

NETWORK

ENGINEERING INFORMATION EXCHANGE

VOL. 3, NO. 3 WINTER 1988

Training Programs Tailored to Customer Needs

When the public training courses available to our customers don't quite fit their needs, we do something about it. In fact, our two newest training programs, which teach air conditioning and electrical equipment operation and maintenance, were developed in response to a request from the Commonwealth of Virginia.

The Commonwealth of Virginia wanted to train maintenance personnel in equipment operation and maintenance, to help control equipment losses and keep repair costs down. They began their training program with our Boiler Operation Maintenance Seminar, which was presented to maintenance staffs at community colleges, state universities and hospitals.

The seminars were so useful to state employees that they requested a similar training session on electrical equipment.

Electrical Seminar

Although Hartford Steam Boiler didn't offer such a seminar at the time, we realized we could develop one based on our engineers' and inspectors' experience with electrical equipment. We chose Les Meffert, an inspector with extensive electrical experience, to spearhead the development of the new course.

Les' initial seminar program was reviewed by other Hartford Steam Boiler engineers and inspectors to assure that all technical aspects of electrical operation and maintenance were covered.

After extensive research and review, the seminar was ready for presentation to the public. Les held a

(continued on page 5)

COMPUTER-AIDED DESIGN HELPS CUSTOMERS MANAGE ASBESTOS ACTIVITY

Building maintenance and renovation activities become much more complex when asbestos is found in the building. For instance, maintenance personnel need to know if asbestos is present in a particular area of the building before they can begin work. Otherwise, they could disturb the asbestos inadvertently, causing fibers to escape and creating a health hazard.

Unfortunately, keeping track of building areas which contain asbestos and monitoring the progress of asbestos sampling or removal can be a difficult and time-consuming task.

With the help of advanced databases and computer-aided design (CAD) systems, Hartford Steam Boiler customers now can manage building activities that involve asbestos—quickly and easily.

Tracking asbestos activity via computer begins with the CAD drawing, a computer-generated "picture" of a location. The drawing includes details on the basic layout and structure of the building, along with location, condition and hazard information recorded by an inspector during an asbestos survey.

For instance, an inspector checking for asbestos would take note of typical problem areas such as boilers, cooling systems, pipe fittings, fireproofing, acoustical and ceiling tiles. The CAD drawing would include information on these items, telling whether asbestos is present, its composition and condition.

Once the basic drawing is complete, Hartford Steam Boiler technicians include the results of our asbestos sampling and analysis for each area of the building. The information helps building owners and their staffs manage plant maintenance and operation activities.

Using the drawing, maintenance personnel can tell at a glance whether the area they'll be working in contains asbestos. Building managers can determine which areas of the building will require asbestos removal. A hazard analysis can provide a priority schedule for removing the most hazardous material first.

While a CAD drawing itself is a useful tool for identifying potential problem areas and tracking asbestos activity, Hartford Steam Boiler has gone one step further. A computer database connected to the drawing completes the tracking process by providing critical information about the "health" of the building at the touch of a button.

The database houses information gathered during asbestos sampling and analysis, including:

- whether or not asbestos is present in each area
- the concentration of asbestos
- a description of the asbestos-containing material—thermal

(continued on page 2)

IN THIS ISSUE

Acoustic Emission Inspectors Meet Stringent Requirements	3
1989 Training Catalog	3
Questions and Answers	4
Engineering Services Hotline	4
Seminar Schedule	5
Hartford Steam Boiler Joins Johns Hopkins Center For Nondestructive Evaluation	6

COMPUTER-AIDED DESIGN HELPS CUSTOMERS MANAGE ASBESTOS ACTIVITY (continued from page 1)

insulation, floor tiles, etc. (ex., friable vs. nonfriable)

■ the condition of asbestos-containing material (damaged or potential for damage)

The database also lists a hazard priority for each material sampled, providing a quick indication of the extent of the asbestos problem in that area. Our inspectors assign hazard priorities based on factors such as the condition of the material and its potential for damage. For instance, an exposed pipe has more potential for damage than an inaccessible pipe.

