Evaluation of S-101 Courses "Orientation to Occupational Safety Compliance in DOE"

T. S. Wright

February 1992

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EVALUATION OF S-101 COURSES
"ORIENTATION TO OCCUPATIONAL SAFETY
COMPLIANCE IN DOE"

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Richland, Washington 99352

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1.0 SUMMARY HANFORD COURSE

This section summarizes trainee evaluations for the Safety Training Section course, "Supervisors' Orientation to Occupational Safety in DOE", (S-101) which was conducted August 5 to 8, 1991 at Hanford, in Richland, Washington.

Sections 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 were 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 significant knowledge from the course.

1.1 SUMMARY OF TRAINEE COURSE EVALUATION AT HANFORD

This course was conducted at Hanford, in Richland, Washington, August 5-8, 1991. Three instructors and a course administrator presented the course to nine Westinghouse Hanford Company, Pacific Northwest Laboratory, and DOE Richland personnel.

1.2 NUMERIC RATINGS

Nine trainees completed a course evaluation form upon finishing the course. The first rating area of the form covered seven items dealing with course content; the second rating area covered three items dealing with testing materials; and the third rating area covered fifteen 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 health and safety that I can use as a supervisor on the job.
Average Class Rating - 4.00
2. Gained a greater understanding of safety liability, hazard recognition, hazard evaluation and hazard control.
Average Class Rating - 4.44
3. Gained factual knowledge about health and safety issues and procedures (terminology, classifications, regulations).
Average Class Rating - 4.30
4. Learned fundamental principles, generalizations, and theories.
Average Class Rating - 4.20
5. Can use the course materials to improve thinking, problem-solving, and decision-making of supervisory health and safety work.
Average Class Rating - 4.20
6. Would recommend this course to others.
Average Class Rating - 4.60
7. This course will help supervisors to make their work environments safer.
Average Class Rating - 4.30
8. The final test was a good measure of the knowledge gained in the course.
Average Class Rating - 4.22
9. The final test (and pre-test) thoroughly covered materials and instruction presented in the course.
Average Class Rating - 4.22
10. The final test (and pre-test) should become a permanent part of this course.
Average Class Rating - 4.22

The class ratings for the applicability of course content to the job ranged from 4.00 to 4.60. The overall average class rating for the course content area was 4.29. The average class rating concerning the effectiveness of the testing materials was 4.22.

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	3.67	3.33
2. Safety Responsibility	3.33	3.33
3. Electrical Hazards	3.33	3.44
4. Fire Hazards	3.11	3.22
5. Materials Handling and Storage	3.22	3.44
6. Physical Hazards	3.78	4.00
7. Chemical Hazards	4.00	4.11
8. Confined Space Hazards	3.89	3.78
9. Hazard Communication	3.89	4.11
10. Hand and Portable Power Tools	4.22	4.44
11. Machine Safeguards	4.13	3.67
12. Inspections and Investigations	3.11	3.33
13. Job Safety Analysis	3.22	3.44
14. Measurement and Testing	3.00	3.11
15. Hazard Reduction and Elimination	3.22	3.33

The overall average class rating for specific topic content was 3.54.
The overall average class rating for the instructors in general was 3.60.

1.3 WRITTEN COMMENTS

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

Expectations

Desire to increase safety awareness and knowledge of the OSHA regulations.

Most Helpful Topics

How to use the CFR.

Suggestions For Improvement

More group projects.

1.4 EXAMINATION RESULTS

On the last day of the course, a final examination was administered to nine attendees. There were 35 questions including 27 multiple choice questions and 8 questions that required the trainees to list the appropriate answers. The scores ranged from 77% to 97% with the average score being 86.5%. Nine persons successfully completed the course.

2.0 SUMMARY BROOKHAVEN COURSES

This section summarizes trainee evaluations for the Safety Training Section course, "Orientation to Occupational Safety Compliance in DOE", (S-101) which was conducted August 20 to 23, 1991 and August 26 to 29, 1991 at Brookhaven National Laboratory, in Upton, New York.

