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EVALUATION OF CONSTRUCTION SAFETY IN DOE
COURSE TAUGHT IN CHICAGO, ILLINOIS
APRIL 20, 1992 - APRIL 23, 1992

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MASTER

EP

1.0 SUMMARY

This section summarizes trainee evaluations for the Safety and Health Training Section course, "Construction Safety in DOE", which was conducted April 20-23 at Argonne National Laboratory, in Chicago, Illinois.

Section 1.1 and 1.2 of this report summarize the quantitative course evaluations that trainees provided upon completion of the course. Appendix A provides a transcript of the trainees' written comments.

Numeric course ratings were generally positive and show that the course material and instruction was effective. Written comments supported the positive numeric ratings. The course content and knowledge gained by the trainees appears to have met the students' expectations of the course.

Results from the final examination showed that students gained significant knowledge from the course.

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1.1 SUMMARY OF TRAINEE COURSE EVALUATION

This course was conducted at Argonne National Laboratory, in Chicago, Illinois, April 20-23, 1992. Edward Handwerk and Charles Aiken presented the course to Argonne National Laboratory, General Electric, Ames Laboratory, FERMI Laboratory, MK-Ferguson and DOE Argonne personnel.

1.2 NUMERIC RATINGS

Ten trainees completed a course evaluation form upon finishing the course. The first rating area of the form covered five items dealing with course content; the second rating area covered one item dealing with testing materials; and the third rating area covered twenty-four items specifically associated with course topic areas.

For the first and second rating areas, respondents were instructed to rate the degree to which they agreed or disagreed with each statement using a five-point scale with 1 (low) anchored to "strongly disagree" and 5 (high) anchored to "strongly agree". The ratings are as follows:

COURSE CONTENT AND TESTING MATERIALS RATINGS

1. Developed specific skills and competencies in occupational safety compliance that I can use on the job.
Average Class Rating - 4.10
2. Gained a greater understanding of 29 CFR 1926, Safety and Health Regulations for Construction.
Average Class Rating - 4.20
3. Gained factual knowledge about Federal safety and health program requirements related to Construction.
Average Class Rating - 4.10
4. Would recommend this course to others.
Average Class Rating - 4.10

4. Would recommend this course to others.
Average Class Rating - 4.10
5. Compliance knowledge gained from this course will make work environments safer.
Average Class Rating - 4.40
6. The final test was a good measure of the knowledge gained in the course.
Average Class Rating - 4.30

The average class rating for the course content area and testing materials area was 4.20. This high rating reinforces the applicability of the course content to the trainees' interests and work environments.

The third rating area asked the respondents to rate the value of each of the fifteen topic areas using a five-point scale with 1 (Unsatisfactory), 2 (Satisfactory), 3 (Good), 4 (Very Good), or 5 (Excellent). The following are the average class ratings that dealt with topic content as well as with the value of the instructor:

INSTRUCTOR	TOPICAL AREAS PRESENTED	INSTRUCT	CONTENT
Edward Handwerk	Introduction to DOE Safety and Health Program	3.80	3.40
Edward Handwerk and Charles Aiken	General Interpretations	3.80	3.60
Edward Handwerk	General Safety and Health Provisions	3.80	3.70
Charles Aiken	Scaffolding	3.90	3.50
Edward Handwerk	Floor and Wall Openings	3.90	3.80
Charles Aiken	Ladders	3.70	3.50
Charles Aiken	Electrical	3.80	3.60
Edward Handwerk	Power Transmission and Distribution	3.90	3.50
Edward Handwerk	Materials Handling, Storage, Use and Disposal	3.80	3.60

INSTRUCTOR	TOPICAL AREAS PRESENTED	INSTRUCT	CONTENT
Charles Aiken	Cranes, Derricks, Hoists, Elevators and Conveyors	3.80	3.80
Edward Handwerk	Motor Vehicles, Mechanized Equipment and Marine Operations	3.70	3.70
Edward Handwerk	Rollover Protective Structures, Overhead Protection	3.80	3.50
Charles Aiken	Hand and Power Tools	3.90	3.80
Charles Aiken	Welding and Cutting	3.60	3.50
Charles Aiken	Concrete and Masonry Construction	3.70	3.50
Edward Handwerk	Fire Protection and Prevention	3.50	3.30
Charles Aiken	Steel Erection	3.70	3.40
Charles Aiken	Demolition	3.60	3.50
Edward Handwerk	Occupational Health and Environmental Control/HazMat	3.90	3.80
Edward Handwerk	Personal Protective Equipment	3.60	3.50
Charles Aiken	Signs, Signals and Barricades	3.60	3.50

The overall average class rating for specific topic content was 3.55. The overall average class rating for E.C. Handwerk was 3.77, for C.C. Aiken the rating was 3.74.

1.3 WRITTEN COMMENTS

After providing numeric course evaluations, participants provided written comments about the course. Written comments were transcribed and are presented verbatim in Appendix A.

Expectations

Most expectations were met but several in the class want more DOE interpretations and possibly hands-on applications of what they got from the presented material. More DOE interpretations will be added to the future classes.

Most Helpful Topics

Several specific Subparts were identified, including scaffolds, power tools on electrical, but most helpful topics included how to use and where to find standards.

Least Helpful Topics

Of these topics, two; asbestos and blasting, were not covered by the instructional team and yet they received comment. As to the other concerns, the assignment worksheets are being reworked for our next class. The signs, signals and barricades section will be cut by 30 minutes to allow more time for other material.

