



REDUCTION IN TIME TAKEN TO DECONTAMINATE PROCESS PLANT FOR MANNED ENTRY







WHAT IS DECONTAMINATION?



Simple Answer \rightarrow Making equipment ready for personnel entry

Key issues



Single Stage Decontamination Process Completed within <u>12 Hours</u> once temperature is achieved Simultaneous Distillation, Oxidation and Surfactancy Processes for removal/neutralisation of contaminants, de-oiling and conditioning of solids



WHAT IS ZYME-FLOW[®]?



Zyme-Flow[®] is a chemical formulation in a range of chemical products supplied exclusively to Denholm MacNamee under licence from United Laboratories LLC., the USA manufacturer and patent holder. The name Zyme-Flow is commonly used by clients to refer to the chemical range and/or the application process





CLIENT EXPECTATIONS IN TAR EVENTS



For Onshore and Offshore Applications

- Minimised Decontamination Time
- Minimum Plant Modifications for Decontamination Process
- Well Proven, Efficient, Successful Process
- Minimal Operational Footprint for Decontamination
- Safe Decontamination Products and Processes
- Competent, Experienced & Safety Conscious Contractor Personnel
- Minimisation of Waste Volumes and Costs for Disposal

<u>COST & TIME REDUCTION ON TURNAROUND</u>





Time Savings Comparison

Traditional Decon Approach

Heating & Rigging : 48 hours Chemical circulation: 24 hours

Zyme-Flow Decon Approach

Heating & Rigging8 hoursZyme-Flow Vapour Phase:12 hours

Zyme-Flow Approach

ZF set up & treatment period (20hrs)

Cut treatment time by 72.25%

Traditional set up & treatment period (72hrs)

Traditional Approach





Proprietary Vapour-Phase[®]

- Minimal injection points needed chemical becomes part of steam
- Quickest entry into de-inventoried equipment

Boil Out

- Most often used for horizontal vessels, especially those in when a large volume of sludge is anticipated
- Non-entry method leaves remaining sludge non-hazardous

Circulation

- Used to decontaminate specific vessels and piping
- Can be used if steam is not an option



VAPOUR PHASE DECONTAMINATION









- No nitrogen purging involved in the decontamination process
- Chemistry non reversibly oxidises H₂S
- Pyrophoric iron sulphides are treated in the process
- Non-entry process; sludge is treated inside vessel
- On-site personnel test levels throughout process
- Water-based chemistry
- Non-hazardous (HMIS 0-0-0) and no VOC's
- Wastewater friendly with inherent separation
- Low BOD/COD effluent
- Treated sludge is non-hazardous
- CEFAS & REACH registered



OFFSHORE CASE HISTORY



<u>Nexen Scott Platform – Project Details</u>





OVERVIEW

Zyme-Flow[®] decontamination - Scott Platform V0106 Telford Separator completed in June 2015

Client issues identified as high solids & sludge levels and high LEL. A site visit was carried out in March 2015 and method statements written accordingly to give maximum flexibility and alternates should the need arise.



OFFSHORE CASE HISTORY



<u>Nexen Scott Platform – Project Results</u>

POSITIVES Client was pleased that the boil-out process had clearly proven the chemical capability and the level of success that can be attained. The %LEL remaining in the vessel post decontamination was fully addressed and all internal surfaces were very clean upon manned entry without the need for N_2 . Client was delighted with the time saving although permitry was a serious issue. DML started at midday on Tuesday and were finished by 0800 on Wednesday – 20 hours total including heating time. Residual solids were de-oiled and removal was significantly quicker and easier than with previous cleans. The project was completed within the decon window allocated without accident, injury or near miss. Overall Client was impressed by the efficiency and performance of the DML/Zyme-Flow[®] operation.



OFFSHORE CASE HISTORY PICTURES FROM CLIENT





CLIENT COMMENT

"Denholm did a fantastic job on that separator, believe me. We are all delighted by the outcome"



ONSHORE CASE HISTORY



Scope of Work

- **FCCU:-** Main Fractionator, Depropaniser, Debutaniser & Rerun systems
- **<u>3CDU:-</u>** Fractionator, Kero/LGO/Waxy Cut strippers, Exchangers, Driers, Condensers
- **<u>3DHT:-</u>** Stabiliser, Splitter, HP Separator, LP Separator

TREATMENTS AREA:- Amine Unit, SWS, SRU KO Pots, Sour Water Drum

OTHER:- Flare Knock Out Drums

Planned Manning level and duration =2 x 4 man shifts for 10 days (based on plant release schedule)

Actual Manning level and duration =2 x 4 man shifts for 10 days despite minor delays in plant release)

"Some of the cleanest columns and vessels seen after a decontamination" – Shutdown Coordinator





- Unique & Patented "Green" Chemistry
- Focused Experts & Expertise in Process Unit Decontamination
- Best Practices & Innovative Solutions Continually Developed
- Minimal Operational Footprint
- Gives Rapid Entry to Vessel
- Low Hazard Waste Products from the Zyme-Flow[®] Process
- Easy Application via Vapour-Phase[®], Boilout or by Circulation
- Reduces Turnaround Time & Reduces Overall Costs