



CIA Inspection Inc.

Volume 6, Issue 1

December 2004

The Profiler

A NEWSLETTER OF INFORMATION FOR COKE DRUM OPERATORS

Over Ten Years of Coke Drum Inspections

WHAT HAS BEEN LEARNED?

For over ten years now, CIA Inspection has been performing a laser and remote visual inspection of coke drums. To date, we have performed close to 500 inspections worldwide. Our customer base continues to grow, having added 5 new customers this year alone.

CIA's inspection service has grown and changed over the years to accommodate new drum technologies and services. CIA offers the ability to:

- accurately cross reference features between the laser and visual inspection;
- identify built-in distortions in new drums;
- track drum distortion growth over time;
- compare drums with industry wide trends allowing operators to gage how their drums compare to similar drums at other sites;
- identify surface cracking or other visible surface indications in the cladding;
- accommodate top entry of our sensor to interface with the new DeltaGuard system;
- focus attention on failure prone areas within the vessel which are candidates for further NDE inspection.
- offer Sumitomo's AUT/Phased Array TOFD inspection service to identify and size flaws throughout the complete weld



View of one of our new client's cokers on the Gulf Coast at night time

including the clad restoration weld area.

CIA's database is significant and tracks drum design features, fabricators, metallurgy and performance characteristics across the industry.

This data is then used by CIA to create industry trends allowing it's client base to see how their specific coke drum experiences compare to other sites.

CIA designed and refined it's "Bulge Interpretation Guide" which identifies the different types of bulging seen in our laser scan data with regards to the various metallurgies and other phenomena including "ovality" and "peaking". This guide is part of our detailed Customer Report.

Our empirical experience has grown to the point where we can make recommendations on design features that we feel should be considered when ordering new coke

drums. Our experiences extend beyond mechanical design characteristics as we have been able to trend manufacturers' performances too.

Based on our field experiences and the different design parameters that we have seen, CIA has come up with an "idea" of what some of the best coke drum characteristics are.

These features include:

- consideration of low cycle fatigue service in the design;
- consideration of a forged ring for the skirt attachment weld area;
- a uniform thickness from tangent to tangent;
- a thicker shell material;
- flush ground welds;
- the elimination of as many circ. welds as possible;
- fabrication by an experienced drum fabricator.

Throughout the years, CIA has worked closely with many other service providers in the industry to bring a team approach to managing the productive life of a coke drum.

Our service is clearly the beginning step to proactively managing the reliability of your coker. With our drum data, other industry experts such as Stress Engineering, Chicago Bridge and Iron and Sumitomo Heavy Industries, can offer valuable follow-up services to improve your coke drum reliability.

SES Coke Drum " Best Practices" Workshop



Presentation by Richard Boswell at the SES Coke Drum Workshop

Stress Engineering in Houston, TX recently hosted an in-house workshop on developing Best Practices for Coke Drum Design, Repair, Condition Assessment and Life Extension. The seminar took place at their head office on November 9 and 10, 2004

Approximately 62 people were in attendance and there were two suppliers – CIA Inspection (US) Inc. and DeltaValve. Both days were filled with presentations from approximately 10 SES staff discussing many of their services and outlining the current state of the industry.

Representatives from operating companies such as BP, ExxonMobil, ConocoPhillips, Suncor Energy, 76 Seadrift Coke, Marathon Ashland, Valero Energy Corp., National Cooperative Refinery Association, Lyondell-Citgo, Motiva Enterprises, Coffeyville Resources Refining & Marketing, Shell, Frontier Refinery, Husky Energy, Shell Global Solutions, Reliance India, Ltd. and Hovensa, LLC, attended the seminar.

At the conclusion of the workshop a number of ideas were tabled to identify which areas the attendees would be interested in seeing a joint industry project or further work. Inspection was the big winner with improvements in operating practices coming in second in interest. Weld repair design improvements were further down the list of priorities.



AUT Technology Generating Industry Interest

Almost a year ago, CIA partnered with Sumitomo Heavy Industries to offer an alternative NDE method for following up with our laser scan data.

CIAI can provide operators with a solution to verify externally, the integrity of welds in clad vessels using this innovative technique that has been perfected by Sumitomo in their fabrication shops.

There has been lots of interest expressed in this unique technique as a number of prospective clients are considering this type of inspection during their next turnaround.

This technique can detect, size and orient fatigue cracks throughout the entire weld including the clad restoration weld area that has traditionally been difficult to scan because of boundary conditions at the cladding interface.

The crawler mounted sensor package can perform this inspection on 2 to 3 circ welds in a matter of hours. This AUT/Phased Array system can be applied to all vessels and is particularly well suited to any vessel that has cladding. Contact Rick Clark at 905-692-3678 for more information.

Upcoming Conferences of Interest

API

April 18-20, 2005
New Orleans, LA
(www.api.org)

"Bottom of the Barrel"

April 19-21, 2005
South Shore Harbor—League City, TX
(www.coking.com)

NPRA

May 24 - 27, 2005
New Orleans, LA
(www.npradc.org)

Universal cokingokers.com

9th Annual Delayed Coking Seminar
October 18-20, 2005
Long Beach, CA
(www.cokingokers.com)

HAPPY HOLIDAYS!!!

CIA Inspection
wishes all our
customers and their
families a very
happy and safe
holiday season.

See you in 2005!!!!

CIA Inspection Inc.

Canadian Office:
2399 Golf Club Road
Hannon, Ontario Canada L0R 1P0

U.S. Office:
13800 Westfair East Drive
Houston, TX 77041-1101

Phone: 905-692-3678 Fax: 905-692-5410

Email: rclark@cia-inspection.com
jcameron@cia-inspection.com
Web site: www.cia-inspection.com