Our technicians can use the database to sort information by floor, by hazard class, by material or any other descriptor, helping customers understand the nature of the asbestos problem at their locations.

For instance, we can sort out all priority-one hazards, allowing customers to focus on the most severe problems first. Or we might look only at those areas containing a particular type of asbestos.

In either case, the database acts as an asbestos management tool, guiding plant maintenance activities, future remodeling or renovations, and even asbestos removal work.

Using CAD drawings and a computer database, Hartford Steam Boiler can report asbestos sampling and inspection results in several ways.

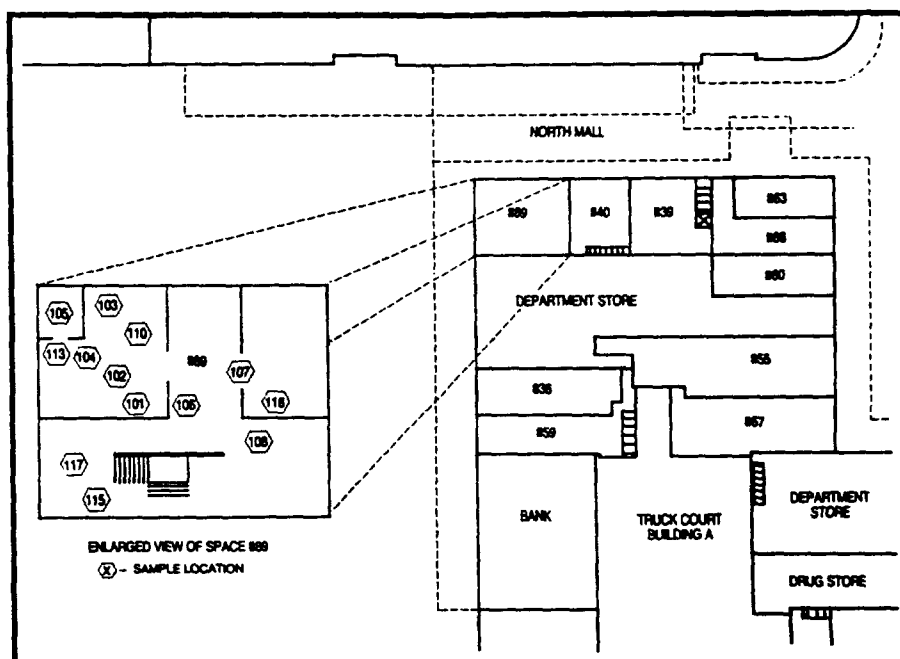
If a customer has an in-house CAD system and access to Dbase III or similar software, we can provide diskettes containing the CAD drawing and database information. A customer without those in-house computer capabilities can receive a hard copy printout of the drawing and database information.

Sometimes CAD drawings already exist for the locations inspected. We

can start with the existing drawings, then attach an overlay containing all information gathered during asbestos sampling and inspection.

To find out how Hartford Steam Boiler can help you manage plant activities that involve asbestos, contact Brian Grosjean, Assistant Manager, Environmental Services, at 1-800-243-0090, extension 5218.

