

Area Notification



Agenda

Oil and Gas Situation Today

Challenges

Solution

- Long Range Acoustic Device
- Remote Long Range Acoustic Device

Key Features and Benefits

Product Overview

Risk Exposure

Summary

Situation

Today's changing threat environment has increased the need for security installations such as oil pipelines and offshore platforms to protect people and property.



**Terrorists Attack on
French Oil Tanker Limburg
October 2002**



**Terrorists Attack
Romanian Oil Rig
August 2006**

Challenges

Vessels operating near oil infrastructure are a constant concern to the platform operator when communication or intent cannot be established.

The catastrophic environmental consequences of an intrusion have long been reason for the platform operator to take extraordinary steps to protect his assets.

Oil is a critical economic resource and the impact of having a short term shortage is disastrous.

Oil infrastructure is extremely valuable and the security measures taken to protect these assets warrants constant examination.

Solution

Given this complex security situation, oil and gas professionals must confront these challenges with a solution that compliments and strengthens each platform's existing security measures.

The breakthrough product called the Long Range Acoustic Device (LRAD) has now been developed. LRAD is a highly directional hailing, warning, and deterrent system that is designed to communicate with authority, affect behavior, and help determine intent.



Remote Long Range Acoustic Device



The LRAD suite of products includes the Remote Long Range Acoustic Device (LRAD-R).

LRAD-R gives platform operators the ability to effectively respond to potential threats from a safe operating environment in a remote location.

LRAD-R is the ideal solution for unmanned platforms.

Key Features and Benefits

Effectively hail, warn, and deter potential threats at extended distances

- This enables enforcement of exclusion zones around oil infrastructure.

LRAD has exceptional voice intelligibility and tonal clarity at long ranges

- This gives the platform operator the capability to issue clear verbal challenges to potential intruders.

LRAD is specifically designed with a psycho-acoustic deterrent tone

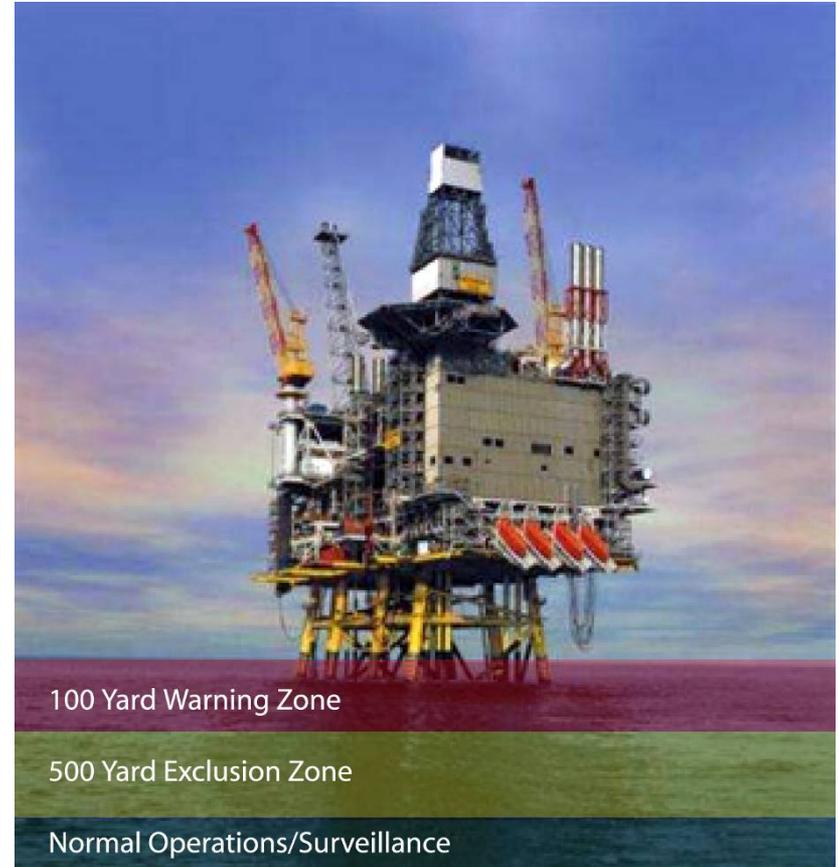
- This gives the platform operator the ability to determine the intent of potential threats from extended distances
- This allows the platform operator to effectively react and respond with the appropriate security measures.
- This provides longer stand-off distances for increased asset protection.

