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Nucsaf[®] Capabilities
in Support of Japan's Post
Fukushima Programs
March 14

*Guardian[®] Radiation Monitoring Systems
for the Measurement of
Radiological and Nuclear Material*



World Class Protection



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Company Information

- ❖ Nucsafe – Founded 1999
 - ❖ Rapid Development Capability
 - ❖ Proven Manufacturing Capacity
 - ❖ ISO9001:2000, ISO14000, OHSAS 18001
 - ❖ Current system platforms
 - ❖ **Stationary**
 - ❖ Vehicle, container, freight, rail, pedestrian, conveyor
 - ❖ **Mobile**
 - ❖ Land, marine, aerial
 - ❖ **Portable**
 - ❖ Backpack, vest, briefcase, handheld
 - ❖ **X-ray backscatter**
 - ❖ Non-destructive testing, security



- ❖ Niki Glass – Founded 1923
 - ❖ Nucsafe distributor since 1999
 - ❖ Applied Radiation Measurements
 - ❖ Applied X-ray Measurements
 - ❖ Cryogenics and Superconducting Magnets
 - ❖ Cryobiology and Microscope Measurements





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Stationary Radiation Portals for Vehicles & Containers

- ❖ **Security and Contamination Monitoring at Ports**
- ❖ Designs are modular to allow pedestrian, vehicle, freight, train and container versions.
- ❖ ROI difference method and threat matrix allows NORM discrimination with PVT.
- ❖ NaI(Tl) provides ability to identify medical, industrial, SNM and NORM radionuclides.



- ❖ **Contamination Monitoring in Industrial Environments**

- ❖ Asset protection
- ❖ Automated unmanned systems, notify personnel when alarms occur.
- ❖ Remote monitoring and diagnostics
- ❖ Modular components for reduced maintenance





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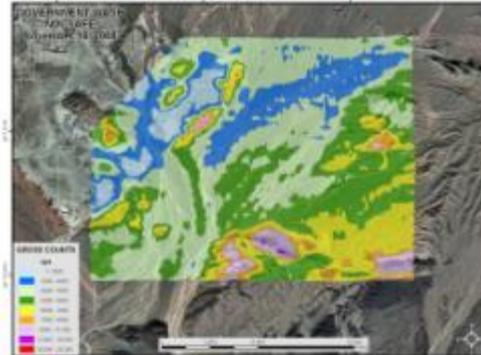
Pedestrian Contamination System

- ❖ Patented method of detecting the location of a radioactive source.
- ❖ Permits free flowing traffic.
- ❖ Gamma and neutron detection with high sensitivity.
- ❖ Triggers camera images during alarms.
- ❖ Very low false alarm rate.
- ❖ Spectroscopy option.
- ❖ Local and remote alarms.
- ❖ Database storage of data.





- ◆ Applications
 - ◆ Very large area search
 - ◆ Location and identification
 - ◆ *Post incident surveys*
- ◆ Neutron and gamma ray pods
- ◆ Integrated GPS
- ◆ Real time and post mission analysis
- ◆ Bread Crumb path plotting display
- ◆ Contour /Heat mapping display

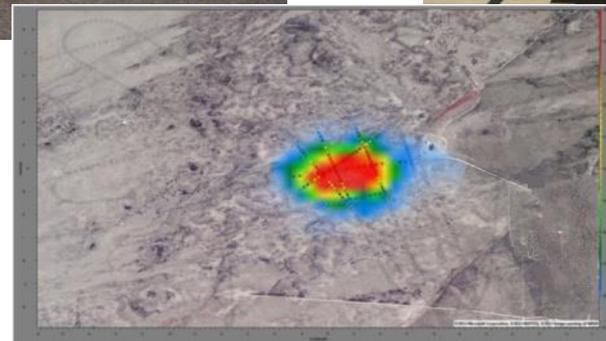




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Land-based Mobile Systems

- ❖ Rapid deployment
- ❖ Large area coverage
 - ❖ Dose surveys
 - ❖ Radionuclide ID
- ❖ Fast setup
 - ❖ Easily moved
 - ❖ Pedestrian, vehicle monitoring
- ❖ Movable checkpoints
- ❖ Integrated GPS
- ❖ Real time and post mission analysis
- ❖ Bread crumb plotting display
- ❖ Contour Mapping display

