17

**Evaluation of S-101 Course
"Supervisors' Orientation to
Occupational Safety in DOE"
Taught in Richland, Washington
May 20 - May 23, 1991**

R. W. Vinther

July 1991

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EVALUATION OF S-101 COURSE
"SUPERVISORS' ORIENTATION TO OCCUPATIONAL SAFETY
IN DOE" TAUGHT IN RICHLAND, WASHINGTON
MAY 20, 1991 - MAY 23, 1991

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Richland, Washington 99352

SUMMARY

This report summarizes trainee evaluations for the DOE Safety Training Institute's course, "Supervisors' Orientation to Occupational Safety in DOE", which was conducted May 20 - 23, 1991 at Richland, Washington.

The first part of the report summarizes the quantitative course evaluations that trainees provided upon completion of the course and provides a transcript of the trainees' written comments in Appendix A. The second part summarizes results from the final examination designed to measure the knowledge gained from the course. The third part of the report summarizes course modifications and recommendations for improvement.

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 EVALUATIONS

This course was conducted at the Red Lion Hanford House in Richland, Washington. Three instructors and a course administrator presented the course to twenty-eight (28) Hanford contractor employees.

1.1 NUMERIC RATINGS

Twenty-eight (28) trainees completed a course evaluation form upon finishing the course. The first rating area of the form covered seven (7) items dealing with course content; the second rating area covered three (3) items dealing with testing materials; and the third rating area covered fifteen (15) 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) and anchored to "strongly disagree" and 5 (high) anchored to "strongly agree". The ratings are as follows:

COURSE CONTENT RATINGS

1. Developed specific skills and competencies in health and safety that I can use as a supervisor on the job.

Average Class Rating - 4.32

2. Gained a greater understanding of safety liability, hazard recognition, hazard evaluation and hazard control.

Average Class Rating - 4.15

3. Gained factual knowledge about health and safety and health issues and procedures (terminology, classifications, regulations).

Average Class Rating - 4.11

4. Learned the fundamental principles, generalizations, and theories.

Average Class Rating - 4.04

5. Can use the course materials to improve thinking, problem-solving, and decision-making of supervisory health and safety work.

Average Class Rating - 4.31

6. Would recommend this course to others.

Average Class Rating - 4.07

7. This course will help supervisors to make their work environments safer.

Average Class Rating - 4.15

The average class rating for the course content area was 4.16. This high rating reinforces the applicability of the course content to the trainees' interests and work environments.

TESTING MATERIALS

1. The final test was a good measure of the knowledge gained in this course.

Average Class Rating - 3.84

2. The final test (and pre-test) thoroughly covered materials and instruction presented in the course.

Average Class Rating - 3.77

3. The final test (and pre-test) should become a permanent part of this course.

Average Class Rating - 3.73

The average class rating for the testing material was 3.78. Trainees felt that the testing material was applicable and a good measure of what was presented. Some felt that the final test could be improved.

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	3.35	3.58
2. Safety Responsibility	3.93	3.85
3. Electrical Hazards	3.76	3.92
4. Fire hazards	4.00	4.08
5. Materials Handling and Storage	3.68	3.75
6. Physical Hazards	3.64	3.50
7. Chemical Hazards	3.67	3.73
8. Confined Space Hazards	4.15	4.12
9. Hazard Communication	3.92	3.96
10. Hand and Portable Power tools	3.89	3.77
11. Machine safeguards	3.85	4.00
12. Inspections and investigations	3.59	3.69
13. Job Safety Analysis	3.62	3.68
14. Measurement and testing	3.50	3.64
15. Hazard Reduction and elimination	3.63	3.86
16. Noise Hazards	3.96	3.96
17. Welding	3.96	4.00

The overall average class rating for specific topic content was 3.77. The overall average class rating for the instructors in general was 3.83.

1.2 WRITTEN COMMENTS

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

Expectations

In general, students expectations were met and/or exceeded as they were very satisfied with the presentation.

Most Helpful Topics

Fire hazards, safety responsibility, electrical hazards, noise, use of the CFR book, and the practical exercises were all mentioned as helpful.

