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Thevenard Island Retirement Project Overview

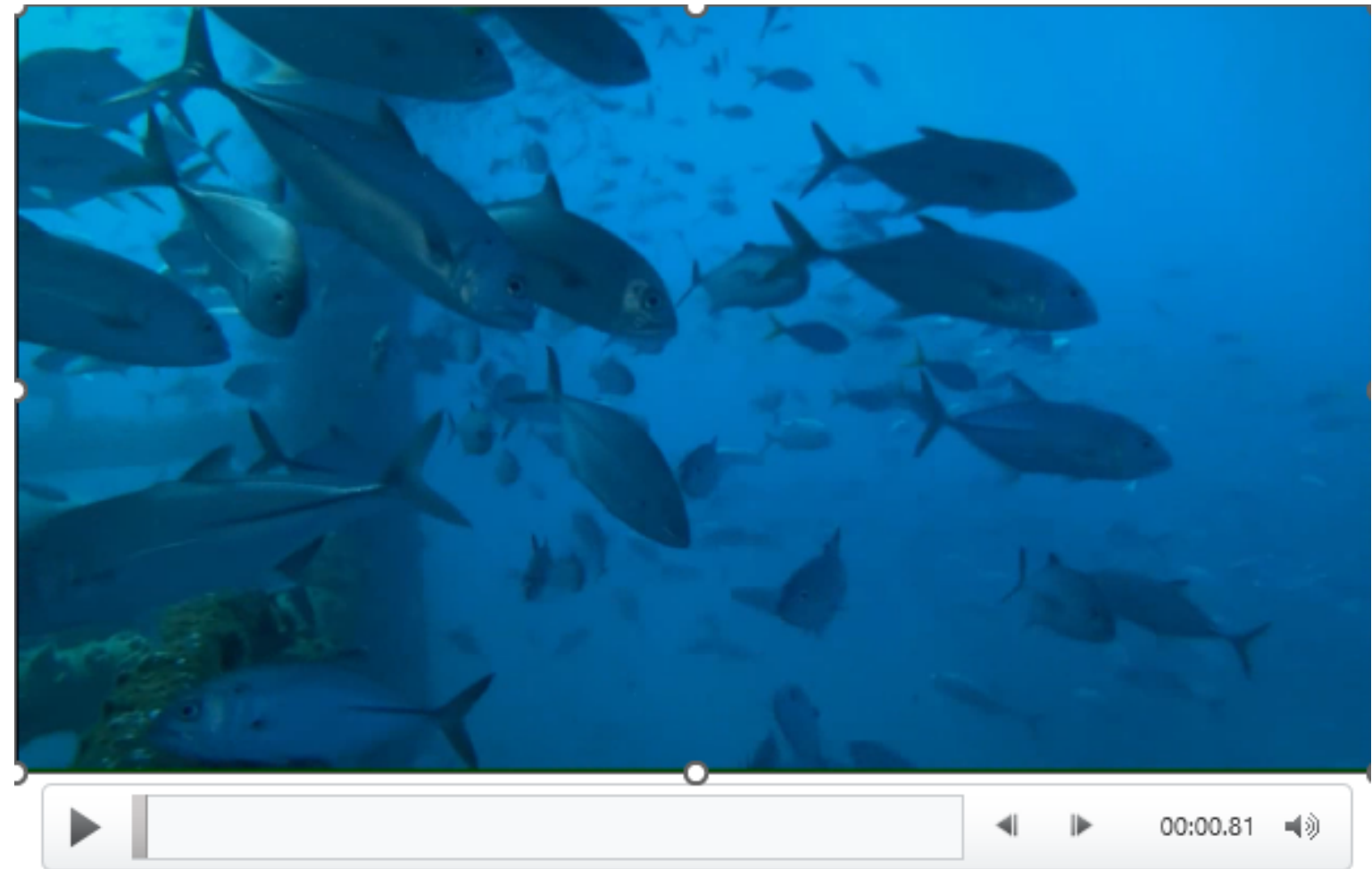
Grant Brunsdon

Thevenard Island Retirement Project
February 2023

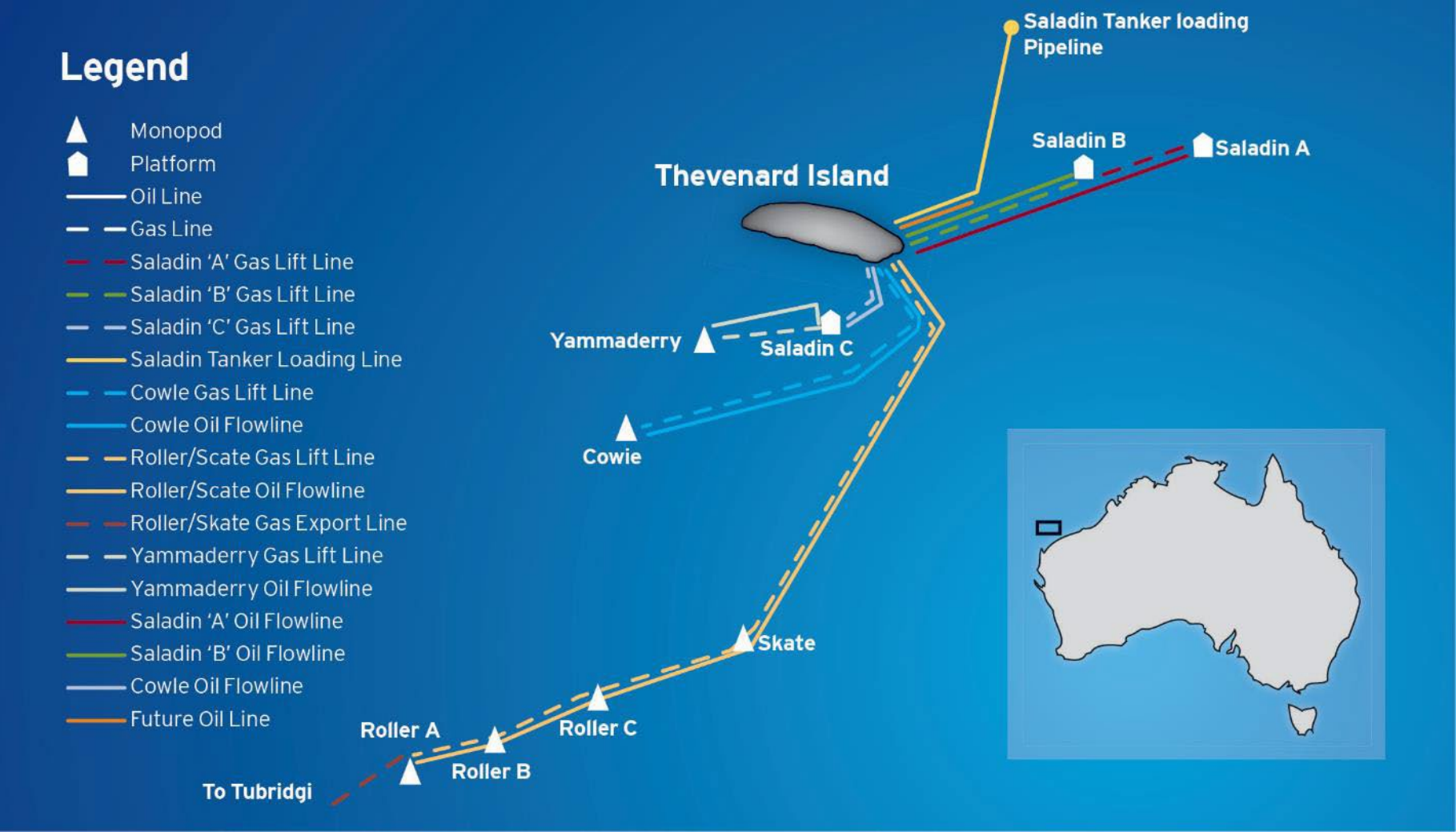


Agenda

- Offshore Asset Overview
- Retirement Status
 - Offshore
 - Onshore
- Platform End-state considerations
- Offshore Decommissioning Completed
- Platform Removal Methodologies



Thevenard Island Asset Overview



Saladins C



Yammaderry

Offshore Platforms

- 6 Monopods
- 3 Tripods

Well Count

- Offshore: 22 Producers, 1 Subsea Suspended (Au-1)
- Onshore: 11 Producers, 3 WDW & TVI-1

Subsea Pipeline

- ~130 km

Key Facts

- Thevenard Island is a Nature Reserve
- Shut in Q2 2014
- Subsea Pipelines pigged & flushed clean (<30ppm)
- Onshore & Offshore process pipework flushed and cleaned.
- Minimal HAZMAT