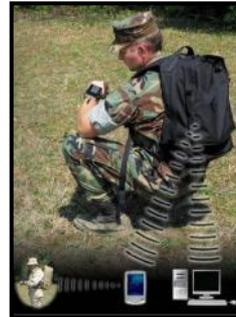




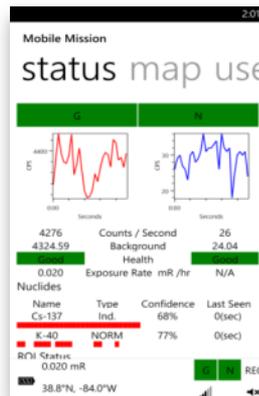
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Man Portable and Handhelds

- ❖ Backpack, vest-overlay and custom configurations
- ❖ Optional neutron detector (^3He or ^6Li)
- ❖ Large area gross gamma detection
- ❖ Gamma spectroscopy
- ❖ Voice, visual and vibration alarming
- ❖ High intensity color display, visible in direct sun light
- ❖ Easy push-button operation
- ❖ Data logging
- ❖ Wireless capable
- ❖ GPS / GIS
- ❖ Wireless ODI
- ❖ Rugged
- ❖ Light weight
- ❖ Long battery life (>15 hour life at -30C)



- ❖ Two Handheld Form Factors
- ❖ Survey instrument with handle
- ❖ Holstered device
- ❖ NaI or LaBr3 gamma detectors

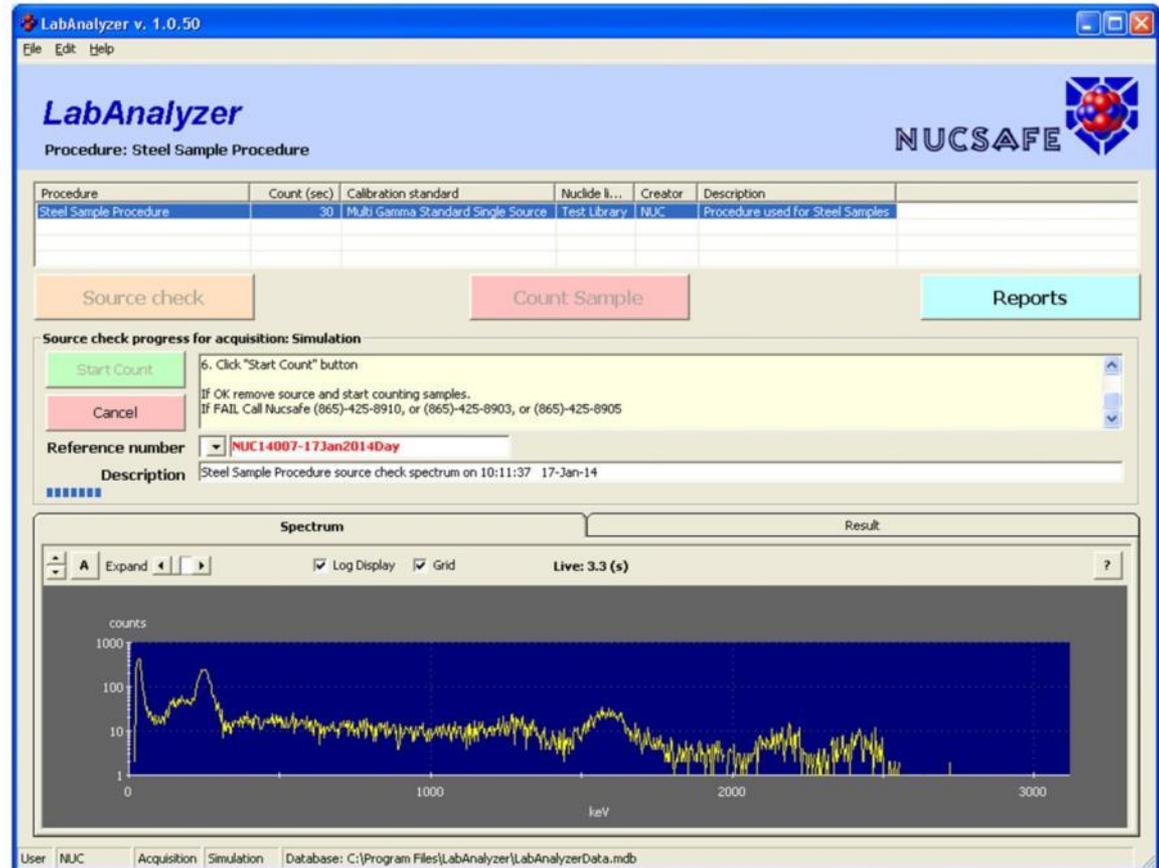




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Laboratory Systems

- ❖ Food Monitoring
- ❖ Waste Monitoring
- ❖ Radionuclide ID
- ❖ Quantitative Analysis
- ❖ Quality Assurance



