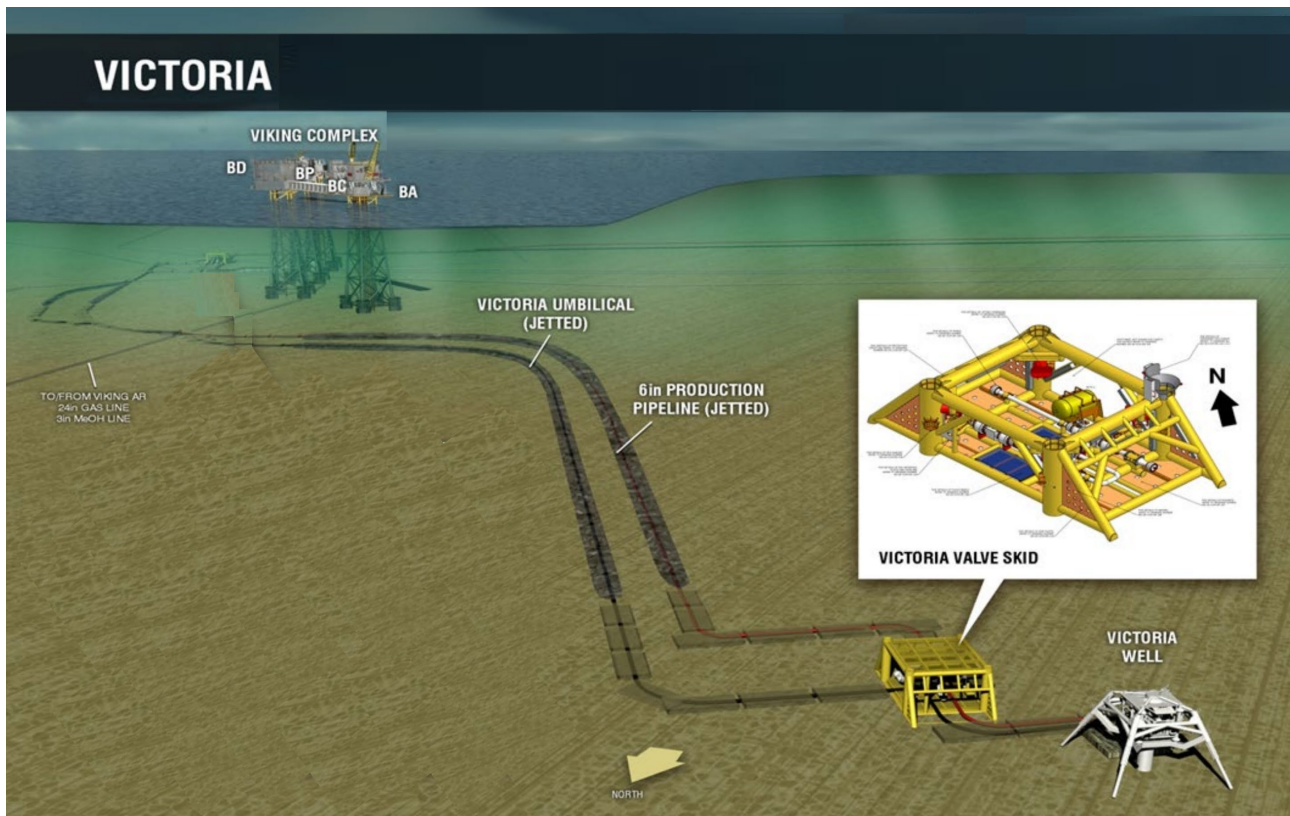


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Victoria Field Decommissioning Close Out Report

NEO Energy (SNS) Limited

VDCM-VIC-SU-RE-0006

UNCOSTED VERSION

Document Control

Revision Control

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Terms and Abbreviations

Abbreviation	Explanation
CSV	Construction Support Vessel
DP	Decommissioning Programme
DPR	Daily Progress Report (from DSV or CSV)
DSV	Diving Support Vessel
HSE	Health and Safety Executive
NEO	NEO Energy SNS Ltd
NSTA	North Sea Transition Authority
OPRED	Offshore Petroleum Regulator for Environment and Decommissioning
P&A	Plug and Abandon (wells)
ROV	Remotely operated vehicle
WBS	Work Breakdown Structure
WHPS	Well Head Protection Structure

1 SUMMARY

1.1 Summary of Decommissioning Programmes

The Victoria Field, located in the southern North Sea (49/17), was developed as a subsea tie-back to the third party owned Viking BD platform, 3.8 km away. The Victoria infrastructure comprised a horizontal subsea Xmas tree, wellhead and integrated wellhead protective structure (WHPS), and the Victoria valve skid. The well was tied back with 3.8 km of six-inch steel pipeline and a 3.95 km umbilical, along with associated spools and jumpers. The infrastructure was protected by concrete mattresses, and grout bags.

- Cessation of production was agreed by the NSTA on 14th January 2016
- Production formally ceased on 14th January 2016
- The Decommissioning programme was formally approved by OPRED on 14th April 2022.
- A summary of the infrastructure decommissioned and the approved decommissioning options is outlined in the tables below.

Table 1.1: Overview of the Decommissioned Installation(s) In The Approved DP		
Installation Type	Number	Weight
Steel Platform	0	-
Subsea Installation Type		
WHPS (s)	1	45t
Towhead(s)	0	-
Valve Skid(s)	1	57t (including piles and roof)

Table 1.2: Overview of the Decommissioned Pipelines & Umbilicals In The Approved DP	
Number of Pipeline(s) to be decommissioned	1
Number of Umbilical(s) to be decommissioned	1
Total KM of Pipeline(s) & Umbilical(s) to be decommissioned	3.8 km pipeline & 3.95 km umbilical (4.0 km & 4.11 km incl. Spools & Jumpers)
Total KM of Pipeline(s) & Umbilical(s) left in situ	3.416 km pipeline & 3.515 km umbilical

Table 1.3: Overview of the Stabilisation Features in The Approved DP	
Type	Number
Concrete Mattresses	150
Frond Matts	13*
Grout Bags	242
Sand Bags	0

*The 13 mattresses around the wellhead were thought to be fronded, however, on recovery and inspection they were found to be standard concrete mattresses.

Table 1.4: Overview of the Wells In The Approved DP	
Type	Number
Wells (Platform)	0
Wells (Subsea)	1
Appraisal Well	0

Table 1.5: Overview of the Drill Cuttings In The Approved DP	
Number of Piles & Volume (m3)	0

Table 1.6: Summary of the Approved Decommissioning Option(s) In the Approved DP	
Type	Selected Option
1. Topsides	N/A
2. Substructures (Jackets)	N/A
3. Subsea Installation(s)	Remove wellhead protective structure (WHPS) by drill rig during well P&A operations. Remove Victoria Valve Skid and roof panel by DSV. Remove mattresses, fronded mattresses and any grout bags associated with the skid and WHPS.
4. Pipelines, Flowlines & Umbilicals	Leave 6" pipeline PL2526 and 4 "umbilical PLU2527 in situ, removing the spool and pipeline ends and adding remediation where and if appropriate. Flush with seawater and leave buried in situ. Leave in situ the PL2526/PLU2527 pipeline crossing over 3rd party Viking AR pipelines (PL88, 24" gas pipeline and PL134, 3" MeOH pipeline)
5. Subsea Installation(s) Stabilisation Features	15 mattresses to be decommissioned in situ (at Victoria end) 45 mattresses for full recovery (at Victoria end) 13 "frond" mattresses for full recovery (at Victoria tree) 242 grout bags
6. Pipeline and Related Infrastructure Stabilisation Features	45 mattresses for full recovery (at approach to Viking Valve Skid)

7. Pipeline Crossings	45 mattresses to be decommissioned in situ as ongoing protective covering at AR pipeline crossing
8. Wells	Abandoned in accordance with Oil and Gas UK Guidelines for Decommissioning of Wells
9. Drill Cuttings	N/A

