

Pipeline Integrity Management Programs Supported by Ovolifts

February 2021

Ovolifts enables pipeline touchpoint access for inspection and remediation. We do this through deploying our innovative tools for increasing productivity and reducing cost per touchpoint compared with conventional methods.

Our engineered approach also executes safe lifts on in-service lines.



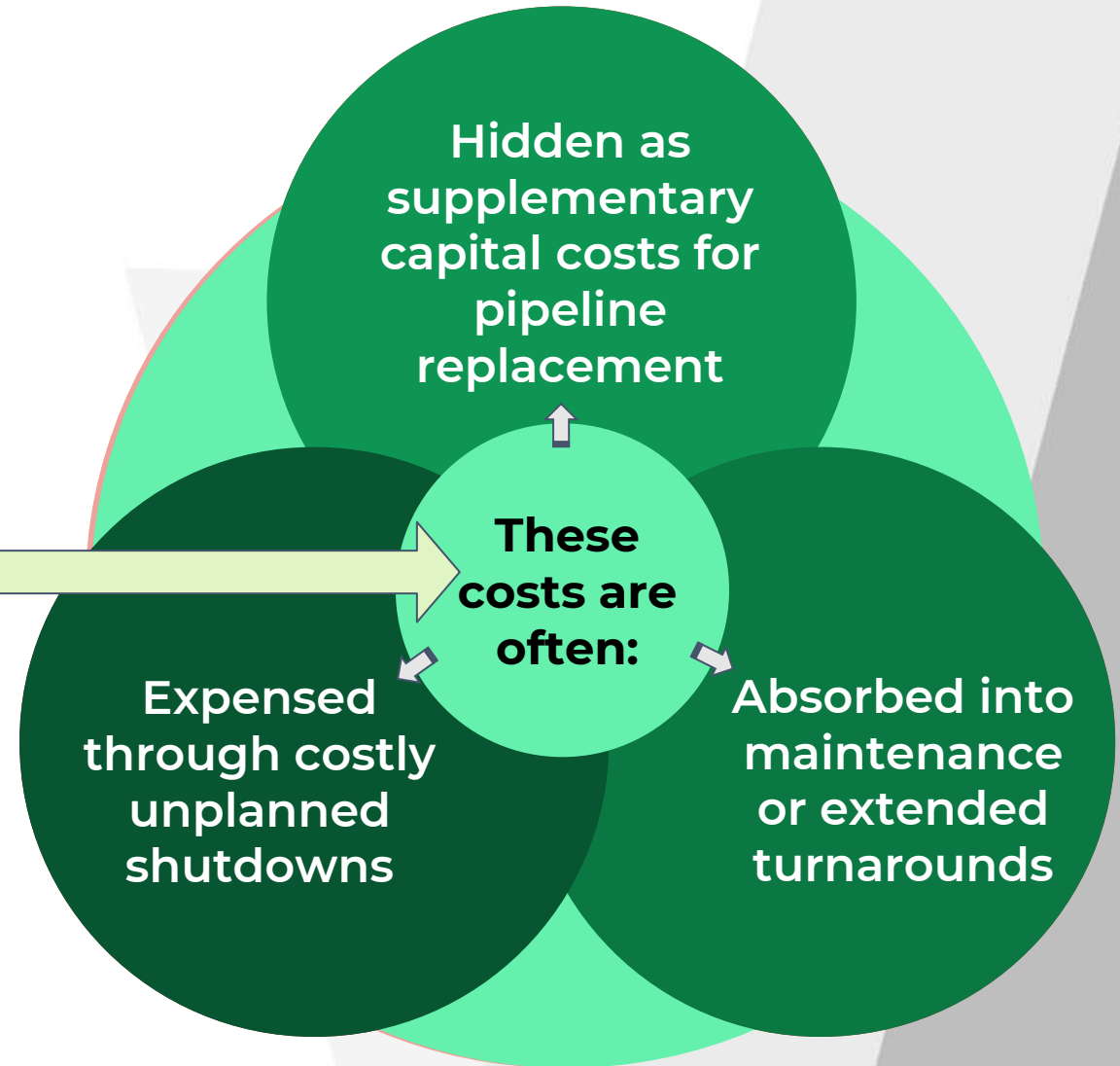
In-service pipe lifts

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Touchpoint Corrosion & Erosion