X-Ray Backscatter Division

- Single-sided imaging
- Industrial proven technology
- Patented radiography by selective detection
 - Improved subsurface resolution
 - Improved subsurface contrast
 - Depth information
 - Flaw detection
 - Cracks and voids
 - Delaminating
 - Corrosion
 - Deposits
 - Adhesive thickness
- Ideal for imaging
 - composite
 - low Z materials
 - water detection
- Foreign object detection
- Security applications



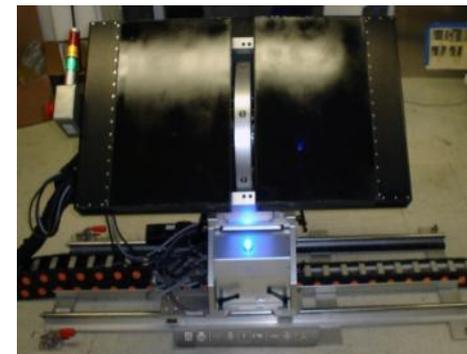
Space Shuttle External Fuel Tank Inspection



Corrosion Images



Robotic 225kV system imaging Orion heat shield

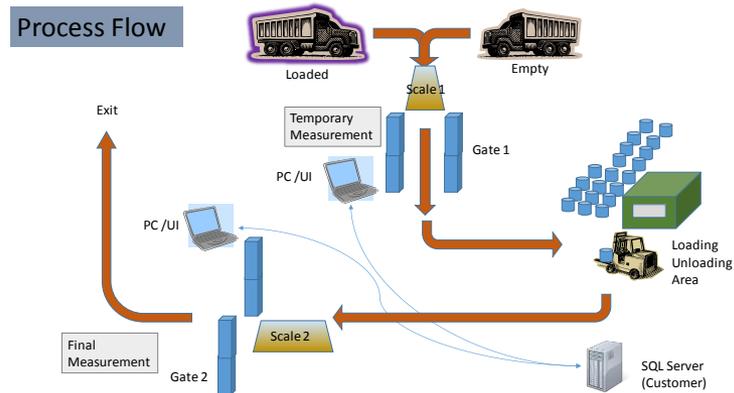
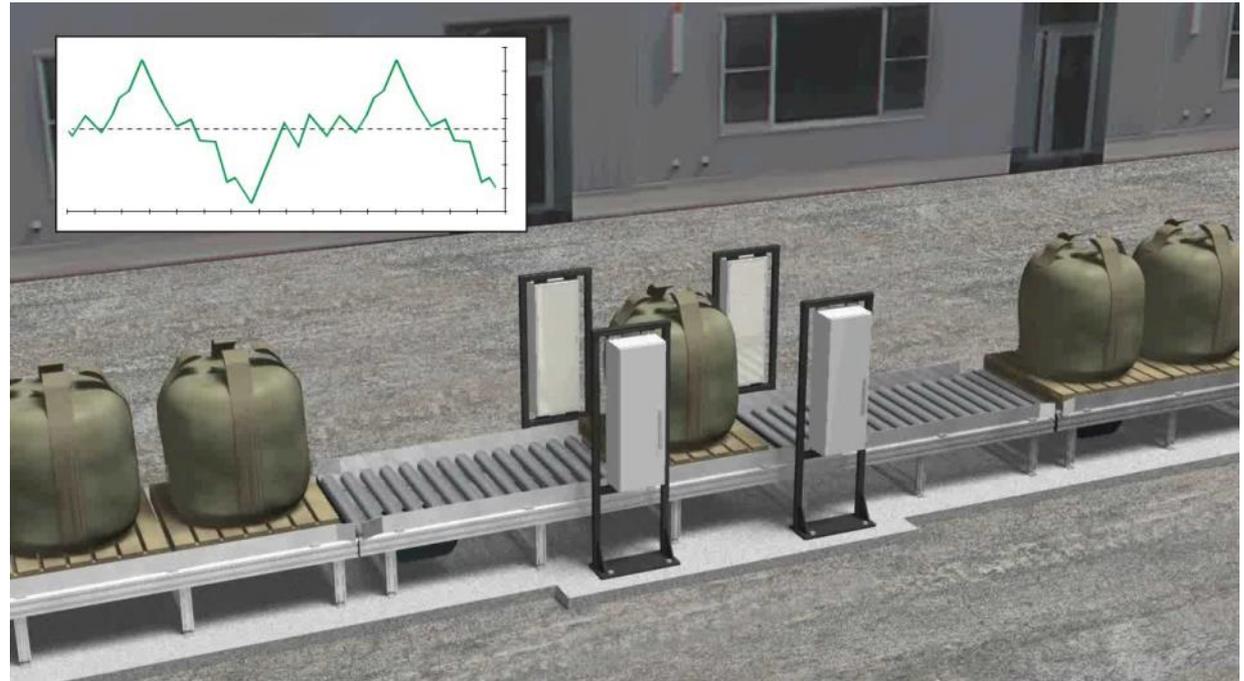


