

SOTERIA-I + QUAD EM

Layered protection of tank farms and critical fixed assets

An airborne overwatch platform and a ground-based quad-launch interceptor working together to protect coastal storage, process units, and high-value infrastructure.



SOTERIA-I on station over a coastal tank farm at last light.

Tank farms cannot absorb a cheap air threat

A coastal tank farm concentrates crude, intermediates, and finished product in large atmospheric tanks, tied to process units, pump stations, and a shoreline road. One successful one-way drone, sabotage UAV, or unauthorized approach against a tank roof, manifold, or control building can produce fire, spill, and multi-day shutdown. The site is large. The valuable points are few. The warning window is short.

STORAGE Atmospheric tanks and banded compounds — high consequence, low agility.

PROCESS Units, manifolds, and pump stations where a hit stops the whole site.

SHORELINE Exposed perimeter with road and sea approach; late visual cue.

FIXED VALUE Control rooms, substations, and loading racks that cannot be moved.

Higher-echelon air defense and electronic warfare may cover a region. They do not sit on a tank roof. The site still needs an organic pair: something that sees the approach from above, and something that stops it at the last hundreds of meters without putting a kinetic blast next to product.

Air overwatch + ground intercept

SOTERIA-I is the airborne layer. Quad EM is the ground layer. Together they turn a static tank farm into a site that can detect, track, and stop an unauthorized air approach before it reaches product.

SOTERIA-I

Airborne overwatch

Patrols the tank farm, shoreline road, and process blocks from altitude.

Gives the site a moving high point: early cue on low, cheap airframes that ground cameras miss.

Marks the approach corridor so Quad EM is already oriented before the last 20–40 seconds.

Does not replace site cameras. It fills the air gap above the bund.

QUAD EM

Ground quad-launch interceptor

Fixed or rapidly emplaced turret on a rotating platform at key mounting points.

Four-tube launch for density: track multiple inbound tracks, engage more than one.

Non-lethal intercept against drones, unauthorized approach, and low air threats near product.

Stays on the ground next to the asset that cannot move.

Rule of employment: SOTERIA-I finds and holds the track. Quad EM owns the last line around tanks, manifolds, and control buildings. Neither layer is asked to do the other's job.

SEE

Air picture over the farm

CUE

Hand-off to the turret

STOP

Intercept short of product

On station over the farm



In this scenario SOTERIA-I holds a slow orbit or racetrack above the coastal tank compound at last light. From that seat it watches tank roofs, the shoreline road, and the sea approach. A small inbound UAV that would be lost against process steel from ground level is a moving object against sky and water from above.

- 01 Cue the duty officer and the Quad EM sector covering the threatened tank row.
- 02 Keep eyes on the inbound while the turret slews — do not break the track to hunt a second unknown.
- 03 If the airframe turns for the control building or loading rack, update the intercept point, not the whole site plan.

Last line at the mounting point



Quad EM sits on a ground rotating platform at a pre-surveyed mounting point: tank-row end, manifold island, or control-building roof edge. It is the site's organic interceptor — not a regional battery.

PLACEMENT

Cover the tank faces and air corridors SOTERIA-I cannot physically stop.

DENSITY

Four launch tubes for simultaneous or sequential engagement on a cheap swarm.

EFFECT

Non-lethal intercept near product, people, and fuel-rich plant.

CUE

Accepts the airborne track; does not wait to discover the inbound itself.

LIMIT

Owens hundreds of meters around the asset, not the whole coastline.

Sunset run against Tank Row B

T-90 s

SOTERIA-I, on a shoreline racetrack, picks up a small low airframe inbound from the sea road. Ground cameras have not yet separated it from process steel.

T-60 s

The air picture is handed to the Quad EM covering Tank Row B and the adjacent manifold. The turret is already in the threat sector.

T-25 s

The airframe commits to a tank roof / bund approach. SOTERIA-I holds the track. Quad EM fires a first tube, with a second tube available if the path splits or a follower appears.

T-0

The inbound is stopped short of product. No blast next to the tank. The site stays in operation. The duty officer records the track for the next patrol pattern.

Each layer owns a different failure

LAYER	OWNS	FAILS IF ALONE
Regional C-UAS / EW	Wide area	Late or absent at a single tank row
Site cameras / fence	Ground line	Misses low, cheap airframes against steel
SOTERIA-I	Air picture over the farm	Can see, cannot stop at the tank face
QUAD EM	Last hundreds of meters	Blind without an early airborne cue
THE PAIR	See + stop at the asset	The gap that used to sit on the tank roof

Tank farms and other fixed assets fail in one direction: a cheap airframe reaches a thing that cannot move. SOTERIA-I removes the surprise. Quad EM removes the last-meter success. The combination is the first time the site owns both halves of that problem without waiting for a battalion-level battery.

- MOUNTING** Quad EM at tank-row ends, manifolds, control buildings — not one turret for the whole coast.
- ORBIT** SOTERIA-I racetrack biased to sea and road approaches at last light and night.
- SAFETY** Non-lethal intercept preferred next to product, people, and fuel-rich plant.
- COST** The inbound is cheap. The pair must be cheap enough to keep on station every dusk.

From an undefended tank roof to a site that can see and stop.

SOTERIA-I and Quad EM do not make the farm a fortress. They close the specific hole that now kills fixed energy assets: a cheap airframe, a short warning, and nothing organic between the water and the tank.

Air overwatch for the picture. Ground quad-launch for the last line. Together they give storage, process, and high-value fixed plant a personal protection layer they did not have.

LINE *See the approach from above. Stop it at the bund.*

LINE *One orbit. One turret. One tank row that is no longer naked.*

LINE *Non-lethal intercept next to product — the site stays online.*

LINE *SOTERIA-I finds it. Quad EM ends it short of the asset.*

Classification: Unclassified demonstration booklet

Subject: Layered protection of tank farms and critical fixed assets

Imagery: SOTERIA-I site overwatch · Quad EM ground interceptor