Least Helpful Topics

DOE and ANSI standards were not present to reference, Measurement and testing and Lab Standard information.

Suggestions For Improvement

Instructors should try to control casual classroom conversations and try to stick to time schedule for breaks. It was suggested that there be more practical exercises and examples. Some felt site specific examples could have improved relevancy of subject matter.

1.3 EXAMINATION RESULTS

On the last day of the course, a final examination was administered to twenty-eight (28) trainees. There were twenty-five questions including seventeen (17) multiple choice questions and eight (8) questions that required the trainees to list the appropriate answers. The scores ranged from 72% to 100% with the average score being 93.7%.

2.0 SUMMARY OF COURSE

2.1 NUMERIC RATINGS

Numeric course ratings provided by trainees were generally positive and show that the course material and instruction was effective.

The average class ratings for individual questions associated with the applicability of course content ranged from 4.04 to 4.32. The overall average class rating for the course content area was 4.16. This high rating reinforces the applicability of the course content to the trainees' interests and work environments.

The average class ratings for individual statements concerning the effectiveness of the testing materials ranged from 3.73 to 3.84. The overall average class rating for the testing material was 3.78. In general, trainees felt that the examinations were applicable and an adequate measure of what was presented in the class.

Specific topic areas were rated as to the value of content as well as the value of instructor ability. Average class ratings for specific topic area content ranged from 3.35 (Introduction to DOE Safety and Health Program) to 4.15 (Confined Space Hazards). The overall average class rating for topic content was 3.77.

The average class ratings for instructor ability ranged from 3.50 (Physical Hazards) to 4.12 (Confined Space Hazards). The overall average class rating for the instructors was 3.88.

2.2 WRITTEN COMMENTS

Training materials presented and knowledge gained by the trainees exceeded several of the students' expectations of the course. Trainees felt that the class was interesting, applicable to their needs and was well worth the time and effort. Most trainees indicated they would recommend this course to others who needed OSHA compliance familiarity. Written comments supported the positive numeric ratings.

2.3 EXAMINATIONS

Examination results indicated that maintaining similar tests in the future would be a good measure of the effectiveness of the training course. The scores ranged from 72% to 100% with the average score being 93.7%. Trainees indicated that maintaining similar tests in the future would be a good measure of the effectiveness of the training course.

3.0 RECOMMENDATIONS/PROPOSED COURSE MODIFICATIONS

The course was viewed as successful by trainees as well as by the instructors. Areas for improvement should concentrate on organizing the notebooks to flow with the presentation by the instructors. Time schedules should be adhered to so that students are given adequate breaks. Trainees indicated that more practical exercises and examples would improve the quality of the course.

All numeric average class ratings were 3 (Good) or higher. The average class ratings that were under 4 (very good) indicate that improvements could be made in those topic areas which are listed below:

- Introduction to DOE Safety and Health Program
- Safety Responsibility
- Electrical Hazards
- Material Handling and Storage
- Physical Hazards
- Chemical Hazards
- Hazard Communication
- Hand and Portable Power tools
- Machine Safeguards
- Inspections and investigations
- Job Safety Analysis
- Measurement and testing
- Hazard Reduction/Elimination
- Noise
- Welding

APPENDIX A

EVALUATION COMMENTS

"SUPERVISORS' ORIENTATION TO OCCUPATIONAL SAFETY IN DOE"
MAY 20, 1991 - MAY 23, 1991--RICHLAND, WASHINGTON

EVALUATION COMMENTS
"SUPERVISORS' ORIENTATION TO OCCUPATIONAL SAFETY IN DOE"
MAY 20, 1991 - MAY 23, 1991--RICHLAND, WASHINGTON

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

Expected more student activities related directly to workplace; applying standards to students workplace.

Insight with respect to problem solving.

Very satisfied with the whole presentation.

I had no expectations.

My goal was to be able to refer to/find OSHA regs that pertain to WHC facilities - this course has helped me achieve that goal.

Excellent course.

Taught use of 29 CFR.

I expected this course to concern only those items we use in normal operation.

Better than expected.

I wanted to learn about OSHA and related requirements, I did.