Compromises safety and costs money through increased material and personnel expenses



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When to Know it is Time to Call Ovolifts

Pipe Inspection & Remediation Project Attributes that Compound Value

GROUND LEVEL LIFTS

Lifting pipes from ground-level supports of any shape or size

STRESS CRITICAL LINES

Lines for which a flexibility review is required to be completed by a Piping Stress Engineer

IN-SERVICE LINES

Lifting lines that are in service with proven safety procedures in place, greatly increasing the available time window for maintenance

Each of these attributes increase the value of Ovolifts deployment compared to conventional lifts and inspection and remediation strategies

OVER-WATER LIFTS

Lifting of lines on supports over open water or other arrangements preventing ground-level access for lifting

MULTIPLE LINES CONCURRENTLY

Concurrent lifting of 2 or more lines across multiple supports

LARGE DIAMETER LINES

Lifting large lines up to or even greater than 60in diameter

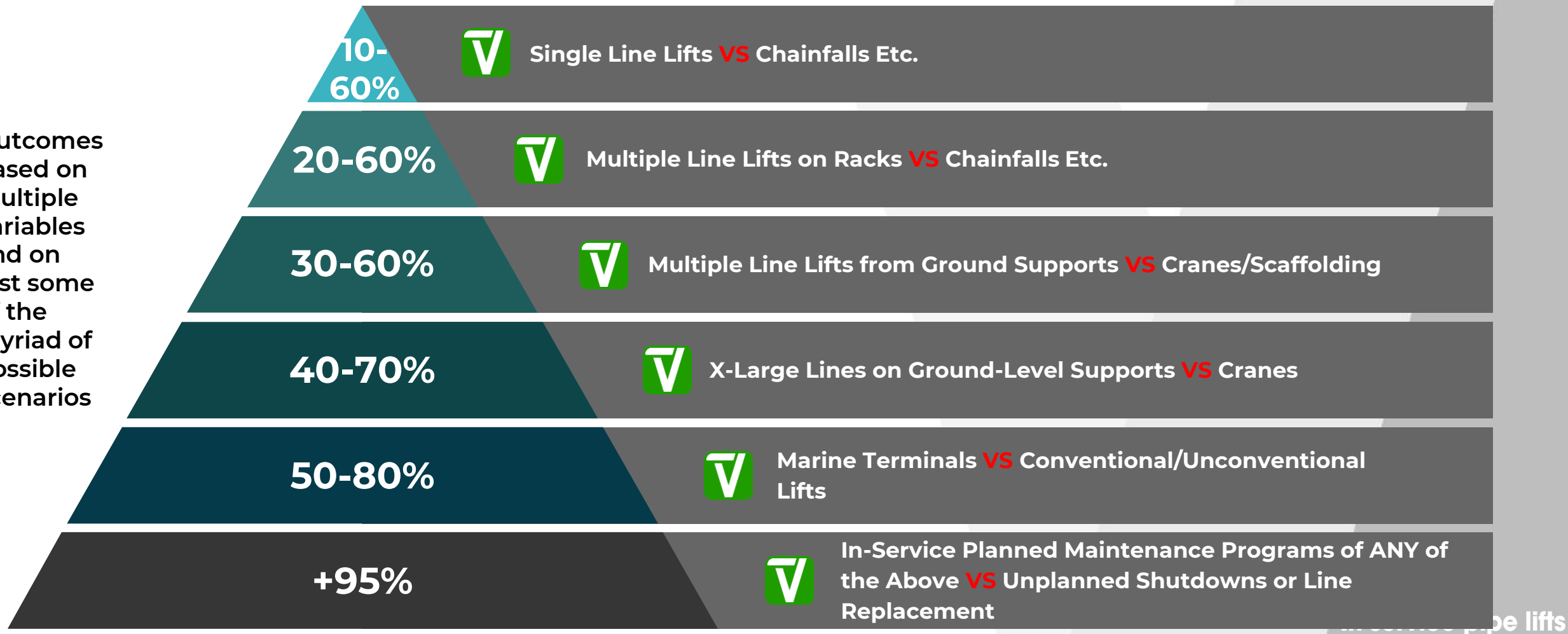
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OVOLIFTS' Overall Cost Savings Against Baselines*