1.2 Schematic of Installation/Pipelines Being Decommissioned

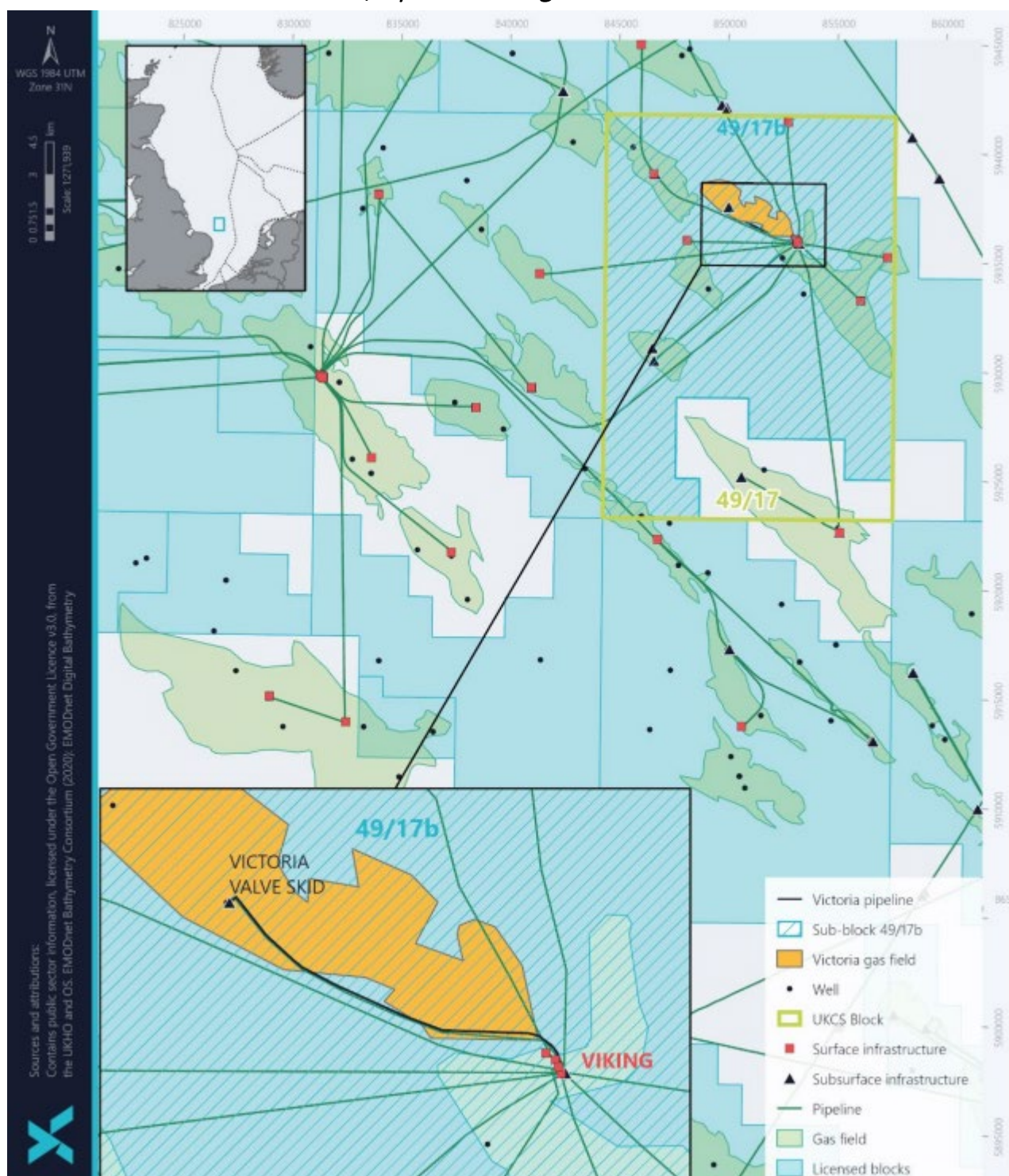


Figure 1 Field Location

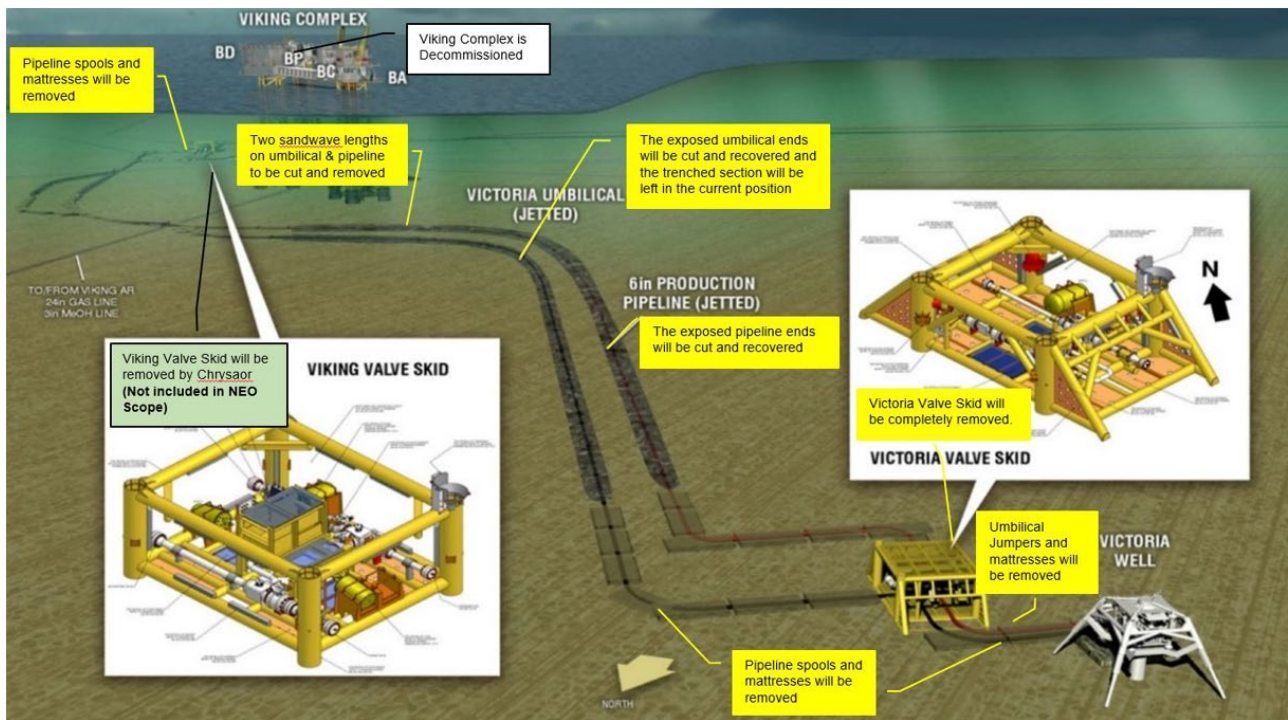


Figure 2 Schematic of Victoria Field Showing Decom Scope.

1.3 Project Delivery against the Approved Schedule

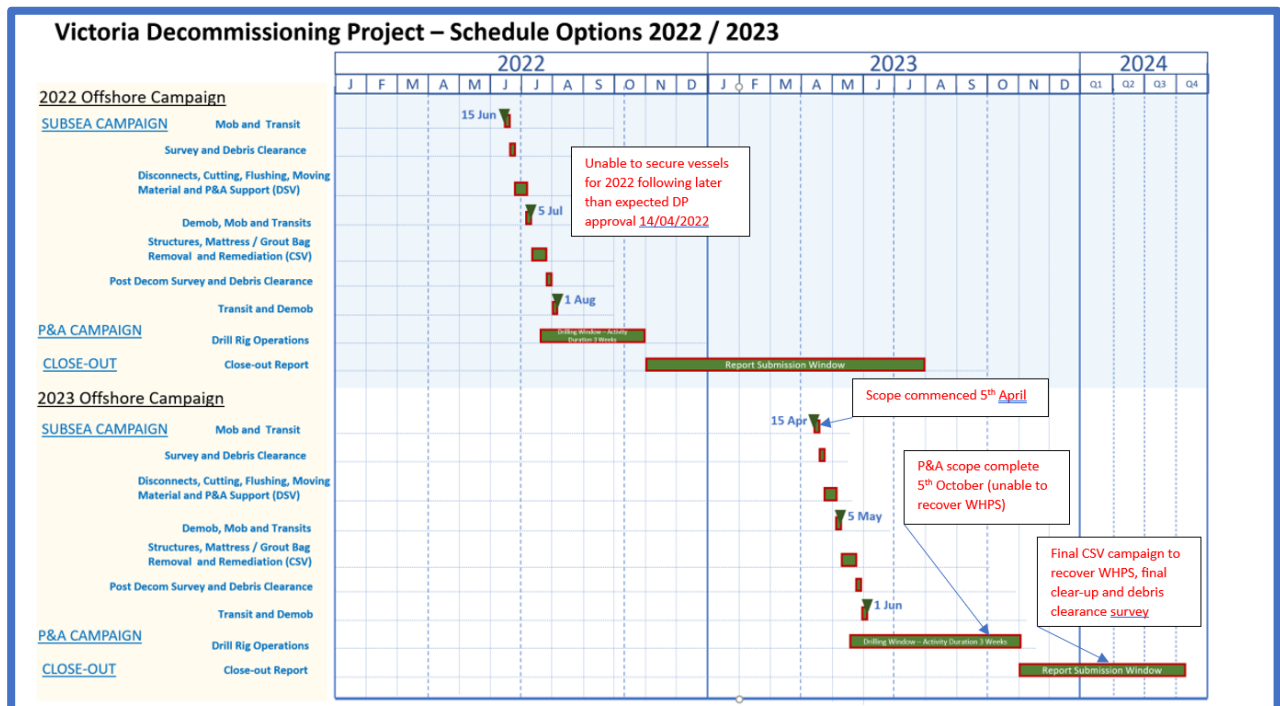


Figure 3 Victoria Decom Schedule from the Approved DP

1.4 Associated Decommissioning Approvals

Table 1.7: Associated Decommissioning Approvals	
Subsea Well P&A	NSTA WONS Approval July 2023 (WONS/15277/0/AB3/1) Commenced August 2023, Completed October 2023
Topside removal	N/A
Pipeline Preparatory works	N/A
PWA	Authorised by NSTA March 2023 (3/W/08 – PA/4936) PL2526 Flush and remove structure, tie-in spools, and cut at pipeline end trench transitions. PLU2527 Flush, remove jumpers, and cut at umbilical end trench transitions.
Oil Discharge Permit	Oil Discharge Permit (OTP/1357/0) – Approved by OPRED 10th March 2023. For discharge at Victoria pipeline end at the Valve Skid during flooding and seawater flushing operations.
Chemical Permit	Chemical Permit (CP/3088/0) – Approved by OPRED 5th April 2023. Barrier testing at xmas tree and umbilical flushing cores 1 – 10.
Marine Licence	Marine Licence (ML/955/4) – Approved by OPRED 5th April 2023. Updated October, November and December 2023 to cover wet storage of Victoria Valve Skid pile stubs and Mattresses, utilise an additional vessel to recover wet stored items and to extend the end date of the Marine Licence to 15th April 2024 due to vessel availability issues. ML return submitted 15th May 2024. Marine Licence ML/1006/0 approved by OPRED July 2023 to cover the P&A by three60 including WHPS removal with additional variations raised August, September, October, November and December 2023 to recover the wet stored WHPS.

2 DECOMMISSIONING ACTIVITIES

2.1 *Contracts Awarded*

Table 2.1: Contracts Awarded
Subsea Decommissioning Contract – Awarded to Boskalis November 2022 Subsea Well P&A Contract – Awarded to Valaris April 2023 Subsea Decom WHP structure removal and final clear-up (including environmental survey) – Awarded to Mermaid October 2023

2.2 *Platform Operations*

Table 2.2: Platform Decommissioning
N/A

2.3 *Well P&A*

Table 2.3: Well Decommissioning			
Well	Designation	Status and Date Of Abandonment	Category of Well
49/17-14	Gas Producer	<i>Abandoned Phase 3 05/10/2023</i>	SS 0-0-0

2.4 *Subsea Installations*

Table 2.4: Subsea Installations Decommissioning			
Description	Agreed Decom Solution	Total Removed (Actual) and Date of Removal	Status
WHPS	Removal (1)	1 removed 21/03/2024	Removed
Valve Skids	Removal (1)	1 removed 30/06/2023	Removed

2.5 Pipelines/Umbilicals & Jumpers

Table 2.5: Pipelines/Umbilicals & Jumpers Decommissioning			
PL Number	Description	Agreed Decom Solution and Date of Removal	Status with lengths in kms removed and left in situ
PL2526	Gas Production Pipeline	Leave in situ. Recover exposed sections at ends and sandwaves.	0.587km removed 3.416km left in situ
PLU2527	Umbilical	Leave in situ. Recover exposed sections at ends and sandwaves.	0.607km removed 3.515km left in situ
AR Crossing	Mattressed crossing - PL2526 & PLU2527 over third party pipelines PL88/PL134	Leave in situ the PL2526/PLU2527 pipeline crossing over 3rd party Viking AR pipelines (PL88, 24" gas pipeline and PL134, 3" MeOH pipeline)	Left in situ.

