

# Port of Oakland: First major US container port with radiation portal monitors at every international terminal

## US Customs and Border Protection demonstrates newly completed radiation detection systems at Oakland seaport

**Port of Oakland**, Oakland, CA, USA

April 26, 2005 was a beautiful sunny day at the Port of Oakland on the San Francisco Bay. It was the kind of day at the waterfront that makes one think about sailing, going for a long walk at the beach or taking a stroll in the park. It would seem that seaport security would be the furthest thing from anyone's mind.

In fact, it was exactly that perfect spring day that US Customs and Border Protection and the Port of Oakland focused on the completion of a security milestone.

US Customs and Border Protection (CBP) and the Port of Oakland held a joint news conference Tuesday, April 26, 2005 to demonstrate CBP's newly completed Radiation Portal Monitors (RPMs) systems at the Oakland seaport. The 25 portals are screening all international container traffic exiting the Port of Oakland for sources of radiation. US Customs and Border Protection (CBP) worked closely with the Port of Oakland's Maritime and Engineering Divisions to facilitate the nearly US\$4 m project at the port's seven international seaport terminals.

"Oakland is the first port in the nation where the RPMs are completely installed and operable," stated CBP Commissioner Robert C. Bonner. "RPMs are just one of the many layers of defense CBP uses in carrying out our priority mission of protecting our country from terrorists and terrorist weapons. We are committed to technology that allows the economy in the Bay Area to thrive, but more importantly, to protect its citizens from harm," added Bonner.

US CBP, through Pacific Northwest National Laboratories (PNNL), is implementing an initiative to install RPMs within the United States at various ports which handle international cargo. These devices are being installed to meet current requirements that all import marine cargo containers be screened for radioactive material. PNNL, as programme manager for CBP, contracted with the Port of Oakland to complete schematic designs that were prepared by PNNL, prepare construction documents suitable for bidding, and administer construction contracts to install the RPMs at the marine terminals located at the Port of Oakland.

Port of Oakland's Deputy Executive Director Joe Wong commented, "As the fourth busiest containerport in the United States, moving some US\$30 b worth of goods annually, we are very pleased to have this new technology in place and operating."

"Every international container will be scanned before it exits the container yard, giving us a high level of confidence that it does not contain radioactive material," remarked Nat Aycox, CBP Director of Field Operations in San Francisco. "Our inspection system of targeting high risk containers, gamma-ray scans and physical inspections, complemented by RPMs, markedly increases the safety of maritime cargo," added Aycox. The first Port of Oakland sites came on line in December of 2004. Installation of the RPM systems was completed at the final two sites at the Oakland seaport in March 2005.



Circular and continuous blending pileA truck passes through a new Port of Oakland RPM as it leaves one of the Port's international marine terminals. Behind the truck a giant state-of-the-art super post-Panamax crane looks deceptively close although it is some distance away at the water's edge.

### Installation of the RPMs

The RPMs take advantage of existing technology to provide CBP with another level of screening for import containers exiting the marine terminals enroute to their final US destination. Customs still runs a 100 per cent check of all cargo manifests through their threat assessment programmes to identify anomalies or containers of 'special interest'; they continue to screen selected containers with low energy or high energy screening devices; they physically open and inspect containers; and now they also use the RPMs as an additional check against radiation emission and potential Weapons of Mass Destruction (WMD's), providing an integrated approach.

According to the Port of Oakland, there were some early issues that had to be resolved to ensure that the RPMs did not affect the productivity of the gates and increase gate or road congestion. An extensive effort was made by CBP, their project manager, the Port of Oakland and each terminal operator to assure that the installation location and RPM operation was effectively integrated into their operations in a way that would be of benefit and not hinder throughput. The Port hired Han-Padron Associates LLP (HPA) to perform the civil and structural engineering design for the installation of these portals. The Port of Oakland handled the electrical engineering design and construction management of this project.



US Customs and Border Protection's 25 new RPMs are screening all international container traffic exiting the Oakland seaport for sources of radiation.



International cargo being off-loaded from a mega-ship will have to pass through one of the Port's new Radiation detection systems before being transported out of the Port area and into the United States.

The Port's design and HPA's traffic circulation study ensured that the RPMs project would not pose any significant reduction in cargo processing capacity at the terminal gates. HPA worked closely with the Port, CBP, PNNL, and the terminal operators to expedite the installation of this critical US security measure, while at the same time meeting the needs of the ongoing terminal operations.

The construction documents for eight installations at seven of the Port's container terminals were completed in just four months. HPA also provided construction support services including submittal review and some on-site construction management. Several design change orders were prepared during construction that responded to changes in marine terminal operations and to add a new gate into the system that was not anticipated until after the construction contractor was hired.

Port of Oakland Deputy Executive Director Joe Wong stated, "As the first major seaport in the United States to have the RPMs operating at every international marine terminal means we now have another very significant layer of security here at the Oakland seaport that will help prevent WMD from entering the country."

According to Port of Oakland's General Manager of Maritime, "We have consistently worked to support CBP objectives on cargo security and have taken a very proactive approach. We believe that those factors contributed to the success of getting the system up and running first." The Port of Oakland is the fourth largest container port in the nation serving the fifth largest metropolitan area in the US with a population of approximately 7 m.