Sections 2.1 and 2.2 of this report summarizes the quantitative course evaluations that trainees provided upon completion of the course. Appendix B 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 exceeded most of the students' expectations of the course.

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

2.1 SUMMARY OF TRAINEE COURSE EVALUATION AT BROOKHAVEN

Two courses were conducted at Brookhaven National Laboratory, Upton, NY, August 20-23 and August 26-29, 1991. Three instructors and a course administrator presented the courses to a combined total of fifty-four Brookhaven National Laboratories employees and DOE Headquarters personnel. The ratings from both courses have been combined in this section of the report

2.2 NUMERIC RATINGS

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.

Fifty-four trainees completed a course evaluation form upon finishing these courses. The first rating area of the form covered seven items dealing with course content; the second rating area covered three items dealing with testing materials; and the third rating area covered fifteen 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) indicating "strongly disagree" and 5 (high) indicating "strongly agree". The ratings are as follows:

COURSE CONTENT AND TESTING MATERIALS RATINGS

1. Developed specific skills and occupational safety compliance that I can use on the job.
Average Class Rating - 4.27
2. Gained a greater understanding of safety liability, hazard recognition, hazard evaluation and hazard control.
Average Class Rating - 4.27
3. Gained factual knowledge about health and safety issues and procedures (terminology, classifications, regulations).
Average Class Rating - 4.23
4. Learned fundamental principles, generalizations, and theories.
Average Class Rating - 3.98
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 - 4.22
7. This course will help supervisors to make their work environments safer.
Average Class Rating - 4.24
8. The final test was a good measure of the knowledge gained in the course.
Average Class Rating - 3.85

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

Average Class Rating - 3.76

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

Average Class Rating - 3.83

The average class rating for individual questions associated with the applicability of course content ranged from 3.98 to 4.31. The overall average class rating for the course content area was 4.21

The average class ratings for individual statements concerning the effectiveness of the testing materials ranged from 3.75 to 3.85. The overall class rating for the testing materials was 3.81.

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	3.40	3.58
2. Safety Responsibility	3.79	3.75
3. Electrical Hazards	3.69	3.67
4. Fire Hazards	3.61	3.69
5. Material Handling and Storage	3.48	3.59
6. Physical Hazards	3.58	3.68
7. Chemical Hazards	3.92	3.85
8. Confined Space Hazards	3.82	3.85
9. Hazard Communication	3.73	3.79
10. Hand and Portable Power Tools	3.69	3.81
11. Machine Safeguards	3.80	3.68
12. Inspections and Investigations	3.61	3.78
13. Job Safety Analysis	3.42	3.78
14. Measurement and Testing	3.21	3.54
15. Hazard Reduction and Elimination	3.43	3.74

The overall average class rating for specific topic content was 3.72.
The overall average class rating for the instructors in general was 3.61.

2.3 WRITTEN COMMENTS

After providing numeric course evaluations, participants provided written comments about the course. Written comments were transcribed and are presented verbatim in Appendix B. Comments which occurred several times are summarized below.

Expectations

To broaden safety knowledge.

Most Helpful Topics

Electrical, fire and how to use the CFR's.

Least Helpful Topics

OSHA fines.

Suggestions For Improvement

Indexing the course manual.

2.4 EXAMINATION RESULTS

On the last day of the course, a final examination was administered to fifty-four (54) trainees. There were thirty-two (32) questions including 25 multiple choice questions and 7 questions that required the trainees to list the appropriate answers. The scores ranged from 68.6% to 85.7% with the average score being 77.5%.

3.0 SUMMARY BERKELEY COURSE

This section summarizes trainee evaluations for the Safety Training Section course, "Supervisors' Orientation to Occupational Safety in DOE", (S-101) which was conducted September 24 to 27, 1991 at Lawrence Berkeley Laboratory, in Berkeley, California.

Section 3.1 of this report summarizes the quantitative course evaluations that trainees provided regarding overall course value upon completion of the course. Appendix C provides a transcript of the trainees' written comments. Section 3.2 summarizes results from the final examination designed to measure the knowledge gained from the course. Section 3.3 illustrates the ratings students assigned to the topics covered in the course. Section 3.4 highlights written comments which were commonly received. Section 3.5 provides data on examination results.