2.6 Subsea Stabilisation Features

Table 2.6: Subsea Stabilisation Features Decommissioning		
Description	Agreed Decom Solution and Date of Removal	Status
15 Concrete Mattresses (Victoria trench transition)	Leave in situ	Not found***
45 Concrete Mattresses (Victoria)	Removal	43 removed, 2 not found.
13 Fronded Concrete Mattresses – at Victoria wellhead	Removal	13 removed (not fronded)**
Grout Bags – 6t	Removal	443t Removed*

*6t of grout bags was recorded on the DPRs from the original subsea infrastructure installation. However, during decommissioning several hundred tonnes of grout was discovered around the wellhead underneath the mattresses. The most likely explanation is that the grout was used as wellhead scour rectification before the commencement of the subsea installation scope. All of the grout bags were recovered and recycled.

**The 13 mattresses around the wellhead were thought to be fronded, however, on recovery and inspection they were found to be standard concrete mattresses.

***There was no evidence, during the excavation of the umbilical trench transition, of the 15 mattresses agreed to be left in situ. The 15 mattresses believed to be at this location were unlikely to have been installed.

2.7 Pipeline Stabilisation Features

Table 2.7: Pipeline Stabilisation Features Decommissioning		
Description	Agreed Decom Solution and Date of Removal	Status
45 Concrete Mattresses (at approach to Viking Valve Skid)	Removal	45 removed
45 Concrete Mattresses –AR crossing	Leave in situ	Left in situ

2.8 Drill Cuttings

Table 2.8: Drill Cuttings Decommissioning		
Description & Volume (m3)	Agreed Decom Solution and Date of Removal	Status
N/A	N/A	N/A

2.9 Results of Post Decommissioning & Environmental Surveys & Debris Clearance

Table 2.9: Environmental Surveys & Debris Clearance
A post-decommissioning environmental survey and habitat assessment has been undertaken at the Victoria field by Benthic Solutions Limited (BSL), on behalf of NEO Energy (SNS) Limited, aboard the MV Island Valiant vessel between the 2nd and 29th March 2024 (BSL, 2024). A total of six environmental stations, with collocated 50m camera transects, were sampled across the survey area using a Dual Van Veen grab (Figure 1). At each environmental station, four grab samples were acquired, one for physico-chemical and three for macrofaunal analysis. All macrofaunal samples were processed in the field over a 1000µm sieve for taxonomic review. A geophysical survey, utilising Work-class Remotely Operated Vehicle-mounted side scan sonar (SSS), was also conducted during the post-decommissioning environmental survey across the Victoria 500m zone to aid with environmental habitat mapping. Historical insight into the Victoria area was provided by an environmental baseline survey report carried out by Gardline (2007) along the nominal route corridor between the LX Well and the Viking Bravo platform. Environmental data was collected at three grab sampling locations along the route corridor and two of the station locations were directly comparable to the post-decommissioning survey. The seabed within the Victoria area was relatively flat, with water depths across the site ranging from 20m to 25m below the lowest astronomical tide (LAT). The SSS data indicated low to moderate reflectivity across most of the Victoria survey area with lower reflectivity areas relating to ambient sandy substrate with sand ripples. Areas of high reflectivity observed near the wellhead were associated with gravel and cobbles, and were described as areas of 'Scattered Rock' (i.e., rock dump), coinciding with the rock placed on the seabed in 2008 to provide support to the Ensco 100 jack-up rig (Inosys, 2022).

The results of particle size analysis indicated a dominance of sand (>93.5%) with minimal gravel (<6.5%) and 0% fines (see Table 1), reflecting the hydrodynamically active conditions of the surface sediments as evidenced by the presence of sand ripples and sandwaves. A majority of stations were classed as 'Sand' with only a single station (S1_A) classed as 'Slightly Gravelly Sand' and another station (S3) as 'Gravelly Sand' on the Folk scale. Due to the absence of fine material across the site, the proportions of gravel and sand were inversely proportional. The variable proportion of gravel across the site was visually correlated with the variable proportion of surface shell fragments, rather than the influence of drilling activity at the Victoria well. The historical Gardline (2007) survey corroborates this conclusion.

Total hydrocarbon content (THC) was relatively low ($2.40\text{mg.kg}^{-1} \pm 1.36\text{SD}$) throughout the survey area with just a single station S1_A exceeding the UKOOA 50th percentile threshold for the SNS (Table 1); however, no stations were above the upper UKOOA 95th percentile threshold.

Similarly, total n-alkane concentrations were relatively low ($0.08\text{mg.kg}^{-1} \pm 0.05\text{SD}$) and no stations exceeded the UKOOA 50th percentile for the SNS (Table 1). Gas chromatographic traces revealed hydrocarbon signatures indicative of those typically observed for background sediments in the SNS (i.e., diffuse shipping discharges) with no evidence of drilling related hydrocarbons. Total PAHs levels were also relatively low ($30.9\mu\text{g.kg}^{-1} \pm 21.4\text{SD}$) with most stations above the UKOOA 50th percentile (Table 1); however, similarly to THC no stations exceeded the UKOOA 95th percentile. It was therefore concluded that the Victoria survey area is influenced by hydrocarbon concentrations indicative of ambient background conditions for this region of the SNS. The historic Gardline (2007) survey corroborates the findings of the current survey and indicates the hydrocarbon parameters measured across the Victoria survey area reflect ambient SNS conditions.

Barium in the form of barite is a weighting material used to increase the density of drilling muds and can contain measurable concentration of heavy metals as impurities, including cadmium, chromium, copper, lead, mercury, and zinc (NRC, 1983; McLeese *et al.*, 1987). Barium concentrations were above the UKOOA 50th percentile of 26.0mg.kg^{-1} across all stations; however, no stations exceeded the UKOOA 95th percentile of 272mg.kg^{-1} (Table 1). Barium concentrations were not significantly correlated ($p > 0.05$) to any sediment characteristic or hydrocarbon parameters, and barium by fusion, which more accurately quantifies the barite form used in drilling fluid, were relatively low and consistent across the survey area (mean: $367\text{mg.kg}^{-1} \pm 51.6\text{SD}$). Arsenic was the only metal elevated above the NOAA effect range low reference value (with a maximum of 52.3mg.kg^{-1} at S3; Table 1), but previous studies have found comparably high levels of arsenic within the SNS due to historic industrial discharge from the Humber Estuary. Therefore, similarly to the hydrocarbons, the heavy metal concentrations reflect background conditions for this area of the SNS and corroborate the ambient loading of heavy metals from diffuse sources (i.e., shipping activity). Similar levels of metal concentrations were found across both the 2007 survey and the post-decommissioning survey, further indicating that metal concentrations were consistent with background levels for this region of the SNS.

Macrofaunal analysis across the Victoria site revealed a total of 440 individuals (infauna and solitary epifauna) from the 12 samples analysed. Of the 41 taxa recorded, three were colonial epifauna and the remaining 38 were infaunal (which includes solitary epifauna), with 18 species of annelid accounting for 51.8% of the total individuals. The composition of the most numerically dominant taxa, including *Ophelia borealis*, *Bathyporeia pelagica*, *Urothoe brevicornis*, *Echinocardium cordatum* and *Spiophanes bombyx* remained similarly abundant between the 2007 survey and the post-decommissioning survey, with the exception of bristleworm *Ophelia borealis* which displayed a higher abundance during the 2024 survey. The species richness, abundance and diversity results for the 2024 survey revealed a minimally diverse macrofaunal community with high/good ecological status (see Table 2). The variation in macrofaunal community structure across the Victoria site was concluded to reflect natural variation in species composition due to the low concentrations of hydrocarbons and heavy

metals. This conclusion was corroborated by a single annelid species, *Ophelia borealis*, which had disproportionately influenced the macrofaunal community.

A seabed clearance survey was performed by Mermaid/Andrews Survey and witnessed by NEO's offshore representative. NEO Energy is satisfied that Mermaid and Andrew's Survey have the necessary expertise and competence to perform the survey. Additionally, the sonar survey results were verified by ROV visual spot inspections and witnessed by NEO's representative offshore. At the time of inspection, the Victoria field is clear from debris, obstructions, snag hazards and is safe for other users of the sea.

	SEABED CLEARANCE SURVEY REPORT	Doc No.	PRJ-FRM-002
		Rev:	01
		Page No	1 of 13

Location:	Victoria 500m Zone	
Coordinates:	Lat:	Long:
	E: 452 496.91	N: 5 294 064.84
Client:	NEO Energy	
Date of Survey:	1 st – 2 nd April 2024	
Vessel:	Island Valiant	
Water Depth:	23m	
Distance of Survey from Location:	500m	
Details of Survey:	ROV Seabed Survey following removal of final debris (WPS, grout and concrete mattresses) at the Victoria Well location.	
Method of Survey:	Side Scan Sonar Survey and As-left Visual Survey	

Confirmation that Seabed Clearance Survey conducted:

This is to certify that after completing a seabed survey to a distance of 500m radius from the well centre, there appeared to be NO major items of debris visible on the seabed.

The seabed survey was carried out by ROV using camera / sonar and navigation systems.

2.10 Key Milestones

Table 2.10: Key Milestones
<u>2024 Offshore Campaign</u> - CSV2 (Island Valiant) 14th March – 4th April 2024, WPS recovery, mattress and grout recovery, post decom survey. <u>2023 Offshore Campaigns</u> - DSV (Boka Polaris) April-May 2023, Tree prep, flushing & cutting operations. - CSV1 (Boka Ocean) July–Aug 2023, Valve Skid removal, removal of wet-stored items & sand wave remediation. - Rig (Valaris Norway) 14th Aug – 5th Oct 2023, Well P&A, tree and wellhead removal.