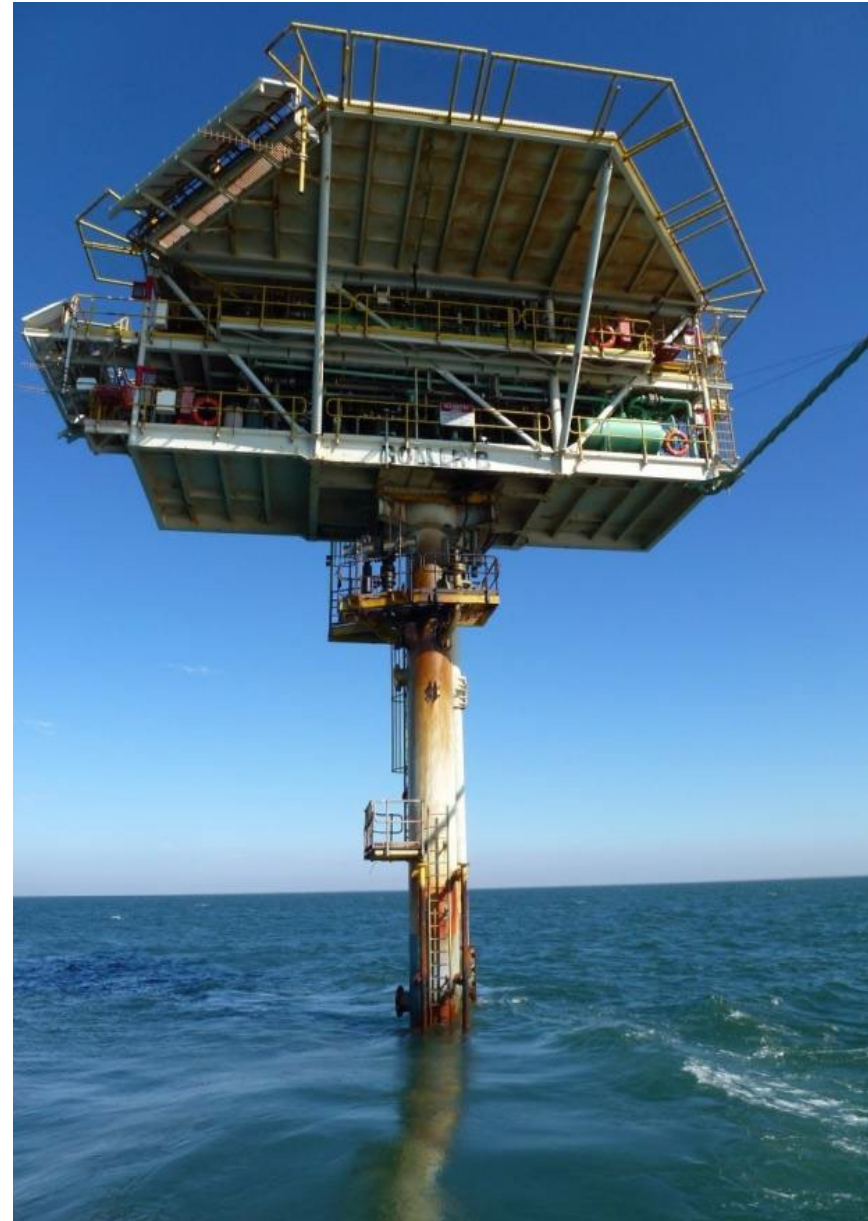
Offshore Asset Overview

Platforms

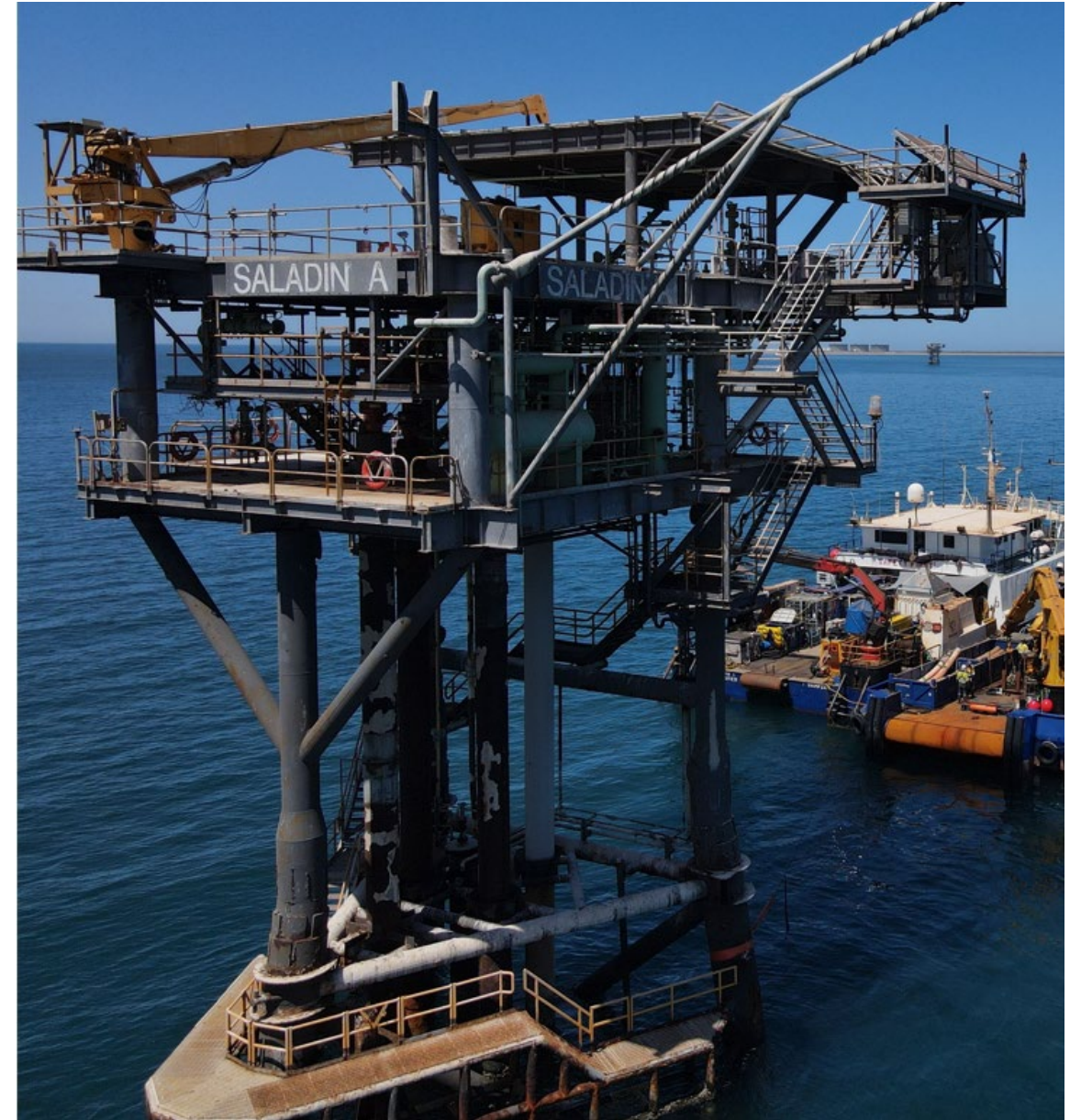
Yammaderry & Cowle



Roller A, B, C & Skate



Saladin A, B & C



Offshore Asset Overview

Facility	Topsides Weight (MT)	Jacket Weight (MT)	Water Depth (LAT)	Qty Wells
Roller A	132	76	9.4	2
Roller B	132	69	10.8	3
Roller C	132	68	10.0	3
Skate	132	55	9.3	4
Yammaderry	50	55	9.8	1
Cowle	62	75	12.0	3
Saladin A	217	345	15.9	4
Saladin B	217	288	15.0	3
Saladin C	190	169	7.0	2

Heavy lift in shallow water drives vessel selection

Note: Water depths from survey in 2013. Weights estimated and include some assumptions. Figures are subject to change.



