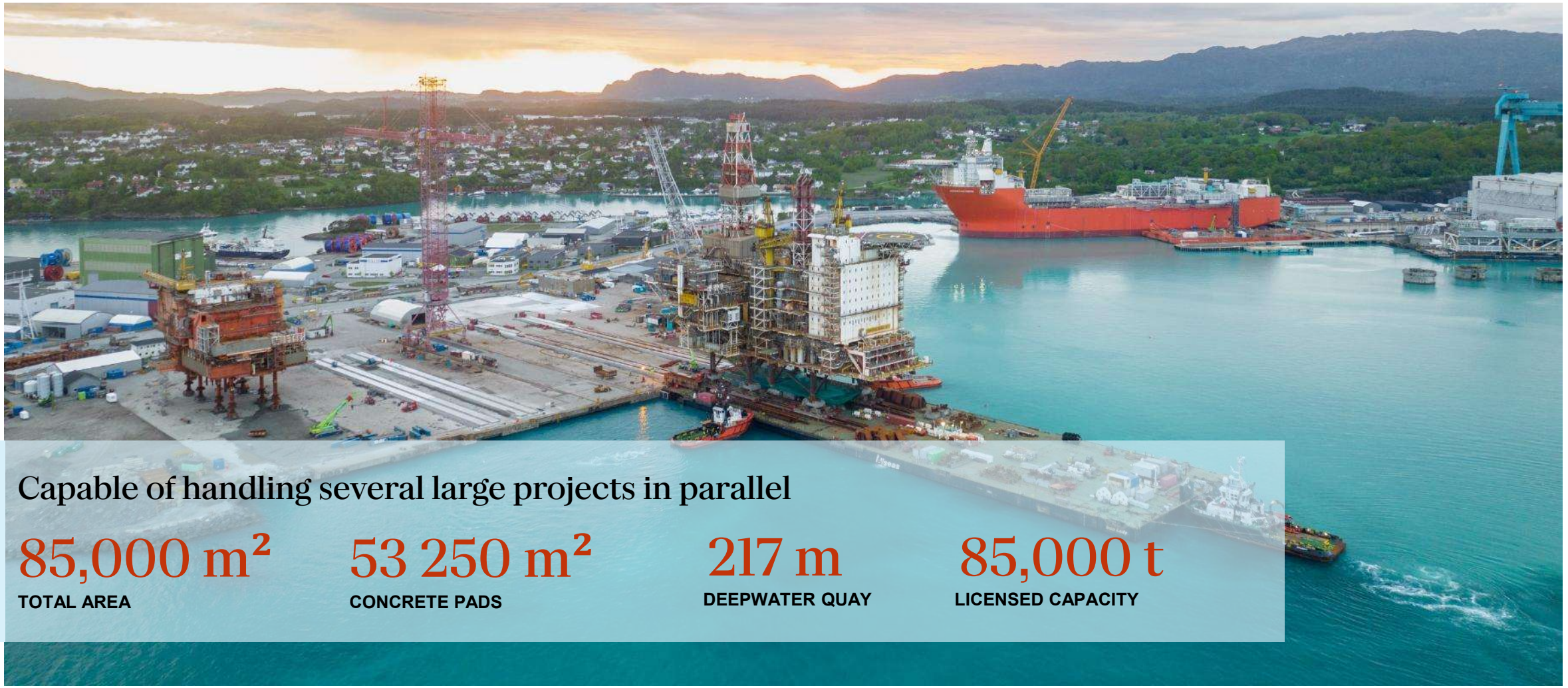
Aker Solutions

Stord Disposal & Recycling Yard

Waste Management

Offshore Norge - Decommissioning Seminar 2025

Cost-Effective & Simple Load-in of Platforms



Capable of handling several large projects in parallel

85,000 m²
TOTAL AREA

53 250 m²
CONCRETE PADS

217 m
DEEPWATER QUAY

85,000 t
LICENSED CAPACITY

Stord Disposal Site – September 2025

From 1st to 2nd Life: Aker Solutions' Recycling Value Chain

1. Engineering and planning

2. Receipt of structures

3. Make safe and removal of waste / haz. waste

4. Removal, dismantling & segregation

5. Recycling

6. Re-use

7. Second life

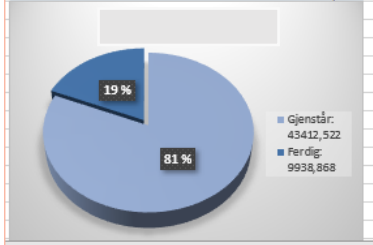
Material Management

- Detailed follow up of material from preparation phase and throughout the lifetime of the decom project is key to maximize reuse and recycling.
- AKSO has high focus om sustainability including to reduce our climate footprint. Reuse and recycling are important focus areas.
- Each project is followed up separately and detailed weight reports prepared.
- Environmental accounting is done for input material and energy consumption.

