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**Evaluation of P-101 Course
"Orientation to Occupational
Safety Compliance in DOE"
Argonne National Laboratory
Argonne, Illinois July 16, 1991 -
July 26, 1991**

D. L. Colley

January 1992

**Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RLO 1830**

**Pacific Northwest Laboratory
Operated for the U.S. Department of Energy
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PNL-7968

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UNITED STATES DEPARTMENT OF ENERGY
under Contract DE-AC06-76RLO 1830

Printed in the United States of America

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EVALUATION OF P-101 COURSE
"ORIENTATION TO OCCUPATIONAL SAFETY
COMPLIANCE IN DOE" ARGONNE NATIONAL LABORATORY
ARGONNE, ILLINOIS
JULY 16, 1991 - JULY 26, 1991

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Prepared for
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Pacific Northwest Laboratory
Richland, Washington 99352

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SUMMARY

This report summarizes trainee evaluations for the Safety Training Section course, "Orientation to Occupational Safety Compliance in DOE", (P-101) which was conducted July 16 to 26, 1991 at Argonne National Laboratory, in Argonne, Illinois.

The first part of the report summarizes 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 very effective. Written comments supported the positive numeric ratings. The course content and knowledge gained by the trainees exceeded most of the students' expectations of the course.

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

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1.0 SUMMARY OF TRAINEE COURSE EVALUATION

This course was conducted at Argonne National Laboratory, in Argonne, Illinois, July 16-26, 1991. Two instructors and a course administrator presented the course to Argonne National Laboratories, DOE Chicago Operations Office, and Rust Engineering Company personnel. Forty-three people registered for the class; seventeen fulfilled attendance and exam requirements to complete the course.

1.1 NUMERIC RATINGS

Seventeen 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 three items dealing with testing materials; and the third rating area covered thirty-one 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 - 4.61
2. Gained a greater understanding of 29 CFR 1910, Occupational Safety and Health Standards.
Average Class Rating - 4.71
3. Gained factual knowledge about Federal safety and health program requirements.
Average Class Rating - 4.44
4. Would recommend this course to others.
Average Class Rating - 4.71

5. Compliance knowledge gained from this course will make work environments safer.
Average Class Rating - 4.56
6. The final test was a good measure of the knowledge gained in the course.
Average Class Rating - 3.94
7. The final test (and pre-test) thoroughly covered materials and instruction presented in the course.
Average Class Rating - 3.94
8. The final test (and pre-test) should become a permanent part of this course.
Average Class Rating - 3.81

The average class rating for the individual questions associated with the applicability of course content was 4.60. The average class rating for individual statements concerning the effectiveness of the testing materials was 3.89. Together course content and testing materials average was 4.34.

The third rating area asked the respondents to rate the value of each of the 31 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:

TOPIC AREA RATINGS

<u>Topic Area</u>	<u>Content</u>	<u>Instructor</u>
1. Introduction to DOE Safety and Health Program	3.61	4.00
2. Introduction to OSHA Standards	4.47	4.20
3. Hazardous Materials--flammable and combustible materials	4.29	4.21
4. Materials Handling and Storage	4.39	4.27
5. Means of Egress	4.39	4.36
6. Fire Protection	4.06	4.36
7. Compress Gas/Air Equipment	4.35	4.54
8. Welding, Curring and Brazing	4.47	4.69
9. Electrical Safety	4.56	4.67
10. Machine Guarding	4.50	4.64
11. Lockout/Tagout (LOTO)	4.13	4.43
12. Hand and Portable Power Tools	4.22	4.44
13. Construction Safety	4.17	4.63
14. Walking-Working Surfaces	4.28	4.38
15. Powered Platforms	4.00	4.15
16. Toxic and Hazardous Substances	3.29	4.31
17. Carcinogen Policy and Model Standards	4.25	4.27
18. Materials Safety Data Sheets (MSDS)	4.33	4.35
19. Laboratory Safety	4.29	4.47
20. Personal Protective Equipment	4.33	4.53
21. Medical and First Aid	3.82	4.21
22. Occupational Health and Environmental Control	4.06	4.38
23. Confined Space Entry	3.88	4.40

24. General and Environmental Controls	4.07	4.38
25. DOE Accident/Injury/Illness Reporting System	4.11	4.35
26. Accident Investigation Procedures	4.22	4.24
27. Inspection Responsibilities and Procedures	4.53	4.59
28. Introduction to Communications and Human Relations	4.22	4.41
29. Safety Inspection Field Exercise	4.53	4.67
30. Presentation Workshop--Part I	4.31	4.00
31. Presentation Workshop--Part II	4.69	4.38

The overall average class rating for specific topic content was 4.25.
The overall average class rating for the instructors in general was 4.38.

