



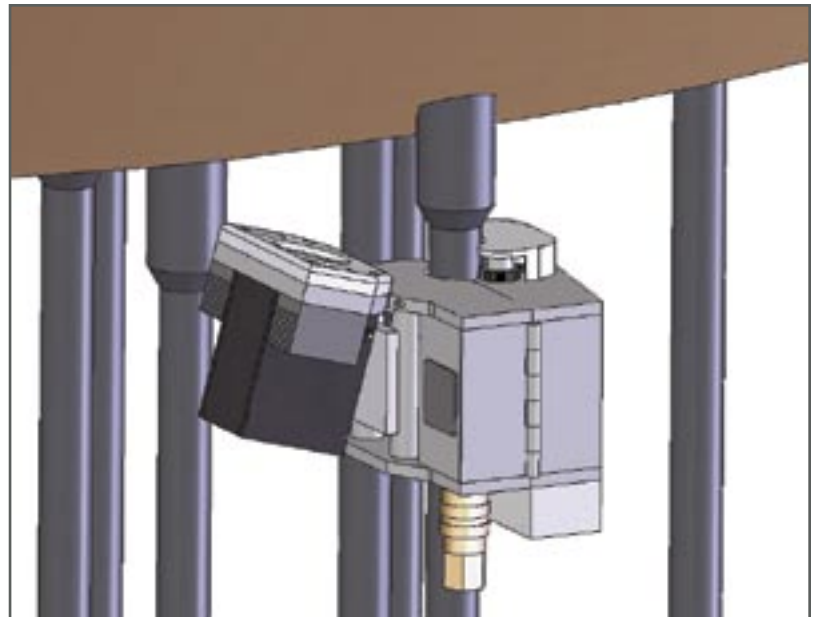
### Power Generation - Nuclear PWR



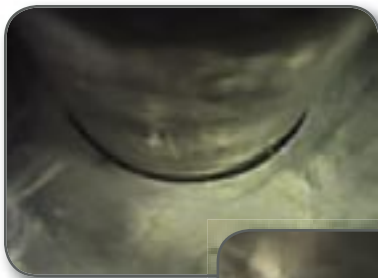
#### Reactor Vessel Bottom Head Inspection

Mandated reactor vessel inspections have posed a challenge for utilities. The insulation configuration, lack of access, location, dose concerns, and the NRC's documentation expectations have the lower head inspection as an application best suited for Remote Visual Inspection. Jamko Technical Solutions has worked together with several utilities to provide inspection tools specific to these needs.

Insulation is not always flat for easy insertion of inspection tools. Plants that have rounded insulation which conforms to the bottom of the vessel will benefit from the RVIT inspection tool. RVIT is a semi-remote inspection platform that can perform a 360 degree continuous rotation inspection on each penetration. RVIT may be equipped with a borescope or a 10x zoom camera.



▫ BMI inspection with RVIT



▫ BMI at 0°



▫ BMI at 180°

#### Benefits

##### Semi-remote inspection platform

- Allows operator to be present but ALARA conscious

##### Equipped with a borescope or 10x zoom camera

- Allows for close clearance or distant inspection

##### 360° continuous coverage

- Uninterrupted, same angle inspection

##### Superb documentation

- High quality still images, video and audio recordings

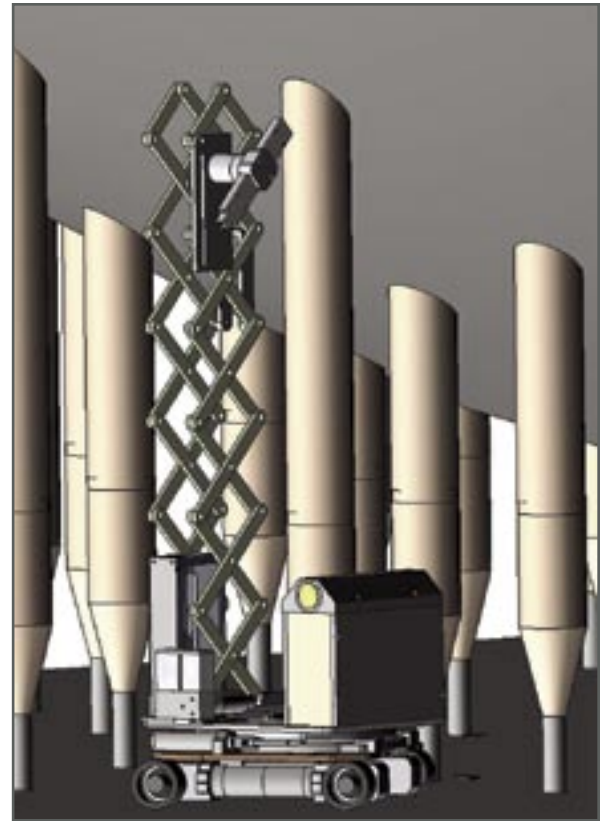
## Bottom Head Cleaning & Inspection

Palo Verde Nuclear Generating Station, operated by Arizona Public Service, and Jamko Technical Solutions have combined resources to patent the ReX robotic cleaning crawler. ReX is used to remove all debris that would otherwise interfere with the vessel inspection. ReX is equipped with a CO2 blast nozzle that is capable of circling each penetration. The result is a clean penetration and a vessel head that can be easily inspected. The system can be deployed from as far as 200 feet away.



▫ VICTR inspecting BMI

Plants that are fitted with "soup can" or flat bottom insulation will benefit from the VICTR inspection crawler. VICTR is equipped with a pan, tilt, zoom camera capable of 300x zoom (25x optical, 12x digital). The crawler is a track-driven unit which has the ability to negotiate the tight turns needed between the bottom mounted instrumentation. VICTR can be operated at distances of up to 250'.



▫ ReX extended to CO2 clean BMI



▫ BMI before cleaning



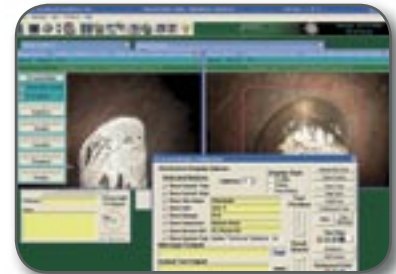
▫ ReX CO2 cleaning BMI



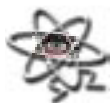
▫ BMI after cleaning

## ReactorView Software

With more than 100 penetrations on some reactors and complete coverage required, documenting your inspection can be a challenging task. **ReactorView** neatly compiles your data; complete with plant, unit, cycle, time, date, penetration, and angle of view. Images are stored and cataloged onto select choice of media, which can then be easily compared to past inspections. ReactorView can be customized to fit your plants specific requirements.



▫ ReactorView



Jamko Technical Solutions serves the Nuclear PWR, Nuclear BWR, Fossil Power, Process & Petrochemical, and Industrial markets by providing remote visual inspection services (RVI). Utilizing remotely operated pan, tilt, zoom cameras, video scopes, robotic crawlers and a wide range of other equipment, Jamko is able to safely view component deterioration, general condition, and surface defects.

[www.jamkosolutions.com](http://www.jamkosolutions.com)

Jamko Technical Solutions, Inc. • 1105 Driving Park Avenue • Newark, New York 14513  
Phone: 315.359.9090 • Fax: 315.359.9045 • 1.800.545.0079