Exclusion Zone Enforcement

LRAD can assist platform operators in enforcing an exclusion zone around their oil infrastructure.

Upon detection of a potential threat, the platform operator can perform the following actions:

- Hail out to the approaching vessel before they are in close proximity.
- Warn the vessel to depart the area immediately or further action will be taken.
- Deter the vessel with a highly irritating deterrent tone.



Effective Communication

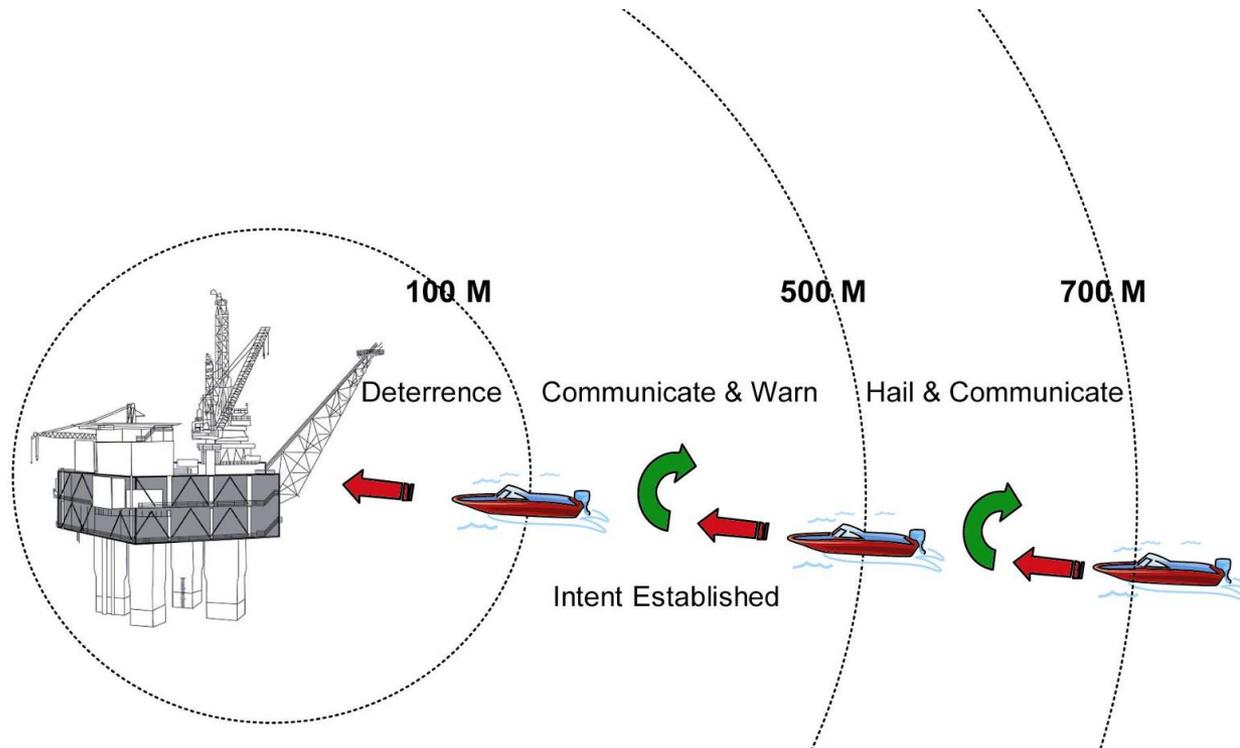
LRAD will transmit your message with exceptional voice intelligibility and tonal clarity in a highly directional beam, even with significant ambient noise.

With LRAD, you can avoid miscommunication as it will send your message loud and clear in any language.

With LRAD, you can issue a verbal challenge with instructions in excess of 500 meters.

Determination of Intent

LRAD provides platform operators the ability to determine the intent of a potential threat at the earliest possible moment and at the greatest distance.



Deterrence

The level of threat posed by terrorists can be reduced through deterrence and disruption.

LRAD incorporates proprietary warning/deterrent tones specifically designed to interact with the human auditory system in a very effective manner.