Total

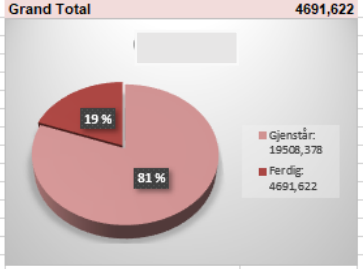
Project	(Multiple Items)
Customer	(All)
Cat. name	(All)

Row Labels	Sum of Weight
Aluminium, gammel	0,04
Aluminiums anoder	144,38
Andre lyskilder offshore	0,008
Asbest	0,78
Avfal med Ftalater	1,92
Betong	161,8
Betong som inneholder farlige stoffer	63,62
Betong til Re-Use	200,256
Blandet bearbeidet trevirke	3,375
Blandet næringsavfall	98,81
Blyakumulator R4	13,497
Drivstoff	18,372
Duplex 969-1	43,078
Elmotorer små offshore(<700kg)	23,44
Frostveske/ kjøleveske	4,95
Gasser i trykkbeholdere	0,352
Glassfiber	23,82
Grease	0,144
inconell 625 solid	1,16
Inconell 800 solid	6,56
Jern, klasse 8, sendes med båt	7182,1
Jern, klipp	48,668
Jern, klipp, på kai	207,7
Jern, kompleks	1206,211
Kabel fra offshore	17,46
Keramisk fiber	27,43
Klorparafinholdige isolerglassruter	1,915
Kobber, kabel	26,275
Lysarmatur offshore	53,7
Lysstoffrør, Renas gr. 1	0,562
Maling, lim, lakkløsemiddel	0,126
Ni-Cd batteries	0,699
Oljefilter	0,249
Oljeforurenset masser fast	2,175
Organisk avfall u/halogen	13,724
Prosess/vaskevann (fra oljeboring)	0,603
Renas gr. 6 kjøleprodukter	0,08
Rengjøringsmidler	0,812
Re-use	67,342
Rustfritt raff	125,373
Små elektrisk offshore	41,304
Små elektriske enheter	3,235
Spillolje, Ikke refunderbar	24,644
Spraybokser	0,262
Stein / grus	17,04
Syrefast 316	8,145
Syrefast uferdig	26,558
Titan	17,383
Transformator Offshore, tørr	6
Utstyr tilbakelevert til kunde	0,731
Grand Total	**9938,868**



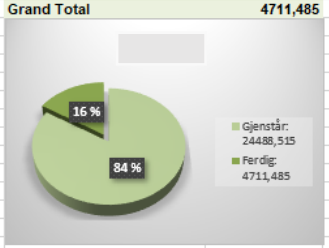
Project	(Multiple Items)
Customer	(All)
Cat. name	(All)

Row Labels	Sum of Weight
Aluminium, gammel	0,04
Aluminiums anoder	26,5
Andre lyskilder offshore	0,008
Asbest	0,78
Avfal med Ftalater	1,92
Betong som inneholder farlige stoffer	63,62
Blandet bearbeidet trevirke	3,375
Blandet næringsavfall	34,02
Blyakumulator R4	2,221
Drivstoff	10,187
Duplex 969-1	37,758
Elmotorer små offshore(<700kg)	23,44
Gasser i trykkbeholdere	0,096
Glassfiber	0,4
Grease	0,058
inconell 625 solid	0,84
Jern, klasse 8, sendes med båt	2911,22
Jern, klipp	30,003
Jern, klipp, på kai	207,7
Jern, kompleks	1070,525
Kabel fra offshore	17,46
Keramisk fiber	8,34
Klorparafinholdige isolerglassruter	1,915
Kobber, kabel	26,275
Lysarmatur offshore	23,213
Lysstoffrør, Renas gr. 1	0,086
Maling, lim, lakkløsemiddel	0,03
Ni-Cd batteries	0,699
Oljefilter	0,065
Oljeforurenset masser fast	1,701
Organisk avfall u/halogen	0,163
Prosess/vaskevann (fra oljeboring)	0,603
Renas gr. 6 kjøleprodukter	0,08
Rengjøringsmidler	0,138
Rustfritt raff	109,053
Små elektrisk offshore	11,827
Spillolje, Ikke refunderbar	2,94
Spraybokser	0,077
Stein / grus	12
Syrefast 316	6,225
Syrefast uferdig	20,638
Titan	17,383
Transformator Offshore, tørr	6
Grand Total	**4691,622**



