

# V. C. Summer Nuclear Station

NUCLEAR ENERGY INSTITUTE  
2012 VENDOR TIP AWARD

NUCLEAR GRADE AIR TRAP (NGAT™)



## NUCLEAR GRADE AIR TRAP (NGAT™)

### Nuclear Safety

The NGAT™ defines when ECCS and other ESF systems are “full” to show technical specification compliance on a full-time basis, rather than every 30 days. This improves nuclear safety by ensuring ECCS systems are full and ready to perform their intended design basis functions. This enhances nuclear safety and lowers risk by eliminating the need to build scaffolding over SSCs, as UT is eliminated. Thus, there is no need to declare the SSCs inoperable while scaffolding is being built and left in-place over safety-related equipment.

### Radiation Protection

ALARA principles are promoted by allowing operators to determine if ECCS systems are full just by quickly glancing at the NGAT™ indicator. This eliminates unnecessary venting. Without this visual aid, crews would have to be dispatched to perform UT measurements to determine if voids are present in ECCS piping. Also, scaffold building crews would receive doses by erecting scaffolding for the UT crews. This would need to be repeated every 30 days. Some stations forgo the UT process and open vents to determine if voids are present. This is problematic because of increased doses received and the risk of personnel contamination is high.

### Industrial Safety

The NGAT™ eliminates the need for scaffolding to be constructed at locations now requiring UT inspections. Also, UT personnel would not be exposed to the industrial safety risk of working from scaffolding.

### Human Performance

The NGAT™ eliminates human error in the interpretation of UT data for void de-termination. There have been stations that have declared systems inoperable due to initial false-positive indications of voids. The NGAT™ is a go/no-go indication that voids are present by quick visual observation.

### Worker Morale

Worker morale is improved as constantly re-occurring UT inspections are eliminated and unnecessary random venting is eliminated. Scaffold crews do not have to erect and take down the same scaffolds every 30 days for UT inspections; this improves worker morale, as well.

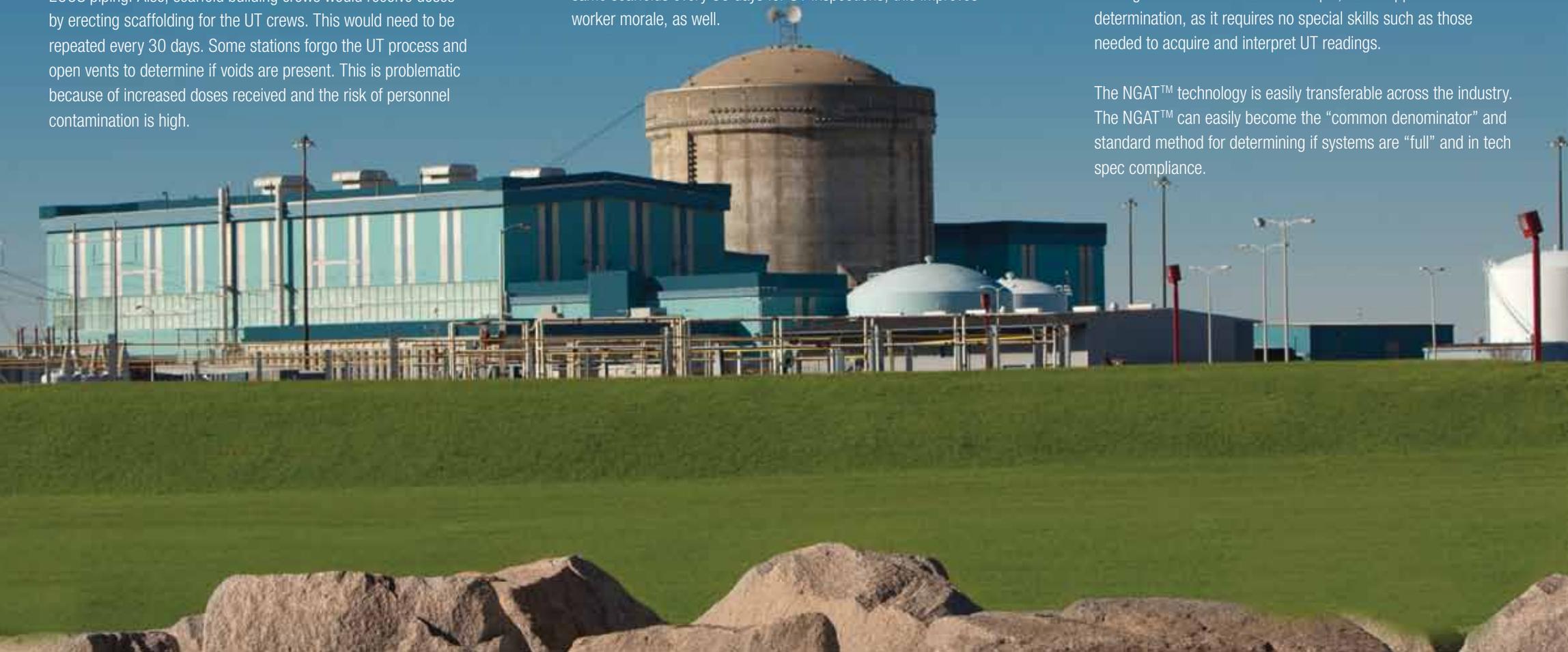
### Productivity/Efficiency

An operator can quickly take readings during routine, daily rounds to determine if air/gas is accumulating at a location. Also, other employees and HP technicians that are in the plant for other purposes can re-report to OPS if they happen to see an NGAT™ that is indicating that air/gas accumulation is exceeding pre-defined limits. While not considered an “official” reading of the NGAT™, many other eyes are on the lookout for problems with air/gas accumulation. Departmental personnel have been made aware, through training and meetings that gas accumulation issues are very important to maintaining nuclear safety.

### Transferability

The NGAT™ is unique in that it uses passive principles of nature (buoyancy and magnetism) to constantly show whether air/gas is gathering at a high point in fluid systems. It is easily determined by a quick glance at the indicator that the location requires venting or not. It is a fresh and unique, direct approach to void determination, as it requires no special skills such as those needed to acquire and interpret UT readings.

The NGAT™ technology is easily transferable across the industry. The NGAT™ can easily become the “common denominator” and standard method for determining if systems are “full” and in tech spec compliance.



# MANAGING GAS ACCUMULATION IN SAFETY SIGNIFICATION SYSTEMS

All stations experience and deal with NRC Generic Letter 2008-01 and SER 02-05 Gas Accumulation issues. In order to monitor and provide a direct method for eliminating accumulated air/gases, a Self-Indicating Nuclear Grade Air Trap (NGAT™) was developed and installed at VCS Unit 1.

NGAT™ installed in the RHR Piping System at V.C. Summer Station



PROJECT NAME

**NUCLEAR GRADE  
AIR TRAP**

LOCATION

**V.C. SUMMER NUCLEAR  
STATION (UNIT 1)**

DESCRIPTION

**DEVELOP METHOD TO MONITOR AND ELIMINATE  
ACCUMULATED AIR/GASES**

The NGAT™ is commercially available from NUCCORP, Inc. The NGAT™ is designed per Section III of the ASME Code and is fabricated from safety-related, ASME material.

To obtain more information on how the NGAT™ can improve nuclear safety and help meet NRC GL08-01 commitments at your station, contact NUCCORP.

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