



**PIGGING KNOW-HOW AND ADVANCED TECHNOLOGIES FOR THE
CLEANING, CALIBRATION AND INSPECTION OF PIPELINES**



TECMA
PIPELINE SERVICES

*In partnership
with*



**Reinhart
Hydrocleaning SA**

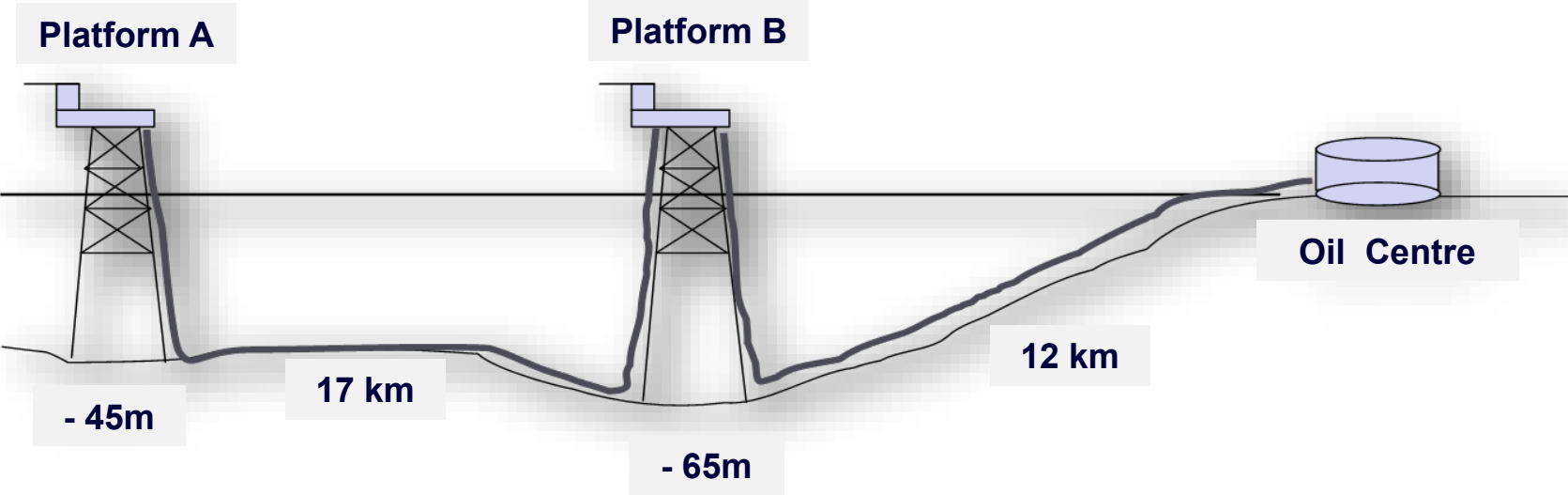
HYDRO-MECHANICAL CLEANING
OF PIPELINES SINCE 1952

TECMA, strong in excess of 30-year-experience, offers to EMEA Oil & Gas Companies custom suited and professional “turn-key” service packages for any Pipeline cleaning, Calibration and Inspection requirement from 3” to 56”. TECMA holds several long-term contracts with major Oil & Gas Companies operating in Italy and EMEA.

Reinhart Hydrocleaning SA, with over 60 years of experience, produces special Hydromechanical multi-modular tools to descale and/or dewax pipelines to very high standard.

Reinhart Hydrocleaning and TECMA offer their combined solutions to meet Pipeline Operators toughest challenges.