2.11 Stakeholder Engagement

Table 2.11: Stakeholder Engagement		
Who	Comment	Response
Informal Stakeholder Consultations		
Centre for Environment, Fisheries and Aquaculture Science (CEAFS)	Letter sent in December 2017 soliciting comments and questions, informing the organisation of the proposed decommissioning project and an overview of the field and decommissioning programme	No response
Joint Nature Conservation Committee (JNCC)		No response
Ministry of Defence (MOD)		No response
Marine Management Organisation (MMO)		No response
Statutory Consultations		
National Federation of Fishermen's Organisation (NFFO)	Letter sent in December 2017 soliciting comments and questions, informing the organisation of the proposed decommissioning project and an overview of the field and decommissioning programme	No response
	Teleconference held on 26 April 2018 with NFFO. Their concerns are with future risk to beam trawlers from pipeline and crossing left in situ. NEO should demonstrate that these areas do not pose a risk to fishing vessels. NFFO expects that these areas will be periodically surveyed	NEO will ensure that any infrastructure left in situ doesn't pose a snag hazard to other sea users. Appropriate monitoring will be set in place as well as Notices to Mariners
	Formal consultation	
	Scottish Fishermen's Federation (SFF)	Formal consultation
Northern Ireland Fish Producers Organisation	No response	
Global Marine Systems	Formal consultation	No response
Public	Formal consultation	No response

2.12 Variance from the Approved Decommissioning Programme

Table 2.12: Variance from Approved Decommissioning Programme
Description
N/A

3 IMPACT ON ENVIRONMENT

3.1 Activities

One PON1 event occurred following deployment of a Control Flow Excavator approximately 15-20L of Aztec BIO46 hydraulic fluid was lost to sea. Investigations confirmed a hose rupture in the outer sheath and the hose had been kinked. Following the investigation equipment deployment arrangements were altered (length of free hose) to provide greater support for hose MBR during deployment and initial start-up of the unit. (PON1 – IRS/2023/3061/PON1)

Push pull stick was temporarily stored by the handrail. As a result of poor placement next to handrail, push pull stick fell to deck and slipped through the handrail to sea. Stand by boat FRC was launched in order to try to recover the item, but due to the size and position in the water it could not be located and retrieved. PON2 submitted. (PON2 – IRS/2023/3373/PON2)

3.2 Future Monitoring

Table 3.1: Future Surveys and Monitoring Proposals
1. Substructures (Jackets)
N/A
2. Pipelines, Flowlines & Umbilicals
NEO Energy propose a ROV visual survey in 2025 of the following locations: Well top hole (cut 3m below MSL, Valve Skid (piles cut 3m below MSL), pipeline/umbilical ends (cut 1m below MSL at trench transitions), Sandwave 5 & 6 (sections at risk of exposure removed), AR crossing (decommissioned in situ). The results of the 2025 survey will determine future survey requirements.
3. Pipeline Stabilisation Features
All pipeline stabilisation features have been removed except for 45 Mattresses at the AR crossing. The AR crossing will be surveyed in 2025 and the condition will determine future survey and/or remediation requirements.
4. Drill Cuttings
N/A
5. Environmental Surveys
NEO Energy do not propose to perform any future environmental sampling or monitoring based on the results of the 2024 post decom survey which showed no environmental impact from the operational or decommission phase of the Victoria subsea well and pipelines. <i>OPRED has confirmed that it does not require NEO to conduct any further Environmental Surveys in respect of the Victoria DP project.</i>

4 IMPACT ON HSE

4.1 Details of any Incidents / Accidents during Project Execution

- **27/09/23 - WHPS disengaged from the wellhead during lift in water column.**
- Event Description:
To reduce the complexity of the recovery operations, a strategy to recover the WHPS, wellhead & tree as a single lift had been engineered. This required the WHPS to remain engaged onto the wellhead during the lift. However, during the recovery the WHPS disengaged from the wellhead and sank back to the seabed. There was no other infrastructure remaining in the area. The WHPS Assembly landed approximately 2m from the original location at the well centre. An ROV survey of the WHPS was carried out which reported that there was no clear visible damage to the WHPS and that its position was on top of one of the mats adjacent to the Victoria well location. This allowed the well P&A to continue and be completed. The WHPS was successfully recovered at a later date.

4.2 WASTE

Table 5.1: Materials/Waste Returned to Shore				
Material/Waste	Total Weight (t) – as per the approved DP	Tonnage In situ	Tonnage to shore (including date)	Disposal Method
Installations (WHP, Valve skid, piles)	102t	0	120t to shore between Q2 2023 and Q2 2024*	Transported to Thompsons and Armultra for reuse/recycling
Steel - Pipelines	199t	167t	32t returned to shore Q2 2023	Steel transported to Thompsons for recycling
Concrete (mattresses and grout)	658t	202t (45 mattresses at AR crossing)	904t to shore between Q2 2023 and Q2 2024	Transported to Thompsons, Augean and Armultra for reuse/recycling
Umbilical	71t	60t	11t returned to shore Q2 2023	Transported to Thompsons for reuse/recycling
Total	1030	429	1067	-

*The weight of recovered items is the weight as measure by the vessel crane or at the disposal contractor which is often greater than the design weight (as reported in the DP) primarily due to variance in the as-built steel wall thickness. In addition, soil adhesion and marine growth can affect the measured weight of recovered items.

Victoria Decom Waste Summary

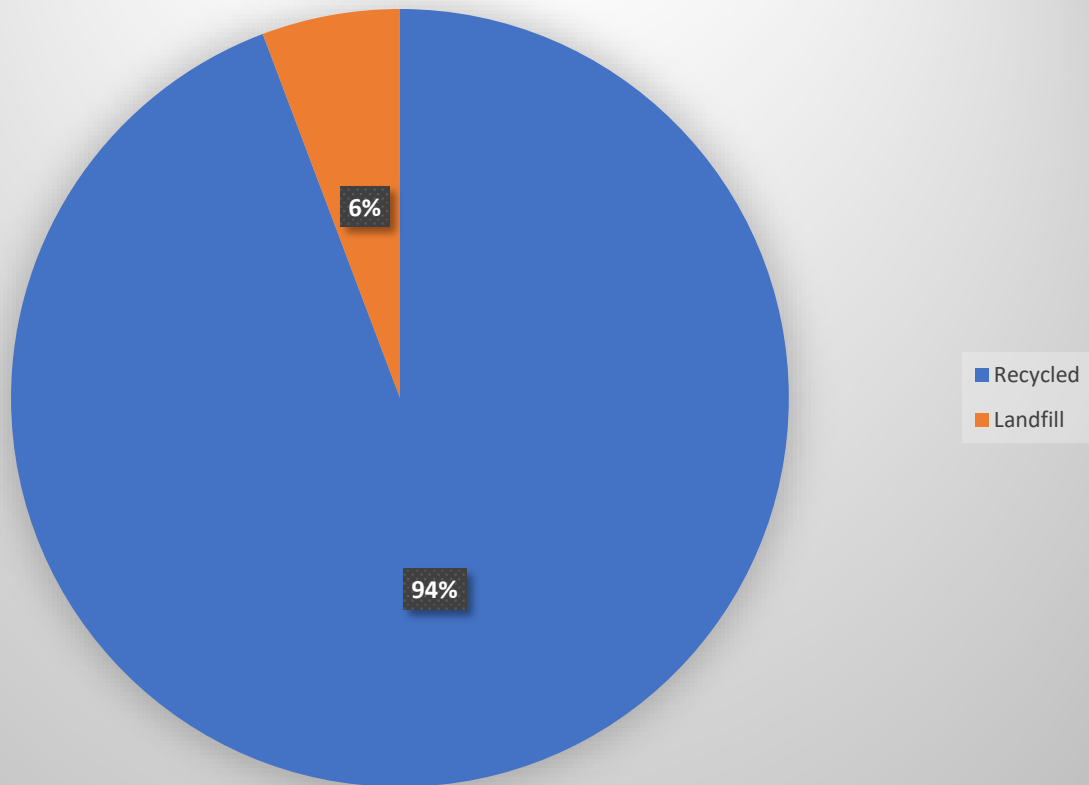


Figure 4 Victoria Decom Waste Summary

5 LESSONS LEARNED

What Happened?	Causes	Lessons
Reservoir recharging and gas migration into pipeline, umbilical and valve skid was correctly identified and managed during DSV & P&A operations.	Highlighted early in project and included in all scope of works and risk assessments.	Reservoir recharging and gas migration to be included in risk register for all subsea decom projects
Universal running tool initially not available for P&A scope.	Only two in existence and both were on hire to another operator.	Identify tooling early and place contract with supplier for manufacture or refurbishment and maintenance if required.
During the recovery of the Tree/Wellhead/WHPS, the WHPS disengaged from the wellhead in the water column and sank back to the seabed	The attachment system between the wellhead and the WHPS failed.	Consider worst case condition for legacy systems and implement appropriate mitigations.