Through Increased Inspection and Remediation Productivity and Asset Life

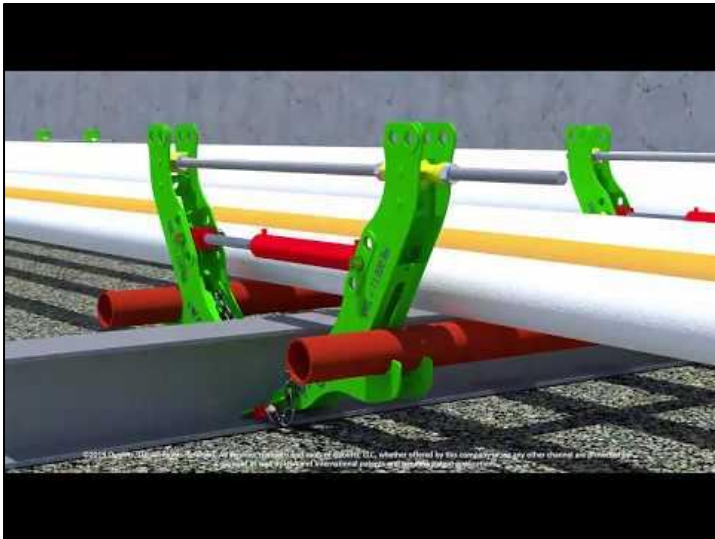
* Outcomes based on multiple variables and on just some of the myriad of possible scenarios



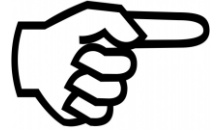
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System Overview Videos

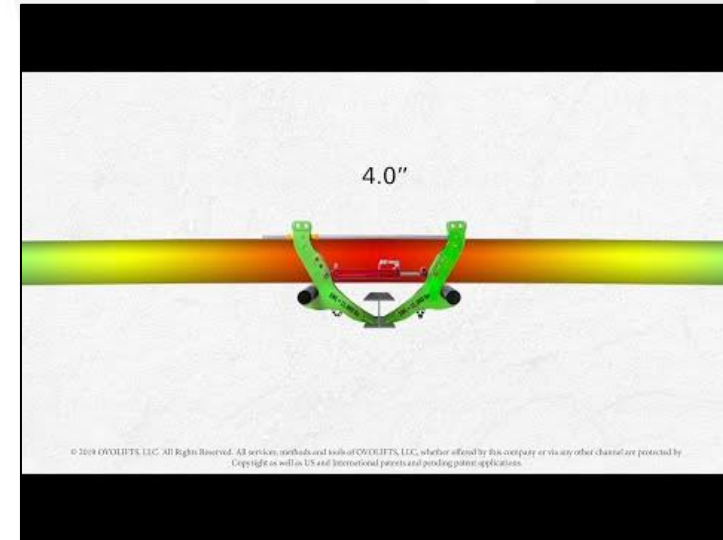
Below are two informative animations:



**In-service pipe lifting
system introduction**



**Click for Video
Animations**



**Engineering Pipe Stresses
and lifting curves**

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Global Operators are Deploying Ovolifts for:

- **Extending the service life** of their pipe infrastructure safely and cost-effectively through proactive inspection and remediation programs.
- **Gaining access** to multiple pipe touchpoints whilst the lines are **in-service**, safely engineered to the lines being lifted
- **Gaining critical information** on pipe condition and access to perform remediation outside of planned shutdowns and turnarounds



