**Tango™ RoundsLogging:**

Tango™ RoundsLogging is a function that allows industrial plant technicians to use Smart Phones and Tablets for collecting equipment health information through tasks such as:

1. Basic Operator Care Rounds
2. Lubrication Routes
3. Mechanical or Electrical inspections
4. Environmental or Safety inspections
5. IR Thermography Condition Assessments
6. Ultrasonic condition assessments

The first four activities use RoundsLogging’s Process Parameter function for defining appropriate trend and observation points for each asset component, then collecting measurements in the plant via a Smart Phone or Tablet.

The fifth and sixth activities are examples where RoundsLogging works with Tango’s Condition Task Assessment process to provide a routing system on a Smart Phone or Tablet for predictive maintenance systems that do not have that capability.

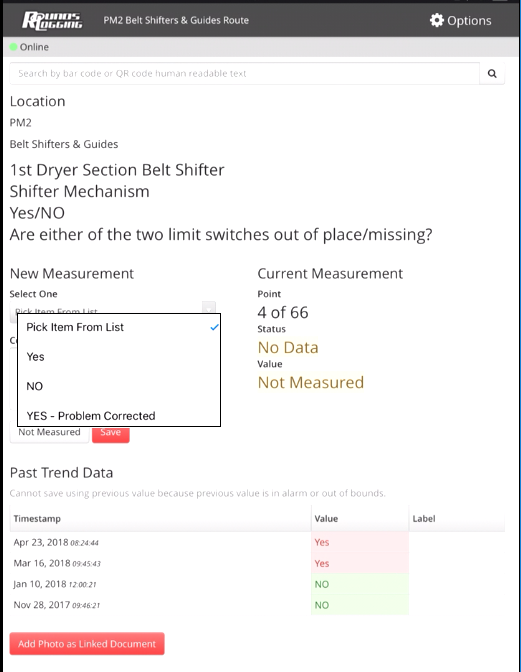
In either RoundsLogging application the information gathered on the Smart Phone or Tablet becomes part of the historical asset health record in Tango, and problem conditions found during the inspections or routes can be escalated to a Condition Entry. All Condition Entries for an asset component, including those from other condition monitoring activities such as vibration analysis, oil analysis, and electrical testing, are posted to Tango’s Integrated Condition Status dashboard.

Android™, IOS™, or Surface™ devices may be used for RoundsLogging – the choice is typically driven by brand or cost preference rather than functionality differences. Some begin with a phone for convenience, but there is a preference for the larger screens on tablets.

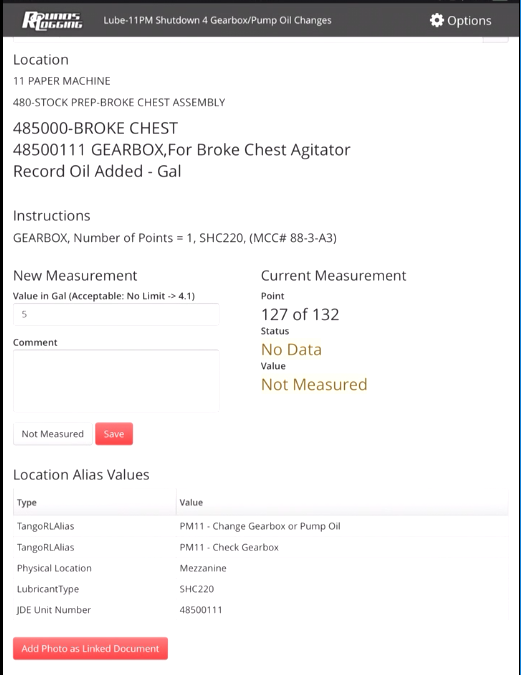
**RoundsLogging – Process Parameters Routes:**

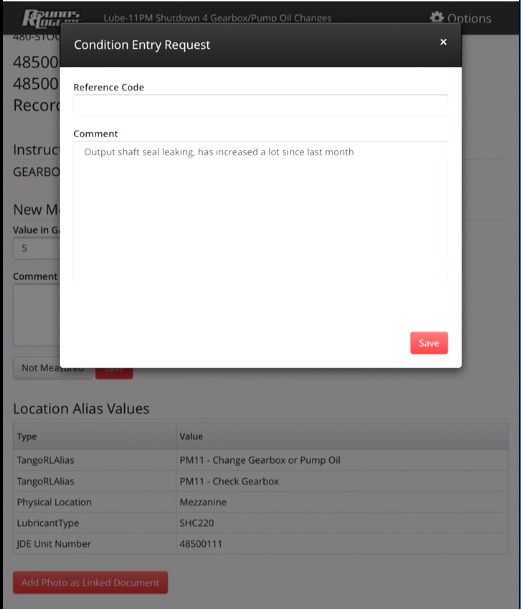
There are two types of process parameter measurement points that can be set for asset components in Tango:

* *Observations* are text-based measurements where the technician selects the appropriate value from a predefined list, such as ‘Check Oil Level’ with options to select ‘Overfull, Full, or Low’.
* *Trends* are numeric based measurements such as temperature in deg C, flow rates in GPM, grease added in Oz, or crane cable thickness in CM.

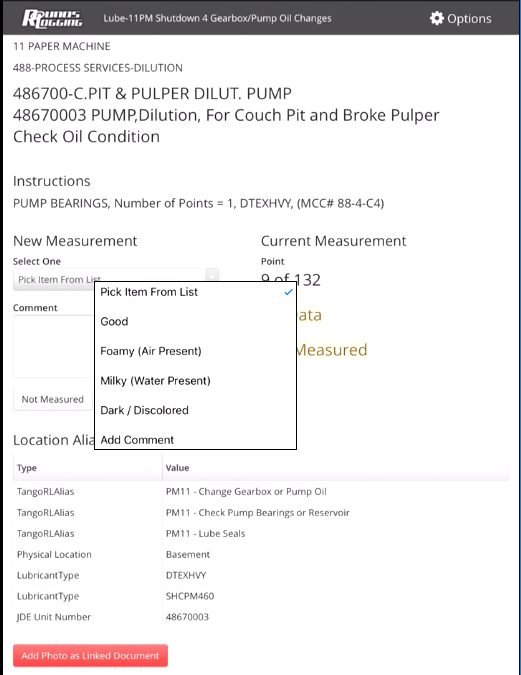
Example #1: Basic Operator Care Observation Point –

The user selects the appropriate item from the pick list; each item indicates either ‘No Problem’ or ‘Problem Found’ for the observation point. Note that up to 5 Past Data values can be shown for reference – those in Red are ‘Out of Bounds’ measurements & triggered a ‘Request for Condition Entry’ in Tango. This allows problems found in the field to be escalated to Tango’s Integrated Condition Status dashboard for communication to other users.

Example #2: Lube Route Trend Point –

The user enters a numeric value. In this case ‘5’ exceeds the high alarm value set at ‘4.1’, so the user is prompted for additional information about the alarm. This additional information is carried forward when escalated to a Condition Entry, which can be pushed into the eventual work order. Note that a low alarm value can also be specified for trend points.

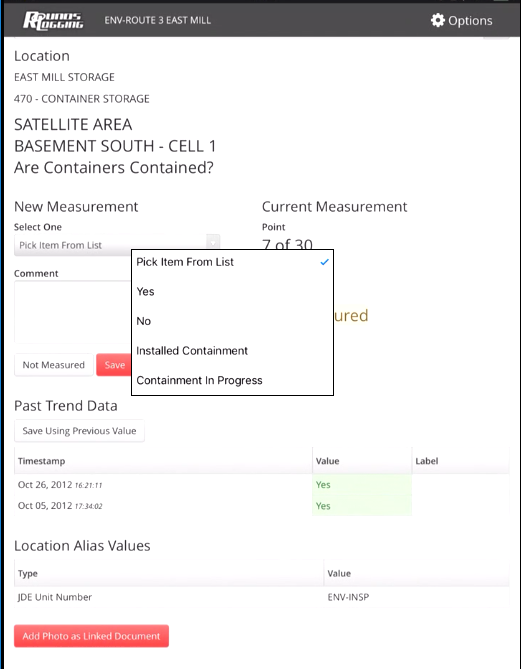
Photographs of the asset and the problem may be linked to the measurement point.