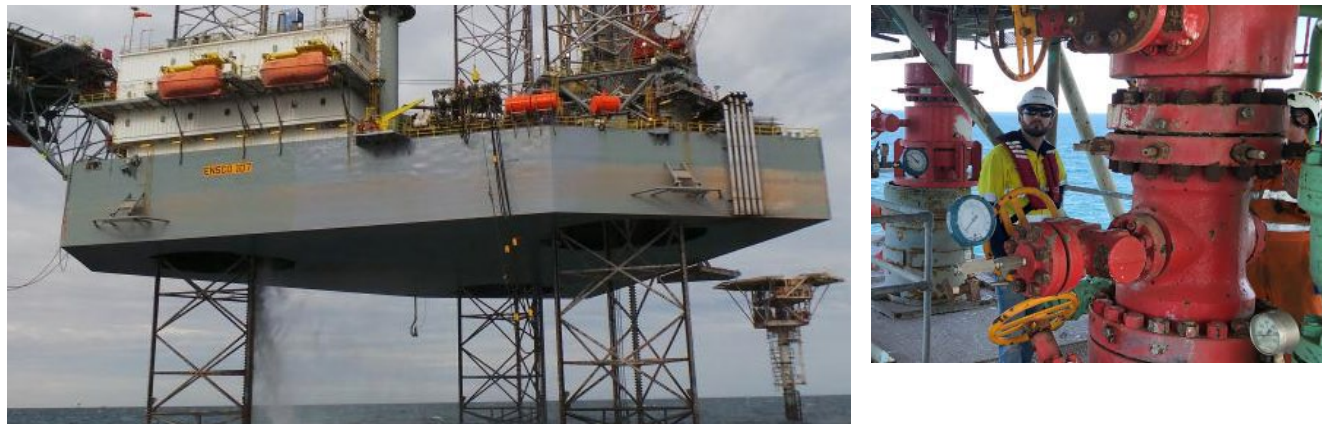
Retirement Status - Offshore Status

Retirement Completed Phases

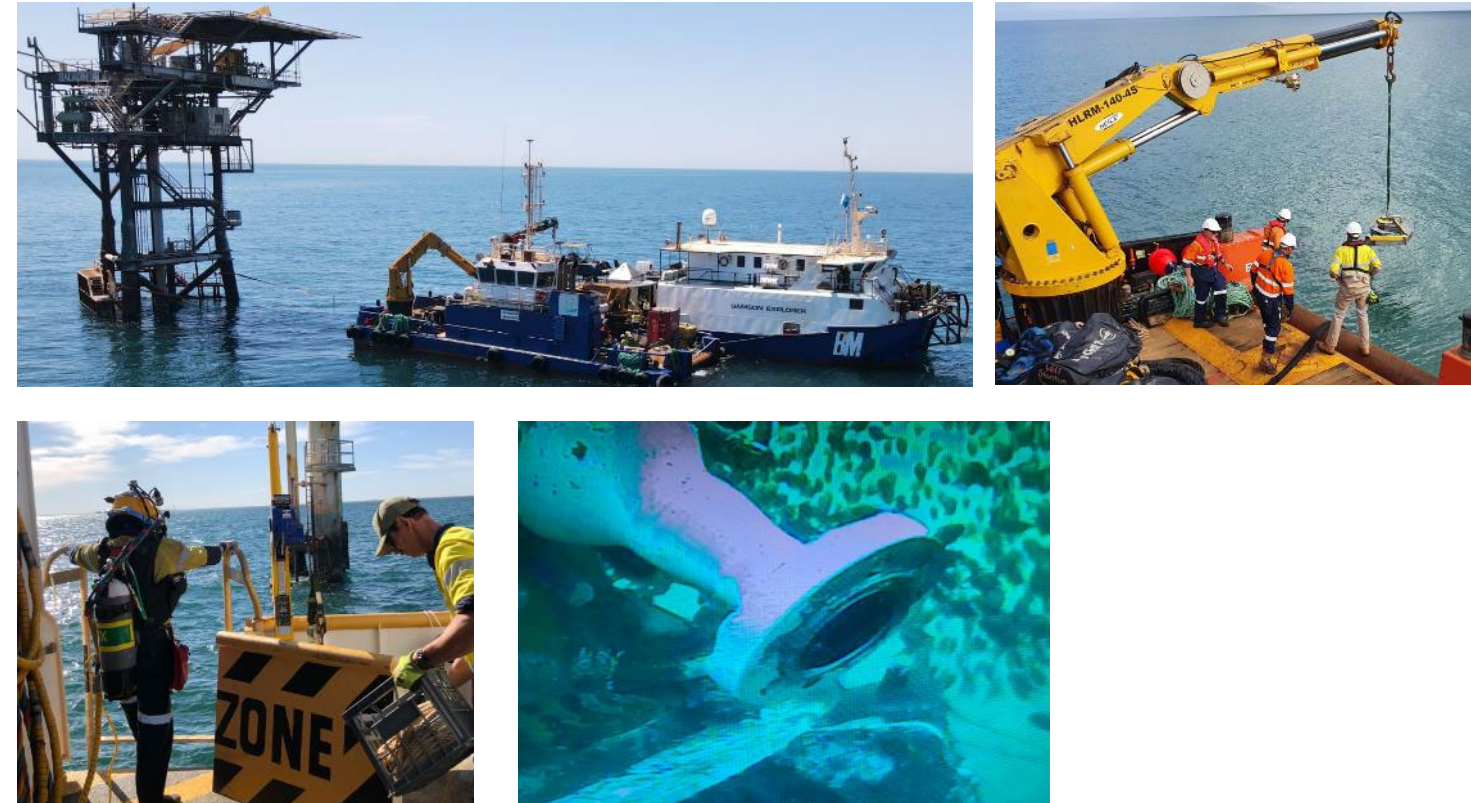
- Cessation of Production



- Well P&A



- Opportunistic Decommissioning



Ongoing Activities

- Regulatory Approvals
- Studies to Support End State Decisions
- Platform IMR

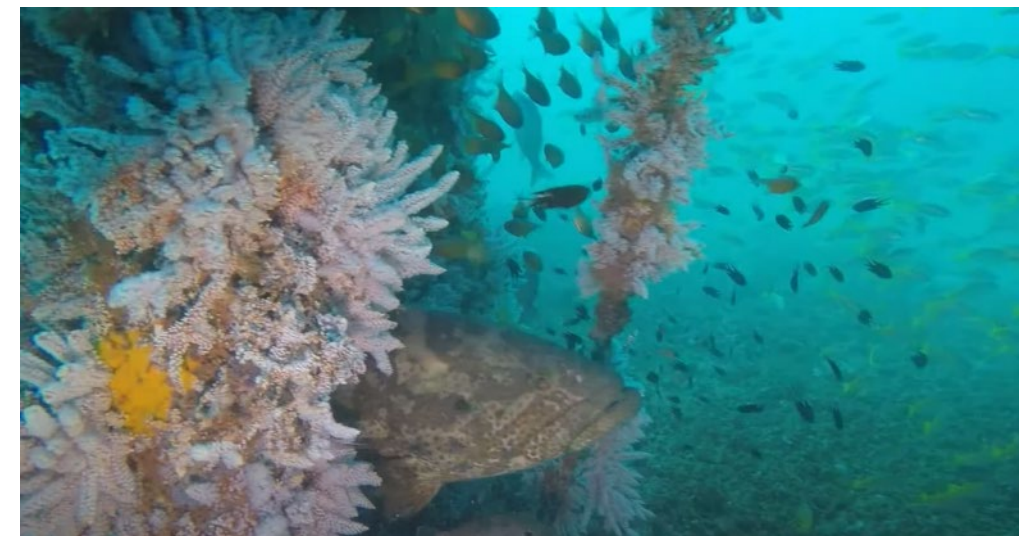
Retirement Status - Onshore



Platform End-state Considerations

Platform End State

- Base case for platform end-states is full removal to seabed
- We are working through alternative end-state options that include reefing at some locations
- Studies undertaken demonstrate ecological and socioeconomic value of the structures
 - Platforms had **241** times greater biomass than natural reef habitats
 - Estimated that platforms held the equivalent biomass as **19.7** ha of coral reef
- Extensive community and stakeholder consultation, led by RecFishWest, has shown strong support, and ecological, recreational and tourism benefits in retaining infrastructure
- Augmentation of the platform structures with purpose built reef modules would further enhance habitats
- Reefing alternatives require multiple approvals from state and commonwealth regulators as well as a positive decision by the Operator to proceed.
- A rigs to reef project has not been attempted in Australian waters before