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 exceeded most of the students' expectations of the course. Results from the final examination showed that students gained appropriate knowledge from the course.

3.1 NUMERIC RATINGS

This course was conducted at the Lawrence Berkeley Laboratory in Berkeley, California. Two instructors and a PNL course administrator presented the course to twenty-seven Lawrence Berkeley Laboratory employees.

Twenty-seven trainees completed a course evaluation form upon finishing the course. The first rating area of the form covered seven items dealing with course content; the second rating area covered three items dealing with testing materials; and the third rating area covered fifteen 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 RATINGS

1. Developed specific skills and competencies in health and safety that I can use as a supervisor on the job.
Average Class Rating - 4.12
2. Gained a greater understanding of safety liability, hazard recognition, hazard evaluation and hazard control.
Average Class Rating - 4.12
3. Gained factual knowledge about health and safety issues and procedures (terminology, classifications, regulations).
Average Class Rating - 4.24
4. Learned the fundamental principles, generalizations, and theories.
Average Class Rating - 3.96
5. Can use the course materials to improve thinking, problem-solving, and decision-making of supervisory health and safety work.
Average Class Rating - 4.12
6. Would recommend this course to others.
Average Class Rating - 4.08
7. This course will help supervisors to make their work environments safer.
Average Class Rating - 3.96

The average class rating for the course content area was 4.09. This high rating reinforces the applicability of the course content to the trainees' interests and work environments.

The average class ratings for individual questions associated with the applicability of course content ranged from 3.96 to 4.24. The overall average class rating for the course content area was 4.09.

The average class ratings for individual statements concerning the effectiveness of the testing materials ranged from 3.04 to 3.22. The overall average class rating for the testing material was 3.14.

3.2 TESTING MATERIALS

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

Average Class Rating - 3.04

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

Average Class Rating - 3.17

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

Average Class Rating - 3.22

3.3 TOPICAL AREA RATINGS

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	3.20	3.52
2. Safety Responsibility	3.50	3.71
3. Electrical Hazards	3.32	3.30
4. Fire hazards	3.57	3.55
5. Materials Handling and Storage	3.28	3.20
6. Physical Hazards	3.38	3.45
7. Chemical Hazards	3.64	3.75
8. Confined Space Hazards	3.96	3.95
9. Hazard Communication	3.40	3.65
10. Hand and Portable Power tools	3.38	3.60
11. Machine Safeguards	3.60	3.65
12. Inspections and Investigations	3.36	3.45
13. Job Safety Analysis	3.17	3.40
14. Measurement and Testing	3.04	3.30
15. Hazard Reduction and Elimination	3.30	3.63

The overall average class rating for specific topic content was 3.41.
The overall average class rating for the instructors in general was 3.54.

3.4 WRITTEN COMMENTS

After providing numeric course evaluations, participants provided written comments about the course. Written comments were transcribed and are presented verbatim in Appendix C. Those comments which occurred several times are summarized below.

Expectations

Gain a better understanding of OSHA.

Most Helpful Topics

Using the CFR's.

Least Helpful Topics

Ladders and machine guarding.

Suggestions For Improvement

More site specific course.

3.5 EXAMINATION RESULTS

On the last day of the course, a final examination was administered to twenty-seven trainees. There were twenty-five questions including sixteen multiple choice questions and seven questions that required the trainees to list the appropriate answers. The scores ranged from 76% to 96% with the average score being 87%.

APPENDIX A

APPENDIX A

TRAINEE EVALUATION RESPONSES

S101, "SUPERVISORS' ORIENTATION TO OCCUPATIONAL SAFETY IN DOE"

AUGUST 5-8, 1991--RICHLAND, WA

HANFORD

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

Increased safety awareness especially planning: ISA will be more thorough.

Really didn't know what to expect.

Expectations were exceeded.

I'm pleased with the course. My perception of OSHA has changed and I enjoyed class.