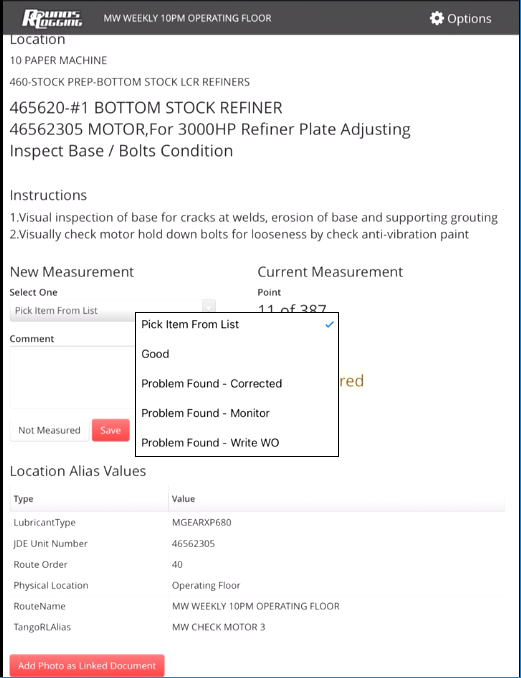
Example #3: Lube Route Observation Point –

If desired, instructions can be added for any individual measurement point – in this case specifying the number of lube points, the type of lubricant, and the MCC energizing this asset in case lock-out is needed.

Example #4: Environmental Inspection Observation point –

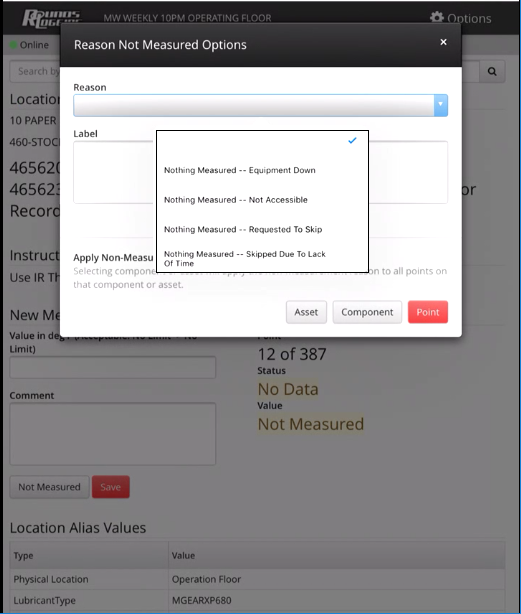
Definitions for the observation name and items in the pick list are controlled during customers’ initial setup – they can be very simple or extremely detailed as needed.





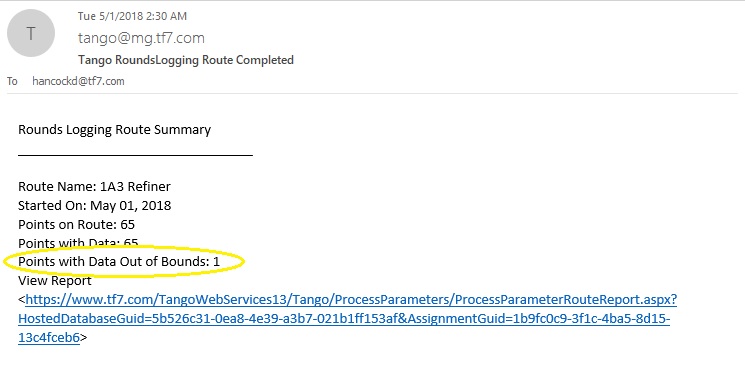
Example #5: Mechanic Inspection Observation Point –

