Tracerco

Providing Insight Onsite

Troubleshooting, pre-turnaround and baseline scans help prevent plant bottlenecks and optimises performance.

A Tower Tru-Scan™. What does it do?

A Tru-Scan™ of a trayed tower provides a density profile of the process inside the tower. The power of the technology is that the scan is done while the tower is operating so real-time information is obtained about how the tower is performing. The scan "sees through" the vessel wall allowing a determination of what is happening inside without the need to shut down. The scan results in a density profile of the internal process, providing detailed information about the hydraulic performance of the trays. With the scan, data diagnosis of specific conditions can be obtained including tray damage, flooding, tray weeping and foaming. When using FrothView™, you can get a measure of a tray's current capacity.

FrothView™? What is that?

Our FrothView™ technology measures the total froth height on a tray using Tru-Scan™ data. This measure divided by the tray spacing gives the percentage of tray space occupied by froth, and the available remaining capacity. The percentage of tray space occupied by froth correlates closely with percent flooding, so this is a useful way to spot current problems and potential capacity limitations.

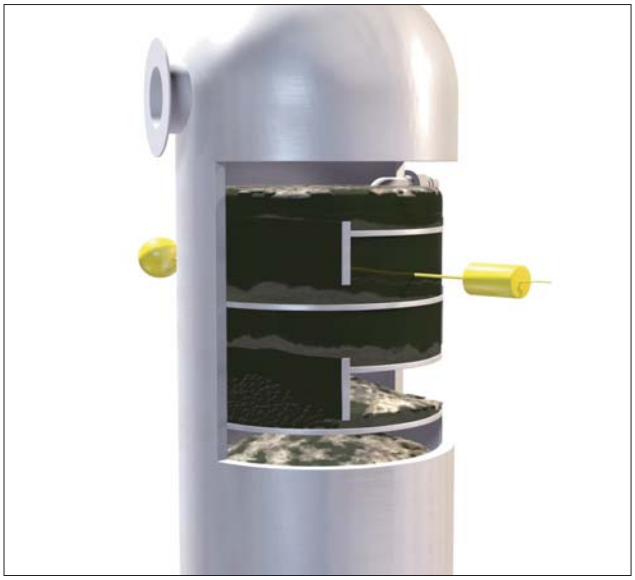
What preparation is needed to the tower before Tracerco performs a Tru-Scan™?

A Tru-Scan™ is generally performed without the need for any preparation to the tower, e.g. insulation does not need to be removed. Tracerco will need access to the top of the column or above the section to be scanned either by ladders to the platform, scaffolding or a crane basket. Our scan equipment is very portable as we are able to carry it to the top of the tower in back packs.

Good drawings, especially showing the orientation of internals is needed prior to performing the scan so the appropriate scanline orientation can be used.

How is a Tru-Scan™ of a trayed tower performed?

A Tru-Scan™ measurement is typically performed using a very small (activity) sealed radiation source and a sensitive radiation detector aligned on opposite sides of the column, across the tray active area or through the down comers. The scan is performed while the column is online and operating at normal, test or upset conditions. Any external obstructions are noted to make sure they do not affect the scan interpretation.



How safe is this procedure?

We offer the safest, highest quality and most accurate Process Diagnostics™ service available. The features of our system include:

- Low-voltage scanning detectors and electronics to minimise risk,
- Wireless detector system means no danger from co-axial cables getting burned or stuck on tower structures,
- Our in-house multi-channel detector system provides a more focused diagnosis, detecting subtle but important problems that might be missed using other detector technology.

What about radiation protection?

Compared to industrial radiography (X-rays of welds and piping) we use much weaker radiation sources - typically a thousand times smaller in terms of source activity. We strictly abide by our radiation licence requirements to segregate an area around the equipment we are working on to provide a safe boundary for the public (all the personnel in your plant). Practically speaking this usually means restricting access onto the equipment currently being scanned. Our crew members are always very willing to explain these procedures with everyone potentially affected and to make sure we do not block access to critical areas.

What are the limitations for scanning such as wall thickness and diameter?