100kV transportable system



Conveyor Waste System

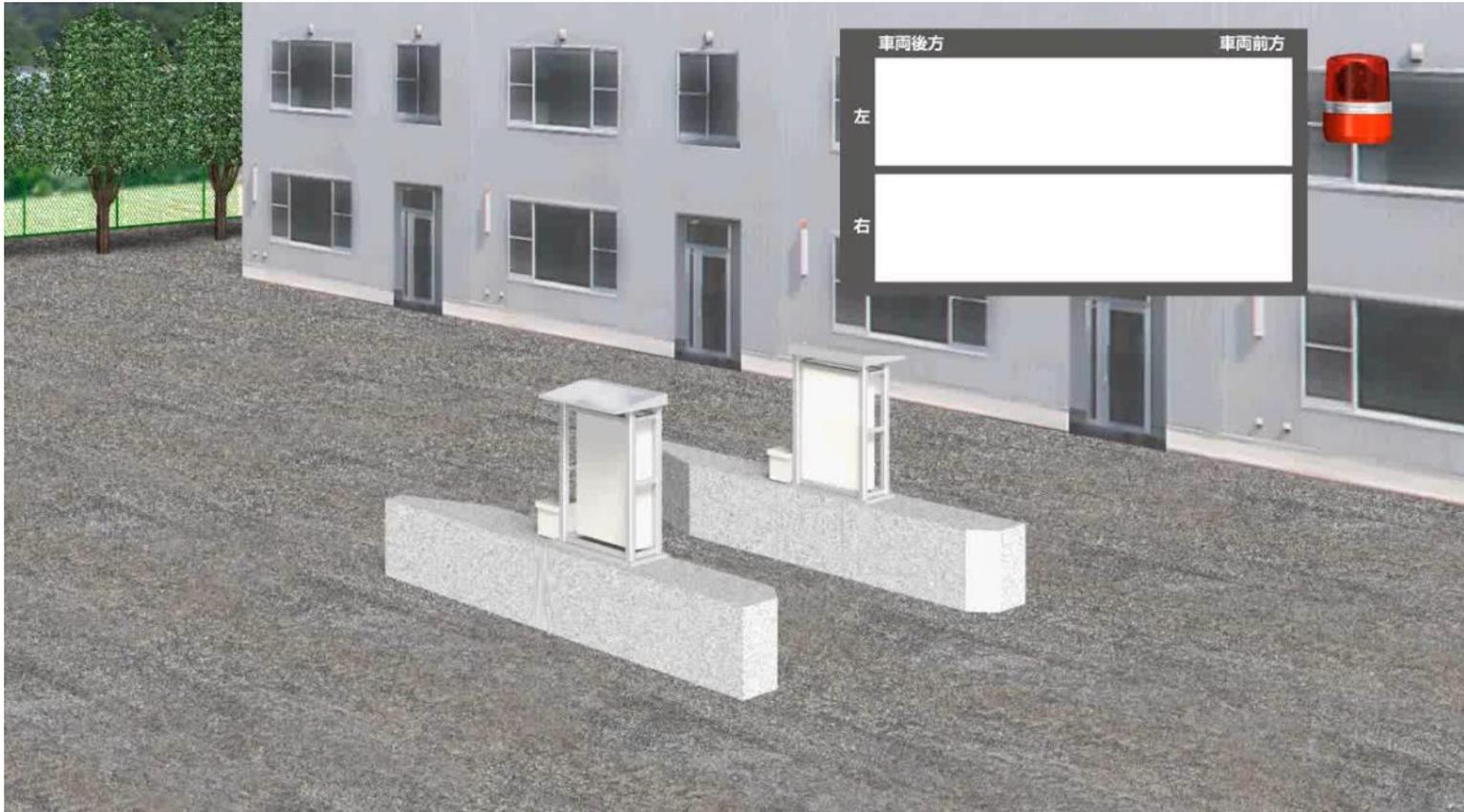
- Ability to identify contamination in individual super sacks.
- Sorting by specific activity.
- System tests completed.
- Ready for deployment.





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Waste Portal Monitor



- ❖ Can identify if all bags or specific bags have high activity.