6 COST SUMMARY

Decommissioning costs have been provided to OPRED separately to this report

7 PHOTOGRAPHS



Figure 5 Victoria WHP Structure



Figure 6 Victoria Valve Skid

Grout bag recovery at Victoria Well location

- Grout bags were recovered using a 20Te boulder grab and placed into debris baskets on the seabed
- ROV mounted sonar used to locate bags when visibility was poor
- Each grab was recorded on the nav screen

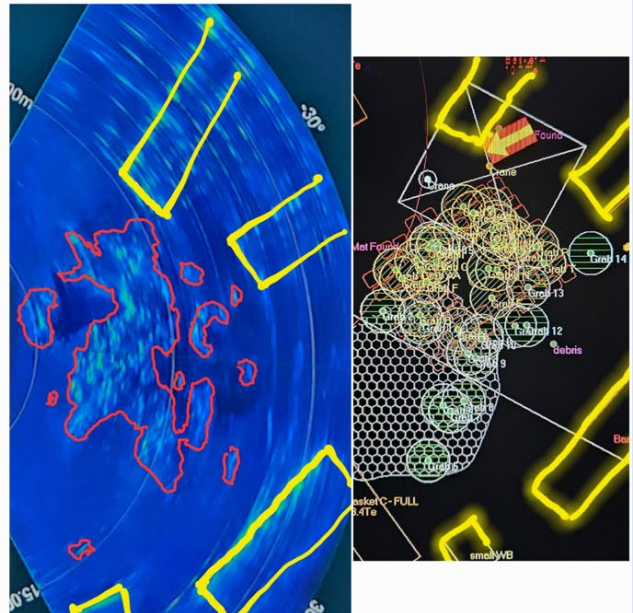
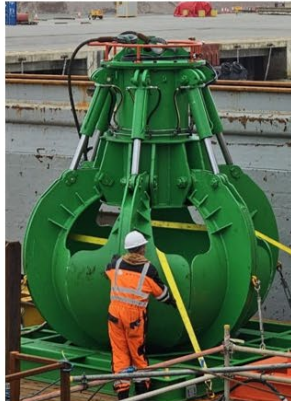


Figure 7 Grout Bag Recovery at Victoria



Figure 8 Selection of Recovered Mattresses, Umbilical and Pipe



Figure 9 Fishing gear recovered from Viking end 2023

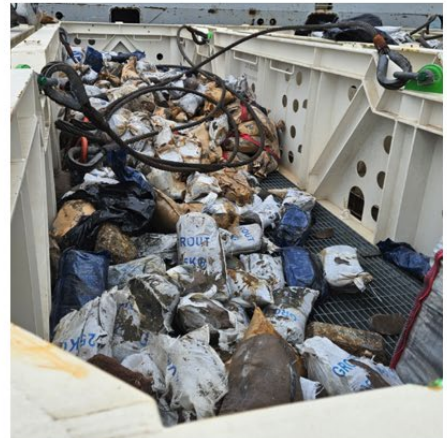
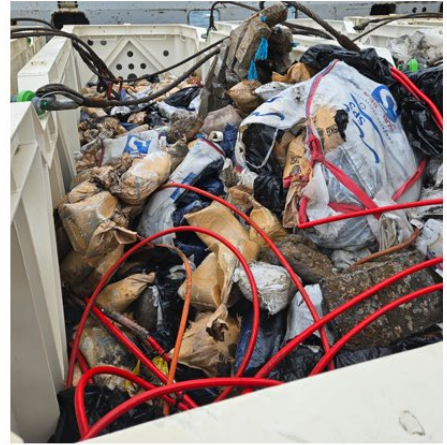


Figure 10 Selection of Recovered Mattresses and Grout

8 APPENDICES

8.1 Progression of Decom Scope at Victoria and Viking Locations

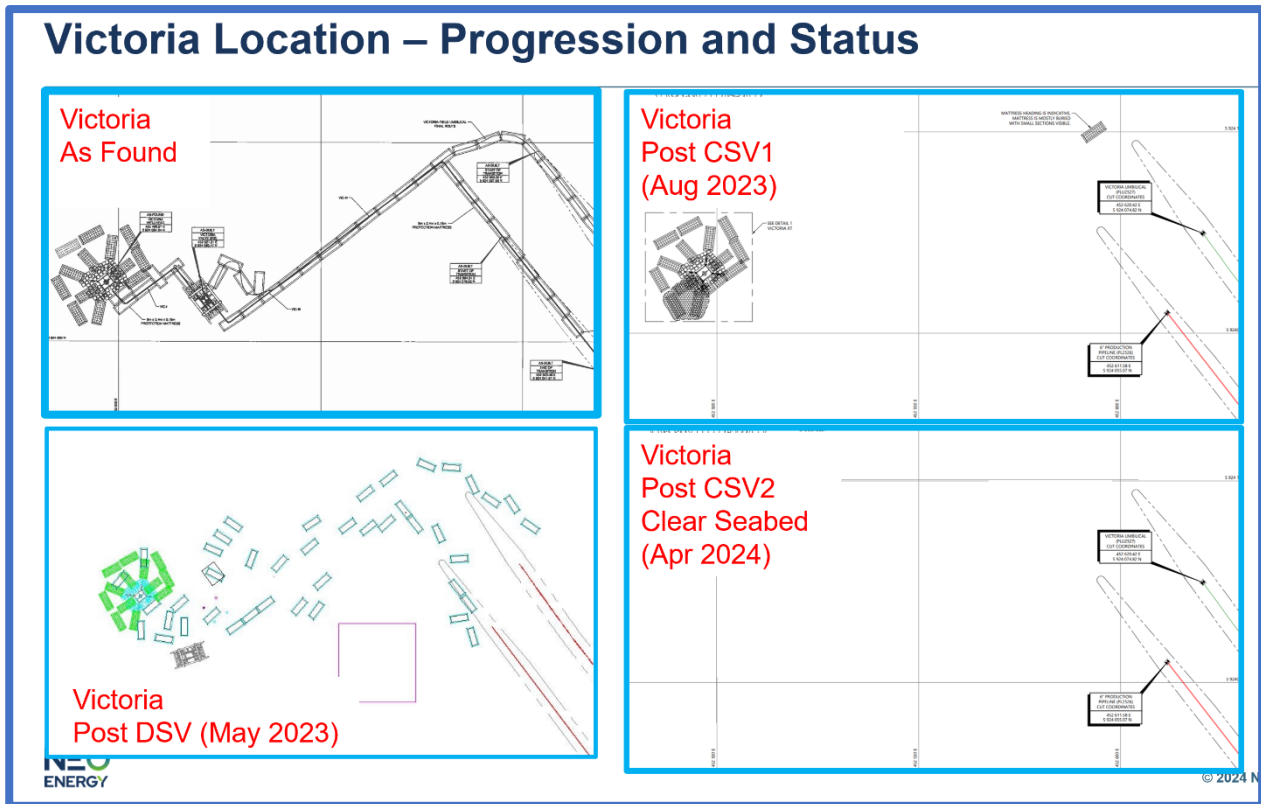


Figure 11 Victoria Decom Progression at Well Location

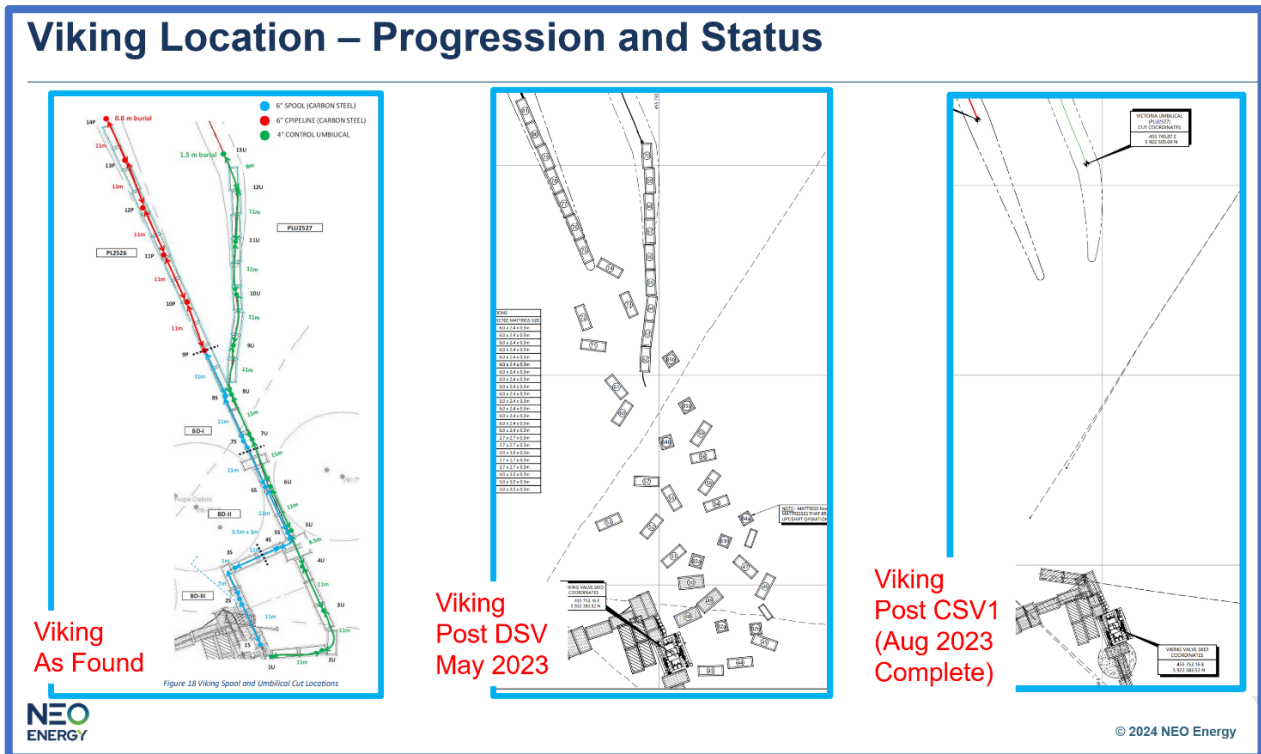


Figure 12 Victoria Decom Progression at Viking End

8.2 Sandwave Remediation

As Left – Sandwave 5

- Sections of pipeline and umbilical removed in 2023 to prevent future exposures from sandwave movement.
- 65m of umbilical removed from the exposure risk side of the sandwave.
- 79m of Pipeline removed from the exposure risk side of the sandwave (26m removed from the “leeward” side)
- 2024 survey confirmed no exposures

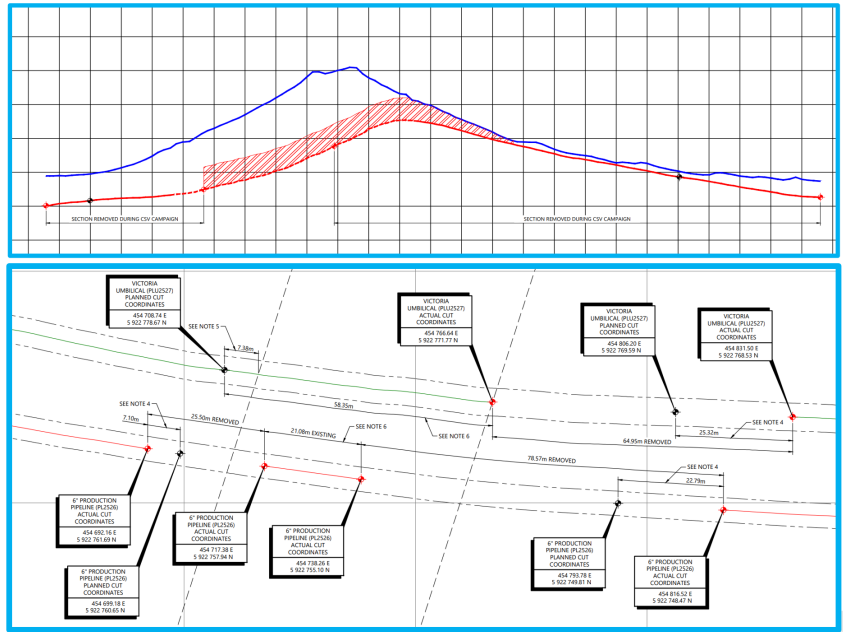


Figure 13 Sandwave 5 Remediation

As Left – Sandwave 6

- Sections of pipeline and umbilical removed in 2023 to prevent future exposures from sandwave movement.
- 90m of umbilical removed from the exposure risk side of the sand wave.
- 100m of pipeline removed from the exposure risk side of the sandwave. (7m removed from the “leeward” side)
- 2024 survey confirmed no exposures