All expectations met.

Course overall has been quite informative.

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

Fire hazards, safety responsibility, elect. hazards , noise.

Trained in finding material in the CFR.

Job Safety analysis, Hazard Communications, material handling and storage.

JSA How to use CFR books.

Practical exercises.

All.

The least helpful things discussed or done were:

DOE, ANSI Standards were not present to reference.

Machine safeguards, Hand and Portable tools only because I don't get involved with them on the job.

Items that do not pertain to Hanford.

The test did not cover what I felt was the purpose of the class.

Talking while viewing video (in back of room).

Discussions were too general -- all generalizations are false, Note this is also a generalization.

Measurement and testing.

All very important.

Lab Standard - doesn't pertain to the work I do.

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

(No comments).

What specific suggestions do you have for improving future sessions?

Give specific examples, specific to Hanford to help better relate scenario.

Some of the students were very rude. Came in late, talked during videos and lectures. I think a couple of them thought they knew everything, I wondered why they were here.

No class should be more than 45-60 min.

For WHC to make this "Mandatory Training for all management. The book is very disorganized - please improve.

Too much reliance on CFR's reading text; need more creative interaction with the students to increase student involvement, never go longer than 1 hour without a break!!!!

Time frame is OKAY.

The content of this course could have been covered in a smaller time frame--1-2 days. Familiarization with specific regulations probably won't improve.

Good class, excellent class.

Arrange notebook to flow with instructor. Good format and very useful info.

How do you obtain 29 CFR 1910 update on a yearly basis?????

1. More exercises
2. Make the pretest an exercise, require more student preparation prior to course.

Change the course to only cover the reality of Hanford.

More practical exercises and examples (Props) should be available for show.

APPENDIX B

TRAINEE EVALUATION FORM

TRAINEE EVALUATION FORM

Supervisors' Orientation to Occupational Safety in DOE

Date _____

Name _____

Title _____

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. Your comments will be kept confidential. The information you provide here will be combined with that from other trainees 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 health and safety that I can use as a supervisor on the job.5	4		3	2	1
gained a greater understanding of safety liability, hazard recognition, hazard evaluation and hazard control.5	4		3	2	1
gained factual knowledge about health and safety issues and procedures (terminology, classifications, regulations). ...5	4		3	2	1
learned fundamental principles, generalizations, and theories.5	4		3	2	1
can use the course materials to improve thinking, problem-solving, and decision-making of supervisory health and safety work.5	4		3	2	1
would recommend this course to others.5	4		3	2	1
this course will help supervisors to make their 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
The final test (and pre-test) thoroughly covered materials and instruction presented in the course.5	4		3	2	1
The final test (and pre-test) should become a permanent part of this course.5	4		3	2	1

Topic Areas

Please evaluate each topic area using the 5-point scale below.

5 Excellent 4 Very Good 3 Good 2 Satisfactory 1 Unsatisfactory

	Content					Instructor				
Introduction to DOE safety and health program	5	4	3	2	1	5	4	3	2	1
Safety responsibility	5	4	3	2	1	5	4	3	2	1
Electrical hazards	5	4	3	2	1	5	4	3	2	1
Fire hazards	5	4	3	2	1	5	4	3	2	1
Material handling and storage	5	4	3	2	1	5	4	3	2	1
Physical hazards	5	4	3	2	1	5	4	3	2	1
Chemical hazards	5	4	3	2	1	5	4	3	2	1
Confined space hazards	5	4	3	2	1	5	4	3	2	1
Hazard communication	5	4	3	2	1	5	4	3	2	1
Hand and portable power tools	5	4	3	2	1	5	4	3	2	1
Machine safeguards	5	4	3	2	1	5	4	3	2	1
Inspections and investigations	5	4	3	2	1	5	4	3	2	1
Job safety analysis	5	4	3	2	1	5	4	3	2	1
Measurement and testing	5	4	3	2	1	5	4	3	2	1
Hazard reduction and elimination	5	4	3	2	1	5	4	3	2	1

Trainee Comments

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

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

The least helpful things discussed or done were: _____

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

What specific suggestions do you have for improving future sessions? _____

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