Using Surfactants to Decontaminate AST Subfloor Prior to Repair
PROJECT DESCRIPTION

120 FT DIAMETER AST
FLOATING ROOF
GASOLINE STORAGE TANK
CONE DOWN BOTTOM
CENTER SUMP

SUBFLOOR
1 FOOT OF GRAVEL
1 FOOT OF SAND
80 mm HDPE LINER
LEAK DETECTION
Flexible membrane liner bonded to sump (Alternative is to continue liner into the sump as a lining)

100 mm (4") sand cushion

Gravel at drain

300 mm (12") diameter (min) sump

Drain pipe with optional sleeve. Discharge to leak detection well or perimeter
CHALLENGE:

• LEAK IN TANK FLOOR, CONTAMINATION BELOW

• VERY HIGH LEL READINGS, DRIPS AT LEAK DETECTION

• UNSAFE TO DO FLOOR REPAIR, EVEN USING COLD CUTTING

SOLUTION:

• OLD - PUMP N2 INTO VAPOR SPACE

• NEW - INJECT VAPOR SUPPRESSING SURFACTANT SOLUTION
What are Surfactants?

SURFace ACTive AgenNT

Surfactants change the behavior of liquids at the surface

Surfactant Molecule

Lipophilic Tail

Hydrophilic Head

“Oil Loving”

“Water Loving”
Attracted to both water and oil, surfactants will encapsulate oil droplets

Hydrophilic head
Lipophilic tail

Oil Droplet
Aqueous Solution

“Mycelle”
“Macro-Emulsion”

Massive Increase In Surface Area
Hydrocarbon Surfaces Not Exposed To Air
Droplet Surfaces Are Water Loving
Emulsion Characteristics

94% Diesel
4% Water
4% Pinkwater

100%

Density = DIESEL
Toxicity

Flow
characteristics

Volutility = WATER

EMULSION
The emulsion contains micro-encapsulated hydrocarbons

Three Specific Benefits

- Reduced volatility
- Increased solubility
- Improved bioavailability
To create an emulsion ...

Contamination + Surfactant + Water + Agitation

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Sold as a concentrate
PRODUCT LINE

biosolve PINKWATER
HYDROCARBON MITIGATION AGENT™

NEW!

biosolve CLEAR
HYDROCARBON MITIGATION AGENT™

biosolve FOGWASH
REMOVES FATS, OILS & GREASE™

NEW!

biosolve ACTIVATOR
SOIL REMEDIATION AGENT™

biosolve HYDROVENT
BIOREMEDIATION AGENT

“Readily Biodegradable”*
Pinkwater is “effective, simple & safe”
“Non – Hazardous”

BioSolve Pinkwater does not contain any hazardous ingredients as defined by:

• TSCA (Toxic Substances Control Act)
• CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)
• Massachusetts Right to Know Law
• California Proposition 65

...“contains no listed ingredients”
PROCEDURE:

I – REDUCE LELs

• COLD CUT FOUR HOLES INTO TANK BOTTOM

• PREPARE 20:1 OR 24:1 SOLUTION OF BIOSOLVE PINKWATER

• FLOOD SUBFLOOR UNTIL SOLUTION COMES THRU LEAK DETECTION AT SUMP

• MOVE TO NEW PLATES & REPEAT

OBJECTIVE IS TO GET LEL’s DOWN CAN REACH JUST 1% OR 2%
PROCEDURE:

II – DECONTAMINATION

• REMOVE FLOOR PLATES USING “RIVIT BUSTER”

• SET UP CRIBBING, REPLACING LEGS, TO SUPPORT FLOATING ROOF

• RECOVER & REPLACE CONTAMINATED SUBSTRATE

REPEAT (I) AND (II) UNTIL ALL CONTAMINATION IS REMOVED

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PROCEDURE:

III – REBUILD TANK FLOOR ABOVE DECONTAMINATED SUBFLOOR
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