1.2 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 and are summarized below.

Expectations

The expectations of the attendees were met in every case, many responses reported that this course far exceeded their expectations. Attendees had very little previous formal training in either OSHA or DOE safety compliance and were surprised at the comprehensive nine day study. Most attendees reported walking away with a much enhanced knowledge and a security about being more able to promote and manage elements of a safety program.

Most Helpful Topics

Due to the mixed backgrounds and interests of the attendees, the topics named most helpful were across the board; however, a common thread in many responses was that the actual practicum was the most helpful. The practicum for this course includes each student properly highlighting the format outline

of the standards books, an extensive code search exercise in which students work together, and a field inspection and report. The hands-on activities are spread throughout the 9 day course and have proven an effective way to maintain energy and information retention during this lengthy course.

Suggestions For Improvement

Attendee's suggestions included mostly logistics issues, i.e., the room was not conducive to the instructional medium used, making the visual aides difficult to read at times; some of the slides and videos used during sessions are out-of-date and in troubled condition -- the information remains valid, but the audience becomes disheartened by the less than current appearance of the people and situations in the videos and photos. A suggestion was made to remove the construction session to a class of its own; that too many people in the course were totally removed from any construction safety work and that time could be better spent.

1.3 EXAMINATION RESULTS

On the last day of the course, a final examination was administered to seventeen trainees. There were 35 questions including 28 multiple choice questions and 7 questions that required the trainees to list the appropriate answers. The scores ranged from 84% to 100% with the average score being 95.3%

APPENDIX A

EVALUATION COMMENTS

"ORIENTATION TO OCCUPATIONAL SAFETY COMPLIANCE IN DOE"

JULY 16, 1991 - JULY 26, 1991

ARGONNE NATIONAL LABORATORY, ARGONNE, ILLINOIS

APPENDIX A

TRAINEE EVALUATION RESPONSES

P101. "ORIENTATION TO OCCUPATIONAL SAFETY COMPLIANCE IN DOE"

JULY 16-26, 1991--ARGONNE, IL

ARGONNE NATIONAL LABORATORY

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

Expected to learn of what DOE's specific standards are (OSHA, NFPA, ANSI, etc)

I expected more discussion of the DOE orders, and prescriptions. Particularly where they exceed OSHA regulations.

I gained a fairly good knowledge of the structure of the regulations.

I wanted a review of OSHA and that's what I got.

I learned to use the Code books.

Definitely met expectations, I thought the course was very good. Good material, instructions. I felt I learned a lot.

My expectations were met.

The course met my full expectations. I feel much more confident using the OSHA standard book. Much of the material provided an excellent review for me.

For someone not familiar with OSHA, I was afraid that the course would be too advanced, but I learned a lot.

The course presented an excellent introduction to 29 CFR 1910.

In a general basis it was a very good course. The best I have been to.

Obtained better skills at using the standards.

I expected the material would pertain more to a laboratory and less on industry.

Concise presentations with very good course book and handouts. Very good interaction between instructors and students.

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

Video tapes and inspections. How to use the Federal Register.

Regulations affecting machines, welding, etc.

All

Office Safety. How to use the Code of Federal Regulations.

Investigation, Construction Safety CFR 1926, Inspections procedures
Machine Guarding.

Fire protection, Accident Investigation, and Inspection procedures.

Actual code search exercise and the field exercise were excellent. All
material was very useful.

How to find a violation (i.e., where to go for the information).

Safety Inspection, Field Exercise, Accident Investigation Procedures,
Workshops.

Explanation of standards, use of books, inspection procedures.

Toxic and hazardous substances, carcinogens, personal protective
equipment.

The least helpful things discussed or done were:

Overhead slides.

All topics were helpful.

Electrical safety; although the testers were very useful.

Prob. welding but that's personal reflection

The personality exam, although it was a lot of fun.

Medical recording.

Construction Safety.

None

Big machines, powered platforms.

DOE regulation tie-in.

More emphasis should be given to:

Construction Safety, NFPA, and ANSI.

Electrical Safety; PPE-show that there's a myriad of things available.

Various chemical hazards-associated with research facility such as Argonne.

29 CFR 1960.

Discussion of individual's safety problems with the group (i.e., changing the way we approach safety individually).

Regulations for chemical laboratories.

Less emphasis should be given to:

Construction: 1926. Just skip this and leave for another course.

N/A

Medical Recording.

Heavy industry.

What I had hoped would be covered but wasn't mentioned was:

Slide on top Tiger Team findings.

Hazard Waste. Some generator storage.

All bases were covered.

Radiation Regulation in DOE.

Mentioned, but very little material on laboratory safety.

What specific suggestions do you have for improving future sessions. What the presenters might do?

More photos, fewer word slides.