Yes, I wanted to know what sups are being taught.

Expectations were met in gaining knowledge of OSHA requirements and how to solve issues.

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

Actually going through the CFR's and finding answers to problems.

All exercises were helpful.

All were helpful.

How to use the CFR, and what OSHA thinks about compliance.

Films, pictures, etc that emphasized the problems are very helpful. Open discussion and the relaxed atmosphere created by instructors are also very good.

Machine Safeguards, Safety Responsibilities, and Chemical Hazards.

Group work. The last days exercise on hazard recognition, could be used quite effectively at the onset of the class, and then repeat a similar story at the end. This would also help get the class going as a open communicating unit early in the class.

Hazard Id., Responsibilities.

The least helpful things discussed or done were:

Maybe for a beginner like me, I would like to see more examples of problems and the solutions.

Material Handling and Storage—Chemical Hazards.

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

More of how DOE-RL (Hanford) specifically wants supervisors to conduct Occupational Safety.

Who do sups turn to for aid/consult—give some definition of safety IH-FP roles, or DOE or companies as a rule.

More information on how to keep the first line supervisor out of OSHA trouble.

What specific suggestions do you have for improving future sessions?

Good program. Maybe more videos.

More case studies presented to class.

Keep having Carl Heise. Excellent speaker!

Provide policy statements.

Have groups. Actual groups to work on the "homework" assignment.

More group projects or activities. Some days there was way too much lecturing done.

What the participants might do?

Walk through more slides of inspections that were done and evaluate the problem. But it's tough to do in three days.

More group projects or active participation

Analyze/Prevent occurrence.

More brain storming, group type sessions

Other materials to supplement or substitute for the provided handouts?

Good handouts.

Daily schedule/timing of activities, worktime?

Good.

Scheduling was good. Good breaktimes.

Great timing.

Okay.

Facilities/training room arrangements?

Good.

Room was adequate.

Too many flies.

Room was too warm and flies were a nuisance. Also overhead noises from main floor interrupted class.

Fine.

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

Expanding in-depth training for workers at PNL. The usual 1 hour class does not provide workers with adequate training.

A very similar course only on 10 CFR Part 20 RADIOLOGICAL!

Root care analysis. More in-depth investigations (how).

I would like to see a program for workers developed to give them a basic knowledge of OSHA requirements. I believe this would provide more incentive to follow the company ES&H policies.

Any further comments?

Revise the overhead projector visual aids. All the information is shaded and the color contrast between the letters and the background make the projections hard to read. Recommend removing all shading and get better contrast between letters and background.

Overall class was very good. Definitely made me more aware of areas around me. I now know more of what to be looking for.

Overall, very good course. Should be expanded to the worker level. Carl Heise is a very good instructor.

Final test needs reviewed, several repeat items make it appear unprofessional. Overall course was a lot more beneficial than I thought it would be. It exceeded my expectations.

Great class.

I enjoyed the course and now I know how to use CFR 29.

APPENDIX B

APPENDIX B

TRAINEE EVALUATION RESPONSES
S101, "SUPERVISORS' ORIENTATION TO OCCUPATIONAL SAFETY IN DOE"
AUGUST 20-23, AUGUST 26-29, 1991--UPTON, NY
BROOKHAVEN NATIONAL LABORATORY

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

The course was very good it covered much more than I thought.

Good course.

Helped in locating standards.

The course was very useful and informative. I had no preliminary expectations for the course so I cannot say they were or were not met.

I wanted more electrical safety training.

Course content was job related and met my expectations.

Expectations greatly exceeded by course content. All topics useful, but chemical portion outstanding.

Understand how to find specific regulations as they pertain to a practical issue.

Satisfactory.

I believe my expectations were met. Especially during days one and two.

Were met.

Adequate.

Gave me a better awareness for myself it will be helpful. To help others? I'm not in a position to enforce.

My expectation as to what to look for and be aware of in work place operations.

As expected.

A broad outline is what I expected and received.

Expected more specific standards not so much general standards.

I believe that generally my needs were well met by the course content.