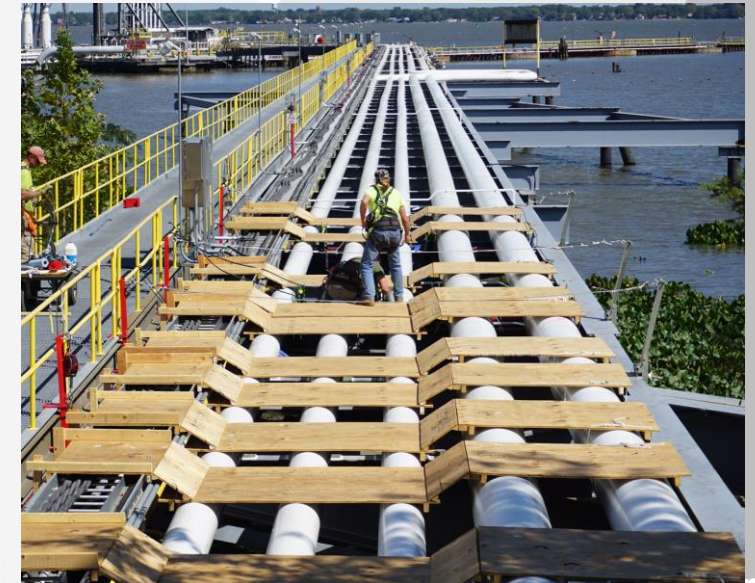
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Ovolifts Case Study - Marine Terminal Remediation Project



Magellan Midstream terminal in Delaware USA. A crew of 5 safely lifted, inspected and completed remedial actions on 584 touchpoints in 7 weeks using 12 Ovolifts Jacks whilst the terminal remained operational. **Deployment of Ovolifts saved 57% of the clients budget and the project required 45% less time than planned.** Most importantly, the terminal remained operational for the duration, saving hundreds of thousands of USD.



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The OVOLIFTS Equipment System

3 Lifting Tools based on a common Patented Tech Platform:



MEGA-PIPE LIFTER (ref: OVO-20M)

- 20 Ton lifting capacity
- Lifts single or multiple pipes
- Any pipe diameter



MULTI-PIPE LIFTER (ref: OVO-10M)

- 10 Ton lifting capacity
- Lifts single or multiple pipes
- Any pipe diameter



UNI-PIPE LIFTER (ref: OVO-1S6)

- 1 Ton lifting capacity
- Single pipe lifts
- 6" pipes and less

44,000 lb / 20mt lifting capacity per support. Ideal for big lifts from ground-level supports, and is unique in this capability. Cranes are an option but at much greater cost and operational risks.

22,000 lb / 10mt lifting capacity, easy to handle and deploy for lifting single or multiple pipes across a pipe rack. This tool is unique in this capability.

2,200 lb / 1mt lifting capacity, easiest to handle and designed for lifting of single (smaller) pipes from pipe racks or ground supports.

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OVOLIFTS' Patented Technology & Engineered Procedures Enables:

