

APPLICATION WHITEPAPER

# CRIMINAL AND MILITANT RISKS TO PRIMARY INDUSTRY IN REMOTE REGIONS - HF AS A SECURITY MEASURE

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**CODAN**  
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## SUMMARY

Primary industry, referring particularly to oil and natural gas production and mining, has long been a target of criminal and militant insurgent activity around the world. With oil, gas and mining facilities typically found in very remote areas far from infrastructure, without civilian communications coverage and so geographically large that they are almost impossible to properly secure, transporting goods and personnel between locations is a key vulnerability that armed groups often exploit.

With distances between mining, oil and gas sites and their nearest logistical hub typically several hundreds of kilometres long, the only viable and sustainable method of communications in these situations is high-frequency (HF) radio.

Codan HF radios are able to communicate over hundreds and even thousands of kilometres in vehicle-mounted format, entirely independent of infrastructure such as cell towers, repeaters or satellite stations.

## INTRODUCTION

Primary industry, referring particularly to oil and natural gas production and mining, has long been a target of criminal and militant insurgent activity around the world.

‘Attacks on oil and gas installations have become the weapon of choice for international terrorism, irrespective of the political system and social-financial boundary conditions of the society under attack, for example:

- In Columbia....FARC and ELN have attacked the national pipeline Cano Limon-Covenas so many times over the past five years that it has become known as The Flute;
- In 2004 Chechen....have been able to blow up several pipelines in and around Moscow, Volgograd, Dagestan and Stavropol despite increased efforts by the Russian security forces;
- In 2006....ULFA staged several pipeline attacks in the oil-rich region of Assam;
- Repeated acts of pipeline sabotage in Iraq cost the country just in the first two years since the invasion in March 2003 more than US\$10 billion in oil revenues;
- In Mexico six simultaneous attacks by EPR....against oil and gas pipelines on September 10, 2007 caused severe supply shortages, leading to the temporary closure of several factories.’

*Center for Contemporary Conflict, Strategic Insights Vol. VII Issue I*

It is clear that threats to the oil, gas and mining industry is a worldwide problem. From the 2019 Abqaiq-Khurais drone attack in Saudi Arabia and attacks on oil rigs in the Niger Delta in the same year, to attacks on copper mines in Indonesia in 2020, these incidents are seen worldwide.

Many foreign policy think-tanks predict that this issue will only continue to grow:

‘The oil industry in....Central Asia, Indonesia, Russia, Africa and South America have either been attacked or threatened by....organizations that have the capacity to strike. Although these organizations to date have been either unable or unwilling to carry out deadly strikes, the fact of these initial probes gives the researcher reason to believe that they will be attempted again.’

*James A. Baker III Institute for Public Policy, Oil and Terrorism*

These attacks can take multiple forms, such as suicide Vehicle Borne Improvised Explosive Device (VBIED) attacks on static installations, offensive drone and even cyber attacks in recent years. Local authorities and private industry take various measures to protect primary industry in at-risk areas, such as the permanent deployment of the Army and Air Force in Algeria to bolster private security following the 2013 In Amenas gas refinery attack, or the hiring of government sponsored private security to protect valuable gas projects at risk of insurgency in northern Mozambique.



*Algerian soldiers guarding the Tiguentourine gas refinery*



Indonesian soldiers guarding the Freport copper mine.

While it is possible for private industry and government authorities to improve their defences against attacks on fixed sites, admittedly with varying degrees of success and at huge expense, one element of primary industry operations remains highly vulnerable to criminal and insurgent activity – logistical movement between sites.

With oil, gas and mining facilities typically found in very remote areas far from infrastructure, without civilian communications coverage and so geographically large that they are almost impossible to properly secure, transporting goods and personnel between locations is a key vulnerability that armed groups often exploit.

On the 13th of September 2016 in the Democratic Republic of Congo, a resupply convoy of 18 vehicles belonging to the mining conglomerate Banro Corporation was attacked by bandits at a roadblock near the village of Kilembwe. This attack resulted in 13 drivers being kidnapped and six vehicles destroyed.



Map above showing in red the location of the mining convoy attack in the Democratic Republic of Congo. This location is between four to six hours travel from the nearest significant town.