Could have been more specific on BNL related safety (machine shop, electrical h.v.)

Class was more outstanding than expected.

Not geared or coordinated with BNL Training, i.e., HAZCON and chem hazards were given in house. Could have used time to cover other subjects. Too much on machine guards.

Course was not presented as outlined.

Too much time was spent on machine guarding, electrical and fire hazards were good presentations.

I didn't know what to expect but I hoped to become familiar with the code. I am more familiar with the code as a result of the course but the time invested was too great.

Basically what I expected, sometimes too basic.

No cranes or elevators discussed, what to do in case of fire in elevators in workplace.

Resources made available or identified. Good. Some areas not totally covered.

Expectations met.

Expected more emphasis on hazard recognition.

Expectations met. Gained safety related knowledge base from which I should be able to expand.

Need more of a how-to. Example: not just what OSHA inspection is but how do I do a good safety inspection.

Some parts were very interesting.

Received more information in the safety field which met my expectations.

Some lesson material seemed simplistic for persons functioning as "Safety Professionals".

I expected an introduction to OSHA and that is what was presented.

In general my expectations were met.

Learned how to use OSHA manuals.

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

Fire hazards, chemical hazards, machine safeguards.
Electrical hazards.

Fire section, and confined spaces section.

Those which were directly applicable to my facility: i.e., chemical hazards, machine and hand tool safety.

Regulations.

Material handling, storage and chemical.

Lab standards. Explanation of OSHA thinking, standards, how to use them, etc. Machine guarding discussion.

The most helpful and instructive was constant reference to actual 29 CFR 1910 text. Copies of 29 CFR 1910, Recordkeeping Guidelines, Machine guarding, and actual course text are greatly appreciated.

Inspections and investigations; job safety.

Electrical, fire, chemical, confined space hazards.

Days one and two; JSA (but needed more)

Good overview of OSHA rules and how they effect us at BNL. Overall emphasis on a team safety approach and share responsibility very good.

Chemical hazards. Electrical hazards, safety responsibility, hand and power tools.

Electrical and chemical hazards in the work place.

The hazards and responsibilities.

OSHA/DOE interactions with one another.

Machine Safeguards.

The way OSHA works.

Use of 29 CFR 1900-1945 in defining hazards and regulations.

Most topics were interesting and informative.

Better understanding of OSHA.

Familiarization with using OSHA regulations.

Machine guarding.

Related to inspections.

Fire hazards, electrical hazards, machine safeguarding.

OSHA procedures and administrative structure.

Inspections, machine safeguarding, safety responsibility.

Confined spaces, JSA, and VPP.

Hand tools.

Machine safeguards.

Resources for general industry digest, etc.

Confined spaces and machine safeguards.

Slides were a good method to identify hazards. Try to use this technique for each category i.e., electrical, rigging etc. Use site specific slides.

Familiarization of code, discussion of DOE/OSHA relationship. Workbook useful.

Handout of OSHA checklist violations and locating the applicable standard.

Understanding how to look things up and citation methods of the CFR, also handouts.

Job analysis, OSHA standard.

The least helpful things discussed or done were:

Walking and working surfaces, confined space hazard.

Machine guarding.

Citations and fines not necessary for us.

Watching an IH trying to discuss electrical and fire safety.

Practice in filling out forms was interesting, and sometimes fun, but not really instructive.

Rigging coverage not applicable to me.
OSHA fines and penalties, recordkeeping.

Extra comments in electrical section, numerous job safety analysis.

(To me) handling of reporting incidents, etc. to OSHA.

Fines, penalties.

Fundamentals of electricity--Ohm's law.

Recordkeeping guidelines.

Measurement and testing.

Confined spaces.

Laws, fines and areas not in our control.

Machine safeguards.

Class work sessions.

Machine guarding to the degree covered. Chemical hazards to the degree covered.

Electrical safety. A very important topic at BNL was very poorly done. The instructor didn't know much about the topic.

Accident recording criteria. This is done by a specific group within S&EP and not by supervisors or coordinators in the field.

Fines imposed.