LRAD adds a layer of deterrence that is effective and complementary with other deterrents such as physical barriers, fire hoses, and retracted ladders.

LRAD - Sound Intensity Levels

- 3 - 13 dB Threshold of hearing (depending upon age and sex)
- 20 dB Leaves rustling
- 60 dB Normal conversation
- 70 dB Busy street traffic
- 80 dB Vacuum cleaner
- 85 dB OSHA requires protection based on exposure over 8 hours
- 98 dB Large orchestra
- 100 dB Walkman at max level
- 110 dB Front row of rock concert
- 120 dB Threshold of pain
- 140 dB Military jet takeoff
- 151 dB LRAD 1000/LRAD-R
- 160 dB Instantaneous hearing damage

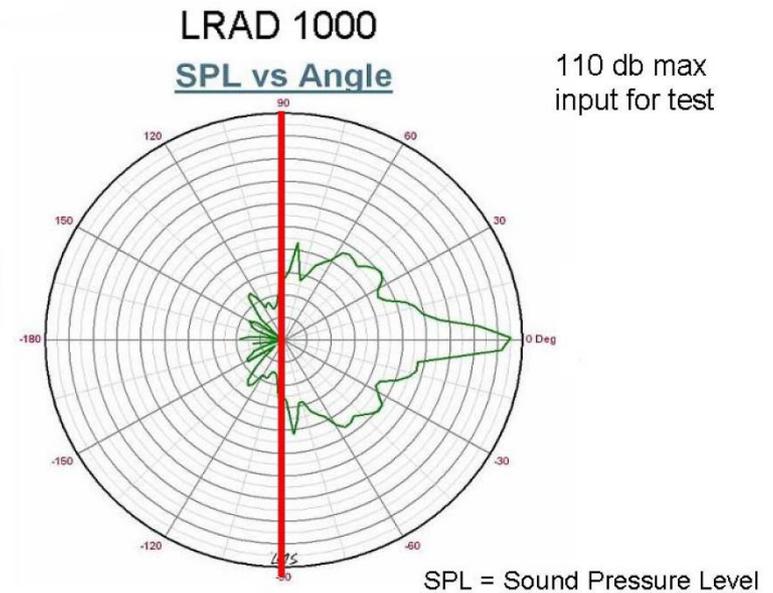
According to OSHA, hearing loss is a result of time exposure and decibel level. When LRAD is used in accordance with the operating instructions, no one is exposed to harmful audio levels.

Safety

The high directivity of the LRAD device reduces the risk of exposing the platform operator or nearby personnel to harmful audio levels.

Sound behind the LRAD unit is between 40 - 60 dB less than the on-axis forward output.

The LRAD was designed to operate between the threshold of pain and the level of instantaneous hearing damage. This makes LRAD a safe and extremely effective tool.



Sound behind LRAD unit is over 40 dB less than the on-axis forward output.

Protecting Unmanned Platforms



Problem:

Unmanned platforms are not only perceived as vulnerable targets to thieves and vandals, but also wildlife. Bird control is a growing nuisance for platform operators.

