

# Remote Annulus & Wrapper Inspection

Rolls-Royce offers the exclusive ability to perform remote visual examination on 100% of the annulus and wrapper regions of a steam generator with the Shell to Wrapper Annulus Transport System Pan and Tilt (SWATS PT). Once installed in the generator, inspection technicians control SWATS PT and capture images from a low dose or remote location outside of containment reducing personnel radiation exposure by to 50%.

These capabilities help reduce dose to maintain ALARA / ALARP objectives while optimizing inspections.

## Revolutionary inspection capabilities

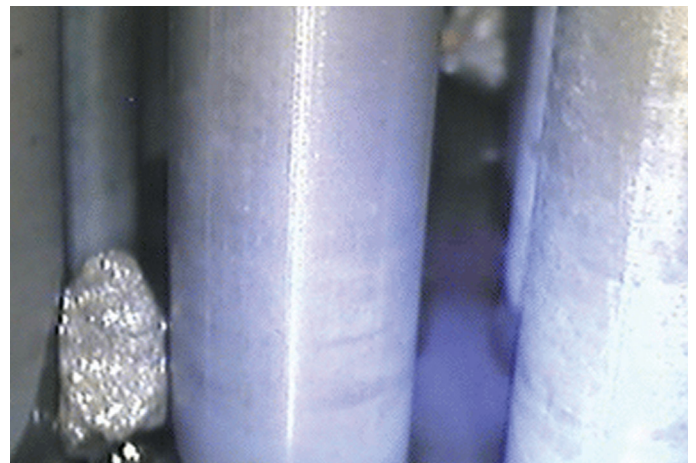
The SWATS family of inspection crawlers revolutionized steam generator inspections with the introduction of a magnetic delivery platform giving the system freedom to travel 100% of the annulus and wrapper region of steam generators. Originally outfitted with a fixed navigation and inspection camera,

SWATS PT has broken the mold once again with a 360 degree pan and 300 degree tilt capable, true color, high resolution inspection camera. This gives SWATS PT the industry exclusive capability to view a full 100% of the annulus and wrapper region remotely.

## Benefits of the Rolls-Royce annulus inspection

- Reduce overall dose with remote inspections
- Inspect 100 % of the annulus region while viewing up to six tubes into the in-bundle region with amazing image quality
- Pan and tilt, true color camera coverage gives you more accurate information for system trending and more efficient maintenance planning
- Manage image data with the Rolls-Royce exclusive Component Information System (CIS) for worldwide data access
- Repeatable results with exact location feedback

## SWATS PT Inspection results

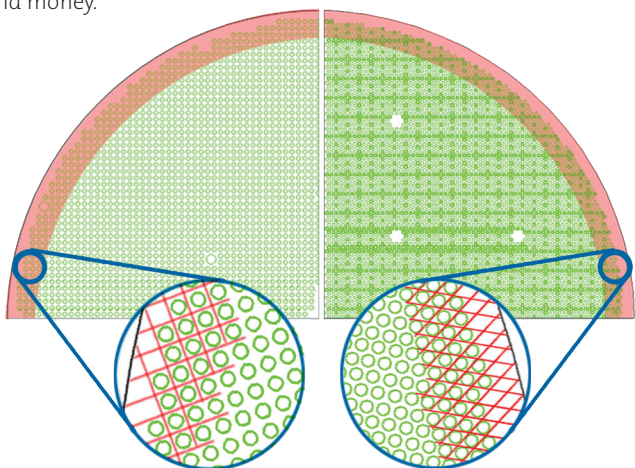




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### Unmatched coverage capabilities

SWATS PT has the unique ability to view up to six tubes into the in bundle region. According to EPRI guidelines this region (considered the high flow region) is the most vulnerable region of a generator to have foreign objects, as they will cause the highest percentage of tube damage. SWATS inspections can give site decision makers advanced warning of high flow region conditions and a better understanding of in-bundle inspection data, ultimately saving time and money.

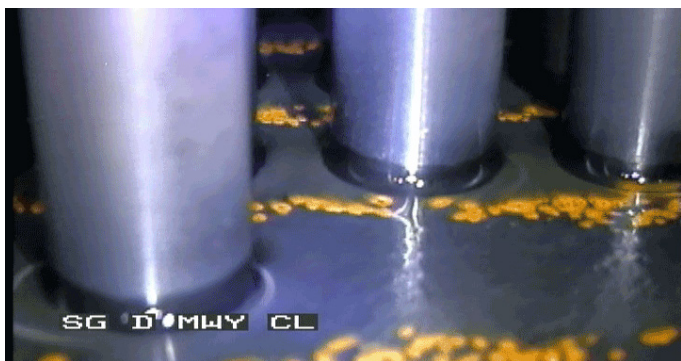


View up to 16 tubes deep into the high flow region from the annulus

### Manage high resolution images with the Rolls-Royce exclusive CIS (Component Information System)

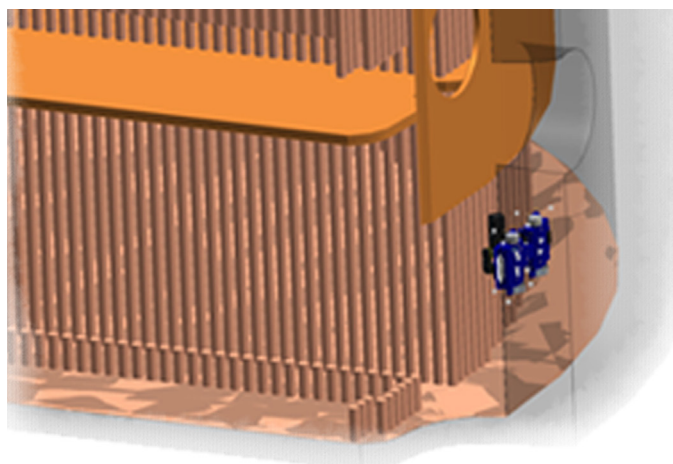
High quality imagery is essential for the true characterization of system conditions and identification of foreign objects. SWATS PT inspections can capture hundreds of high resolution, true color images which can be automatically up-loaded to CIS. CIS gives Rolls-Royce customers the exclusive ability to view inspection data in real time, cutting characterization and decision making time to a minimum.

Images and tracking data are stored on a password protected, secure server and are accessible twenty four hours a day, seven days a week from anywhere in the world.



### What sets SWATS PT apart?

The SWATS family of inspection crawlers has the ability to access the steam generator annulus region via a magnetic delivery platform. This allows SWATS PT to adhere to the SG shell while utilizing a true color pan and tilt camera for a birds eye view of the SG annulus at the tubesheet level. Air interrogation helps keep the delivery platform free of magnetite for uninterrupted inspections, even in SG's with heavy magnetite buildup.



Achieve a birds eye view of the annulus at the tubesheet level.

### Our references

- Over 27 years of Nuclear Steam Generator inspection experience and custom tooling development with a concentration on component integrity and your bottom line.
- Pioneering development of magnetic based crawlers with pan and tilt technology since 1995. SWATS PT is the 5th evolution of SWATS family of crawlers.
- Only SWATS PT can provide these unmatched inspection and foreign object search and retrieval (FOSAR) results.

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