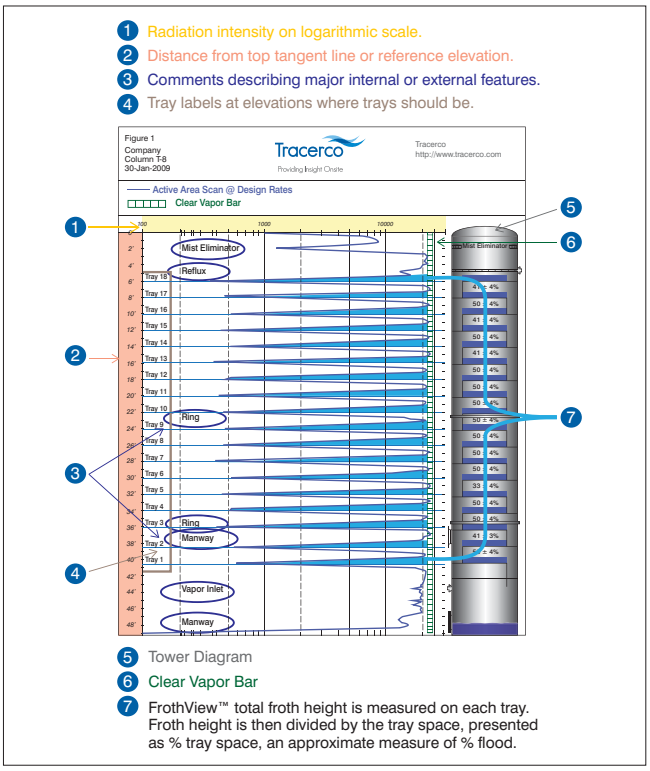
Tracerco has successfully planned and executed Tru-Scans™ of large diameter greater than 12 metres (40 feet) and thick-walled vessels up to 10 - 12 cm (4-5 inches) using high energy sources and ultrasensitive detectors built specifically and exclusively by Tracerco for these challenging projects. It should be noted that due to personnel safety reasons involved with the handling and transporting of radioactive sources, there are practical limits to the size of equipment that can be successfully scanned.

Tracerco is licensed by multiple regulatory agencies to be able to provide products and services to our customers worldwide. Where we are not currently licensed we will work with local authorities to acquire temporary permissions. Based on regulatory and licence conditions within each country there will be imitations on what radiation isotopes and maximum source sizes can be used to perform gamma scan and tracer projects. A Tracerco representative can discuss any restrictions or limitations that may impact the feasibility of projects within different countries.

What information will the Tru-Scan™ results provide?

After a Tru-Scan™ has been completed, the lead crew member will leave a preliminary report with the customer before leaving the plant site. A formal report will be provided soon afterwards.

Tru-Scan™ technology is used to evaluate the mechanical integrity and hydraulic performance of trayed columns by measuring froth levels on tray decks, liquid backup in downcomers, and clarity of tray liquid disengagement zones. Damaged or missing trays, plugged downcomers, feed issues, and tray fouling are examples of problems with columns that can be diagnosed with a Tru-Scan™.



A few of the results Tru-Scan™ can reveal include:

- Detect process issues that might be easily remedied by a change in operating procedures,
- Determine flooding and the exact location and probable cause of the flooding, allowing customers to choose the best course of action to alleviate the problem,
- Monitor and evaluate the performance of chemical washes,
- Detect tray damage providing plant personnel the confidence to schedule a shutdown to repair or replace trays saving downtime, emergency expenditures and lost production.

What are the benefits of a baseline scan?

The importance of a baseline scan is something that is often overlooked. Baseline scans provide a valuable reference point data that can be used to identify and monitor future patterns in column performance. The baseline scan should be performed when the column is clean, believed to be in good mechanical shape, and operating with no known problems. A baseline scan eliminates ambiguity on subsequent column scans and enhances accuracy and sensitivity. With baseline results to refer to, our skilled professionals can detect very subtle changes in a trayed column. Baseline scans can also be used to evaluate the effects of tower revamps and to document the start-up of a column.

For further details email: **process.diagnostics@tracerco.com** or visit: **www.tracerco.com/processdiagnostics**

For our worldwide offices: www.tracerco.com/processdiagnostics/our-people

Enabling you to make the right decision

Process Diagnostics

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