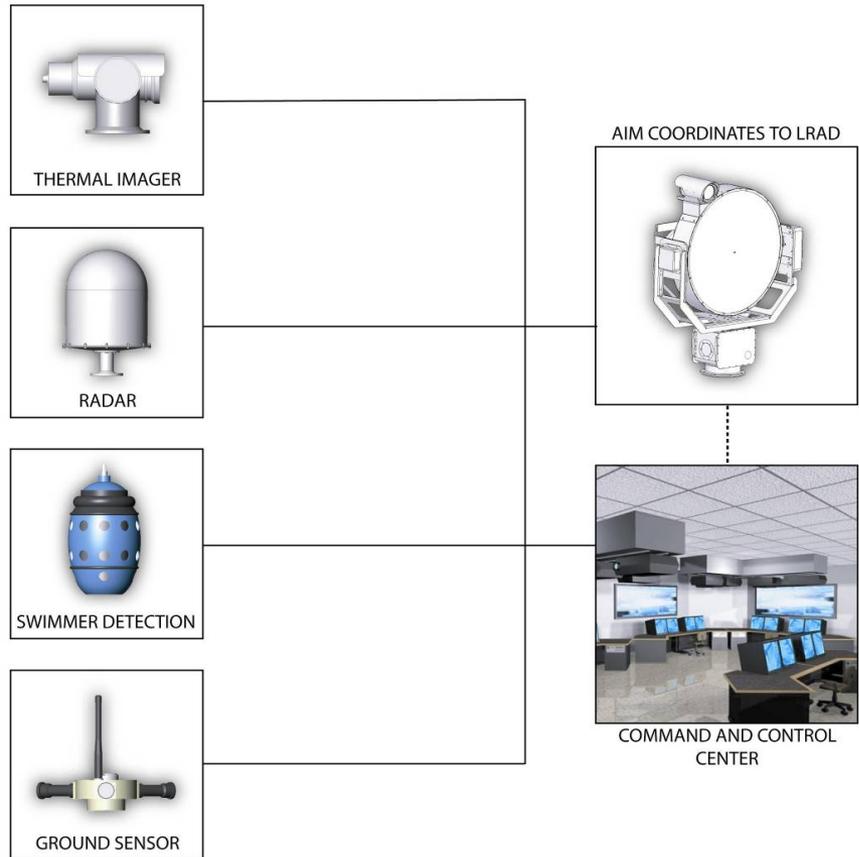
Solution:

LRAD-R provides platform operators the ability to communicate with and deter potential threats from a safe operating environment in a remote location.

LRAD-R can also be used as an effective bird deterrent/repellent.

Security System Integration

LRAD-R can be integrated into a sensor network to locate and track a potential threat. This enables the command and control center to view the threat from a safe operating environment in a remote location. The coordinates obtained from the sensors are transmitted to the LRAD-R for precise aiming. This gives platform operators the ability to appropriately respond to a potential threat.



