From: Reliability Update [reliabilityupdate@tf7.com]
Sent: Thursday, September 11, 2008 9:32 AM
To: hancockd@tf7.com
Subject: Tango Reliability Management News

Tango Reliability Management News

24/7 Systems, Inc.

In This Issue

Check out

PDA-based

Lubrication Management

at PDM - 2008,

Omaha, Nebraska

September 15th - 17th

Stop by 24/7 System's Booth #25 to try it out first-hand, with live internet connection to Tango Web Service!

Manage Lubrication Activities with Tango Web Service & PDA's

We've covered two condition monitoring oriented applications of PDA's and Tango Web Service in our July and August editions:

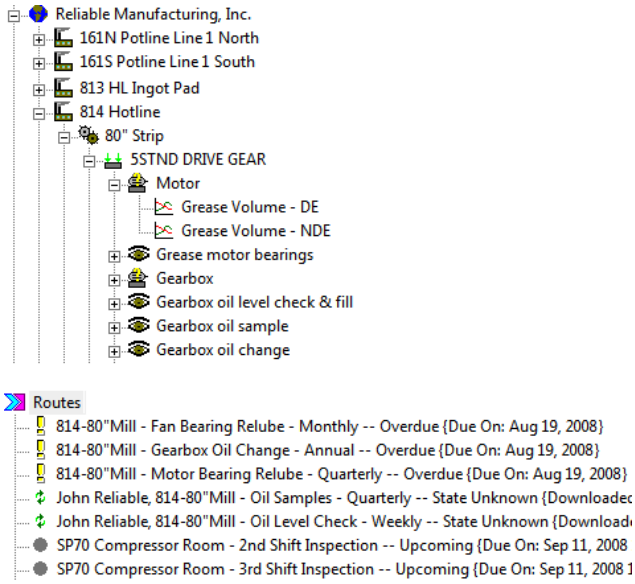
- Integration of problems found by operations and maintenance personnel performing gauge readings & inspections with results coming from PDM technologies
- Managing schedules, data collection, and reporting for IR thermography and ultrasound surveys.

This issue will focus on a third application - Lubrication Management:

- Schedule management of lubrication tasks such as oiler & grease routes, oil sampling, & oil changes
- Trending of makeup volumes, including alarms for excessive amounts
- Management of proper lubrication for different applications
- Integration of lubrication problems with results from other PDM technologies

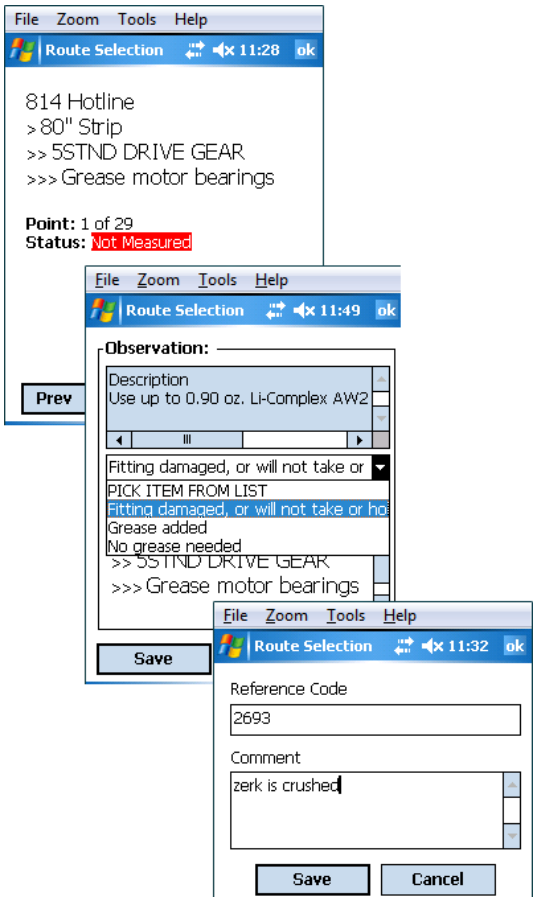
First, the appropriate lubrication activities are defined for the asset locations in the plant tree (Fig 1). Behind the text description for the activity are detailed instructions such as type of lubricant to be used, amount to be applied, or procedure to follow. Once the lubrication activities are defined, they are organized into a series of scheduled tasks; these tasks can be managed by plant area, by frequency, or by both. Tango Web Service presents the scheduling status, based on the scheduled frequency and last date of completion.

Fig 1 - Organization of lubrication activities under an asset component;
List of overdue, work in progress, and future lube routes



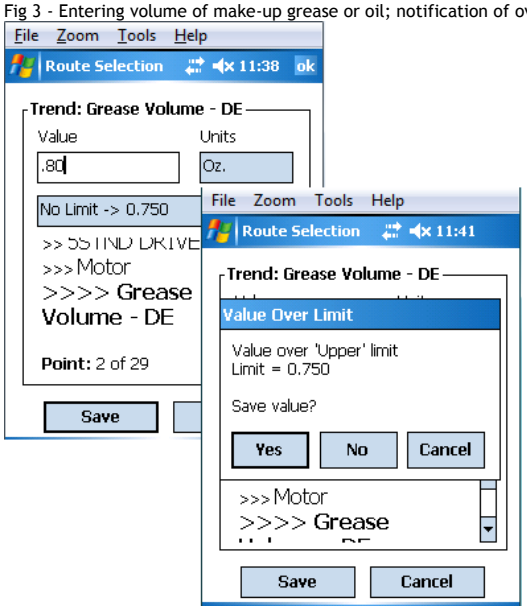
After a task is downloaded to the PDA, the technician is guided through each activity. For example, the first activity in this task requires greasing a motor bearing. The screen shows the equipment location, then the type and maximum quantity of grease to be applied. A pick list allows the technician to note that he did or did not add grease; if he selects an item that represents a problem condition he will be prompted to add information about the problem (Fig 2). The reference code is used when the technician marks the problem item with a tag to make sure followup work in done on the correct item.