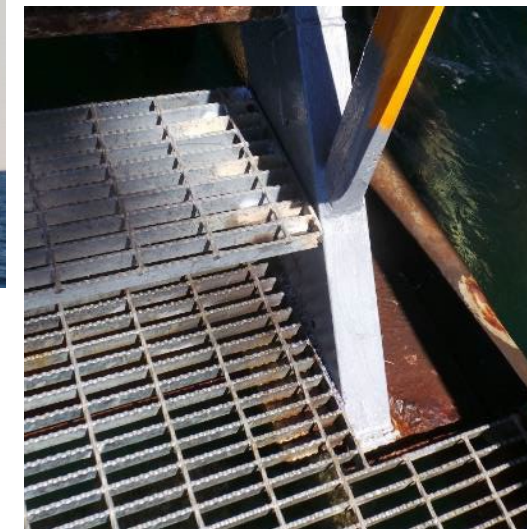
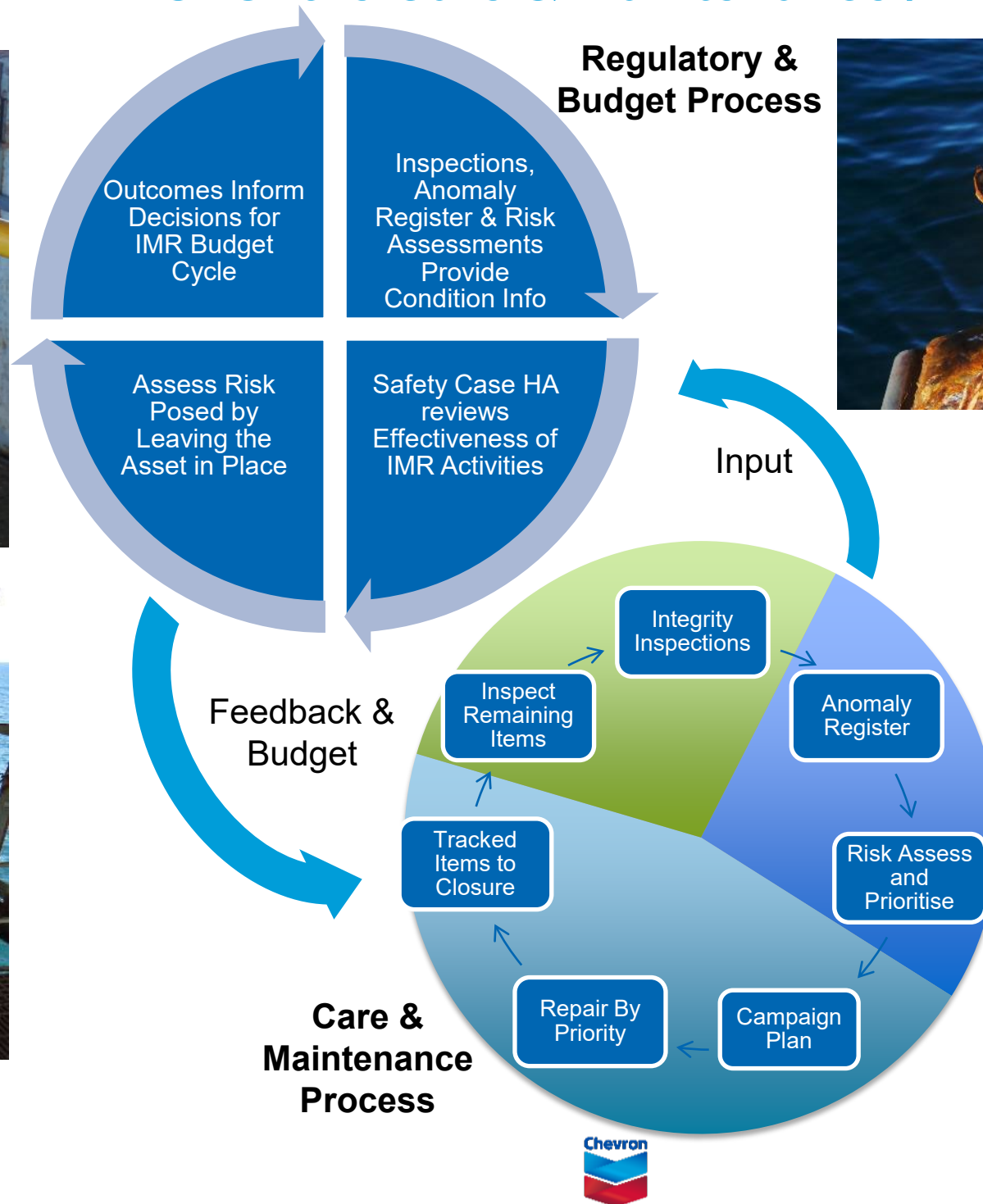
Decommissioning Learnings, Technologies and Challenges