Project	(Multiple Items)
Cu...	(All)
Cat. name	(All)

Row Labels	Sum of Weight
Aluminiums anoder	99,42
Betong	161,8
Blandet næringsavfall	57,91
Blyakumulator R4	11,276
Drivstoff	8,185
Duplex 969-1	0,6
Frostveske/ kjøleveske	4,95
Gasser i trykkbeholdere	0,256
Grease	0,086
inconell 625 solid	0,32
Inconell 800 solid	6,56
Jern, klasse 8, sendes med båt	4043,74
Jern, klipp	17,18
Jern, kompleks	106,476
Keramisk fiber	19,09
Lysarmatur offshore	30,487
Lysstoffrør, Renas gr. 1	0,476
Maling, lim, lakkløsemiddel	0,096
Oljefilter	0,184
Oljeforurenset masser fast	0,474
Organisk avfall u/halogen	13,561
Rengjøringsmidler	0,674
Re-use	53,392
Rustfritt raff	6,08
Små elektrisk offshore	29,477
Små elektriske enheter	3,235
Spillolje, Ikke refunderbar	21,704
Spraybokser	0,185
Stein / grus	5,04
Syrefast 316	1,92
Syrefast uferdig	5,92
Utstyr tilbakelevert til kunde	0,731
Grand Total	**4711,485**



NORM Cleaning

- Chemical cleaning (CIP) performed as systems were still more or less intact
- More than 70% of systems was cleaned.
- Rest of the scope on NORM classified pipes & equipment, was taken down and cleaned in the cleaning facility at the yard.
- Mainly remaining are pipes that was high up in roof due to no possibility for venting, or on low ground with no drainage.
- Overall, the CIP has been as it looks pr today a major success, and has been done with out any incidents and has reduced risk versus mechanical cleaning of all NORM contaminated pipes and equipment,

Challenges:

- Scaling, sand and oil in cyclones which led to chemicals become saturated and had to be changed
- Large amount for hard scaling in inlet and outlet to separators.

Insulation foam blown with CFC-11

Recent identification of novel use of CFC blown insulation foam

- Analysis of foam insulation on fire water lines shows values of CFC-11 above hazardous waste levels. Work is ongoing to establish volume and method for removal.
- Such foam is historically used as insulation in freezer and refrigerator rooms but is not previous seen in pipe insulation.

Halogenerte flyktige organiske komponenter			
KFK-11	**8900**	± 800.00	mg/kg
KFK-12	<5.0	----	mg/kg
KFK-113	<5.0	----	mg/kg

Ceramic fiber in walls in high voltage room

Fiber not previously identified

- Sampling showing Refractory Ceramic Fibres (RCF) was done in the high voltage room (wall insulation), a fire door gasket to the same room, and in a fire door at the upper mezz level. There is significant amounts of fibre in the high voltage room.
- One sample of paint at the mezz level towards the wellhead area showed a zinc level of 150 000 mg/kg.