CAD DRAWING OF SHOPPING CENTER



OUTPUT FROM DATABASE

STORE NO.	SAMPLE NO.	MATERIAL TYPE	LOCATION	PERCENTAGE	LAB COMMENTS	SAMPLE DATE	CONDITION	AMT. OF MTRLS.
89	105	Mudded Elbow	Above Bathroom in S.E. Office	Amosite 48	Contains Mineral Wool, Cellulosic Fibers	09-07-88	Remove	Appx. 54 joints
89	113	Joint Compound	S.E. Office Next To Bathroom Door	Chrysotile 57	Contains Mineral Wool	09-07-88	Remove	Appx. 35 Joints
89	104	2"x4" Ceiling Tile	S.E. Office 2' West of East Wall	NAD	Contains Mineral Wool, Cellulosic Fibers	09-07-88	Fair	Throughout Area
89	103	Mud Compound	Above S.E. Office	Amosite 35	—	09-07-88	Remove	Appx. 24 Joints
89	110	Mudded Elbow	On Air Handler Above S.E. Office	Chrysotile 50	Contains Cellulosic Fibers, Mineral Wool	09-07-88	Remove	Throughout Area
89	118	12"x12" Ceiling Tile	S.W. Office 3' West of Door	NAD	Contains Cellulosic Fibers	09-07-88	Fair	Throughout Area
89	102	Tar-Like Insulating Wrap	Above S.E. Office	Chrysotile 25	—	09-07-88	Remove	Throughout Area
89	115	12"x12" Ceiling Tile	14' East of Main Entrance	NAD	—	09-07-88	Fair	Throughout Area
89	101	12"x12" Ceiling Tile	S.E. Office 10' West of East Wall	NAD	Contains Mineral Wool, Cellulosic Fibers	09-07-88	Fair	Throughout Area
89	107	Floor Tile (Black)	S.W. Office And Door Way	Chrysotile 50	Contains Cellulosic Fibers	09-07-88	Remove	Throughout Area
89	108	Floor Tile (Black)	N.E. of S.W. Office	NAD	Contains Mineral Wool	09-07-88	Fair	Throughout Area
89	106	Floor Tile (White)	S.E. Office 4' North Of Door	NAD	Contains Mineral Wool, Cellulosic Fibers	09-07-88	Fair	Throughout Area
89	117	Floor Tile (Black)	17' South Of North Wall Of South West Office	Chrysotile 37	Contains Mineral Wool	09-07-88	Remove	Throughout Area

Acoustic Emission Inspectors Meet Stringent Requirements

To assure that our customers receive high-quality inspection services, Hartford Steam Boiler demands that all our engineers and inspectors meet stringent technical requirements before they perform any inspection activity in the field.

In this issue of NETWORK, we look at the technical training and qualifications of our acoustic emission engineers and inspectors. Future issues will profile our personnel in other inspection service areas.

When customers have acoustic emission inspection requirements, Hartford Steam Boiler responds with a highly experienced staff—one with a combined total of more than 100 years of field experience in nondestructive acoustic emission inspection. That extensive hands-on field experience, combined with in-house technical training and formal education backgrounds, makes for a highly qualified inspection staff.

To build a qualified acoustic emission staff, Hartford Steam Boiler begins by recruiting and training degreed engineers with solid, formal education backgrounds. Training for these engineers consists of two parts: training in the use of acoustic emission equipment followed by training in the field application of the equipment. This combination of formal education and Hartford Steam Boiler training ensures our inspectors will receive the most in-depth training on all aspects of their inspection activity.

Because acoustic emission inspection is a relatively new field, there are few formal training programs aside from those offered by U.S.-based manufacturers of acoustic emission equipment. As a result, Hartford Steam Boiler has chosen to educate our acoustic emission inspectors through an in-house program which combines classroom technical training with field inspection training.

All Hartford Steam Boiler acoustic emission engineers and inspectors undergo training in pursuit of certifications to a Level I, II or III classification.

Hartford Steam Boiler training

HARTFORD STEAM BOILER NDE CERTIFICATION REQUIREMENTS

METHOD		Magnetic Particle Examination	Ultrasonic Examination	Liquid Penetrant Examination	Acoustic Emission
LEVEL/ EDUCATION		Experience/ Training	Experience/ Training	Experience/ Training	Experience/ Training
TRAINING	Option 1	8 hrs	24 hrs	4 hrs	40 hrs
	Option 2	12 hrs	40 hrs	4 hrs	60 hrs
LEVEL I	Option 1	1 mo/8 hrs	3 mo/24 hrs	1 mo/4 hrs	6 mo/40 hrs
	Option 2	1 mo/12 hrs	3 mo/40 hrs	1 mo/4 hrs	6 mo/60 hrs
LEVEL II	Option 1	3 mo/4 hrs	9 mo/40 hrs	2 mo/4 hrs	12 mo/30 hrs
	Option 2	3 mo/8 hrs	9 mo/40 hrs	2 mo/8 hrs	18 mo/60 hrs
LEVEL III	Option 1	12 mo/4 hrs	12 mo/20 hrs	12 mo/4 hrs	24 mo/20 hrs
	Option 2	24 mo/8 hrs	24 mo/40 hrs	24 mo/8 hrs	36 mo/40 hrs

Reprinted with permission from ASNT Recommended Practice SNT-TC-1A.

programs are guided by the ASNT-recommended practice SNT-TC-1A. But while the ASNT practice provides a guideline for our training and certification program, Hartford Steam Boiler has modified the training requirements where we believe it is necessary.