**Remote
Lifting**

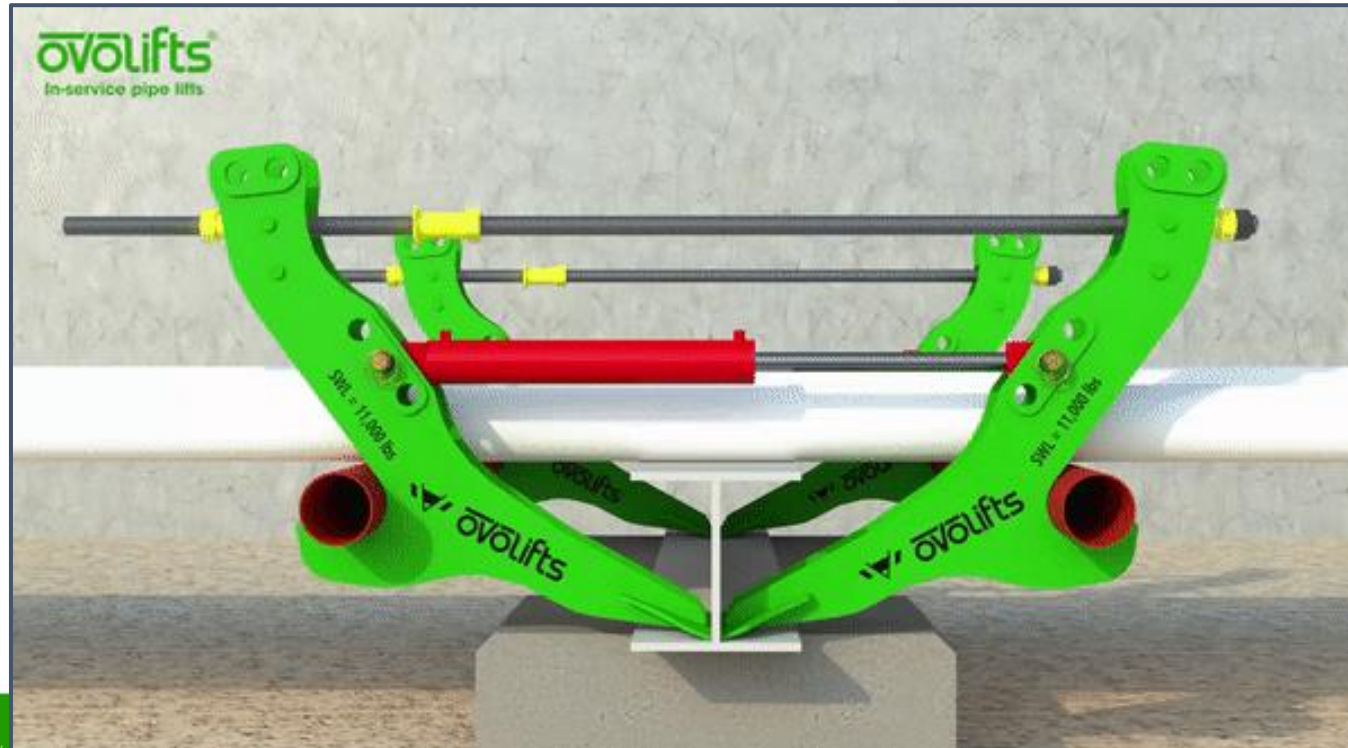
**Lifting from
the Support**

**Static
Structures**

**Multiple
Lines**

**No Cranes
Required**

**In-Service
Experience**

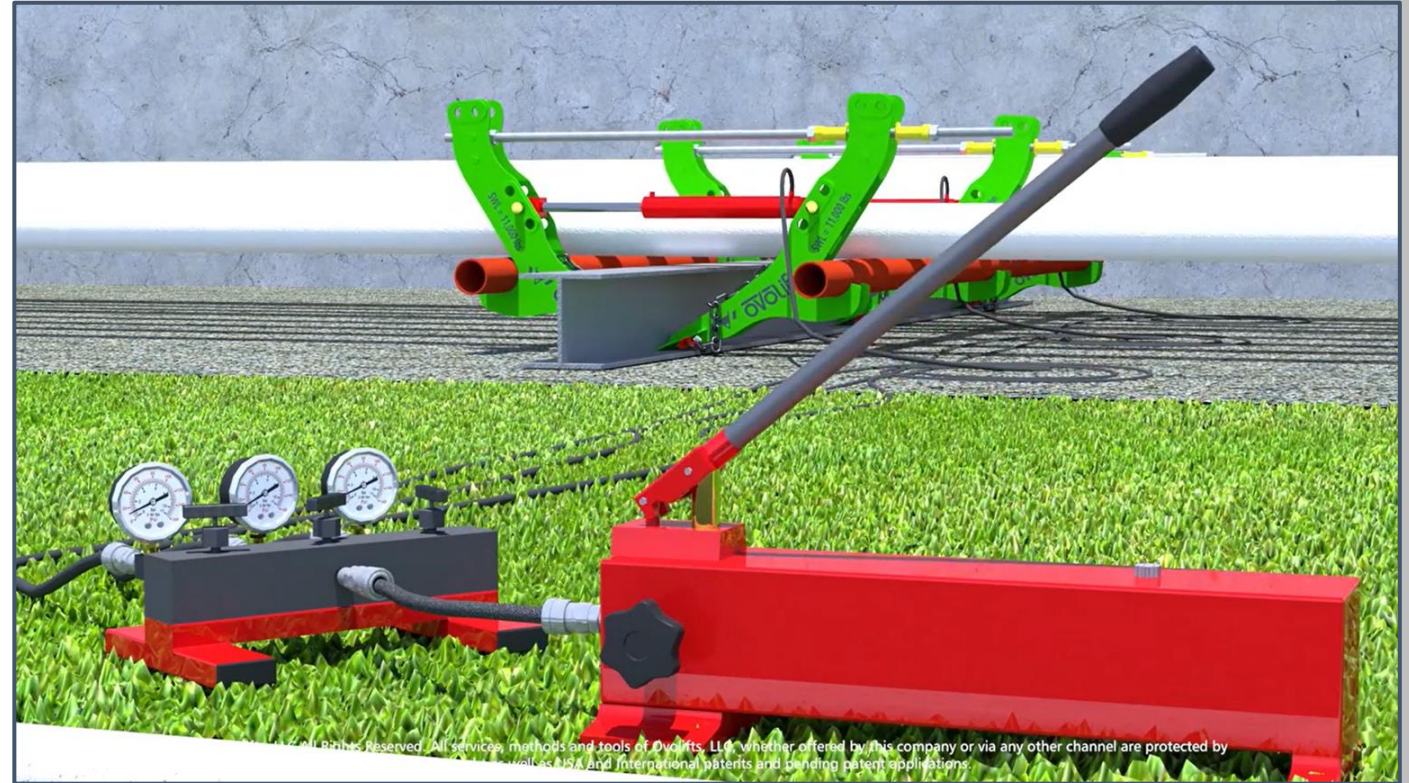
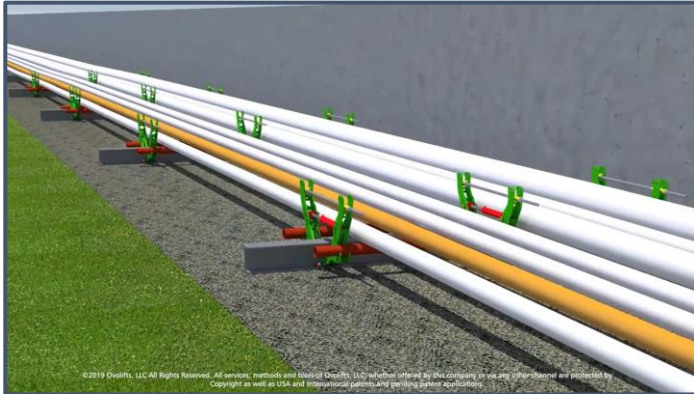


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Unique Remote Lifting Capability

Initial lifts (break-aways) are done remotely using hydraulic activation to avoid personnel exposure if there is a loss of containment at suspect contact areas. This enables our ability to conduct in-service remediations.



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Lifting from the Support

Large pipes are often supported on ground-level concrete sleepers or I-beams and typically require cranes to access for inspections and remediation.

Ovolifts' lifting mechanism is above the pipe but lifts from below using custom landing brackets placed over the supports.



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Static Structure Lockout

Lifts can be vertically secured by a threaded lock-out system on the jack, which is then declared a temporarily supported structure (no longer a suspended load) and therefore safe to work beneath.