On the 6th of November 2019, a convoy of buses transporting workers to the Semafo gold mine in Burkina Faso was ambushed by militants while en route to the mine in Fada N’gourma. This attack resulted in the deaths of 37 local and international workers. 11 more workers had been killed in similar ambushes in 2018 in the region.



Map above showing in red the location of the mining convoy attack in Burkina Faso. This location is between four to six hours travel from the nearest significant town.

Criminal gangs, separatists and insurgents have varied motives for these attacks – creating civil unrest, financial gain, religious terrorism, deterrence of foreign interests. Regardless of the motive, the result is the same – an immediate loss of revenue for the industry and nation.

After the 2019 Abqaiq-Khuras attack in Saudi Arabia, oil production was affected on a global level, with over half of the Kingdom of Saudi Arabia’s (KSA’s) oil revenue temporarily cut. In attacks with loss to life, industrial operations are halted and international workers are typically immediately withdrawn. Following the catastrophic Burkina Faso Fada N’gourma attack, mine operator Semafo shut down operations and airlifted international staff out of the region. Operations did not begin again until early March 2020, four months after the attack. In a country in which 11.4% of the GDP comes directly from the gold mining sub-sector, such a shutdown has enormous consequences.



Saudi Arabia’s oil factory ablaze after drone strike.

Militant, criminal and separatist groups attack primary industry logistical transports between sites as this is typically where they are weakest – in remote, undeveloped areas cut off from communications. Attackers are aware that without communications, vehicles are unable to alert national or private security forces to request assistance, leaving convoys completely isolated.



*Aftermath of an attack at a Sibanye gold facility in South Africa.*



*Ambush by ULFA separatists of an Oil India Ltd. convoy in Assam, India.*

With distances between mining, oil and gas sites and their nearest logistical hub typically several hundreds of kilometres long, the only viable and sustainable method of communications in these situations is high-frequency (HF) radio.



*A mining equipment convoy in Ghana. The convoy has no communications equipment, and will be totally cut-off in remote areas leaving it vulnerable to attacks.*



*A Humanitarian Red Cross fuel supply convoy in Columbia. The convoy is using Codan Envoy HF radio, able to communicate over hundreds of kilometres regardless of infrastructure.*

Codan HF radios are able to communicate over hundreds and even thousands of kilometres in vehicle-mounted format, entirely independent of infrastructure such as cell towers, repeaters or satellite stations. Operating at 12VDC, they are compatible with civilian-grade vehicles, not requiring voltage boosters or the 24VDC standard of most military communications systems. The small form factor 3040 tuner can use varied lengths of steel, fibreglass and random wire antennas for short, medium and long range communications.



*Codan 3040 antennas in horizontal (NVIS) format for short distance (<400KM)*



*Codan 3040 antennas for long distance communications.*

When fitted with an off the shelf GPS antenna, Codan radios are able to send and receive their exact positions over the air. Using Automatic Link Establishment (ALE) technology, with the press of a single button a vehicle's position is sent to an individual or group of radios. Upon receipt of a position sent over the air other Codan radios automatically save the vehicle's location as a waypoint and are able to navigate directly to it, ready to bring assistance.

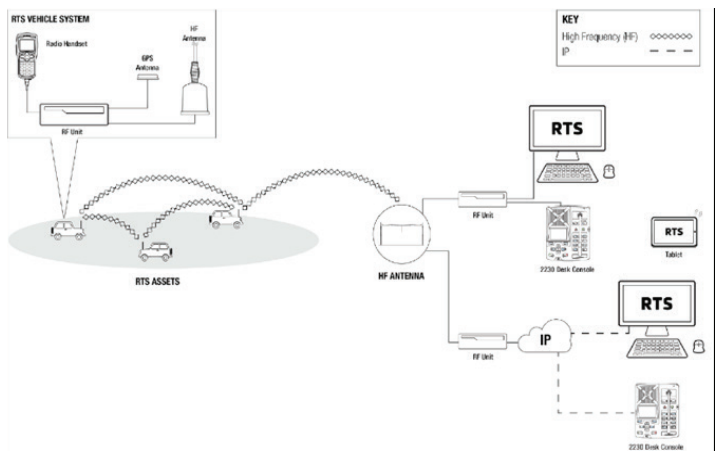
For example, holding the Emergency button can direct the Envoy radio to first place a call to a base radio situated at the headquarters site, linking into SprintNet gateway software to automatically transfer the Emergency call to an ordinary cellphone number anywhere in the world. Once this call is placed, the radio will automatically begin a second call, for example to a group of radios belonging to the security team, with the predefined text message 'Vehicle X in distress, GPS position xxx'. The vehicle's current GPS position is automatically sent with the text message.