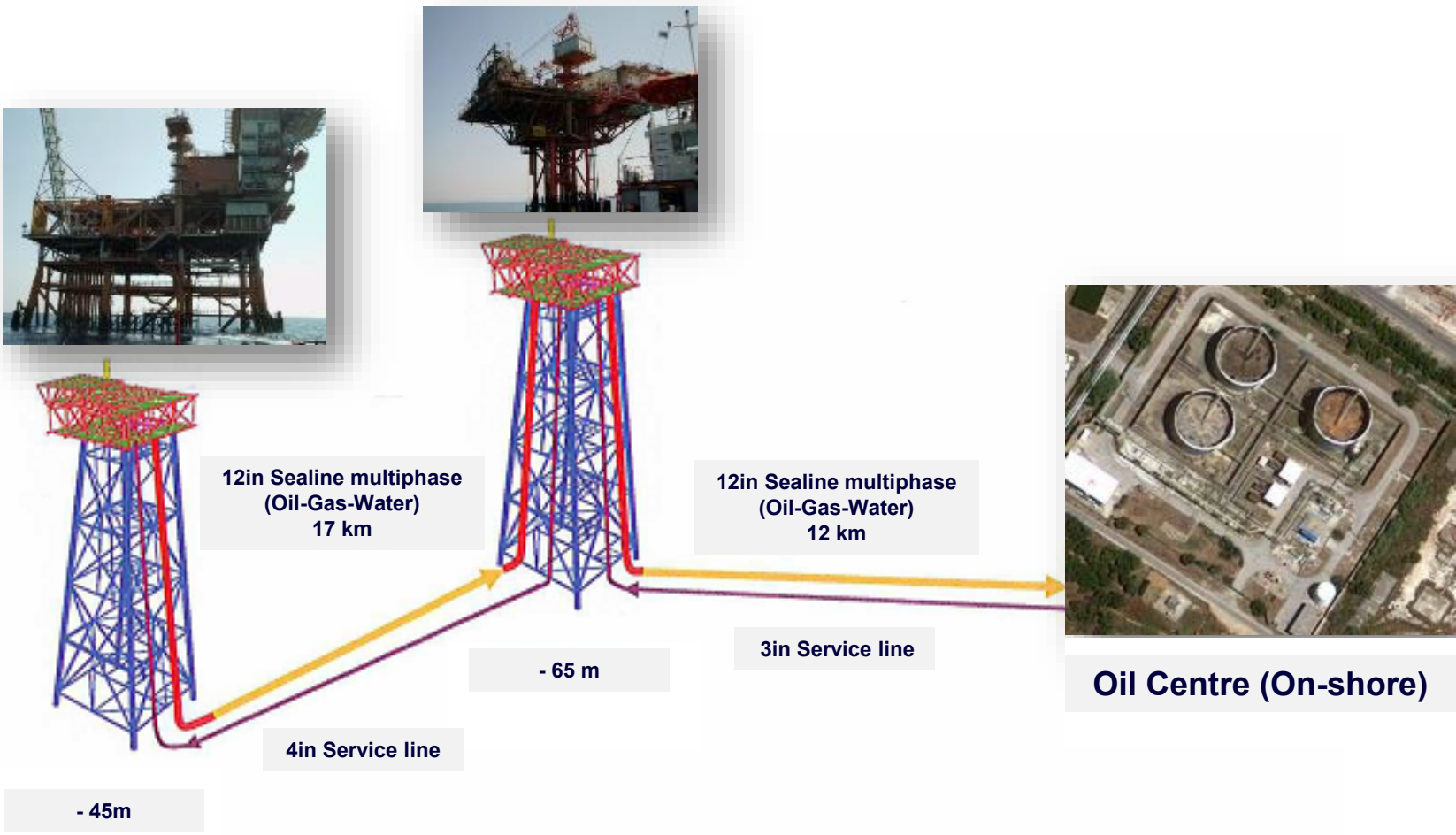
CASE HISTORY: 12inch x 29 km Waxy Crude oil Offshore pipeline



Section:	B – Oil Centre
Start-up year:	1982
Design life:	25 years
Product:	Multiphase
Nominal D:	12"
Pipe:	Seamless, X52 - 11,1mm

Section:	A – B
Start-up year:	1987
Design life:	25 years
Product:	Multiphase
Nominal D:	12"
Pipe:	Seamless, X52 - 12,7mm

CASE HISTORY: 12inch x 29 km Waxy Crude oil Offshore pipeline



CASE HISTORY: 12inch x 29 km Waxy Crude oil Offshore pipeline

Operation year	2012
Number of cleaning pig runs:	56
Pigging activity duration:	30 working days
Type of pigs used:	Standard



Inspection year	2012
Inspection technology:	MFL
Inspection result:	Major Data loss
% of data loss	50%

CASE HISTORY: 12inch x 29 km Waxy Crude oil Offshore pipeline

Operation year	2015
Number of cleaning pig runs:	34
Pigging activity duration:	16 working days
Type of pigs used:	RHC