Oil and Gas Applications

- Enforcement of exclusion zones around oil and gas platforms

- FPSO
- Production Platforms
- Drilling Rigs

- Critical infrastructure protection

- Unmanned Platforms
- Pipeline Pump Stations

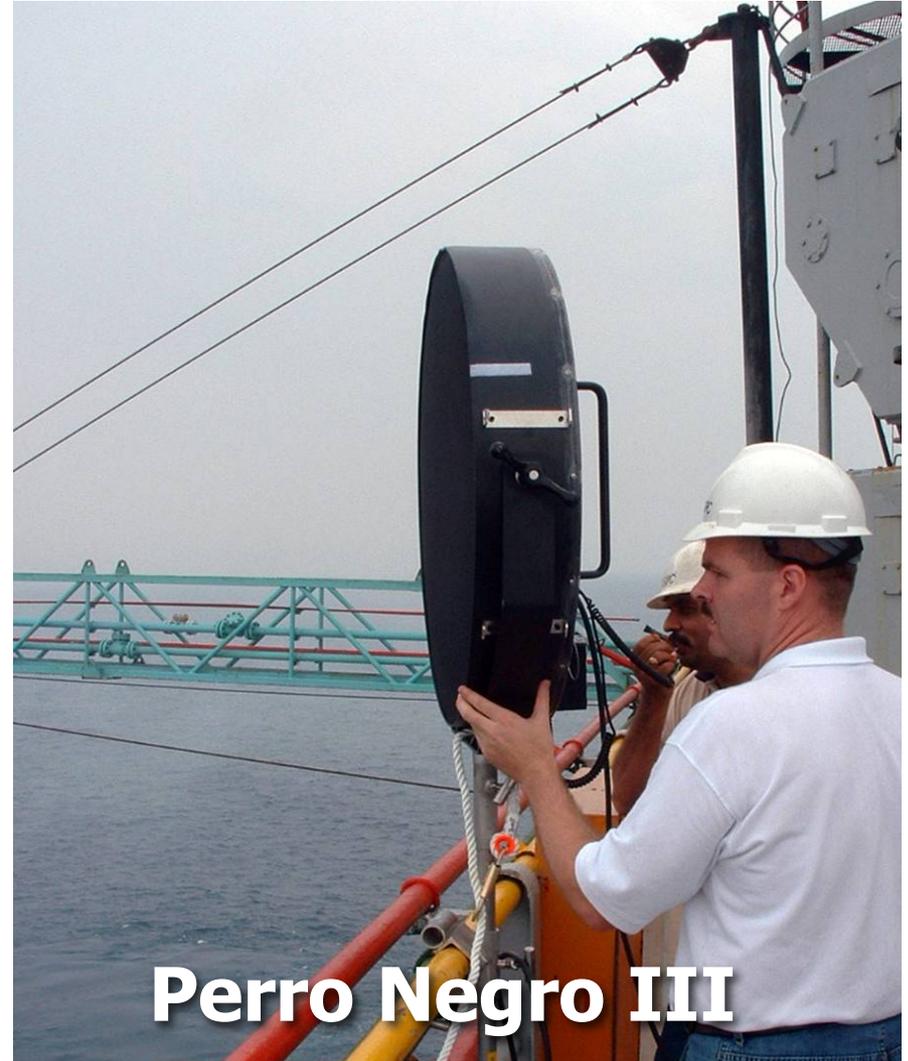
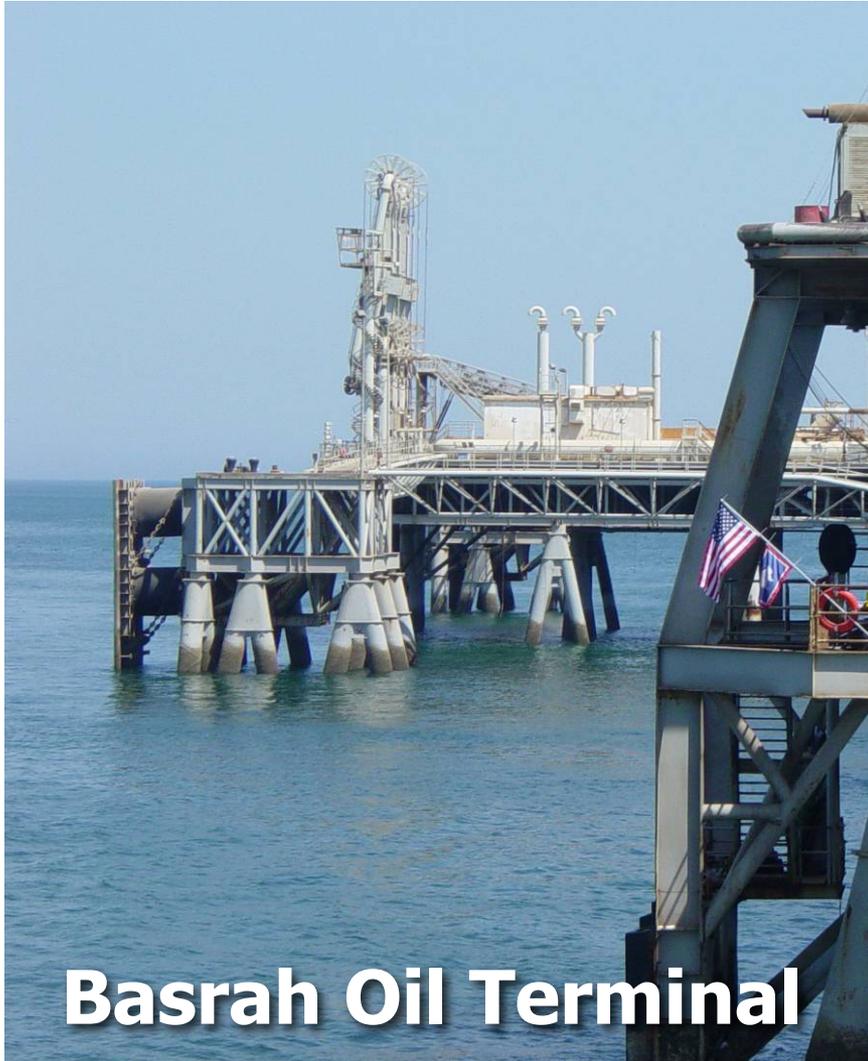
- Shipboard Protection

