



Time to take stock

By Jack Poley

In previous TLT articles I've presented some case studies that exemplify the kinds of things that happen in real world oil analysis. Discussing case histories in any diagnostic process always offers a number of aspects of concern or interest, some of these more like sidebars to the basic process—essentially the human factors. Oil analysis is no different.

Consider the interaction that occurs routinely in an oil analysis program and what responsibilities exist, where they reside and where the potential pitfalls are.

At the outset

Before any sampling is done, the oil analysis program needs an owner on-site. Someone has to have responsibility and authority for defining how the program will function and what components will be placed in the program. This is not always a simple matter and, therefore, should be thoroughly discussed with the analyzing facility's representative, whether that person is in-house or external to the operation. There are these things to decide or implement, assuming budgetary and any other major resource acquisition issues have been preresolved:

1. What are the program objectives?
 - (a.) Monitor lube condition to determine lube or filter change intervals.
 - (b.) Monitor lube condition for evidence of operating problems.
 - (c.) Monitor machine wear.
 - (e.) All of the above.
2. What machinery (sumps) will be placed on the program?
3. What sampling intervals will be used? Will some units be sampled less or more frequently?
4. What tests are to be performed?*
5. Who is going to receive reports and make decisions on actions that may or may not be taken as a result of this information?
6. What do the logistics of this program look like?
 - (a.) Who's physically taking samples?
 - (b.) Who will see to it that the samples are forwarded to the lab?
 - (c.) Who will be the recipients of the reports? What are their responsibilities upon receipt, including:
 - i. Take action?
 - ii. Recommend action?
 - iii. Perform the action?
 - iv. Observe as an interested party?

*I've mentioned before that test selection is quite im-

portant if one is to discern what is taking place in a given sump.

As well, the program objectives should govern test suites for each sump. Finally, there is an occasional need for additional tests, tests that are primarily used to corroborate indications from the routine.

An example of corroborative testing might be a major increase in one or more of the principal wear elements (Fe, Al, Cu, Pb), prompting the employment of analytical ferrography to confirm a decision to visually inspect a machine component (perform a tear down inspection) for excessive wear. Because such a decision renders the machine unavailable for revenue generation during the inspection period, ancillary testing of this nature makes good sense, increasing chances for making the right decision, while preserving the practical aspect of not employing tests that are normally not necessary.

Execution at the lab

Sampling process:

1. Sample taken.
2. Sample properly identified.
3. Time on the lube and the unit.
4. Lube make-up addition (or exception reporting of excessive lube consumption) between samples.
5. Indication if oil or filter was changed at sampling time.

Testing:

1. Lab receives sample, logs it in.
2. Tests are performed—results fed to database.
3. Results matched up with previous samples from the component, evaluated and sent to the user/customer.

Execution at the site

1. Customer receives report.
2. Customer takes action on exception reports as appropriate.
3. Customer advises evaluator of action taken and findings.

PROGRAM PIECES	Activity	Potential issues
Sampling process	TAKE SAMPLE	Sample not representative
	IDENTIFY SAMPLE	Mis-identification
	LUBE/COMPONENT TIME	Not provided: Lube time estimated instead of known
	MAKE-UP LUBE	Not provided: Excessive make-up not factored into evaluation
	Advise: LUBE/FILTER CHG'd?	Redundant recommendation might cause confusion
Testing	SAMPLES RECEIVED AND LOGGED	Sample is logged incorrectly
	TESTING PERFORMED	Mistakes in testing
	EVALUATION	Mis-evaluation or incomplete evaluation
Delivery and Action	CUSTOMER VIEWS REPORT	Usually no issue
	CUSTOMER TAKES ACTION	Customer does not heed comments
	CUSTOMER SUBMITS FEEDBACK	Feedback not issued/received; no evaluation improvement

Here is the same list in tabular form:

Every aspect of the sampling program is potentially critical, but not every aspect is treated with appropriate importance. Items in red text tend to be the biggest headaches, even in seemingly well-run programs.

The sampling process

This important initializing step in the mechanics of oil analysis is well covered in trade articles and seminars. There are still situations where neglect is pervasive, but it isn't for want of available education.

Testing and evaluation

A great deal of emphasis is placed on testing quality and accuracy, less with choosing the best test package and, sadly, even less with the evaluation and commenting procedure, the most important product of the entire oil analysis process.

Delivery and action

Emphasis is placed on fast turnaround. That's great when the information is acted upon with equal swiftness. Sometimes, incredibly, reports go unviewed for days after having been delivered in accordance with the turnaround conditions insisted upon by the end-user. Then there's the notion of acting upon information and advisories provided.

In the last two CM articles, readers might recall that the biggest issue in the case histories cited had to do with deciding to act on the reports. In one case it was barely in time; in the other there was no action taken, with catastrophic results. Yet, this is what end-users pay laboratories and evaluators to provide.

Finally, there is the notion of feedback, the pain-in-the-neck process of sharing repair and other important maintenance information with the lab/evaluator in order to validate commentary on the reports and, therefore, to evaluate savings. I estimate that only 15% of end-users report such information with suffi-

cient accuracy. Admittedly, it is sometimes difficult to gather feedback because a repair process might take up to a week to effect, and the feedback may come from a person other than the report recipient. Nevertheless, this is key information and should be diligently pursued.

In fact, the report recipient, the person who will make a decision regarding the information and advi-

sories contained in the report, is the last interpretive link in the diagnostic process. He can add ancillary value or even correct a misdiagnosis.

Have you taken stock lately? << Jack Poley is managing partner of Condition Monitoring International (CMI), Miami, consultants in fluid analysis. You can reach him at poleyj@bellsouth.net. For more information about CMI, visit their Web site: www.cmiglobal.biz.

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