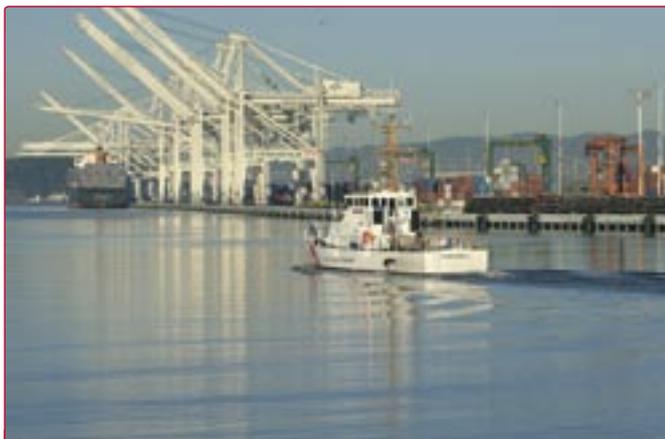
## Improving security

Prior to 9/11, CBP did select containers and physically open them and check contents against manifests. Post 9/11, CBP implemented a number of programmes as part of their primary strategy – basically moving the borders of the US as far outward as possible. The idea behind this is to be able to inspect/screen containers before they enter the US.

CBP has engaged the trade community through the Customs-Trade Partnership Against Terrorism (C-TPAT) programme, which encourages companies to improve their security posture and that of their supply vendors, and they are continuing to further enhance that programme. They have implemented the Container Security Initiative, negotiating agreements with key overseas port customs organisations to allow US CBP officers to work side-by-side with overseas customs organisations to screen cargo before it is loaded aboard a vessel bound for the US. The requirement is that full and complete documentation be provided before the vessel departs the overseas port.

The RPMs are essentially passive detectors, designed to 'self-adjust' to the background radiation level so that when something passes between the RPMs emitting a radiation level greater than that of the background, an alarm will sound.

The first few days of operation resulted in 'hits' with causes ranging from drivers who may have had recent medical treatments to clay tiles or certain food products that emit a natural radiation. As CBP has built up its experience with these RPMs, it has become easier to identify these 'natural' or 'authorised' sources of radiation, which in turn has actually reduced the number of 'hits' received on a weekly basis. CBP has indicated that when they did a series of checks of about 5,000 total scans in one day at the Port of Oakland, there were approximately 20 to 25 alarms total, none of which were a threat. That means 0.005 or about a half-percent or less of the RPM scans typically trigger an alarm due to 'natural' or 'authorised' sources of radiation. Any delays generally take only minutes and are insignificant in terms of the flow of commerce.



The US Coast Guard regularly patrols the Oakland harbour as part of the layered security strategy. Once a container is off a vessel and on a truck landside, it will be quickly screened with the new US Customs and Border Protection radiation detection equipment in place at every Port of Oakland international marine terminal.



Aerial of Port of Oakland marine and rail terminals.

These devices are passive radiation detectors. They do not emit nor have any radioactive substances contained in them. Basically, they are sensors that detect the emission of some type of radiation from something that would pass through its 'field of view.'

The terminal operators are pleased that the RPMs are nearly seamless and have not materially affected the gate productivity. Other benefits include increased on-dock law enforcement presence provided by the CBP officer on duty. In addition, at the Oakland seaport in northern California, the CBP have set up mobile response teams in marked vehicles to assist the on-dock CBP officer with the radiation identification process when the portals alarm. These marked units are constantly roaming the port, thereby adding an additional security level for the waterfront.

Now that the RPMs are fully deployed at Oakland, all containers loaded or empty are required to pass through the RPM system. Here is how it works: the truck moves through a set of detectors; if an alarm sounds, the truck will be directed to a second set of detectors and run through again. There are additional procedures and equipment that CBP officers are ready to use if a second alarm is triggered.

Port tenants, the design team, CBP and PNNL staff came together to find the best way to complete the project without much disruption to tenant operations and major costs to the Port. The Port of Oakland's highly qualified staff in the Engineering, Maritime and Legal Divisions helped expedite the project.

Engineer Jill Bornor-Brown, who oversaw the Port's responsibilities for the installation process, touted a combination of factors as key to the success of the project. "We had the talent, resources and cooperative team spirit to help make this happen. It's critical for all ports to form an effective team to accomplish these significant objectives so that all marine entry avenues



A continuous stream of trucks hauling international cargo drive through a RPM.

are accorded this protective measure." Bornor-Brown credited partnerships on a project of this type as having extended benefits, "Our tenants and this region benefit from our effectiveness in working together and forming partnerships with our marine terminal operators and shippers to protect our Port and to build the capital assets that generate contracting, employment and business opportunities for this region."

**ABOUT THE PORT**

Established in 1927 as an independent department of the City of Oakland, the **Port of Oakland** spans 19 miles of waterfront, oversees approximately 900 acres of maritime terminal facilities, and owns and operates Oakland International Airport. Approximately \$30 b worth of goods move through the Port of Oakland on an annual basis. The Port of Oakland handled a record two m TEUs in calendar year 2004, an increase of nearly 6.5 per cent over 2003. Imports rose 15.8 per cent to 694,314 TEUs while exports gained slightly, increasing 1.8 per cent to 813,716 TEUs. The Port of Oakland has seen approximately a 30 per cent increase in the volume of its inbound (imports) business in the first half of 2005.

**ENQUIRIES**

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