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Unique Multiple Line Lifting Capability

Productivity Benefits:

- Access to many more touchpoints for a given input of labour, time and jacks.
- Access to entire I-beam and every touchpoint.
- Sandblasting and painting happens in a single operation rather than one touchpoint at a time.



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Unique Multiple Line Lifting Capability (cont)

An example of 5 tools lifting a total of 16 pipes in unison.

Individual pipes can be lifted to different heights and lifting of single or multiple pipes on a rack can be skipped altogether using shim blocks on the jacks' lifting pipes.



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No Cranes Required

Cranes are incapable of accurate height adjustments, nor are there hard stops preventing pipes being over-lifted or overstressed.

Observers must confirm initial separation and lift heights, an unsafe situation if there is a loss of containment.

Crane are costly, lift only one touchpoint at a time and are classified as suspended loads and thus unsafe to work beneath unless blocked up.



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Ovolifts Case Study - 4" Glycol Line Touchpoint Remediation



A Dow Chemical facility in Seadrift TX. 3000' long line being inspected and remediated using scaffolding, chainfalls and cranes was converted to deploying Ovolifts mid-project.

Contractor productivity increased from 2.73 to 12 touchpoints per week remediated.

Due to the safety features of the Ovolifts system Dow standards were changed to allow pipes to remain elevated overnight for curing.

Ovolifts allowed the project to deploy rope access only and the savings on scaffolding for the entire project duration was hundreds of thousands of USD.

Direct equipment and labour cost savings for Ovolifts deployment compared to the chainfalls and crane was 67%.



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Ovolifts Case Study - 14in Crude Feed Line In-Service Remediation



SAPREF Refinery (jointly owned by BP and Shell) in Durban South Africa. 183 touchpoints were remediated by simultaneous lifting of a rolling 15 supports over a 6 week period. An average of 30.5 touchpoints per week lifted and remediated. 6x50t cranes would have been required to execute this project over the same period and **Ovolifts saved the refinery \$68 for every \$100 that would have been spent on cranes.** Engineered lifts meant the crude feed line was also not shut down, saving millions of Dollars in lost production and other shutdown costs.

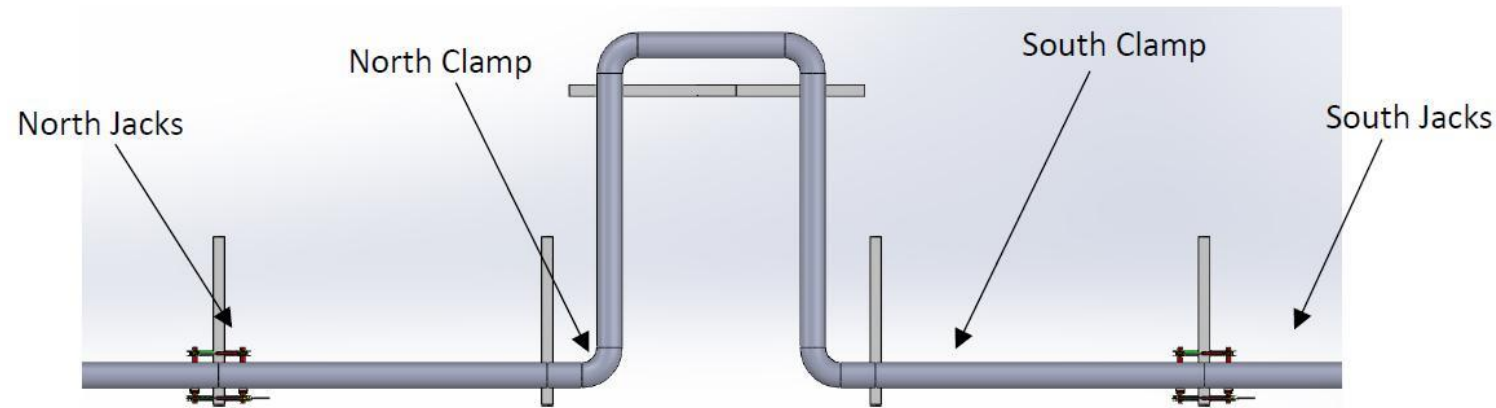


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Case Study - 20" Pipe Hammer Project Ovolifts Jacks Replaced Two Cranes

- Severe pipe hammer caused significant damage to 2 pipe shoes.
- Expansion loop was anchored, adjacent supports lifted to cut out shoes.
- Clamps installed at both damage locations.