Fig 2 - Sequence of PDA screens for greasing a bearing, finding a bad
fitting, and entering a comment about the problem



If the technician adds grease (or oil), he is prompted to enter the quantity (Fig 3). If the quantity exceeds the maximum for that location, he is notified that this is over the limit, and then prompted to enter a comment about any problem that lead to the over-greasing. The same process applies to checking reservoir levels and adding make-up oil.

Fig 3 - Entering volume of make-up grease or oil; notification of over-lube status



After all items in the route are completed and the uploaded to Tango Web Service, a summary report shows which items were completed successfully, which had problem notations, and any that were missed.

Fig 4 - Summary report shows which items were completed successfully, which had problem notations, and any that were missed

Task Name: 814-80"Mill - Motor Bearing Relube - Quarterly
User: John Reliable Downloaded: 09/10/2008, 11:26:11
Uploaded: 09/10/2008, 13:09:04

State	Value	Trend	Unit	Function	Asset	Component	Condition Entry Request
Out of Bounds	Fitting damaged, or will not take or hold grease	N/A	814 Hotline	80" Strip	5STND DRIVE GEAR	Grease motor bearings	***Ref Code:***2693 ***Comment:*** zerk is crushed
Ok	Grease added	N/A	814 Hotline	80" Strip	PINION	Grease motor bearings	
Ok	0.5 Oz.	Grease Volume - DE	814 Hotline	80" Strip	PINION	Motor	
Ok	0.5 Oz.	Grease Volume - NDE	814 Hotline	80" Strip	PINION	Motor	
Not Taken		N/A	814 Hotline	80" Strip	FANHSEE	Grease MFAN motor bearings	

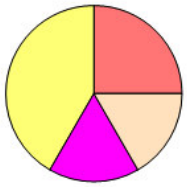
Problem items in a lubrication route trigger a 'request for condition entry' - this allows items such as the crushed oil fitting to be integrated with results from condition monitoring technologies such as vibration or oil analysis (Fig 5). Trend plots are available for numeric inputs such as make-up volumes; trend analysis can help spot consistent over-lubrication or high oil leakage problems.

Fig 5 - Lubrication issues are integrated with other known condition problems; Trend analysis can help spot over-lubrication and high oil leakage problems

Integrated Condition Status Report

User: John Reliable, Date: 09/10/2008, Time: 13:45:34

Color	Level	Entries
	1: Repair within 7 days	3 {25%}
	2: Repair within 30 days	5 {41%}
	3: Repair within 90 days	2 {16%}
	4: Under Surveillance. No action required.	2 {16%}



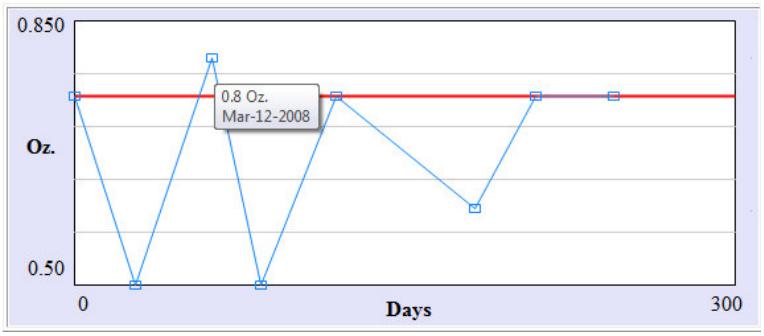
Open Condition Entries

	Severity	Asset	Component	Technologies	Days Awaiting Checkoff	Work Order Status	Work Order Numbers	Case Closure
	1	CLDWELL	MOTOR1	Thermography, Vibration - Route	595	1 of 2	• 02-14056	Close Entry
	1	2CENTAC	Air leaks	Visual Inspection	562	0 of 1		Close Entry
	1	5STND DRIVE GEAR	Grease motor bearings	Visual Inspection	0	0 of 1		Close Entry
	2	REACTOR	1FAN					
	2	CASTING	2SPM1					

Location 814 Hotline>> 80" Strip >> 5STND DRIVE GEAR >> Motor (Locate In Tree)

Grease Volume - DE

Alarm Description	Lower Limit Value	Upper Limit Value	
Grease Added		0.75	



The process for collecting oil samples and filtering or changing reservoir lubricant follows similar steps in the PDA - confirming the location and activity, displaying instructions to be followed, presenting an appropriate pick list of actions, and prompting entry of a comment if a problem condition is selected.

To learn more about using PDA's and Tango Web Service for Lubrication Management, call Forrest or Dick at 865-681- 0282. For more information about 24/7 Systems, check out www.tf7.com.

Check Us Out At Upcoming Trade Shows

Make sure you stop by and see our booth at the following trade shows:

Show	Dates	Location
PdM	September 15-17	Omaha, NE
SMRP	October 20-22	Cleveland, OH
IMC	December 9-11	Bonita Springs, FL