Inspection year	2015
Inspection technology:	MFL
Inspection result:	Reduced Data loss
% of data loss	22%

CASE HISTORY: 12inch x 29 km Waxy Crude oil Offshore pipeline

Operation year	2017
Number of cleaning pig runs:	28
Pigging activity duration:	15 working days
Type of pigs used:	RHC



Inspection year	2017
Inspection technology:	MFL
Inspection result:	Successfull Run
% of data loss	2%

CASE HISTORY: 12inch x 29 km Waxy Crude oil Offshore pipeline

Comparison among Cleaning Efforts/ Inspection Results

Parameters	2012	2015	2017
Number of cleaning runs	56	34	28
Removed Debris [m ³]	25	22	20
Treated Sea Water [m ³]	80.000	60.000	56.000
Working Days	30	16	15
Pigging flow rate [m ³ /h]	200	200	200
MFL Inspection data loss [%]	50%	22%	2%

CASE HISTORY: 34inch x 3.9 km Crude oil Offshore pipeline



Section:	Sub-sea Trap - Refinery
Start-up year:	1967
Product:	Crude Oil
Nominal D:	34"
Pipe:	SAW, X42 Wt: 12.7 / 10.4 / 15.9 / 17.4
Last Inspection	2020
Inspection technology	UT
Inspection medium	Salt water

CASE HISTORY: 34inch x 3.9 km Crude oil Offshore pipeline – Pigging Phases

Section:	Sub-sea Trap - Refinery
1° run - cleaning	Medium density poly-pig
2° run – bore clearance	MC Caliper
3° run - cleaning	RHC - Bat
4° run - cleaning	RHC - Scraper
5° run - cleaning	RHC - Tiger
6° run - inspection	UT- USWM



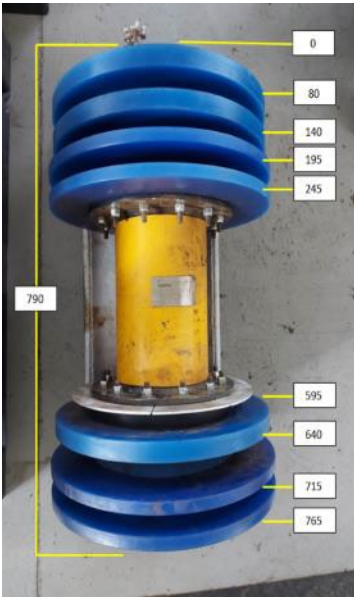
CASE HISTORY: 20inch x 145 km Crude oil Onshore pipeline



Section:	Depot - Refinery
Start-up year:	1964
Product:	Crude Oil
Nominal D:	20"
Pipe:	DSAW, X52 Wt: 12.7 / 8.74 / 14.0 / 8.7
Last Inspection	2021
Inspection technology	MFL
Inspection medium	Crude oil

CASE HISTORY: 20inch x 145 km Crude oil Onshore pipeline

Section:	n° of runs	Depot- Refinery
run - bore clearance	1	Bi-Di with gauge plate
run - cleaning	4	Dual module pigs
run - cleaning	15	RHC
run - inspection	1	MFL



Differences between RCT and standard cleaning Pig

- **No standard tool type catalogue**

- customized tools according to pipe specifications
 - Deposit
 - Cleaning medium, Flow, Pressure
 - Pipe geometries: Internal Ø's, Bend, T-Part, Launcher, Receiver, etc.

- **No standard sizes**

- optimized cleaning forces to internal pipe Ø
- adapted propulsion to internal pipe Ø
- optimized tool length to pipe specification

- **No static cleaning**

- dynamic cleaning with optimized bypass
- flush effect is a standard in **RCT**



Few tips when planning pipeline cleaning and ILI activities

To maximize the ILI results and obtain the best integrity value:

- Meticulous operations planning
- Careful cleaning tools evaluation and selection
- Cleaning procedures
- Propulsion medium analysis
- Choice of the most suitable ILI technologies



**“Quality of runs, not
Number of runs”**

**“Cleaning and calibration phases play a
pivotal role to achieve successful
inspection run”**

Thank you for your attention!