Cessation of Production



Decommissioning Learnings, Technologies and Challenges

Offshore Care & Maintenance / IMR



Offshore Decommissioning Completed

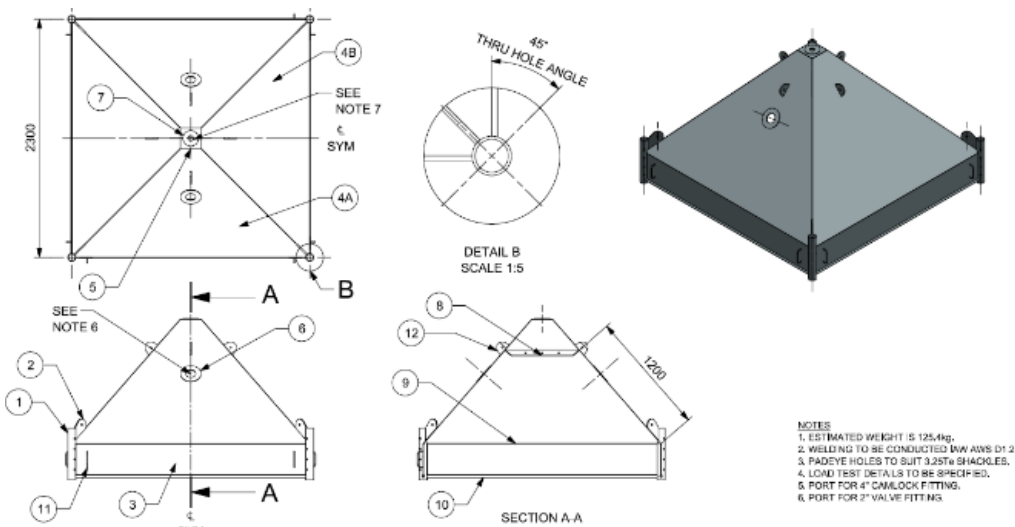
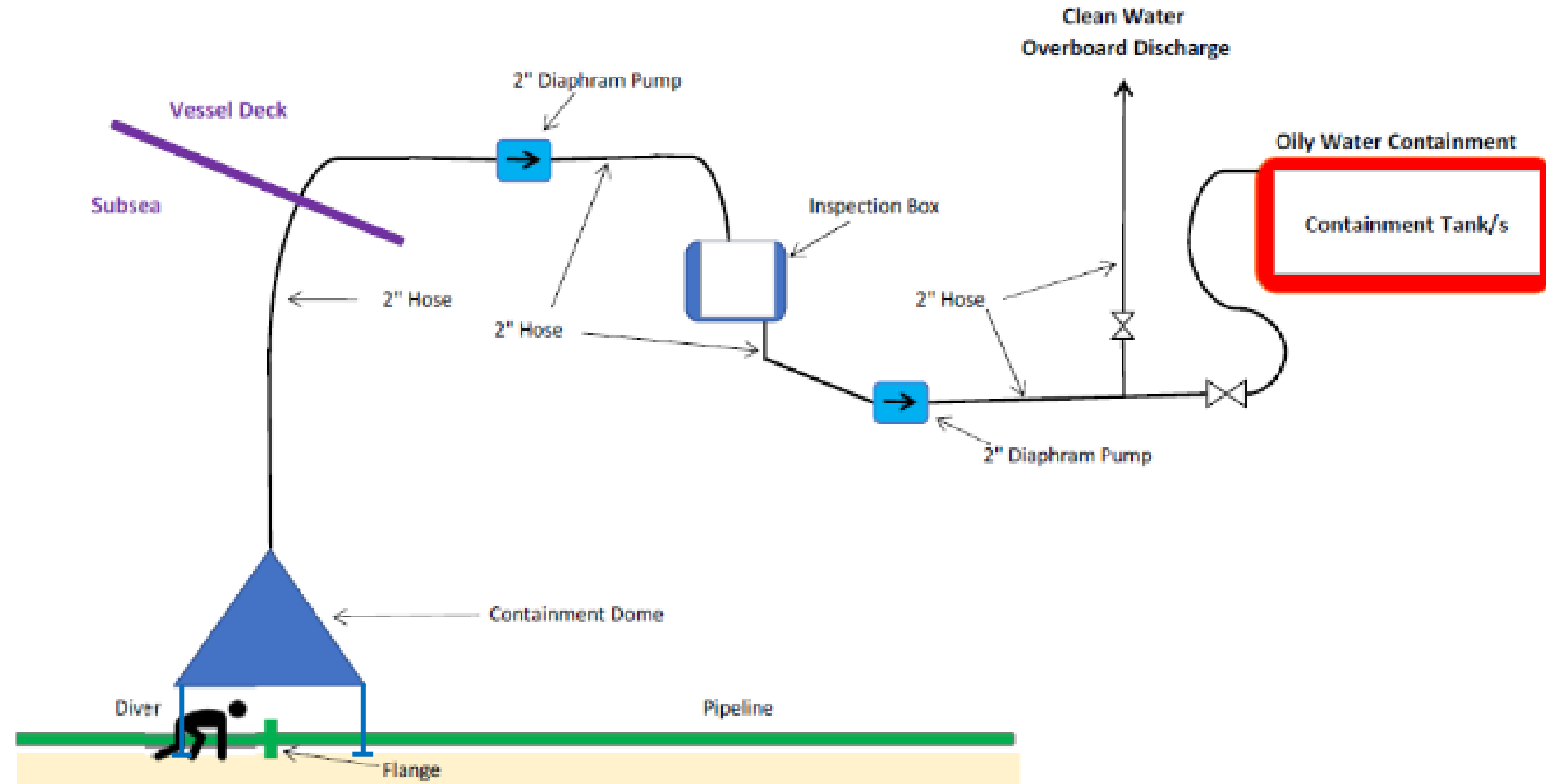
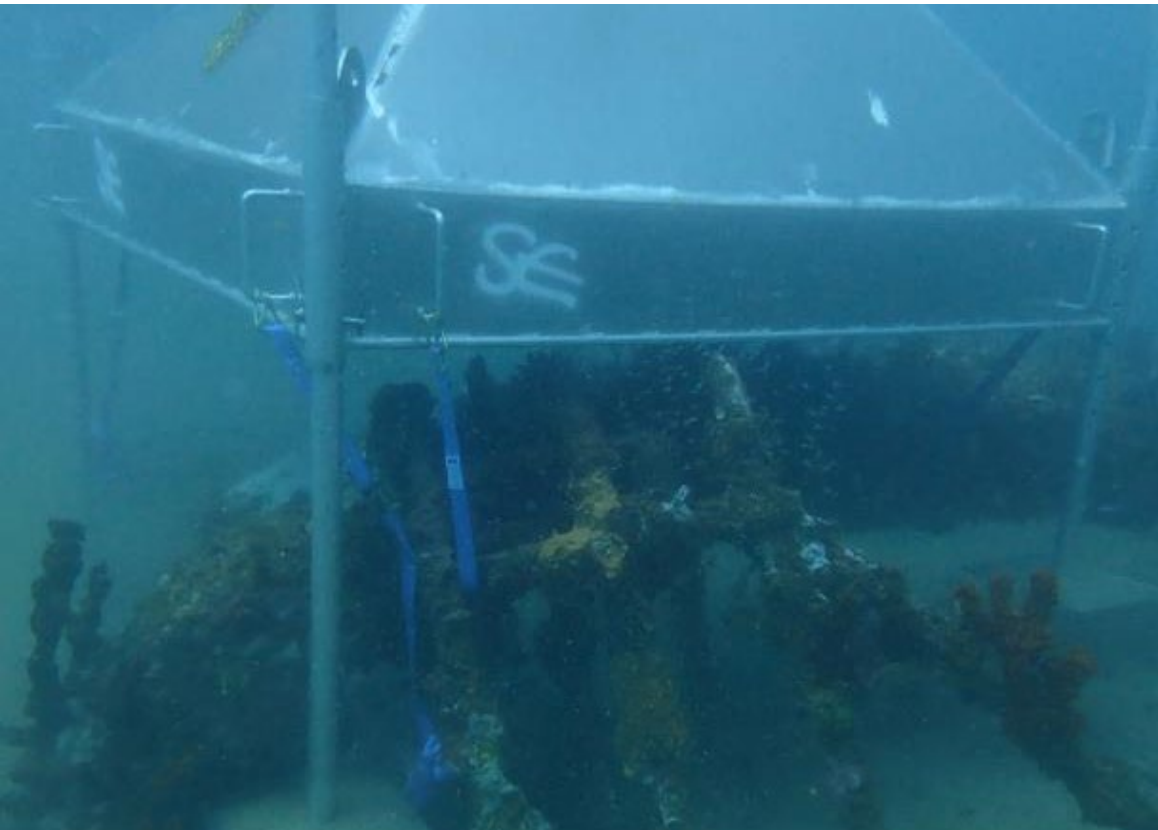
Flexible Tie-In Removal