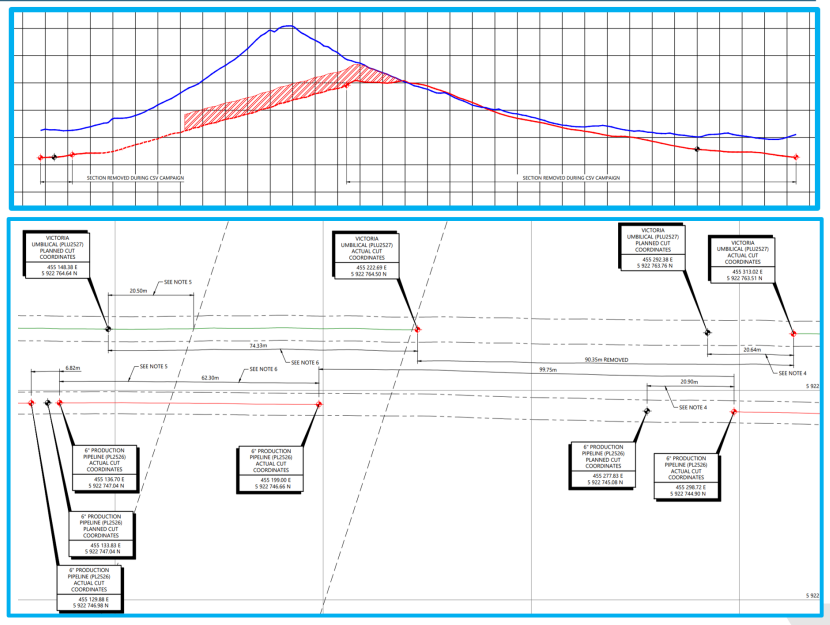


Figure 14 Sandwave 6 Remediation

8.3 Post Decom Survey Scopes

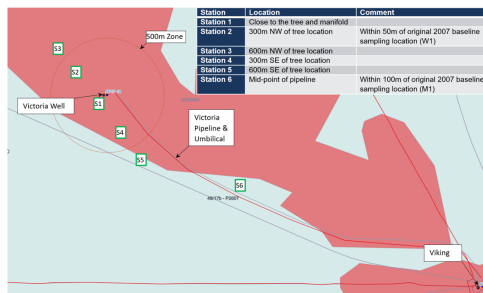
Survey Scope 2023 & 2024

2024 Survey Scope

1. Victoria 500m zone clear seabed survey using ROV mounted side scan.
2. Environmental sampling and photographs at 6 sampling stations. (4 samples per station)
3. ROV visual at pipeline/umbilical ends and at sandwave 5 & 6 to confirm no exposures
4. ROV visual at AR crossing (the only section where mattresses are decommissioned in situ)

2023 Survey Scope

1. 100m wide pipeline MBES debris survey, fishing debris, metallic debris and groutbags removed.
2. Depth of burial using pipe tracker of sand waves 4, 5 & 6
3. ROV visual



NEO ENERGY 2024 Post Decom Environmental Survey

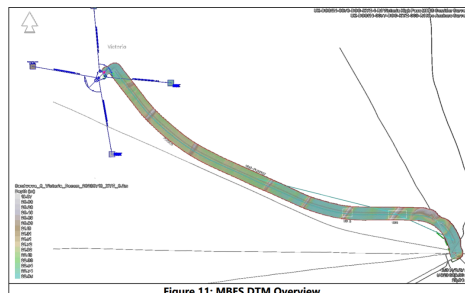
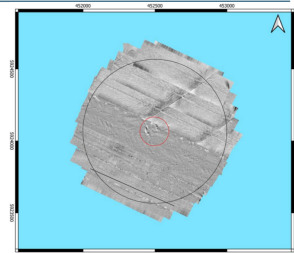


Figure 11: MBES DTM Overview
2023 MBES Pipeline Debris Survey



2024 500m Zone Debris Survey



Debris recovered from Viking end 2023

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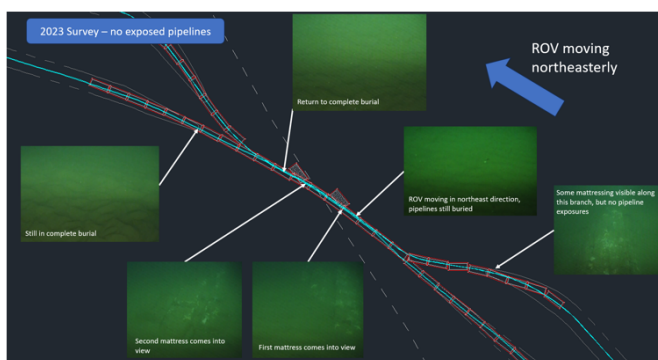
13

Figure 15 Post Decom survey scopes 2023 and 2024.

AR Crossing

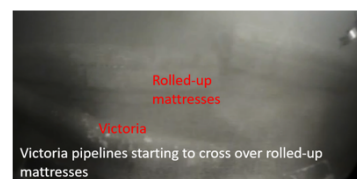
The AR crossing is located in the Viking 500m zone and consists of 45 mattresses laid over the Victoria pipeline and umbilical as it crosses the Viking AR pipelines (PL88, 24" gas pipeline and PL134, 3" MeOH pipeline)

- The 2023 survey indicated no pipeline exposures, and the majority of the mattresses buried.
- The 2024 survey shows some small sections of pipeline exposed and the majority of the mattresses buried.



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2024 Survey - small section of Victoria pipeline/umb exposed



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Figure 16 AR Crossing ROV Survey 2023 and 2024

8.4 Seabed Clearance Survey Report

 MERMAID	SEABED CLEARANCE SURVEY REPORT	Doc No.	PRJ-FRM-002
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Location:	Victoria 500m Zone	
Coordinates:	Lat:	Long:
	E: 452 496.91	N: 5 294 064.84
Client:	NEO Energy	
Date of Survey:	1 st – 2 nd April 2024	
Vessel:	Island Valiant	
Water Depth:	23m	
Distance of Survey from Location:	500m	
Details of Survey:	ROV Seabed Survey following removal of final debris (WPS, grout and concrete mattresses) at the Victoria Well location.	
Method of Survey:	Side Scan Sonar Survey and As-left Visual Survey	

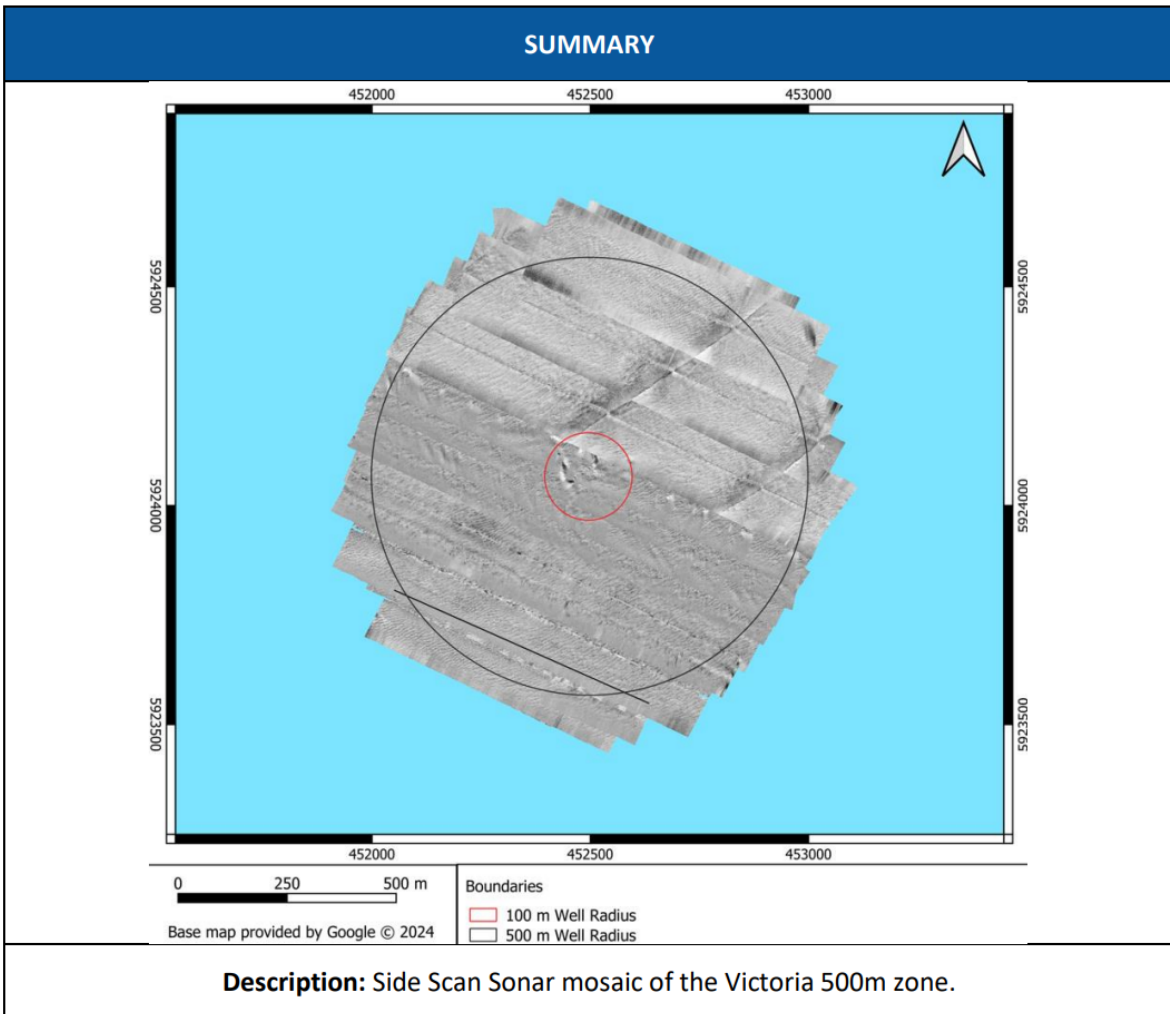
Confirmation that Seabed Clearance Survey conducted:

This is to certify that after completing a seabed survey to a distance of 500m radius from the well centre, there appeared to be NO major items of debris visible on the seabed.