One major difference between Hartford Steam Boiler's training philosophy and those of other companies is our focus on specialized training that prepares inspectors to perform particular services or processes. Rather than provide just a

general course on acoustic emission technology, we focus our training efforts on specific activities the inspector will perform in the field, such as TankScan™ II.

Hartford Steam Boiler's acoustic emission training also emphasizes many hours of actual hands-on field training, supplemented by classroom training. By learning under actual field conditions, our engineering inspectors are better prepared to face the unique situations they're likely to see in the real world of field inspection.

1989 TRAINING CATALOG AVAILABLE

A schedule of training courses offered by Hartford Steam Boiler is available in our 1989 Training Catalog.

The catalog features a new training course in Air Conditioning Operation and Maintenance. (For information on the development of new courses, see "Training Programs Tailored to Customer Needs," page 1.)

Other courses include Boiler Operation and Maintenance, Pressure Vessels, Pressure Vessel Design, Welding Qualifications, Repair of Boilers and Pressure Vessels, ASME Quality Control programs and a National Board Examination preparation course. Home study courses and nondestructive examination workbooks also are listed.

For each seminar, the catalog lists a course description, a profile of who should attend, seminar content and a list of materials provided. Registration and fee information, order forms and instructor biographies also are included.

A clipout schedule on the back of the catalog lists locations, dates and fees for all public seminars. (For a partial list of public seminars offered in 1989, see "Seminar Schedule," page 5.)

If you'd like a copy of the 1989 Training Catalog, contact Training Coordinator Mildred Sanabria at 1-800-243-0090.

QUESTIONS AND ANSWERS

ABOUT TANKSCAN™ II

In this issue of NETWORK, our Questions and Answers section focuses on some commonly asked questions about our TankScan™ II Inspection Service. The answers should prove helpful to customers considering a TankScan II inspection.

Q. Is the average inspection price per tank the same regardless of the number of tanks inspected?

A. Hartford Steam Boiler no longer uses object pricing. Instead, we base our TankScan™ II prices on daily, monthly and yearly rates. Our 1988 daily rate was \$3,500 per day. While not all tanks require the same amount of inspection time, most tanks can be inspected in one day. Under ideal conditions, more than one tank may be inspected in a day. For contracts involving a large number of tanks, a custom price will be developed.

Q. What could cause a non-legitimate source in the TankScan II inspection?

A. The TankScan II inspection detects emission sources that are generated within a storage tank. During an inspection, any attachment to the tank floor or any object resting on the tank floor could release emissions that could be interpreted as

a possible leak source. As a result, it is important that Hartford Steam Boiler have a drawing or sketch of each tank before we begin the TankScan II inspection. Objects that may indicate a false leak source include leaky level floats, sump pumps, dripping level floats, roof support structures, swing lines, roof support legs and miscellaneous equipment left in the tank.

Q. Does the type of material or liquid in the tank affect the TankScan inspection?

A. Most. Liquid materials, including hydrocarbon and hydrocarbon by-products, can be inspected with the TankScan II acoustic emission technology. However, some of the test variables will change depending on the material in the tank. For example, an inspection may require additional time to determine the sound propagation characteristics of a particular fluid. Some heavy viscous materials will not provide the most desirable medium for the transmission of sound waves. As a result, tanks containing these materials are unlikely candidates for TankScan II inspection.

However, if a customer requests a TankScan II inspection under those conditions, Hartford Steam Boiler technicians will perform the inspection to the best of their ability.