Chemicals.

Discussed the OSHA fining policy.

Job safety analysis. The reactors division has already beat this one to death including dedicated technician trainers.

Overview of electric circuits.

Notes did not match presentation.

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

Nothing. If anything, the course was too ambitious. But, that is not a complaint.

Coverage was excellent, except for electrical. Actually, this single topic is detailed enough for separate session and should only be dealt with briefly in the time available in this course.

Scaffolding.

Waste management.

Go into the CFR handbook in more detail.

Details of OSHA's subpart S.

A more in-depth use of the CFR manuals. Real hands-on exercises.

Construction safety. I did receive additional information for such a course.

How to conduct your own inspections.

Welding, cutting.

More on electrical safety and machine guarding.

Asbestos reg's.

Overhead and mobile cranes, radiation exposure.

More hands-on use of code book and interpretations.

Asbestos 1910.100 and more on construction 1926 vs. general industry 1910.

On the job inspections specifically geared to BNL operations.

What specific suggestions do you have for improving future sessions?

None.

Shorter duration.

The notebook, while organized to some extent was very hard to find things in.

More time allowed to adequately research OSHA requirements. More group participation.

Don't let the IH instructor editorialize. Most participants were not sophisticated enough to tell when he was "soap boxing" but some of what he said was technically incorrect.

Slides or projection transparencies of typical Lab sites, showing typical hazards, is effective since many of the scenes look like areas might in our site. If we were to ignore safety.

Although it took four days, perhaps more time allotted to cover material.

Better indexing of written materials: materials to be used by instructors should all be indexed in the book. It is impossible to find things.

Number pages in three-ring binder.

Review electrical theory with DOE lab EE, and add dividers to notebook.

Put more I.D. tags on section in the workbook.

Index book.

Slides, short films, 5 minute break every hour.

Reduction in length.

Videos

Get trainers more involved.

Index orientation book with tabs for all areas.

More job related for type of company visited.

Walk through on site/location training.

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 not only cover the reality of Hanford.

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

Meet with DOE site personnel prior for training, take pictures, talk, try to address the specific needs of facilities like reactors,

Improve organization of course content and binder. Number pages, separate sections.

Tabs-workbook (or index). Pass out other handouts included in workbook.

Videos and better slides, one day longer.

Take the group on a tour of a facility and pick out OSHA violations. Perhaps a mock OSHA type inspection.

Move along a little faster. The pace puts me to sleep.

Follow the outline or revise it so the participants can follow along.

Stick to outline and present more how to with examples.

More initial input on BNL concerns/experiences. We have less "production and some construction, repair building.

What the participants might do?

Maybe bring in copies of safety inspections or tiger team findings for their department so we could discuss specific hazards found.

Go into more detail.

Homework.

Hands-on inspections

A selected walk-through might be instructive, perhaps with violations deliberately staged and individual forms to see if typical hazards are identified.

Pick an area in the Lab site and do an actual (mock) inspections (short duration).

More time could be spent in the inspection area. As OSHA standards could be discussed in detail with slides out actual violations.

Explain what they come in contact with and their problems or questions.

Review specific items or concerns.

Set up specific hazard and work out solution.

More concrete examples of samples of item in violation, actual tour may be helpful.

Group review of violation checklists locating the applicable standard.

Some hands-on situations at the lab.

Do a walk through. More examples of violations e.g., electrical.

More homework.

Solve more problems, go into DOE standards to a greater degree. Have students organize the material they plan to use in training others.

Some have already done too much.

Other material to supplement or substitute for the provided handouts?

Videos.

Additional films illustrating hazards of various types might be more illustrative.

Handouts were fine.

Thanks so much for the copies of 29 CFR 1910 and the guided tour through the material. Loose leaf of training material was excellent and a valuable reference, except for the difficulty of finding individual topics due to insufficient tabs per subject.

Handouts need to match lectures.
Additional tabs in workbook.

ANSI and other referenced standards.

Handouts seemed adequate.

Copies of the DOE orders that apply.

More video tapes or slides, visual aids would be helpful.

