Best Practice: Stowaway Detection Devices

Category: Access Control

Location First Observed: Puerto Plata, Dominican Republic

Date First Observed: November, 2004

POC:

Description: Facility security use both a commercially available carbon dioxide (CO2) detector, and a manual probe to detect the presence of stowaways in inter-modal containers. The CO2 detector works by detecting the CO2 enriched atmosphere caused by exhaled breath. The CO2 detector is inserted in container vents or other access points to identify elevated levels of CO2 in containers, indicating the possible presence of persons hidden inside. Inter-modal containers that reflect an elevated level of CO2 inside are opened and manually searched. The facility has effectively used hand-held CO2 detectors to check for the presence of stowaways in containers but was recently challenged by stowaway smugglers who taped boxes inside the container where they know the C02 probes will be inserted. The boxes taped inside the container create a void space with a normal atmosphere, so that the enhanced CO2 levels created by the stowaways cannot be detected. Facility employees have addressed this challenge by fabricating a probe from scrap material that they insert into the container portal before using the CO2 detector. Using the probe they can feel for boxes or other obstructions fastened inside the container and designed to defeat the CO2 detector. If an obstruction is felt, it can be pushed away with the probe, or the container can be manually opened and inspected.

Discussion: Portable CO2 detectors are a very effective means of detecting the possible presence of persons or animals inside a container, although other factors such as ripening fruit can also cause elevated CO2 levels. Port officials had previously found evidence of stowaways and stowaway smugglers taping boxes inside container vents to defeat the CO2 detector. Since developing the probe, security employees report they successfully detected a container with an artificial void, and intercepted potential stowaways inside. The CO2 detector and manual probe also provides a deterrent effect to would-be stowaways and smugglers.

Potential Down-side: None. A smuggler or stowaway may find other ways to defeat the CO2 detector, but the use of the probe only enhances the effectiveness of the CO2 detector.

Conclusion: The probe is an example of no cost / low cost innovation employing practical ingenuity that effectively addresses a security problem.

Cost: CO2 testers cost approximately $300. C02 tester training can be done at no cost. CO2 tester maintenance is nominal. A manual probe to check for artificial voids can be made from scrap material.