

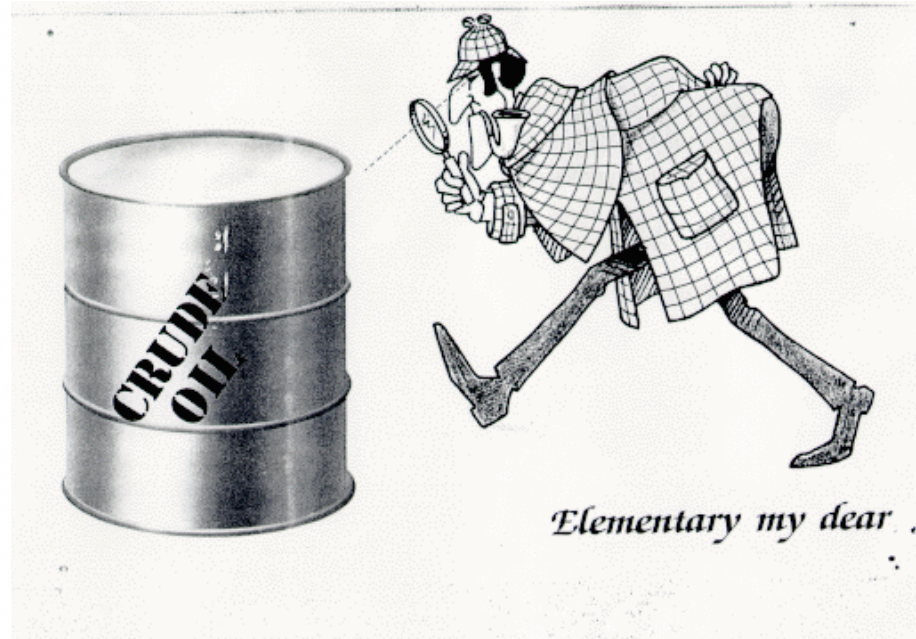
Sample Acquisition

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2004



Enhanced monitoring program

1/2 of all samples rejected for purpose intended.

Problem:

- Samples arriving in or with
 - Wrong container
 - Improper level of liquid
 - Poor labeling on can
 - Wrong / incomplete documentation
 - Transportation issues

Problem:

- Vendors / inspectorate companies
 - Poorly understand requirements from the assay perspective
 - Interpret safety requirements differently

Situation unacceptable

Information to be provided when crude oil samples are requested:

- Instruction sheet
- Common Crude name or type
- Expected API gravity range
- Sample size Special container requirements, if any (Teflon lined cans? Special acid washed glassware?)
- Contact information

Safety first

Sample shipping requirements are dictated by International Air Transport Association (IATA) regulations. Samples in 20-liter, 4-liter, or 1-liter cans that are shippable.

Sampling Costs:

Expected to be \$250 to \$500 USD
(excluding customs and airport fees).

If the cost exceeds this amount, please pre-approve the expense before proceeding

Sample Collection

Essential sample be representative.

Automatic line sampling (composite sampling) preferred.

Attention Grabber

20-liter (5 gallon) cans should be filled to the top and then ONLY 3 ounces removed to allow for expansion.

We will reject and not pay for samples that are not filled in this manner.

(ie, fill or keep)

Samples received since Jan 2005: 123

- Samples in metal containers: 98
- Samples in glass containers: 16
- Samples in plastic containers: 9
- Sample containers filled only
1/2 to 3/4 full: 4

Improvement:

50% to 10% reject rate

Tracking sample history

- Samples taken...
- before loading: 3
- during loading: 3
- after loading: 3
- before discharge: 4
- during discharge: 25
- not stated on sample: 85

- Sample source...
- Line: 36
- Vessel: 10
- Shore tank: 8
- not stated on sample: 69

- Average days to receive sample after sample was taken: 26
- Longest time period from sample date to receipt date: 117



Refining
CRUDE.