Example of in-house problems-BNL examples.

Workbook dividers needed (tabs)

Tabs on notebooks for each bi-section to much page turning, also a look-up helper for OSHA STDS

More slides, perhaps video shot at site.

Good.

More excellent information flow from all instructors.

Daily schedule/timing of activities, worktime?

Good overall.

Spreading the course out over two weeks made it a bit disruptive to planning around my personnel schedule.

O.K.

Fine. As some of the materials was discussed in depth, the class responded with increased interest since the material and reasoning were new to many. I believe the course content, already good, could be increased and made slightly more rigorous.

A little "stretch" time is needed every hour.

Okay as provided.

Satisfactory.

Ladders/Scaffolding should have more time allocated. Breaks should be given at least 5-10 minutes per hour, to keep employees alert.

The concept of breaking the course up into two weeks was good.

Good.

Fine.

Time was well organized.

Facilities/training room arrangements?

Good

In general, good but the "orange" black board was hard to read.

Very good.

Fine.

Adequate, comfortable, important for eight hours classes. Arrangement of two days, break two days, works well, since this provides a break and allows some catch-up of regular work.

Good, could use divider tabs on supervisors looseleaf book to facilitate finding information.

Satisfactory.

Okay.

Good. (Breakfast?)

Room was cold, poor lighting and acoustics. Not your problem. BNL needs dedicated training facilities.

Lighting and acoustics poor.

The pits.

Adequate, but could have been more coordinated.

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

CPR, asbestos worker, confined space, fire safety.

More OSHA.

Immediate needs in our work group for a course in explosive safety and explosives handling. SOE course in training the trainer, since supervisor must train others. I understand there is a DOE course in accident investigation.

Individual training of personnel to operate forklifts, etc. (cranes) in their area, regardless of "union" objections. Problem: each building has a machine (forklift, tailgate lift on trucks) overhead cranes, etc.) that technicians and/or students use. These people should have training to use that equipment...there have been many incidents, mostly property damage...from using this equipment with out training.

Machine shop safety, crane operation safety.

This covered all areas that are of interest to me.

Root course and accident investigation.

Electrical safety for research and laboratory conditions as opposed to electrical services and power sources.

OSHA crane and hoist safety operations and OSHA inspection of cranes and rigging.

Electrical safety, construction safety, hoist and rigging.

Compressed gases.

Machine guards, explosives, construction, OSHA inspections (conduction your own).

1926 Construction.

Office safety training, physical hazards in the office.

Construction safety. Would like to see the DOE develop a blanket policy of safety practices applicable nation wide and offer training in this policy.

The 9 day OSHA class in October.

Construction standards 1926, OSHA and training requirements of all standards which require same.

Any further comments?

It was difficult to follow along in the notebooks, they need more tabs for each section.

Tabs for indexing workbook sections.

There was no pretest, tabs on all sections would be helpful, no one in the class fills out OSHA 200 forms, I'm not sure, but I think the videotaping in my session may have chilled the comments from the participants, make the CH and BAO offices take this course.

Many, many thanks for de-mystifying OSHA by providing actual copies of 29 CFR 1910, and by walking the class through the actual test. Please consider more effectively dividing looseleaf material with hazard-specific index tabs, so material distributed can be more efficiently used as a reference and as a home for additional material that may be gathered by a supervisor, related specifically to his job site and area of activity. I'd recommend this course for all levels at the laboratory, from director on downward through lowest level of supervisor. All supervisors should be continually alert for hazards affecting those workers for whom they are responsible, and trust their supervisor to protect and inform them.

The hazard evaluation of hazard recognition sections of the handout book desperately need tabs or dividers, you can not easily find subsection in it as it is distributed.

Overall presentation of course was very good. Instructors were knowledgeable and very helpful. Roy Shrove is pleasantly energetic. There was a great deal of information to present it was done well. One thing I noticed was all of the instructors had a tendency to use abbreviated terms for different agencies and projects while these terms are very familiar to those who have a great deal of safety background, they tend to be a bit confusing to the student who is being presented with a great deal of material to absorb. I strongly recommend this course and the instructors to use as many of the technical people at BRC who can get to take the course. It was well done.