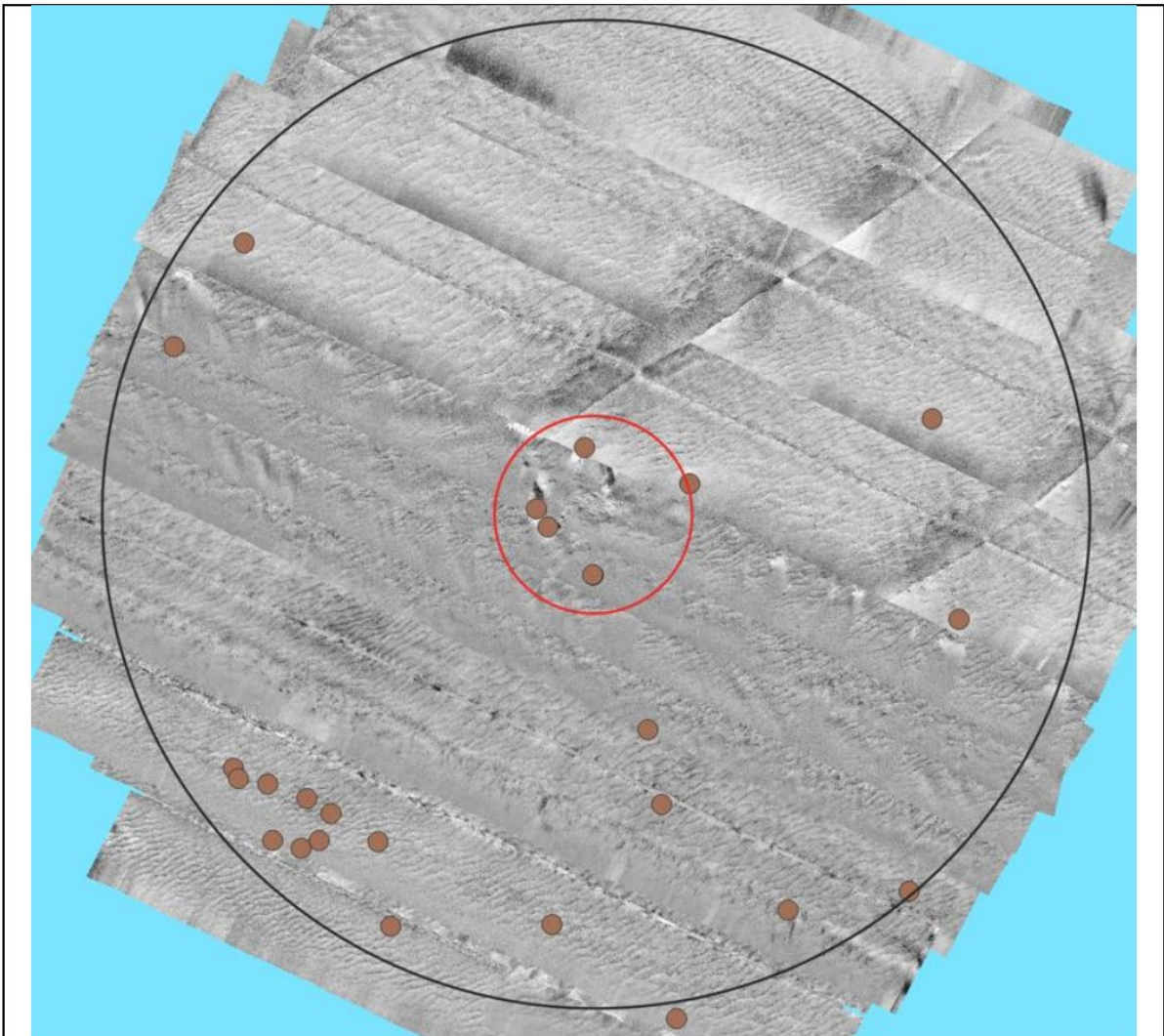
The seabed survey was carried out by ROV using camera / sonar and navigation systems.

Signatures:			
Adam Bellamin		NEO Energy	2-4-24
PRINT Name	Client Representative Signature	Company	Date
Arthur Ferguson		Andrews Survey	2-4-24
PRINT Name	ROV / Survey Representative Signature	Company	Date
Charlie Jordan		Mermaid Subsea Services	2-4-24
PRINT Name	MSS-UK Representative Signature	Company	Date

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Description: Side Scan Sonar mosaic of the Victoria 500m zone, with targets plotted. The targets were categorised as either “Low Confidence” or “Medium Confidence”.

The table below lists the targets identified during the SSS survey.

- Low Confidence – the lines highlighted green were low confidence targets, meaning the SSS had identified an anomaly during one pass, but not on the return pass. With agreement of the Client Rep, 6 of the 21 low confidence targets (25%) were investigated.
- Medium Confidence – the lines highlighted yellow required further investigation as they had appeared on more than one pass during the SSS survey. All medium confidence targets were investigated.

The target criteria were set as per MOC-006.

Target Name	Easting	Northing	Investigated	Comments
Contact 1	452277.7417	5923735.765	Yes	Clear seabed
Contact 2	452438.1415	5924072.585	Yes	Small scattered rock pile
Contact 3	452449.9581	5924054.197	Yes	Small scattered rock pile
Contact 4	452071.1048	5924236.678		
Contact 5	452564.899	5923773.491		
Contact 6	452692.8409	5923666.757		
Contact 7	452131.4218	5923810.282		
Contact 8	452136.5182	5923799.658		
Contact 9	452166.1571	5923794.151		
Contact 10	452205.723	5923779.522	Yes	Clear seabed
Contact 11	452218.1685	5923737.045	Yes	Clear seabed
Contact 12	452230.2537	5923764.313		
Contact 13	452290.626	5923650.292		
Contact 14	452453.8084	5923652.028		
Contact 15	452580.146	5923556.744		
Contact 16	452199.9603	5923729.2	Yes	Clear seabed
Contact 17	452171.168	5923737.164	Yes	Clear seabed
Contact 18	452815.548	5923685.647		
Contact 19	452865.9925	5923960.834		
Contact 20	452495.7573	5924005.565	Yes	DP Beacon (recovered)
Contact 21	452495.1226	5924005.996	Yes	DP Beacon (recovered)
Contact 22	452551.0264	5923849.218	Yes	Clear seabed
Contact 23	452142.1248	5924341.819		
Contact 24	452838.7764	5924163.657		
Contact 25	452593.438	5924098.047	Yes	Concrete mattress block (recovered)
Contact 26	452486.9215	5924134.692		

Description: Target List identified during SSS survey.

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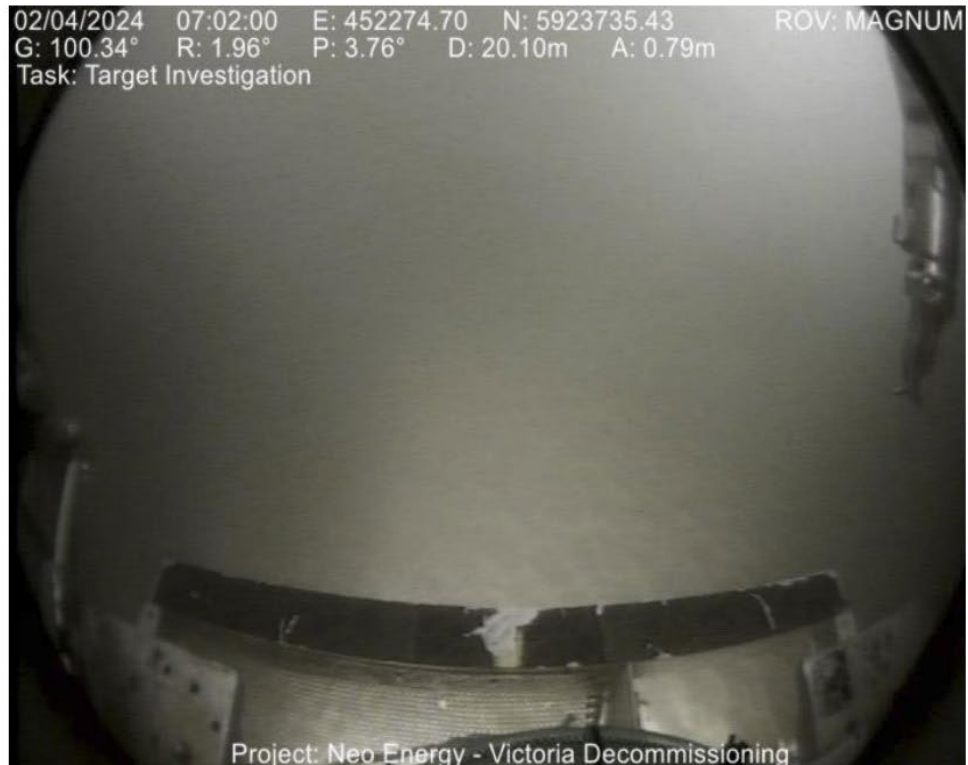