Q. Does the level of stock in the tank affect the TankScan II inspection results?

A. The weight of the fluid in the tank affects the level of the signal that will be generated by a potential leak. As a result, the maximum level of product should be maintained in the tank during the TankScan II inspection. However, it is possible to inspect a tank with as little as one-half the maximum level of product.

Q. Can TankScan II detect flaws, such as cracks or corrosion, which are not leaking yet?

A. TankScan II does not detect flaws which are not leaking yet. The purpose of TankScan II is to identify

ENGINEERING SERVICE

HOTLIN

Our hotline number is 1-800-242-0090. It's in service between 8 a.m. and 4 p.m. (EST) Monday through Friday. Callers in Connecticut should call (203) 722-5601. Once your call is placed, ask for the extension for the appropriate product/service area as listed below:

Codes and Standards Services

Extens: 5

- ASME Code Inspection Services
- Code-related Design and Design Review
- Code-related Engineering and Consulting Services
- QA/QC Manual and Program Development

Codes and Standards Training

5

- Home Study Courses
- NDT Workbooks
- Public and Private Seminars

Environmental Services

5499/5

- Asbestos Sampling
- Indoor Air Quality Evaluations
- Industrial Hygiene Services
- Laboratory Services

Industrial Services

- Acoustic Emission Services
 - Leak Detection
 - Pipeline Integrity
 - Pressure Vessel Integrity
- Boiler Condition and Useful Life Studies (BULS Plus)
- Government Inspection Services
- Hartford Wedge
- Plant Maintenance Audit
- PREPARE Program
- Pressure Vessel Condition Studies (DA tanks, etc.)
- TankScan™ II
- Used-Object Inspection
- Vendor Surveillance/Source Inspection



(continued on page 6)

Training Programs

(continued from page 1)

series of six sessions at various locations throughout Virginia, and the response was overwhelmingly positive.

Air Conditioning Seminar

The Commonwealth of Virginia believed their maintenance personnel needed one more session to make the equipment operation and maintenance training complete. So they asked Hartford Steam Boiler to develop an air conditioning operation and maintenance seminar.

Joe presented the finished air conditioning seminar to nine different maintenance groups at locations such as Old Dominion University, James Madison University and Radford University.

Inspector Joe Karaisz used the same process as Les Meffert, developing a course outline and reviewing it with his peers. In developing the new seminar, Joe drew extensively on his experience as both an inspector and an instructor of air conditioning and refrigeration systems at the college level.

Joe presented the finished air conditioning seminar to nine different maintenance groups at locations such as Old Dominion University, James Madison University and Radford University.

The two seminars were developed originally for presentation to employees of the Commonwealth of Virginia. But customers in all industries can take advantage of Hartford Steam Boiler's extensive equipment experience through our new Air Conditioning Operation & Maintenance Seminar and Electrical Equipment Operation & Maintenance Seminar. All of Hartford Steam Boiler's seminars are listed in our 1989 course catalog. (See story, page 3).

SEMINAR SCHEDULE

Following is a schedule of all training seminars offered by Hartford Steam Boiler from January through March, 1989. In addition to these seminars, we offer home study courses and nondestructive testing (NDT) workbooks. For more information about these offerings, seminar registration or a copy of our 1989 Codes and Standards Training Catalog, contact Training Coordinator Mildred Sanabria at 1-800-243-0090, extension 5491.

		Seminar	Price
NEW ORLEANS, LA			
January 23-24	Section VIII, Fabrication	0101	\$495
January 24	Repairs of Boilers & Vessels	0102	\$250
January 25	Quality Control Program-R Stamp	0103	\$250
January 26-27	Section IX, Welding Qualifications	0104	\$495
CHICAGO, IL			
February 13-24	National Board Examination Preparation Course	0201	\$2,250
PHOENIX, AZ			
March 6-7	Section VIII, Fabrication	0301	\$495
March 8	Air Conditioning Operation & Maintenance	0304	\$225
March 8	Repairs to Boilers & Vessels	0302	\$250
March 9-10	Section IX, Welding Qualifications	0303	\$495
HARTFORD, CT			
March 27-28	Section I, Power Boilers	0305	\$495
March 27-28	Section VIII, Pressure Vessels	0306	\$495
March 29-31	Section VIII, Design	0307	\$745
March 29	ASME Quality Control Programs	0308	\$250
March 30-31	Section IX, Welding Qualifications	0309	\$495

Modifying Seminars to Meet Customer Needs

In addition to developing new seminars, Hartford Steam Boiler can modify existing training programs to meet the needs of our customers.