Instructors were knowledgeable and presented material well.

A/V equipment seemed at times to be a hinderance instead of an aid.

Increase short tests, and exercises (1 every other day).

Incorporate DOE Orders specifically with OSHA requirements.

Discuss relevancy of DOE orders vs. OSHA.

I think another safety inspection should be added to the course. This brings up a lot of questions and things are easy to remember after their done.

Sing and dance? Viewgraphs have some slight problems: 1. Contrast was poor required light dimming. 2. Response to remote control was tedious leading to some fumbling around.

What the participants might do?

More class participation should be encouraged.

Prepare a plan to conform to OSHA standards. For example: outline a workable electrical safety program for the machine shop.

More interaction.

Other materials to supplement or substitute for the provided handouts?

Give description of a work environment and ask students to list violators with situation.

Satisfactory, each person in the classroom has different needs.

All handouts are good.

Fine as is.

29 CFR 1960, and some DOE orders.

Some of the handout copies were hard to read.

Daily schedule/timing of activities, worktime?

Very good.

Fine.

Should be held off-site to eliminate need to work normal job at lunch and after 4:00. Too exhausted need study time.

This worked out fine the way it was.

If temperatures (room) are warm it might be good to plan group activities after lunch to focus attention on different topics when trainees get sleepy.

Okay

Hard to cover the amount of material covered any better.

Facilities/training room arrangements?

Poor ventilation.

Training room very stuffy, poor ventilation. Room size good. Monitor screen too small for class room size.

Room temperature and ventilation leaves much to be desired.

Too hot.

Okay-warm.

Too hot. Chairs and facility were very good.

Too hot! Pick a better room next time.

Good.

Could have been better as far as creature comforts are concerned (air).

Conference room ventilation was egregiously poor. Almost unfit for human habitation. I will never come to it again.

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

An instructor course to be able to instruct the 10 hour and the 30 hour OSHA course or the DOE equivalent.

Environmental regulations, Safety management.

NFPA 101.

More Radiation Safety courses.

Environmental Legislation, 40 CFR

Safety for Construction.

Other regulations that apply to DOE/ANL specifically.

A course on DOE order 5480 and other DOE orders, Life Safety.

Electrical Safety based on NEC, Lab Standard, Life Safety Code.

Any further comments?

Course should be taken off-site. Students have to read the book, handouts, and slides are not sufficient in themselves. The book should be marked up by the students before the section is covered in the class. It can't be done during class.

Keep up the good work!

Thank you for an excellent course.

I appreciated your efforts in making some rather dry material interesting. Good job!

Numbers on view graphs should be larger to help one follow presentations. Video on ladder safety was disgusting (bad).

Great job in general for all instructors.

Have more discussions about specific equipment.

Overall I thought material and presentation were excellent! The real life examples of accidents provided by the instructors and participants proved to be excellent motivation to learn as much as possible.

It was a very good course. The presenters had a lot of knowledge and they know how to transmit it.

Trainers very knowledgeable, personable, helpful, accommodating.

Thanks Carl, Venetia, Deana!

APPENDIX B

TRAINEE EVALUATION FORM

EVALUATION FORM
P-101, Orientation to
Occupational Safety Compliance in DOE

Date _____
 Name (optional) _____
 Title _____
 Location _____

Please list your major job duties.

What do you expect to gain from this course? _____

Briefly describe your safety training within the last three years. _____

Please evaluate various features of the course you have just completed. The information you provide here will be combined with that from other attendees and summarized for the sponsor, the U.S. Department of Energy. Results from this evaluation will be used to improve this course.

Course Content	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Overall, as a result of this course I believe that I:					
developed specific skills and competencies in occupational safety compliance that I can use on the job.5	4		3	2	1
gained a greater understanding of 29 CFR 1910, Occupational Safety and Health Standards.5	4		3	2	1
gained factual knowledge about Federal safety and health program requirements5	4		3	2	1
would recommend this course to others.5	4		3	2	1
compliance knowledge gained from this course will make work environments safer.5	4		3	2	1

Testing Materials	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
The final test was a good measure of the knowledge gained in the course.5	4		3	2	1

Comments

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

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

3. The least helpful topics or activities in this course were: _____

4. More emphasis should be given to: _____

5. Less emphasis should be given to: _____

6. What specific suggestions do you have for improving future sessions?

7. Other materials to supplement or substitute for the provided handouts? _____

8. Daily schedule/timing of activities, worktime? _____

9. Facilities/training room arrangements? _____

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

11. Any further comments? _____

12. Overall rating: Based on your comments above, please rate the course on a 5-point scale by circling the number of your choice.

5 Excellent 4 Very Good 3 Good 2 Satisfactory 1 Unsatisfactory

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