ASSALA ENERGY

2024

CASE STUDY: LANDFARMING

ASSALA'S APPROACH TO RESTORING NATURE

The process

Assala treats legacy sludge, oil residue and black spot areas through ex-situ landfarming, a technique used to treat soils contaminated with hydrocarbons.

The process reduces the hydrocarbon concentration through bioremediation, degrading harmful pollutants into nontoxic or less hazardous substances using enzymes and other microorganisms. The treated soil is also mixed for aeration, stimulating the added nutrients and encouraging hydrocarbon loss to the atmosphere[1].

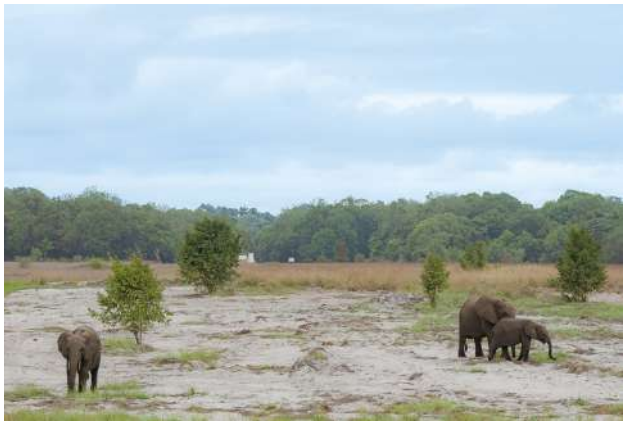
Soil conditions are controlled to optimise the rate of contaminant degradation.

1 Contaminated soil is safely transported to our dedicated landfarming site at Gamba.

2 Nutrients are added and aerated to improve efficiency of treatment process.

3 Treated soil is moved to lined beds to allow continuous monitoring of hydrocarbon degradation and soil quality improvement.

4 Once treated to within internationally compliant levels, soil is used to backfill excavated land and is covered with an ecolayer to encourage regrowth.



5 Assala operates in harmony with nature.

1. https://www.sciencedirect.com/science/article/pii/S0048969717309099

The results

In December 2022, tests conducted by an external contractor demonstrated that Assala's landfarming process has been successful. Between May and December 2022, average hydrocarbon concentration in the soil had decreased from 78,000ppm to 3,000ppm, significantly below the threshold of 5,000ppm agreed with Gabon's Hydrocarbon Ministry's laboratory team (DGEL) at the beginning of the process. In early 2023, DGEL representatives also controlled and validated these results to ensure compliance with the agreed threshold.

Putting landfarming into practice: treating and remediating black spot areas

Since 2019, Assala has been working to remediate legacy black spots.

Black spots are sites of contaminated soil resulting from oil and gas production activities. Created by practices that, today, are unacceptable in our industry, black spots within Assala's assets were inherited and contribute to legacy waste.

We are now in the next phase of our black spot remediation project, which involves backfilling treated soil into the remediated areas. Since 2023, we have backfilled 36,700m³ of clean, compliant soil, helping to restore the landscape and support natural regeneration.
We have earmarked a further 7,000m³ for backfilling in 2025 as we continue to make steady progress in closing out legacy sites.

Our journey

2019

- Project initiated: 30 legacy black spots mapped

2020

- COVID-19 logistical constraints delay project
- Contractor identified to commence work in 2021

2021

- Analysis conducted by specialist contractor which reduced 30 black spots to 7

2022

- 10,800m³ of inherited contaminated ground treated
- Concentration of hydrocarbons in excavated soil reduced to 3,000ppm

2023

- 9,000m³ remediated
- Areas backfilled with internationally compliant soil, treated through landfarming

2024

- 9,700m³ remediated
- 7,000m³ earmarked for remediation in 2025

Implementing solutions for the future

This technique allows us to eliminate legacy waste from our sites, as well as implement a solution for the future. In the event of a process safety event (PSE) leading to a spill, instead of storing contaminated soil, we can rehabilitate and return it to the environment.

Continuous monitoring of ground water sources is crucial to the efficient identification of newly contaminated areas. In the event of an LOPC or spill, our teams are prepared to respond and, where necessary, remove soil to be treated at our dedicated landfarming site.

ASSALA ENERGY

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