

## **N236. Photogrammetry for Nuclear Power Plants**

Photogrammetry is the science of obtaining quantitative data about physical objects by recording, measuring, and interpreting photographs. Anything that can be photographed can be measured, with quite amazing accuracy. Accuracy to 1 part in 100,000 is quite possible, with 1 part in 50,000 practical and commonplace. The technology has numerous advantages:

- complex shapes can be measured,
- it is non-contacting
- the photography process is quick and not generally disruptive,
- moving objects can be measured,
- a permanent record is established,
- photographs can be archived and analyzed at any future time.

Disadvantages include:

- photograph analysis takes hours, day, or weeks, depending upon the detail required,
- outdoor photos are sometimes hampered by rain, snow, or fog,
- measurements in some confined or congested spaces are not practical,
- analysis equipment is expensive and a trained staff essential.

Some examples of nuclear plant applications include:

- dimensional measurements of spent fuel assemblies,
- measurements of as-built piping configurations
- developing fit-up and machining requirements for steam generator replacements, and
- internal measurements on safety-related valves (as small as four inches) as a method of certifying their performance during design-basis events.

*Taken from, "Advanced Imaging Tools for Nuclear Power Plant Operation and Maintenance," by Dennis E. Owen, James Ketchel, and John F. O'Brien, Nuclear Plant Journal, November-December 1992, p. 48.*