- 3", 4" & 8" Flexibles. ~70m Lengths.
- Air/Nitrox Diving
- Use of Containment Dome
- Disconnection by unbolting
- Blind flanges installed on remaining subsea valves (not on riser)
- Divers unbury, move ends clear and rig for recovery by support vessel
- Flexibles recovered, dewatered and sectioned for disposal



Offshore Decommissioning Completed

Use of Subsea Containment Dome



Offshore Decommissioning Completed

Rigid Tie in Disconnection

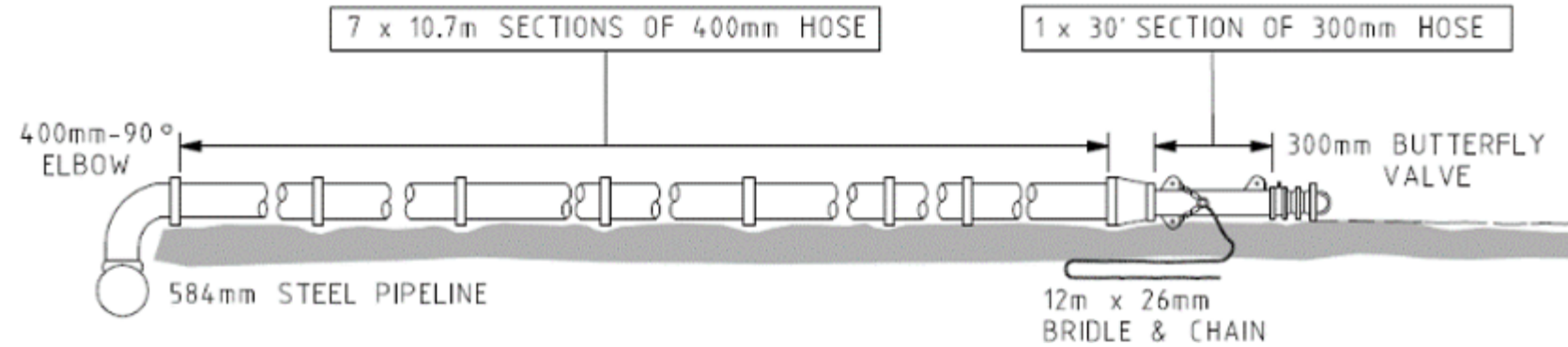
- 3", 4", 6" & 8" rigid flowline tie-ins
- Air/Nitrox Diving
- Disconnection by cutting a ~1.5m section out
- Sections recovered for contamination testing
- Mechanical plugs installed in remaining pipelines (not on riser side)



Offshore Decommissioning Completed

Flexible Tanker Hose Removal

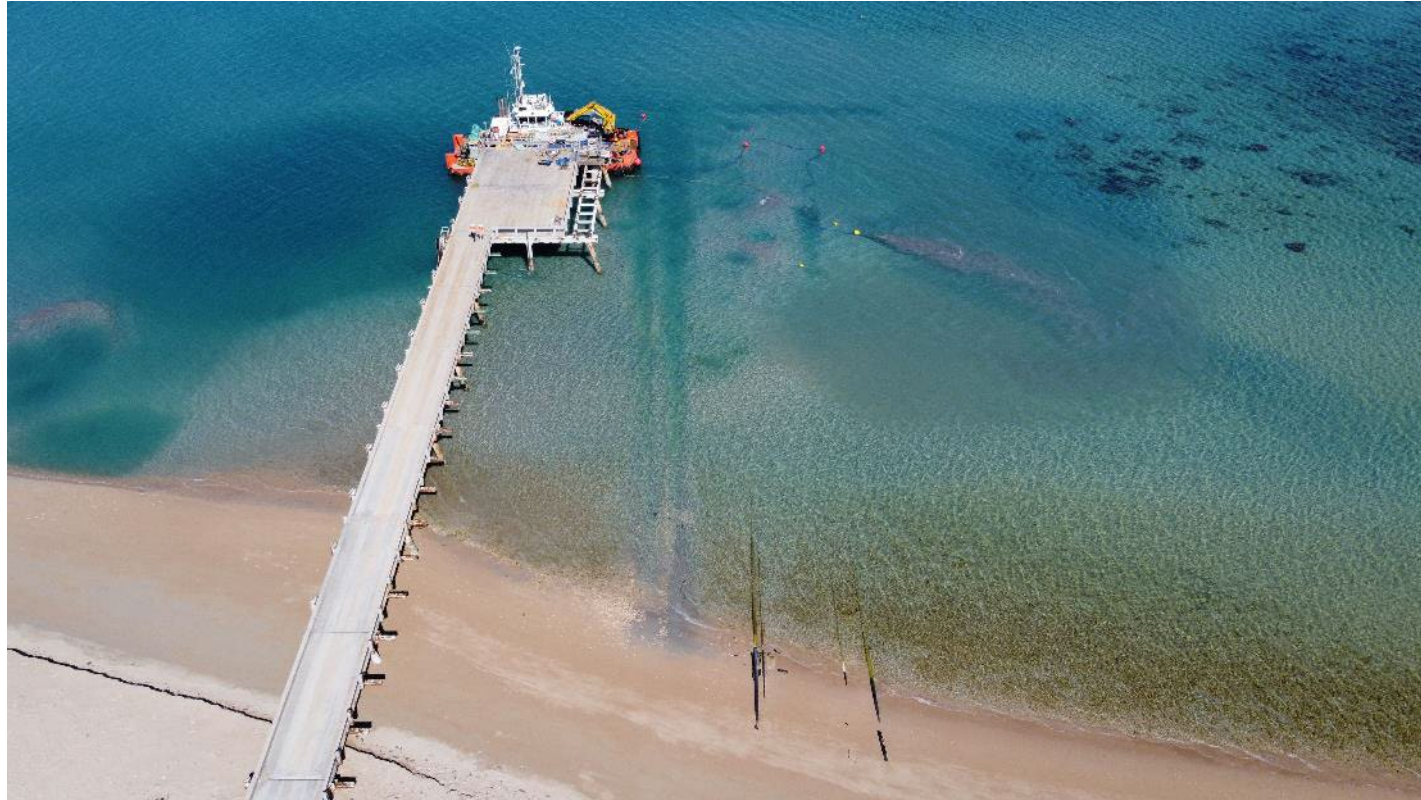
- 16" x 76m and 12" x 9m
- Air/Nitrox Diving
- Use of Containment Dome
- Disconnection by unbolting
- Blind flanges installed on PLEM (remaining on seabed)
- Divers rig for recovery and support dewatering operation
- Loading line floated by dewatering and towed to TVI for sectioning and disposal