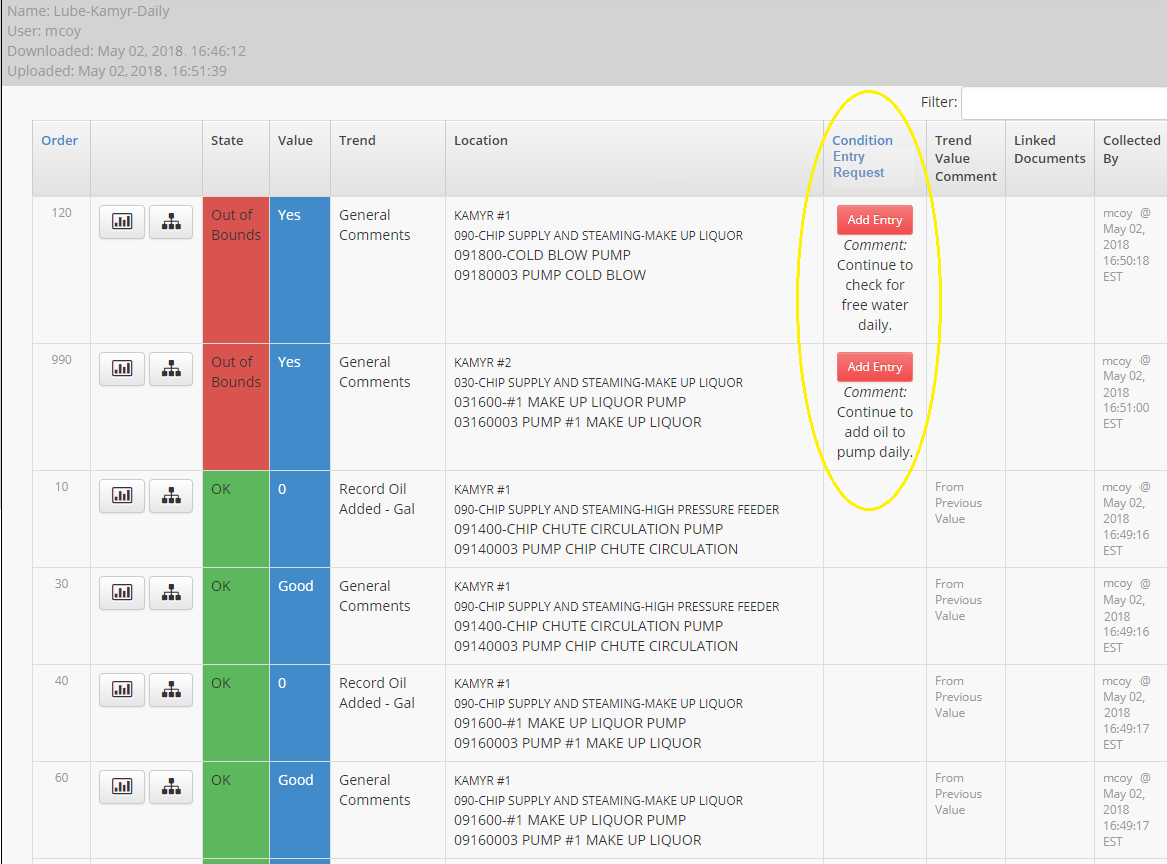
Instructions are also customer defined and may be simple or detailed.

Example #6: Point Not Measured Reason

When the user cannot complete the measurement of a point, the reason may be tracked.

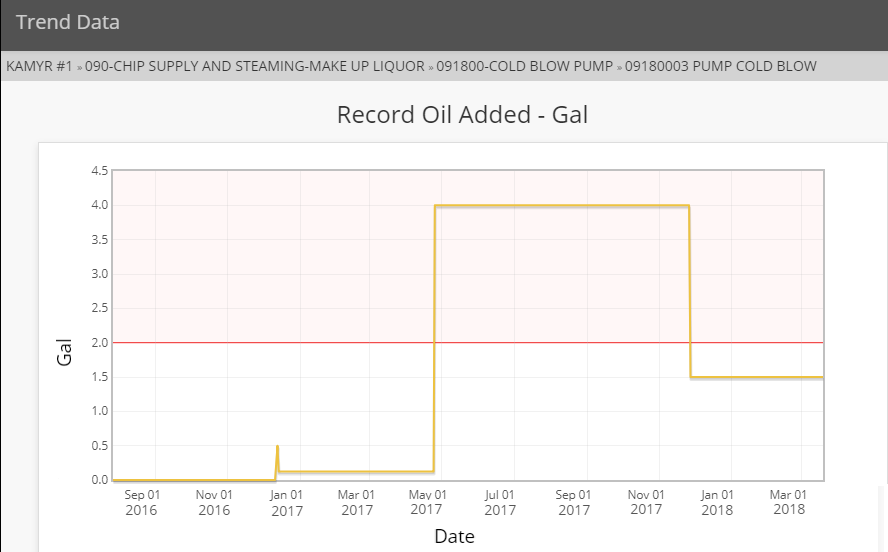
Once a RoundsLogging Process Parameter Route has been completed, Tango presents a process for making decisions on escalating reported problems to condition entries and inclusion on the Integrated Condition Status dashboard.