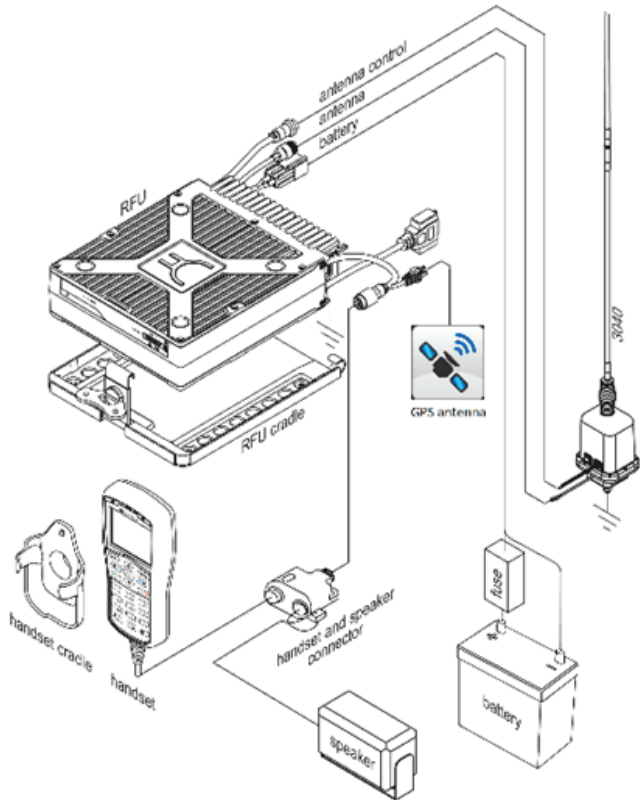
Codan Envoy handset.

Finally, the radio sends out a broadcast alert on the entire network, informing all receiving radios that a vehicle is in an emergency situation, with a loud audible alarm, again showing the vehicle's current position and automatically opening the radio microphone, allowing the network to hear the operator directly.

Codan's Radio Tracking Software (RTS) allows a connected radio to visualise other radios' positions on terrain and satellite maps in real-time. Vehicle radios are able to be tracked across maps showing information such as their historic positions, planned routes, time stamps showing when a radio was last-heard from and diagnostic performance information.



An example RTS tracking network.

