractor
		PCBs	Special Waste	~160,000L	Offsite disposal by a licensed waste contractor
	Po	tentially PCB impacted soils	Special Waste	~1m³	Offsite disposal by a licensed waste contractor

Nuclear isotopes contained within sources used in instrumentation	Hazardous	~2kg	Offsite transport and disposal by a contractor licensed under Radiation Control Act 1990 and the Radiation Control Regulation 2003
Wastes from toilets and bathrooms	Liquid	<50,800L per day*	Discharge to sewerage system
General waste including office waste, domestic waste staff and contractors and packaging waste	from General Solid		

Note: * Projected waste quantity is based on NSW department of health general allowance of 200L per person per day

Waste and Resource Recovery - Mitigation Measures

				In	nplementatio	n Responsibility	/
Plan				Constru	ıction	Demolition	
Referen ce	Source Reference	Aspect	Mitigation Measure	Viva Energy as PC	Contractor as PC	Contractor as PC	Frequency
WRRP1	C51 EPL 570 O5.1	Waste management	All liquid and non-liquid wastes generated during demolition and construction will be assessed, classified and managed in accordance with the EPA's Waste Classification Guidelines Part 1: Classifying Waste, December 2009, or its latest version and dispose of all wastes to a facility that may lawfully accept the waste.	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times
WRRP2	EPL 570 O6.2	Waste management	All above ground tanks containing material that is likely to cause environmental harm must be bunded or have an alternative spill containment system in place.	Viva Energy Cly Project Manage		conversion	At all times
WRRP3	C52 EPL 570 L5 (L5.1 – L5.7)	Waste management for waste from outside the Site	Waste generated outside the Site shall not be received at the Site for storage, treatment, processing, reprocessing, or disposal on the Site, except as expressly permitted by a licence under the POEO Act, if such a licence is required in relation to that waste.	Viva Energy Clyde Terminal Operations Manager		At all times	
WRRP4	C53 EIS, WM26	Waste management of organic solvents, contaminated blue metals and empty drums or macro- encapsulation	The chemical fixation and treatment of organic solvents, contaminated blue metals and empty drums or macro-encapsulation of waste will be managed in accordance with the EPA Specific Immobilisation Approval and the EPA Waste Classification Guidelines Part 2: Immobilisation of Waste, April 2008, or its latest version.	Viva Energy Cly Project Manage		conversion	At all times
WRRP5	C54 EPL 570 L7 Note EIS, WM22	Waste management of Scheduled chemical	All materials and waste containing Scheduled Chemical Waste and polychlorinated biphenyls will be managed in accordance with the applicable Chemical Control Order or in accordance with a licence under the Environmentally Hazardous Chemicals Act, 1985.	Viva Energy Cly Project Manage		conversion	At all times

				In	nplementation	n Responsibility	y
Plan				Constru	ction	Demolition	
Referen ce	Source Reference	Aspect	Mitigation Measure	Viva Energy as PC	Contractor as PC	Contractor as PC	Frequency
		waste and PCBs					
WRRP6	C55 EIS, WM8 EIS, WM25	Waste management of radioactive substances	All materials and waste containing radioactive substances will be managed in accordance with the Radiation Control Act, 1990, Radiation Control Regulation, 2013 and the requirements of the EPA.	Viva Energy Cly Project Manage		conversion	At all times
WRRP7	C56	Sampling and classification data	All sampling and waste classification data shall be retained - for the length of the contract, - in accordance with the requirements of the EPA, - and made available to Viva Energy as required.	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times
WRRP8	C56	Sampling and classification data	All contractor sampling and waste classification data shall be retained in accordance with the requirements of the EPA.	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times for the life of the development
WRRP9	C57 (b) C57 (c) C57 (d)	Waste Tracking	Contractors will be required to give detailed account of their wastes through the establishment of a waste log book, in accordance with the Waste Avoidance and Resource Recovery Act. This will be submitted to Demolition or Construction Manager at the completion of works.	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times
WRRP10	C57 (d) EIS, WM1 EIS, WM2	Waste Management Plan and tracking system for contractors	Demolition contractor will prepare a detailed waste management plan and tracking system that incorporates available recycling options.	N/A	N/A	Liberty Industrial Project Manager	At all times

				In	nplementation	n Responsibility	1
Plan				Constru	ction	Demolition	
Referen ce	Source Reference	Aspect	Mitigation Measure	Viva Energy as PC	Contractor as PC	Contractor as PC	Frequency
WRRP11	C57 (e) EIS SW2 EIS E28 EIS, WM7	Waste storage	Waste would be stored on a sealed and bunded surface whilst awaiting transfer or processing.	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times
WRRP12	EPL 570 O6.1 EIS, WM3	Stockpiled waste	Stockpiled waste will be clearly labelled, to ensure that all such waste is clearly identified and stored separately from other types of materials and wastes, and particular to ensure that contaminated and non-contaminated wastes are stockpiled separately.	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times
WRRP13	C57 (e) EIS, WM6	Stockpiled waste	Stockpiled wastes will be covered or stored undercover on sealed and bunded areas, will be no higher than 5 metres and have height markers installed.	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times
WRRP14	EIS, WM4 EIS, WM6	Stockpiled waste	Stockpiled waste will be located away from trafficked areas and other potential disturbances and allow adequate room for transport around and management of each stockpile.	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times
WRRP15	EIS, WM5	Stockpiled waste	Stockpiled waste will be placed on geo-fabric lining and covered to prevent leachate and erosion where not stored within a bunded area.	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times