Status of the PFAS containing mud tank

Extensive sampling has been done to verify content in sludge

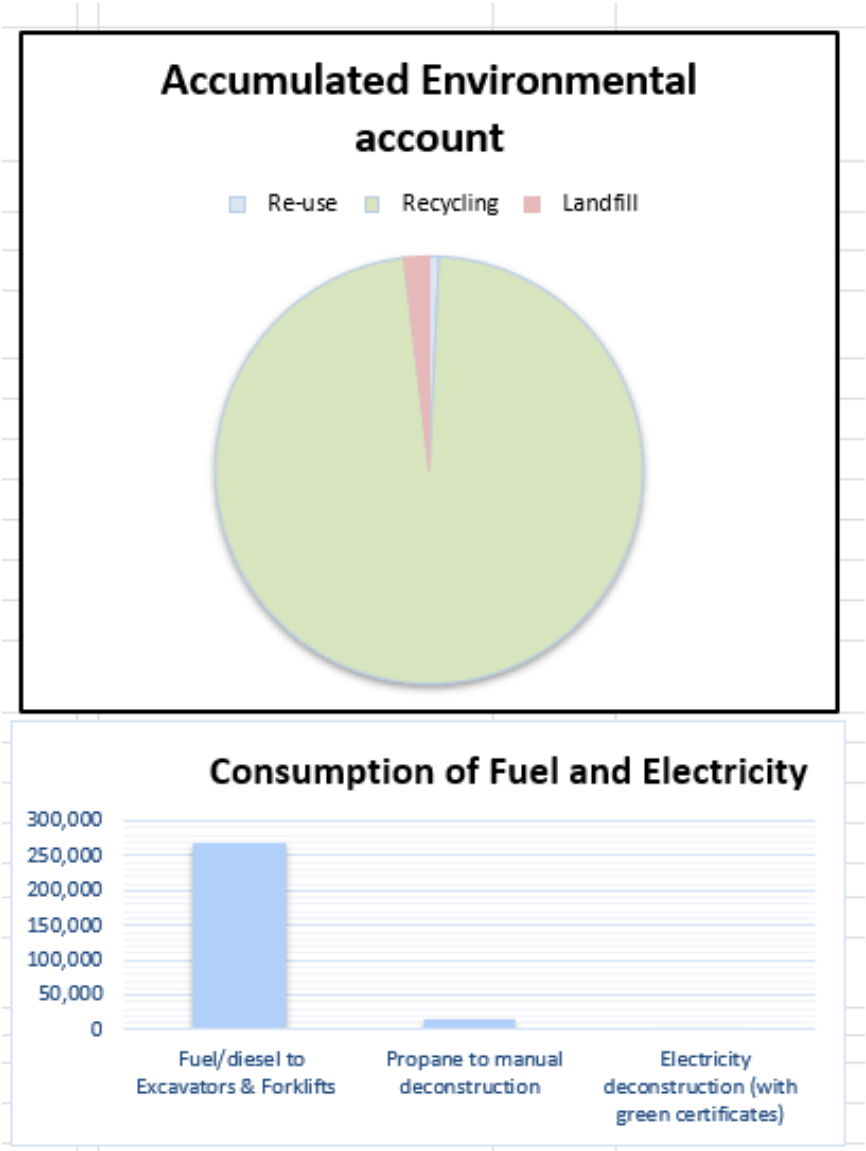
The mud tank filled with residues from a conductor is proven difficult to sample and analyse. A separation of the top oil layer, a watery middle level and a more solid a bottom level is done and awaiting analytical results.

PFAS sampling on platforms

Plattform 1			
Swab	Boredekk	FTS-6:2	0,095 mg/kg
Swab	Utvendig vegg på boligkvarter	FTS-6:2	0,028 mg/kg
Swab	Dekk under kjemikaliepumpe	FTS-6:2	0,56 mg/kg
Swab	Åpen dren	PFOS	0,024 mg/kg
Swab	Under brannskumpumpe	FTS-6:2	53 mg/kg
Swab	Dekk under brannskumtank	FTS-6:2	4,3 mg/kg
Swab	Helideck overflatedekk	FTS-6:2	0,67 mg/kg
Maling	Strukturmaling	PFOS	7,1 mg/kg
Maling	På brannbeskyttelse	PFOS	3,0 mg/kg
Maling	På en utstyrsramme	PFHxA	0,011 mg/kg
Maling	På en tank	PFOS	4,3 mg/kg
Kabelisolasjon	Skrap	FTS-6:2	0,097 mg/kg
Kabelisolasjon	Skrap	FTS-6:2	0,024 mg/kg
Plattform 2			
Swab	Under brannskumpumpe	PFOS	0,025 mg/kg
Swab	Dekk	PFOS	0,047 mg/kg
Swab	Dekk	PFOS	0,093 mg/kg
Maling	Strukturmaling	FTS-6:2	0,120 mg/kg
maling	Strukturmaling	PFOS	0,420 mg/kg
Plattform 3			
Slam	Fra prosess	PFOS	0,025 mg/kg

Degree of recycling and re-use including initiatives to increase re-use/"up-cycling" and reduction on waste going to landfill