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Ovolifts' Global Network

We work with regional & national accredited maintenance contractors from own-offices and an expanding network of agents:



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Ovolifts Solution Summary

The OVOLIFTS solution enables regular touchpoint inspection & remediation programs and priority/emergency programs that are:

Engineered

For critical lifts only: pipe stress analyses and lifting plans developed and worked to standards and rules

Easier

Simple lifting action, componentized design easy to manhandle

Safer

NO CRANES, remote breakaway, planned movements, lift hardstops

Faster

Quick to install & remove, providing concurrent access to multiple touchpoints

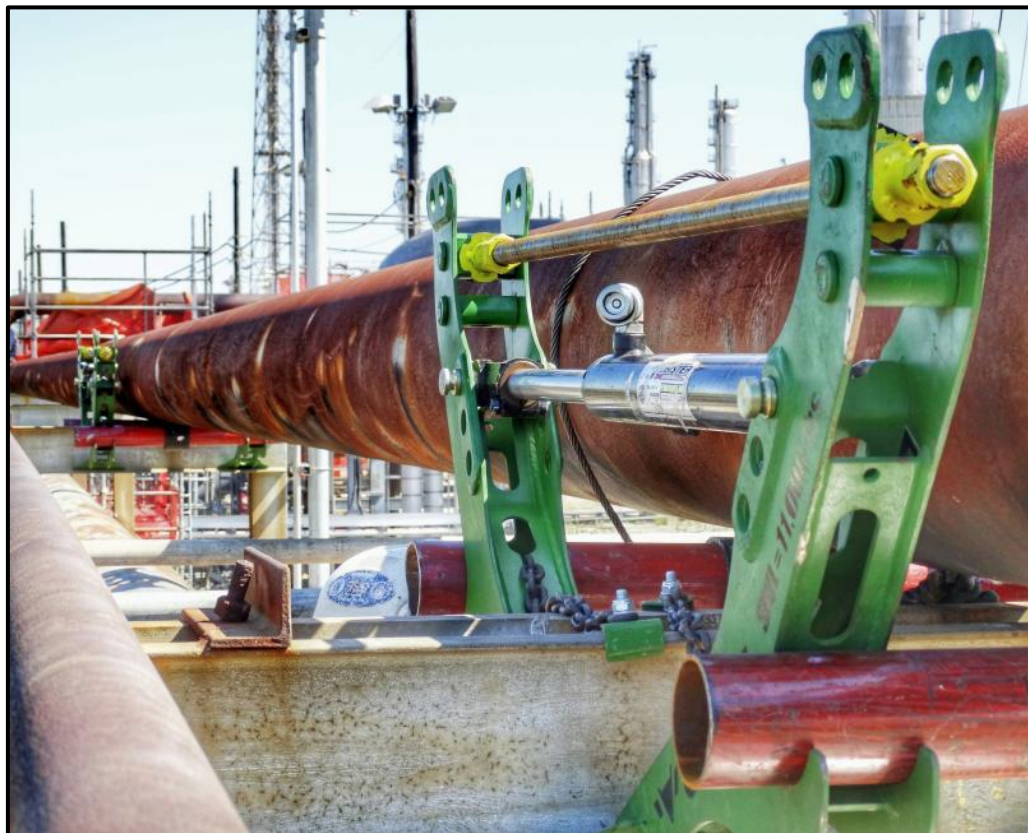
Programmed

Planned, controlled remediation outside of turnarounds and unplanned shutdowns

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Thank You



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