Suggestions For Improvement

The facilities we had were not very conducive for a learning environment. The classroom is a laboratory with half of it used for this class and the rest used as a laboratory with people working beyond the somewhat partitioned wall. Several banks of light switches had to be turned out to partially darken the room. The laboratory side stayed lit and the windows were uncovered, tending to throw light on our slide and Liteshow, making both hard to see. The training personnel did manage to blacken the windows on the training side so that the slides were not completely washed out. The laboratory's phone provided an instructional nuisance, since in most

instances, no one was there to answer it, forcing Mr. Larson, or others to leave the classroom to stop the ringing. The desks and chairs were also old and uncomfortable which also tends to distract from the material presented. Only 16 of the promised 30 students showed up for class.

In addition it should be noted, that Mr. Larson did assist us on a Sunday set up at the site and provided refreshments and pastries for both in the morning and afternoon sessions. He also made sure our materials were shipped the next Monday from the site and provided xeroxed materials throughout the week.

We continue to work closely with site sponsors to procure better facilities for our classes at this site, including the provision of a mandatory field exercise site being available.

Attachment #1 will be revised for the next class to be consistent with Assignments #1, #2, and #3. These will be review after each of the next few classes in order that they cover the objectives more closely for that days topic.

1.4 EXAMINATION RESULTS

On the last day of the course, a final examination was administered to sixteen attendees. The exam contained twenty-five multiple choice questions. The scores ranged from 80% to 96% with the average score being 89.75%. Sixteen persons successfully completed the class.

APPENDIX A

EVALUATION COMMENTS

"CONSTRUCTION SAFETY"

APRIL 20-23, 1992

CHICAGO, IL (ARGONNE NATIONAL LABORATORY)

APPENDIX A

TRAINEE EVALUATION RESPONSES

CONSTRUCTION SAFETY"

APRIL 20-23, 1992--CHICAGO, IL

ARGONNE NATIONAL LABORATORY

Please briefly describe how your expectations of this course were or were not met.

Helped familiarize me with locations of various topics of safety in the 1910/1926 OSHA CFR standards.

I expected increases competence in using 1926.

Overall expectations were met. A couple of more videos would liven it up more.

If this course was designed towards DOE interpretations, it falls short.

I feel topics were covered well but do to my workload I already knew about 75-80% of what the class covered.

I feel they were met by obtaining a better handle on Construction Safety.

Would have been nice to have more "hands on" training.

I think there should be more DOE interpretations.

The most helpful topics covered or activities presented in this course were:

Scaffolding, power tools.

There were topics I wasn't familiar with.

Scaffolding, electrical.

Slides. Explanations of how humans are damaged, ear example.

PPE.

Where and how to locate information contained in the standards, and additional information provided by information in the standards such as FR's, etc.

Health and safety.

Pointing out little details that people would not know.

Reference material and coverage of these topics.

Floor/wall openings, electrical, hand and power tools, and O.H. and environmental control/hazard maintenance.

The least helpful things discussed or done were:

Asbestos, since specialized training is usually required.

All were helpful.

Blasting and use of explosives.

The assignments.

None.

Signs, signals and barricades.

More emphasis should be given to:

DOE interpretations in OSHA.

Rules and regulations.

Cranes.

Exercise with slides. Get better slides, a lot were from earlier 1900's.

DOE orders.

Classroom Environment. Up coming requirements.

What are the DOE requirements in safety, health, etc. and how it relates to OSHA and the National Standards.

1910.120.

Ladders, cranes...conveyors, concrete and masonry construction.

Less emphasis should be given to:

None.

Blasting.

"Pure" classroom instruction.

Motor...operations, welding and cutting and steel erection.

What specific suggestions do you have for improving future sessions?

Look for local available site for field trip.

A better classroom.

On site inspection.

"Hands on".

Think how DOE thinks.

Well lit, comfortable classroom environment.

Assignment #1, what value does the right column add?

Apply more to specific DOE orders. Many orders go beyond OSHA causing confusion with subcontractors.

None.

No improvement needed.

More organized visual drawings etc. to exhibit. Verbal instructions.

A look at the DOE construction safety manual may be good when it comes out.

Other materials to supplement or substitute for the provided handouts?

More physical exhibits of actual devices for study.

They were all good.

Good.

Applicable and helpful literature such as the TLV indices provided by Argonne.

Use more slides to go along with written overhead, so people have a better understanding of how the regulations work, showing good and bad ones.

More "Fatal Facts". These catch peoples attention and are good lessons learned.

None.

The handout is excellent as is.

Maybe have the information from manufactures if able to obtain.

Visuals.

Daily schedule/timing of activities, worktime?

Good.

Workload and timing was adequate.

Adequate.

Okay.

Just about right.

Very good.

Too many breaks not enough class time.

Good.

Facilities/training room arrangements?

Good. Should have water for people who do not drink coffee.

Okay.

Better seating for long class work.

Need a more comfortable atmosphere. Room was dark and dreary and chairs were very uncomfortable. Hard to stay focused on instructor.

Better chairs, overhead could be larger.

Excellent.

Good.

It would have been better to have some better chairs.

What other types of safety training courses would you like to see available?

General industry.

Specific classes for the handling and management of hazardous waste, hazard communication and PPE. (Specific training in these areas).

1910.120 "Emergency Response".

Accident investigation and accident data analysis technique.

Accident investigation and accident data analysis to determine causes.

Any OSHA relevant training.

Lockout/Tagout, fall protection.

Hoisting and rigging, electrical safety and basic IH.

Any further comments?

Course should be reduced to three days.

Information on upcoming requirements so a pro-active attitude toward safety could be addressed.

It's obvious you men are well trained and skilled in your field. This was a good course and many will benefit.

Some questions should be revised, most notably.

APPENDIX B

TRAINEE EVALUATION FORM

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