Image 1: Contact 1 – Clear Seabed

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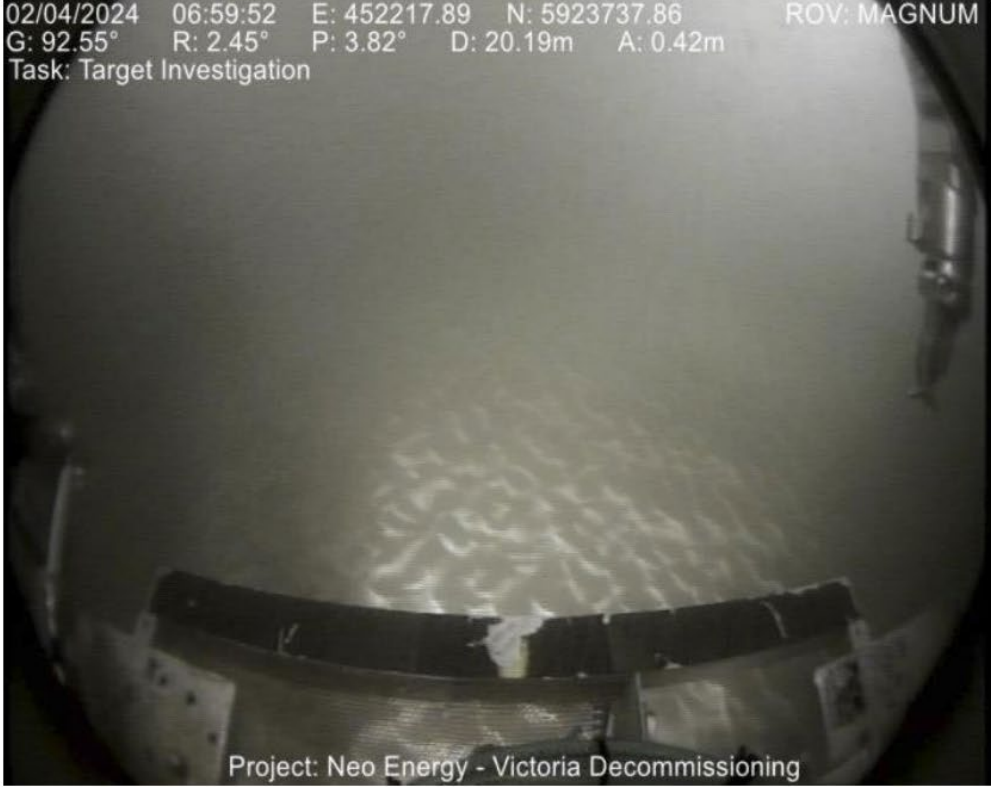


Image 2: Contact 10 – Clear Seabed

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02/04/2024 06:59:52 E: 452217.89 N: 5923737.86 ROV: MAGNUM
G: 92.55° R: 2.45° P: 3.82° D: 20.19m A: 0.42m
Task: Target Investigation



Project: Neo Energy - Victoria Decommissioning

02/04/2024 06:59:51 E: 452217.52 N: 5923737.57 ROV: MAGNUM
G: 99.74° R: 0.88° P: 2.74° D: 20.15m A: 0.36m
Task: Target Investigation



Project: Neo Energy - Victoria Decommissioning

Image 3: Contact 11 – Clear Seabed

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Image 4: Contact 16 – Clear Seabed

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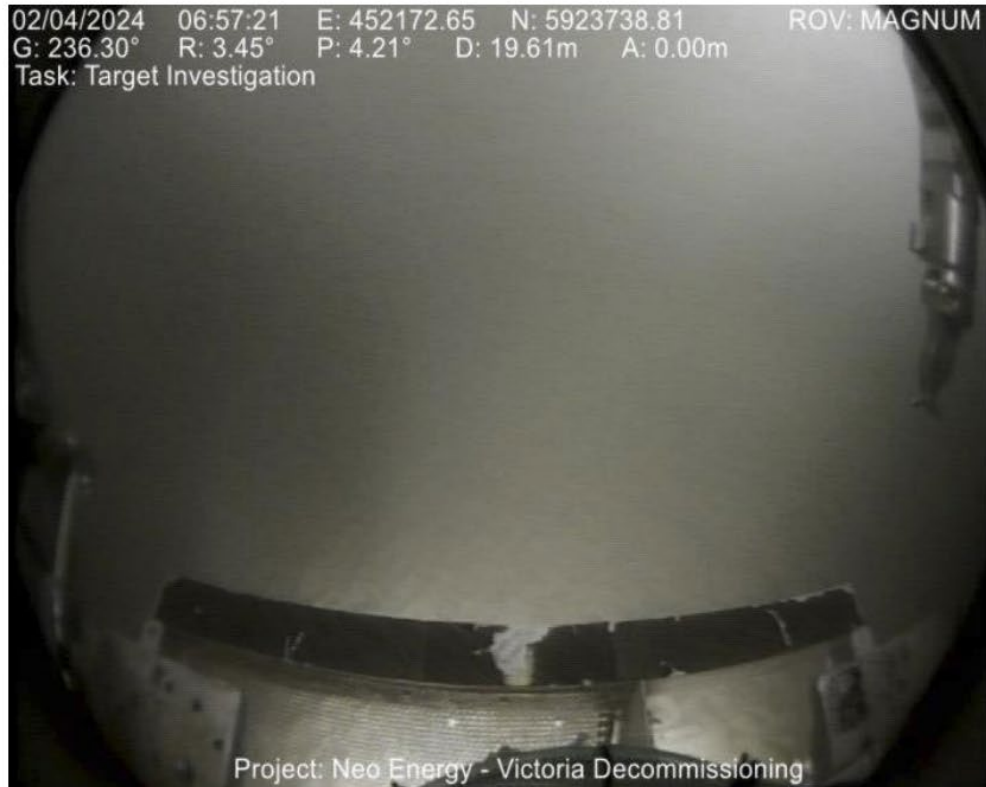


Image 5: Contact 17 – Clear Seabed

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Image 6: Contact 22 – Clear Seabed

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02/04/2024 05:11:44 E: 452438.64 N: 5924072.07 ROV: MAGNUM

G: 348.30° R: 7.27° P: 3.40° D: 22.37m A: 19.40m

Task: Side Scan Sonar Target Investigation



Project: Neo Energy - Victoria Decommissioning

02/04/2024 05:11:44 E: 452438.64 N: 5924072.07 ROV: MAGNUM

G: 348.30° R: 7.27° P: 3.40° D: 22.37m A: 19.40m

Task: Side Scan Sonar Target Investigation



Project: Neo Energy - Victoria Decommissioning

Image 7: Contact 2 – Scattered small / loose rocks

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Image 8: Contact 3 – Scattered small / loose rocks

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Image 9: Contact 25 – ROV removing concrete mattress block, recovered to deck

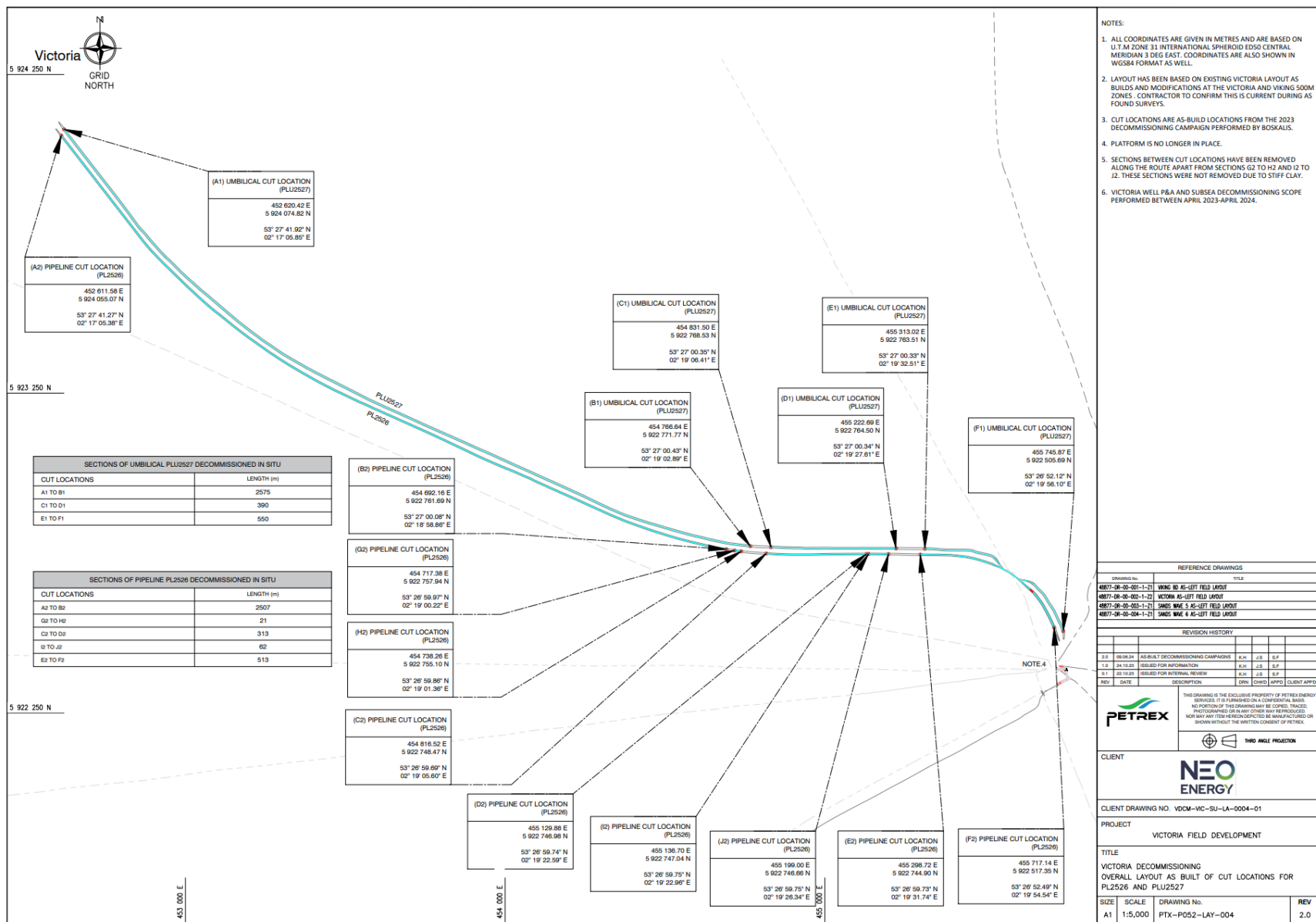


Figure 17 As-Built cut Locations for Victoria Pipeline and Umbilical