We recently completed a series of customized training programs at various locations throughout South America for Philip Morris Management Corporation. At the company's request, we modified the traditional classroom approach to our Boiler Operation & Maintenance seminar to include hands-on instruction in the boiler room. This hands-on approach to training also was requested by the Upjohn Manufacturing Company for a series of seminars that were tailored to the specific needs and equipment of their plant in Barceloneta, Puerto Rico.

At Englehard Chemical Company in Georgia, Hartford Steam Boiler instructor Jack Greif held in-house

Boiler Operation & Maintenance sessions over five consecutive days—a flexible schedule that accommodated the various work shifts of their boiler operators and plant maintenance personnel. This initial session quickly led to a request for two additional sessions.

For Chevron Corporation, Hartford Steam Boiler instructors developed a special five-day course which combined instruction in Section VIII design, fabrication and repair with visual inspection techniques and quality control program development.

For more information about our public seminars or special in-house programs, contact our Training Coordinator Mildred Sanabria at 1-800-243-0090, extension 5491.

HARTFORD STEAM BOILER JOINS JOHNS HOPKINS CENTER FOR NONDESTRUCTIVE EVALUATION

Hartford Steam Boiler has joined a select group of companies in accepting membership in the Johns Hopkins University Center for Nondestructive Evaluation (CNDE). This association will keep Hartford Steam Boiler up to date on the most advanced technological developments in nondestructive evaluation, and allows us to apply these technical developments to inspection activities for both insurance and commercial engineering services.

The CNDE was established in 1984 as an interdisciplinary center for research and instruction in nondestructive evaluation and measurement for science and technology. The center focuses on research which will lead to more sophisticated and accurate methods of nondestructive evaluation—methods which help control and improve product quality and assure high reliability for materials, parts and products.

As a member of the CNDE, Hartford Steam Boiler enjoys several benefits which will help us better serve customers with nondestructive evaluation needs.

For instance, Hartford Steam

Boiler will have the opportunity to transfer new technologies, developed at CNDE, to customers in industry. We also will have a voice in the development of the center's research programs and goals.

During the annual and biannual meetings, Hartford Steam Boiler will meet with other CNDE members and exchange ideas on the use of nondestructive evaluation to solve customer problems.

CNDE features the most advanced facilities for the study of nondestructive evaluation. These include laboratories for ultrasonics and acoustic emission, advanced optics, laser generation/detection of ultrasonic waves, x-ray, physical metallurgy, fatigue and fracture, finite element modeling, corrosion and electrochemistry research, materials degradation, surface analysis and other fields of study.

About 25 other institutions belong to the CNDE, including E.I. du Pont de Nemours, Electric Power Research Institute (EPRI), General Electric and Martin Marietta. Hartford Steam Boiler is the only insurance company that is a member of the CNDE.

Future issues of *NETWORK* will include reports on Hartford Steam

Boiler's involvement in CNDE activities that relate to our customers' nondestructive evaluation needs. Hartford Steam Boiler's Research and Development group and Hartford Steam Boiler Inspection Technologies will be the primary contacts with CNDE.

QUESTIONS AND ANSWERS

(continued from page 4)

emission sources that indicate a high probability of an existing leak. The leak is what causes the emission.

Q. What are the qualifications of Hartford Steam Boiler personnel conducting the TankScan II inspection?

A. All personnel conducting TankScan II inspections are trained and certified to ASNT SNT-TC-1A training and qualification guidelines in the nondestructive testing methods required to operate equipment and interpret inspection results. Only TankScan Level II inspectors are permitted to conduct tests. TankScan Level II inspectors require at least 80 hours of theory and six months of field experience. Resumes and training history of personnel can be provided upon request.

NETWORK



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Vol. 3, No. 3 Winter 1988

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