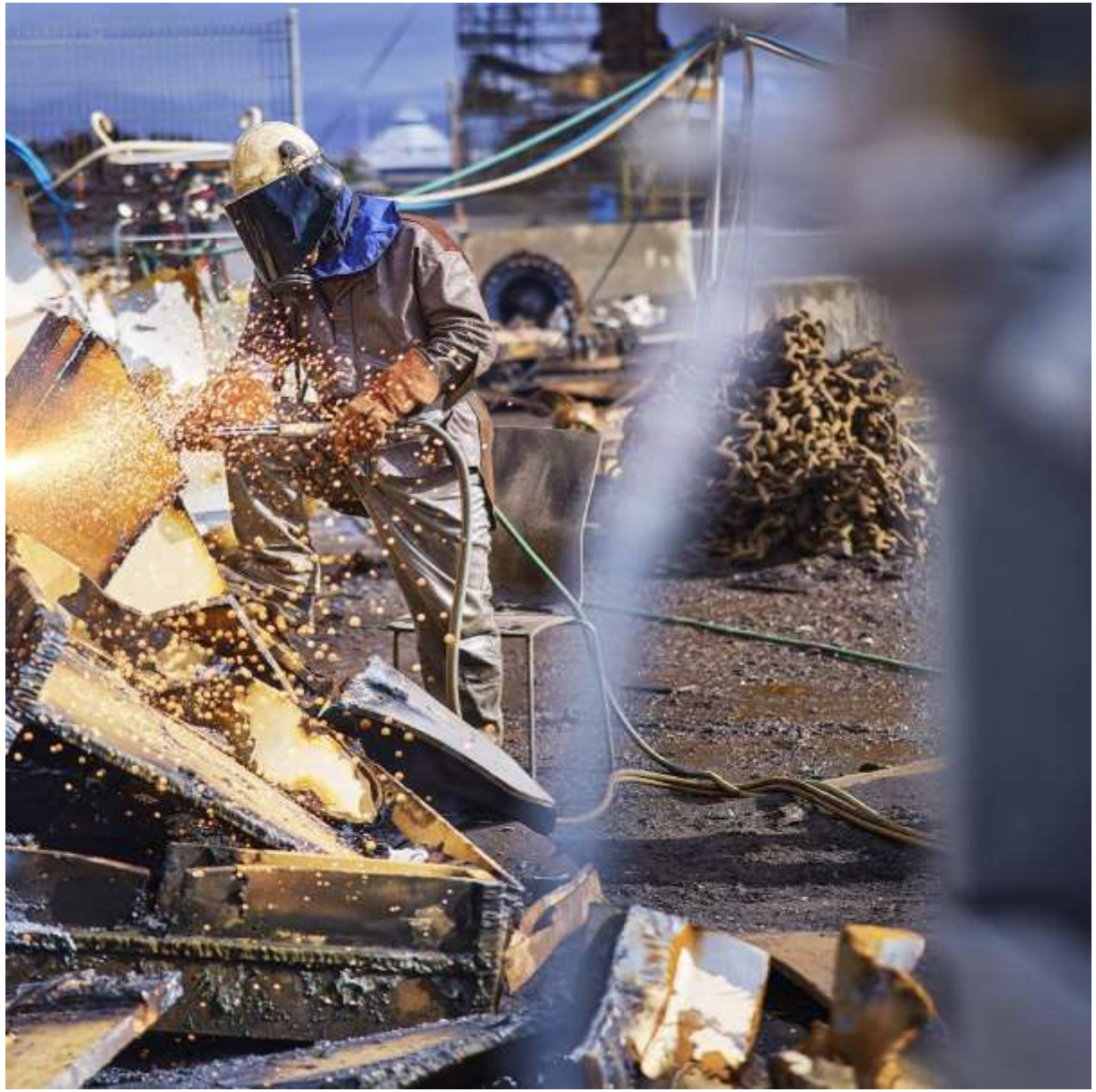
- Typically 98-99 % of jackets are recycled, 95-97% of topsides. Gyda recycling/reuse factor > 98%
- Installations are inspected for reuse objects. Rotating equipment normally needs to be preserved offshore if to be reused.
- Simpler structures like eg. stair towers can be reused if in good shape.
- AKSO try to reuse structural elements between projects. Eg. reuse of beams for supporting of structures received in upcomming projects.
- Marine growth is composted and used for agricultural purposes
- Aluminium is of interest for upcycling.
- Investigating possibility of reusing or recycling insulation together with Equinor



Improvements and Challenges

- Inventory mapping offshore is of a continuous high quality, and this has improved over the years. However, more focus must be on the potential for reuse while the platform/structure is still operative.
- UK operators often use the ship recycling Hong Kong convention as basis for inventory mapping, this is not directly suitable for offshore oil and gas installations.
- The increasing focus on PFAS is important to follow up, check for PFAS containing chemicals and products, and seek alternatives. For many products it is not even known that it contain PFAS.
- To increase the potential for reuse, operators must confer with entrepreneurs like AKSO early, suitable equipment, goods, structures must be identified, documentation secured, preservation done and a potential buyer sought. This is often too late when the platform is standing onshore.

Takk for meg!



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