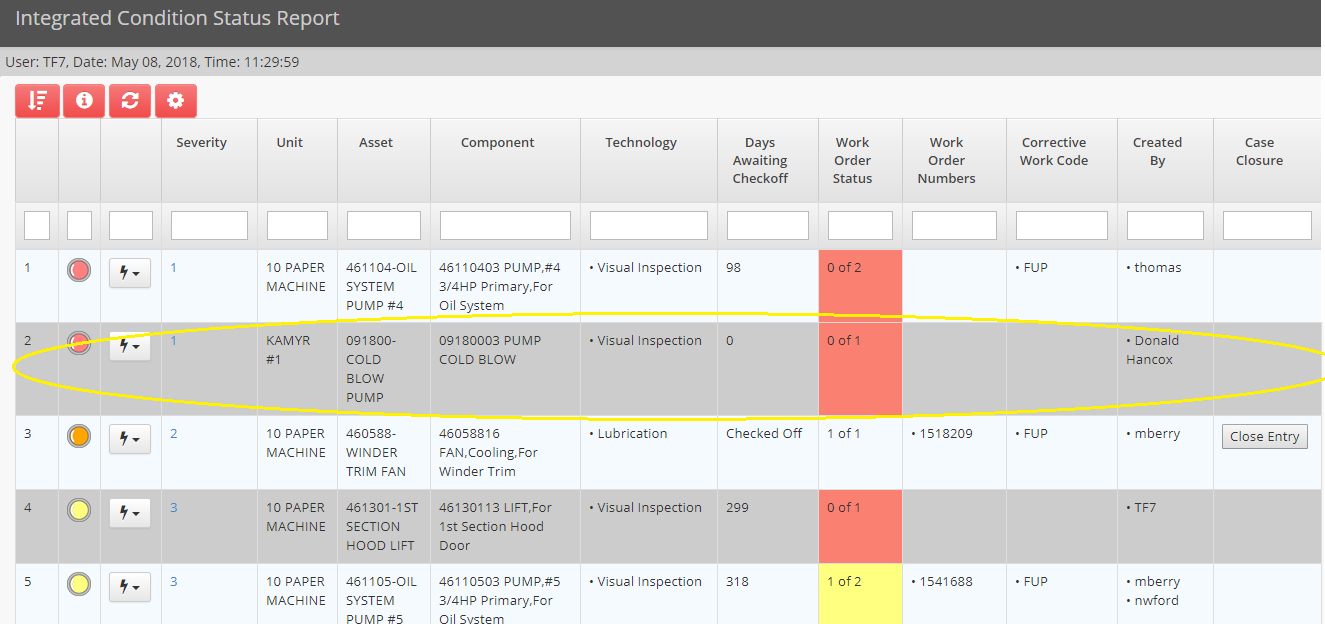
First, specified Tango user names are notified by e-mail when a route is completed, with a count of points measured, a count of points indicating a problem, and a link to the interactive summary report in Tango for completion of each Condition Entry Request:

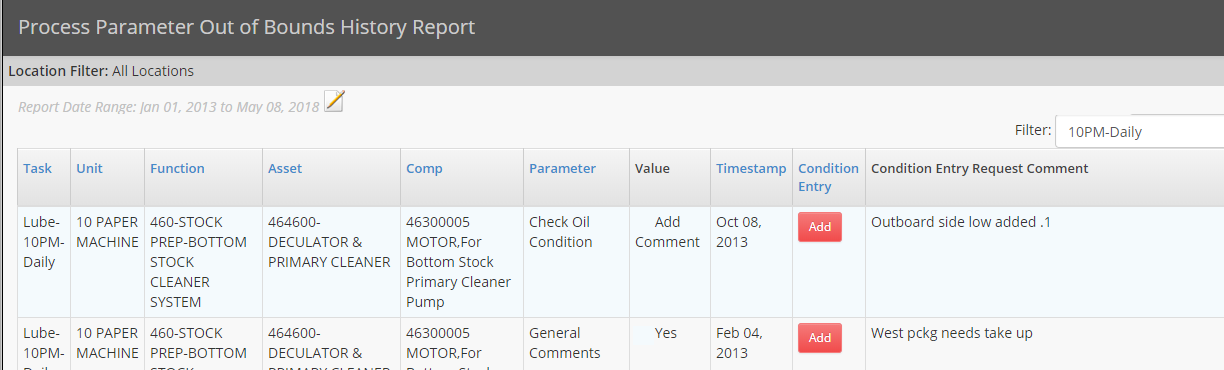
The e-mailed link will take the user directly to the Process Parameter Collected Data Summary Report for that specific route completion; measurement points indicating a problem are shown at the top of the report, along with the Condition Entry Request that includes comments entered by the inspection tech:

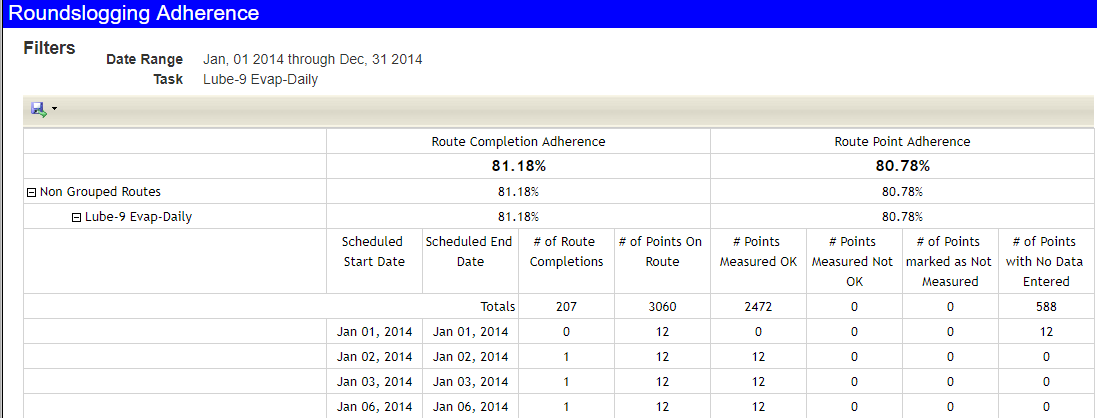


For decision support a user may click the icons at the left side of each row to open the measurement point’s location in the tree or to bring up the trend /observation history:



When the decision is made that a reported problem should be escalated to a condition entry, the user clicks the ‘Add Entry’ button to open the screen for completing the condition entry information and posting the problem to the Integrated Condition Status dashboard:

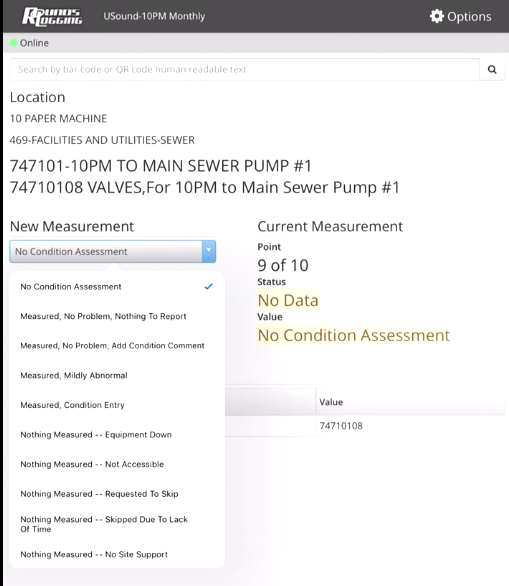
Other paths for viewing the problems reported & escalating appropriate items to the ICSR are through Tango’s ‘Process Parameter Currently Out Of Bounds’ and ‘Process Parameters Out Of Bounds History” reports:

****The interactive RoundsLogging Process Parameter Route Adherence report helps manage compliance to inspection schedules and successful data collection on measurement points:

**RoundsLogging – Condition Assessment Tasks:**

Tango Condition Assessments allow PDM technicians to efficiently document and integrate their conclusions after collecting and analyzing data from specialized technology systems such as vibration or oil analysis. RoundsLogging allows PDM technicians to assess condition tasks on mobile devices as they collect data in the field, especially useful for some IR thermography, ultrasonics, and motor testing systems that lack a routing tool.

In the RoundsLogging application the user steps through each asset component in the task as he or she performs the condition monitoring, and then selects the appropriate condition state from a pulldown list. The typical state list includes:

* Measured, No Problem, Nothing to Report
* Measured, No Problem, Add Condition Comment
* Measured, Mildly Abnormal
* Measured, Condition Entry
* Nothing Measured – Equipment Down
* Nothing Measured – Not Accessible
* Nothing Measured – Requested to Skip
* Nothing Measured – Skipped for Lack of Time
* Nothing Measured – No Site Support

‘Measured – Condition Entry’ is the state for a reportable condition problem, and will lead to a

Condition Entry in the Integrated Condition Status dashboard.