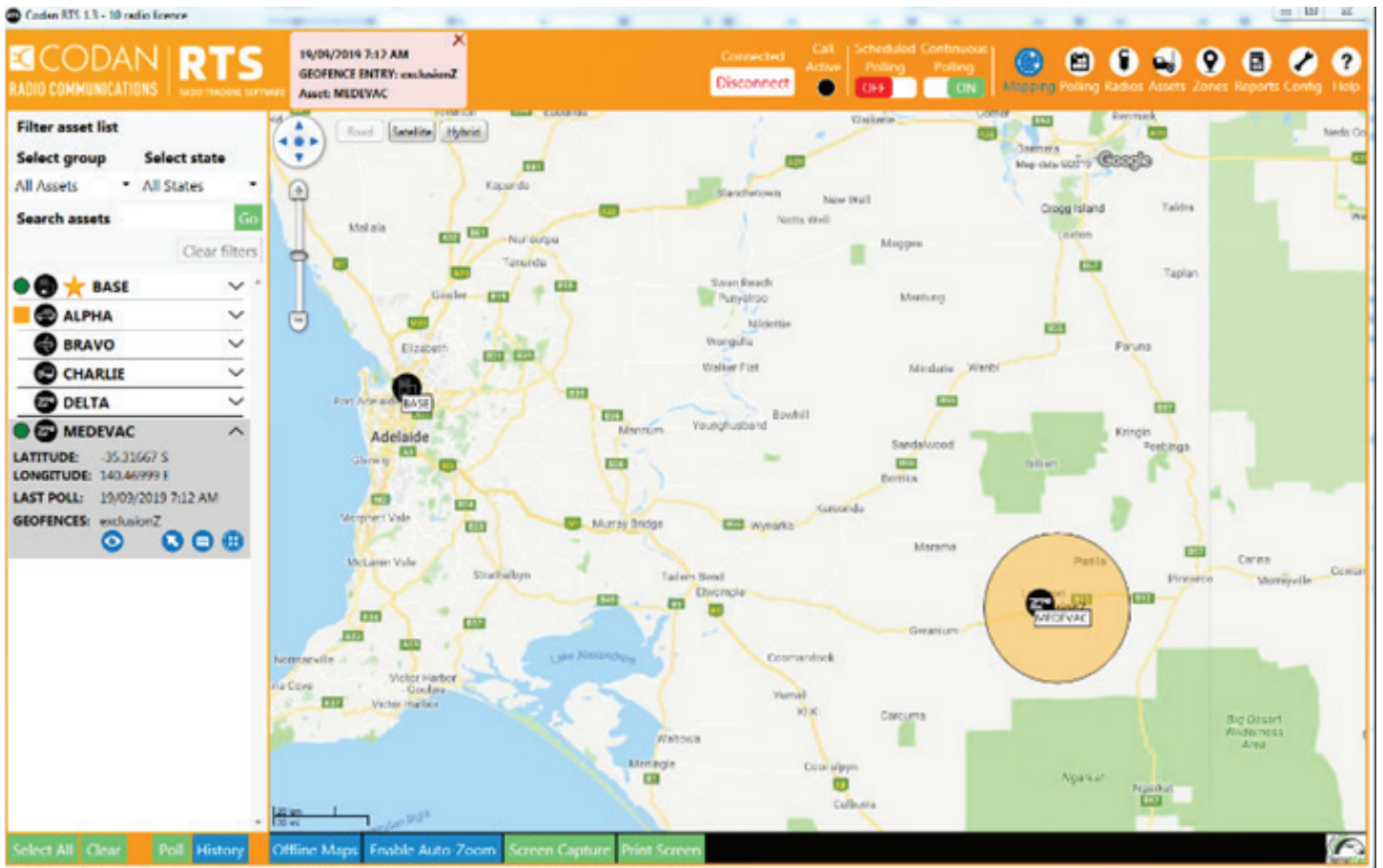


Composition of a typical Codan Envoy vehicle radio installation with 3040 antenna.

With the experience of over 60 years providing communications systems to remote primary industry workers, Codan understands that high performance radio platforms are useless if they are not simple enough for an untrained operator to use. With this in mind Codan created the Emergency button feature.

The Emergency button is visible on the top right of the handset, illuminated in red. Simply pressing and holding this button will launch a series of chained calls, predefined by the network administrator.





Activation example of an RTS GeoFence alarm.

RTS can automatically request vehicle positions at particular times or particular repeated intervals. **GeoFences** can be set across the map, creating alarm triggers when radios enter or leave certain zones. **Waypoints** can be predefined along a particular route at set distance intervals, allowing RTS to trigger progress reports as vehicles arrive at each Waypoint. RTS also detects a radio's Emergency call, immediately launching audible and visible warnings on-screen. If connected to the Internet, RTS can even send these GeoFence, Waypoint and Emergency updates to predefined email addresses for global situational awareness.

The regular movement of high value commodities and international personnel through remote, often lawless regions means that primary industry such as oil, gas and mining remains an attractive target for criminal and militant groups.

Simple, reliable and economically sustainable Codan Communications equipment helps limit this vulnerability and ensure safe passage for goods, equipment and personnel in the most challenging of situations.

## ABOUT CODAN COMMUNICATIONS

Codan Communications is a leading international designer and manufacturer of premium communications solutions. We deliver our capability worldwide for the military, defence, humanitarian, peacekeeping, commercial, security and public safety markets.

Our mission is to provide communications solutions that enable our customers to **be heard** – to ultimately save lives, create security and support peacekeeping worldwide. With over 60 years in the business, Codan Communications has garnered a reputation for quality, reliability and customer satisfaction, producing innovative and industry-leading technology solutions.

We know that every deployment of a communications solution is different, having deployed our solutions in more than 150 countries. And when lives are on the line, it's critical that each deployment is right and that every stakeholder is heard. That's why it's important to truly understand your situation, your infrastructure, your environment and your stakeholders.

At Codan Communications, that's what we're best at. Not fitting your situation into our products, but really understanding what's at stake. So whenever you work with Codan, you know that right from the start you'll **be heard**.

## CONTACT US

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