- LNG Tankers
- Oil Tankers
- FPSO

- Bird Detection/Repellent

- Unmanned Platforms

Critical Infrastructure

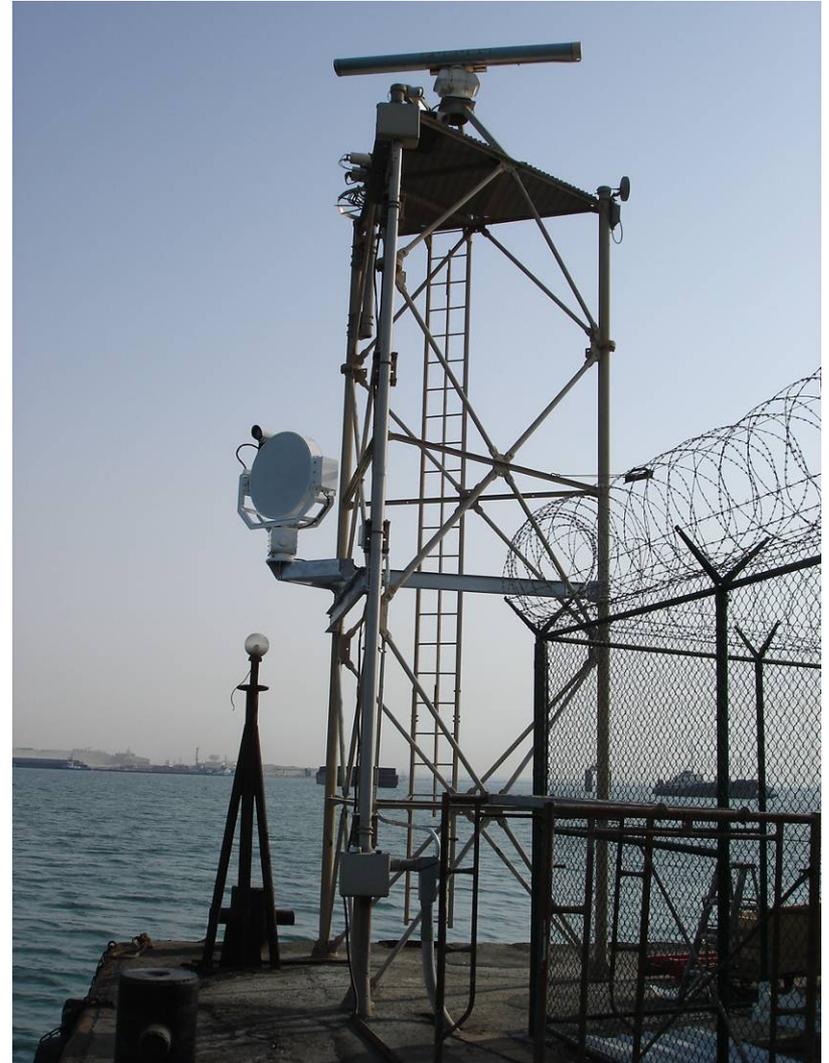


Critical Infrastructure Protection



Louisiana Offshore Oil Port Security

Enforcement of Exclusion Zones



International References



Shell made an assessment to increase the security measures on their offshore oil platforms. Following the assessment, Shell has deployed LRAD 1000 units on their oil installations in Nigeria.



communications

L-3 Communications recently purchased LRAD-R units for integration into their HarborGuard System, which is used for protection of waterborne vessels, waterfront facilities and oil infrastructures.



Woodside currently has LRAD 1000 units deployed on oil installations off the coast of Africa

Existing O&G Clients



Deployment Methods

We have many different models and options available to compliment and strengthen any platform's existing security plan.

Offshore Production Platforms

LRAD deployed on all four faces of the platform providing constant 360 degree coverage.

Offshore Supply Vessels

LRAD deployed at the front and rear of the OSV.

Floating Production Storage and Offloading Vessels

LRAD deployed at the front and rear of the FPSO Vessel.

Risk Exposure

Direct

- Safety of human resources
- Partial or complete loss of physical assets
- Loss of production
- Environmental cleanup cost resulting from oil spills

Indirect

- Impact to the national economy due to short term shortage
- Increased insurance premiums
- Increased likelihood of future attacks due to previous successes

Summary

LRAD is a leading edge technology with proven security applications.

LRAD provides the platform operator with the ability to effectively respond to potential threats through authoritative communication and unmistakable warning.

LRAD provides the platform operator with the ability to determine the intent of groups or individuals from extended distances.

LRAD gives the platform operator a longer stand-off distance for increased asset protection.

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