				In	nplementation	n Responsibility	/
Plan				Constru	ction	Demolition	
Referen ce	Source Reference	Aspect	Mitigation Measure	Viva Energy as PC	Contractor as PC	Contractor as PC	Frequency
WRRP16	EIS E30	Wastewater	Water from tank bunds that has been potentially contaminated during the demolition and construction works would be properly treated via the Clyde Terminal wastewater treatment facilities to ensure compliance with the conditions of Viva Energy's EPL No. 570.	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times
WRRP17	EIS, SG11	Contaminated soil	If contaminated soils are discovered during excavations, they will be separated and managed in accordance with the Soil and Water Management Plan (Appendix D-2) .	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times
WRRP18	EPL L5.10 EPL O5.4 EPL O5.5	Contaminated soil	Soil contaminated with hydrocarbons will be treated in the landfarm area as defined by the shaded area labelled "Landfarm" on Figure D-6A . After treatment to reduce hydrocarbon contamination to less than 1% on a weight basis, soil will be disposed of onsite in the area marked "Treated Material Onsite Disposal Site (TPH < 1%)" as shown on Figure D-6 A , or taken offsite to a place that can lawfully accept this class of waste.	Viva Energy Clyde Terminal Operations A Manager			As required
WRRP19	C16	Asbestos	Any asbestos encountered during construction and demolition will be handled, transported and disposed of by appropriately qualified and licensed contractors in accordance with the requirements of WorkCover and relevant guidelines, including: (a) Work Health and Safety Regulation 2011; (b) Model Code of Practice – How to Manage and Control Asbestos in the Workplace, Safe Work Australia; (c) Model Code of Practice – How to Safely Remove Asbestos, Safe Work Australia; and (d) Protection of the Environment Operations (Waste) Regulation 2005.	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times
WRRP20	C16 EIS, WM9	Asbestos Control Plan	A specific Asbestos Control Plan will be generated by the Demolition Contractor, licenced to manage Class A and Class B asbestos material This Plan will address at a minimum: • the requirements of WorkCover and relevant guidelines, including:	N/A	N/A	Liberty Industrial Project Manager	Prior to Demolition

				In	nplementation	n Responsibility	1
Plan				Constru	ction	Demolition	
Referen ce	Source Reference	Aspect	Mitigation Measure	Viva Energy as PC	Contractor as PC	Contractor as PC	Frequency
	EIS, WM10 EIS, WM21		 Work Health and Safety Regulation 2011; Model Code of Practice – How to Manage and Control Asbestos in the Workplace, 2011 Safe Work Australia; Model Code of Practice – How to Safely Remove Asbestos, 2011 Safe Work Australia; and Protection of the Environment Operations (Waste) Regulation 2005 Ensure that exposure to asbestos at the Project Area is eliminated as far as reasonably practicable; Ensure an asbestos register is maintained; Ensure that health monitoring is provided to those personnel undertaking asbestos works as part of the Project; Ensure access to the asbestos removal area is limited to those who are actually involved in the removal of the asbestos, including the placement of relevant signage and barriers; If there is uncertainty as to whether the exposure standard is likely to be exceeded, engagement of a competent contractor to perform air quality monitoring in the area; Decontamination facilities will be provided when working on friable asbestos at the Project Area; Ensure that asbestos waste, and asbestos contaminated plant or clothing is decontaminated, sealed and labelled before it is removed from the Project Area to a site that is authorised to receive asbestos waste; and Secure storage and transportation in accordance with clause 42 the POEO Waste Regulation 				
WRRP21	EIS, WM23	Oil filters	Oil filters and packing and used oily rags will be managed as prescribed waste. Any powdery used oil-absorbent materials will be bagged or drummed or otherwise contained to facilitate their safe handling and disposal.	Construction Project Managers (requirements communicated via the Project HSSE Plan)	Saunders Project Manager	Liberty Industrial Project Manager	At all times

Aspect	Description	Responsibility	Frequency		
Demolition and construction waste	Waste tracking system will be implemented in accordance with NSW EPA requirements.	Viva Energy Clyde Terminal Operations Manager, Liberty Industrial Project Manager, Construction Project Managers, Saunders Project Manager (as applicable to area of control).			
Demolition and construction waste	Waste tracking system will be audited to confirm system is being implemented in accordance with NSW EPA requirements.	Viva Energy Clyde Terminal Conversion Project Manager	6 monthly		
Asbestos register	Maintain an asbestos register for all asbestos waste generated during demolition and construction.	Viva Energy Clyde Terminal Operations Manager, Liberty Industrial Project Manager, Construction Project Managers, Saunders Project Manager (as applicable to area of control).	At all times		

Waste and Resource Recovery - Reporting Requirements				
Aspect	Description	Responsibility	Frequency	
Demolition and construction waste	 Waste tracking system will be implemented in accordance with NSW EPA requirements. Maintain records and report on waste tracking in accordance with NSW EPA requirements. 	Viva Energy Clyde Terminal Operations Manager, Liberty Industrial Project Manager, Construction Project Managers, Saunders Project Manager (as applicable to area of control).	At all times	

Waste and Resource Recovery - Corrective Action				
Aspect	Description	Responsibility	Frequency	
Waste transported offsite without waste tracking or to appropriate facility	 Rectify immediately. Review demolition / construction waste tracking system and responsibilities. Modify methods and tracking as required. 	Viva Energy Clyde Terminal Operations Manager, Liberty Industrial Project Manager, Saunders Project Manager (as applicable to area of control).	Ongoing, as required	

Figure D-6 A - Clyde Terminal EPL 570 Licensed Discharge Points

