



IVC Crane Monitoring System Improves Operational Efficiency, Worker Safety at Eastern Salt

IVC's crane monitoring system gives Eastern Salt's crane operators improved operational awareness, providing for more efficient unloading of cargo and a safer environment for workers.

Keeping Communities on the Move in Winter

Eastern Salt Company is one of largest distributors of road salt in the United States, serving nearly every government agency, public and private institution, town municipality, and private contractor in the Northeast. Communities up and down the East Coast rely on Eastern Salt Company to help keep roads and regional transportation systems safe throughout the winter.

Located on the Chelsea River in Massachusetts, the company's distribution facility contains mountains of salt sourced from the company's salt mines in Chile, Ireland and Mexico. The salt is transported from the mines via giant cargo ships that can carry up to 50,000 metric tons in one load.

Once the ships reach the Chelsea facility, a massive operation gets underway to remove the salt from the cargo holds. Cranes are first used to lower bulldozers into the holds. The bulldozers push the salt into giant piles so it can be extracted by the cranes – a process repeated dozens of times in a day.

Because the crane cabs are at eye level with the cargo holds, crane operators must rely on a combination of ground workers stationed by the edge of the holds and video cameras affixed to the cranes to confirm it is safe to lower the bulldozers and crane buckets into and out of the holds.

Legacy Camera System Presented Numerous Issues

In an effort to improve operator awareness, Eastern Salt purchased commercial pan/tilt/zoom video cameras that they retrofitted to the crane booms. Crane operators were able to view the video feeds on small monitors located in the crane cabs. However, since the cameras were not built to withstand the violent vibrations produced by the company's aging cranes or the harsh, outdoor environmental conditions, several problems arose.

The cameras were affixed to the crane booms with an NPT pipe that was welded to the crane at a 45° angle. The resulting video images were shaky. To address this issue, the cameras had to be taped in a way that disabled the pan/tilt controls.



Pictured above are some of the cranes used to unload salt that's mined around the world and transported via massive cargo ships to Eastern Salt's facility in Chelsea, MA. Each crane is outfitted with an IVC CZ-3041-2 camera system. Cameras are connected to a monitor and control pad in the operator cab to give operators a better view of what is happening in the ship's cargo hold.

Video is providing a clearer view of what is happening in the ships' holds. Operators no longer need to depend on human spotters that were previously positioned on the ship's deck, some distance from the activity in the cargo hold.

The heavy crane vibrations also caused the cameras' dome covers to fall off repeatedly.

Compromising the video quality further was the glare from the sun. Makeshift sun shields attached to the cameras were a temporary fix. After a period of time the video quality would worsen to the point that the video images would disappear altogether.

IVC's Crane Monitoring System is Implemented

Eastern Salt turned to Advanced Network Connections, a leading contractor of cabling and communications solutions based in Easton, MA, to find an alternative video solution. Advanced Network Connections reviewed three

different vendor products but ultimately recommended IVC's CZ-3041 crane monitoring system. The CZ-3041 was selected for its rugged form factor and ability to produce clear, steady, reliable video under extreme vibration.

CZ-3041 Delivers Excellent Performance under Tough Conditions

Designed specifically for use on crane assemblies, IVC's CZ-3041 is housed in a rugged, weatherproof enclosure rated Type 4x/IP66 for reliable performance in harsh conditions. The system features a high-resolution, color video camera that produces superb video images and a 36x optical zoom for wide-angle viewing and instant autofocus image adjustments. The camera's IR cut filter ensures excellent video even in low light conditions.



IVC's CZ-3041-2 shown mounted to a crane used to unload salt from ships at Eastern Salt's Chelsea, MA terminal.



With IVC's crane monitoring system, Eastern Salt crane operators now have a better view of activity in the ships' holds during the unloading process. This improves their ability to protect the company's human and capital assets and complete their job more efficiently.

IVC's crane cameras attach securely to the crane booms to provide Eastern Salt's crane operators with a clear line-of-sight down to the cargo holds. The adjustable camera mount lets crane operators manually pivot the angle of the camera as needed and lock it into place. IVC also offers a second mounting option that allows the camera to be pointed vertically at all times, even as the crane moves.

In the crane cab, operators watch live video from the crane camera on a color LCD monitor. A separate remote control pad gives the operator push button controls over the camera zoom, focus and auto white balancing functions.

Clear, Stable Video

IVC's CZ-3041 eliminated the shaky video problem Eastern Salt experienced with its legacy cameras. The CZ-3041's image-stabilized camera module and vibration dampening mounts provide operators quality video even when the aging cranes

are in operation. As a result, crane operators have the smooth video images they need to confirm an area is clear of workers, allowing them to work more safely and efficiently.

Reliable, High Quality Video = Improved Worker Safety

The reliability and high quality video delivered by the IVC crane cameras have eliminated the need to position workers on the periphery of the work area to provide additional eyes for the crane operators. As a result, site safety is improved by the increased operational awareness.

With IVC's CZ-3041 crane monitoring systems, Eastern Salt is operating with greater efficiency and creating a safer environment for the company's most valuable asset: its employees.

About Eastern Salt Company

Eastern Salt is a family owned and operated business that distributes quality road salt to communities along the U.S. east coast. They serve communities, government agencies and authorities, public and private institutions, and private contractors up and down the eastern seaboard of the United States.

About IVC

Founded in 2001, Industrial Video and Control is a leading manufacturer of video cameras and video management software specifically designed for industrial applications. The company's IP-based video solutions are used by customers worldwide for process evaluation, remote monitoring, personnel safety, site security, and regulatory compliance. IVC's success in the market has been driven by high-quality products, cost-effective solutions, and outstanding service. Based outside Boston, MA, IVC is an ISO 9001:2008-certified company.

About Advanced Network Connections

Advanced Network Connections has been providing network installations and structured wiring related services for commercial customers throughout New England for years. Their services include: network wiring design, along with network wiring re-engineering for telecom, data and surveillance systems. They provide total connectivity for any businesses regardless of what they need, or when they need it. They design and install voice, data and security network systems that are cost effective and optimized to their customers' specific requirements.

The CZ-3041-2's image-stabilized camera module and vibration-dampening mounting system provide crane operators smooth, reliable video.

Key Components



IVC's CZ-3041-2 crane monitoring system includes a rugged, high resolution camera with a 36x optical zoom, a monitor, and a camera control pad designed for crane operators.



Crane operators can control the camera's zoom, focus, backlight compensation, white balance, and ICR mode with the CZ-3041-2 control pad.

For More Information

To learn more about IVC's industrial video systems and how they can help your organization, contact:

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