Offshore Decommissioning Completed

Shore Crossings

Southern – Divers unbury & Pulled Onshore



Northern – Cut & Removed from Onshore



Offshore Decommissioning Completed

Underwater Focus

Remote Telemetered Seabed Camera Trials



Platform Removal Methodologies

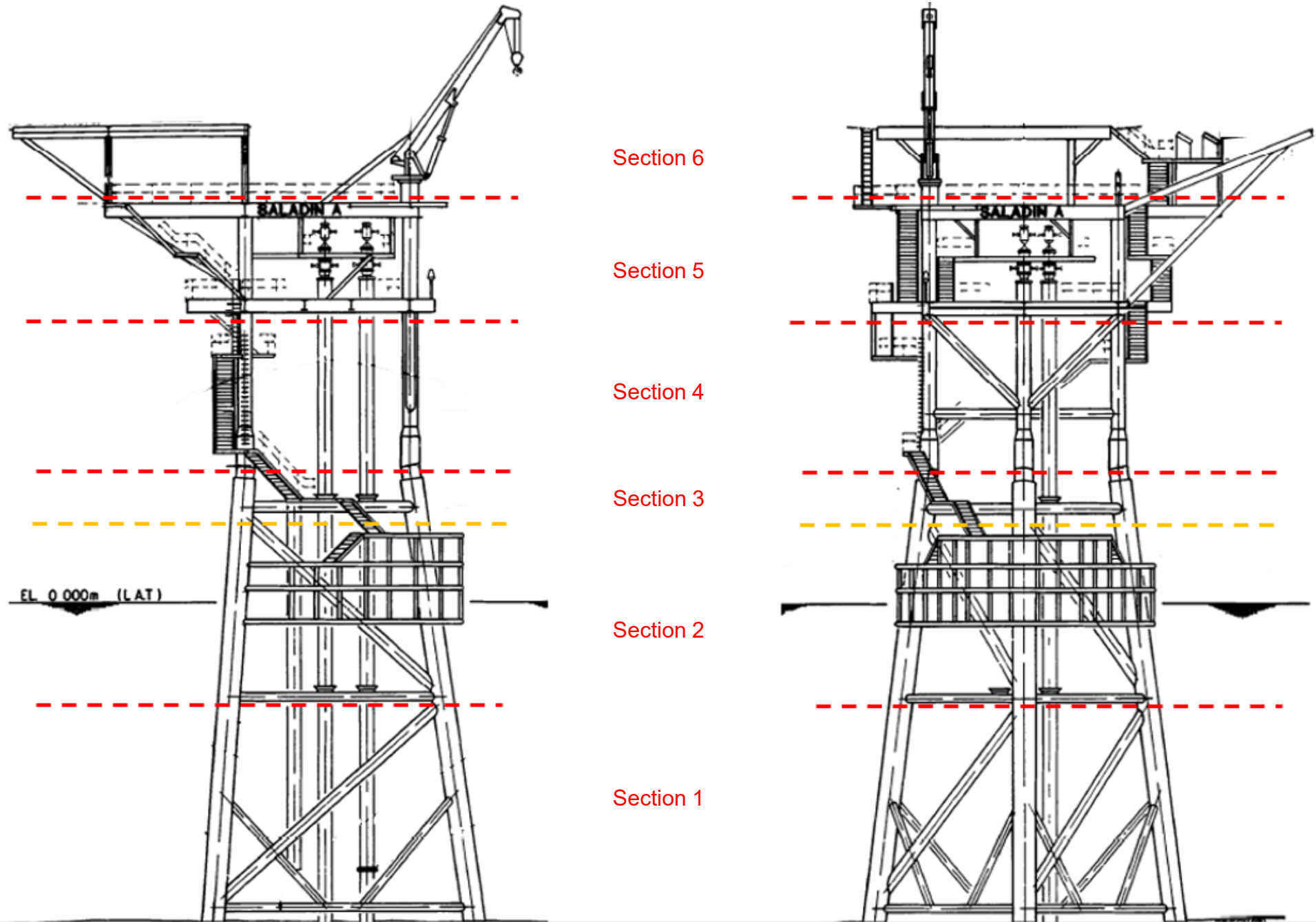
- Establish vessel station holding / mooring
- Establish safe access to platform
- Establish safety systems on platform (lighting, first aid, POB system, muster locations etc.)
- Remove / secure topside loose items
- Install, inspect, re-confirm and mark lift points and cut locations
- Perform preparation cutting (pipework, secondary structure)
- Perform subsea marine growth removal required to support cutting, lifting and sea fastening
- Install cutting equipment, capture mechanisms and monitoring equipment
- Hook up section lift rigging
- Remove nonessential personnel and equipment from platform
- Perform cut and lift operation



Tripod Removal Methodologies

Saladin Tripods

1. Well Conductor removal
2. Helideck removal (section 6)
3. Topsides removal (section 5)
4. Topsides leg removal (section 4)
5. Jacket (section 2 & 3)



Note: Section cut locations are indicative only.

Monopod Removal Methodologies



Monopod Removal Methodologies

Reverse of the installation procedure



LOWERING TOPSIDES OVER WELLHEAD PROTECTION FRAME



Example Upper Monopile Padeye

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