Overall the course was very good, but with out OSHA penalties etc. it could have been done in three days.

The first speaker (Roy) was weak in theory. Some examples were incorrect. His emphasis on team safety responsibility was very good. Overall quality was not up to standard for a formal presentation to National Laboratory staff. Roy lacks credibility. Second speaker, although a little dry, was very professional and has credibility. An above average presentation. Not having copies of slides available was poor example. Should have had slides by day 2 am. A safety programs notorious problem is "I can't get it done right away, not my fault, we are doing the best we can". Should have been done on overtime or by commercial copy busi-

ness on first evening. New emphasis on safety is very good. I learned some new things and focused on how to improve BM safety for a few days. Thanks for putting the program together!

We need a better index. The manual needs to be written to help the students follow the course outline. The outline was not followed. Roy had good information and presented IH & fire protection areas very well.

Instructors were knowledgeable and professional. Keep up the good work. Thanks.

Discuss the VPP program to a greater degree. Should have reviewed the 40 problem workshop.

This course seemed to address the how to of complying with DOE/OSHA standards. Need a more site specific. For example: what are the "lab" standards for dealing with unknown hazards? What do I need to know to be a good "safety coordinator" not just comply with the standards.

An OSHA handbook similar to the NEC handbook, which gives a commentary on the rules and or interpretation of the rules.

There is a lot of desire to be told what is wrong. Perhaps a less formal class could be developed whereby OSHA awareness contractors visit facilities such as BNL, Oak Ridge, Hanford. See what the conditions are. See what Tiger Teams/OSHA inspections have found and how they were addressed. With slides/video this exchange of information could be a powerful program.

Keep up the good work. Should discuss cranes, hoist rigging equipment, and elevators in more detail. I think Roy the first instructor was really into it, wanted to get his point across and hammered away until he did, was not afraid to say what it's all about.

Roy was not as open to comments as I would liked. His presentation could include more discussion.

List of resources etc. they are mixed in notes. e.g., how to obtain updates for printing. Tabs. More convenient handouts. Fix the test. You should do this before the test too tired afterward.

Tabs needed on sections. Roy was an excellent speaker and seemed to have a good understanding of topics. Very interesting presentation.

APPENDIX C

APPENDIX C

TRAINEE EVALUATION RESPONSES
S101, "SUPERVISORS' ORIENTATION TO OCCUPATIONAL SAFETY IN DOE"
SEPTEMBER 23-27, 1991--BERKELEY, CA
LAWRENCE BERKELEY LABORATORY

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

A good course.

Helped with a better understanding of OSHA.

Helpful notebooks and interesting instructors.

Good coverage of formal requirements. Some redundancy in coverage.
Compress review of CFR.

Basic knowledge of general safety regulations and requirements were met.
The course is too general for specific needs.

Increased understanding of the purpose of regulations and guidelines.

I had no expectations.

I feel this course has fully met my expectations in regards to the present requirements necessary to comply with the OSHA standards.

The one instructor relied on anecdotes too much. Prefer facts and DOE Lab-related examples.

Met expectations.

I was pleased for the instructions on how to use the manuals.

Not a supervisor, but the course helped in my evaluation of my worksite.

Learned a lot about OSHA standards and how things are interpreted.
Problem is DOE has additional or different orders and rules.

Not well.

No expectations. Helped "start" to shed light on this information.

Met expectation; goal overview. Forced into 29 CFR 1910.

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

The CFR exercise.

Safety Responsibility, Inspections and Investigations, use of Federal Regulation code, Hazard Reduction and Elimination.

Ability to find code items.

Chemical Storage, Hazard Communication and Hazardous Waste.

Lab safety.

How to document infractions.

OSHA regulations, and Machine Guarding.

Chemical Hazards, Safety responsibility, and Hazard Communication.

Laboratory Standards, Electrical STDS, Lock-out Tag-out STDS? Procedures.

HAZCOM Material prior to this, area and the definition of Confined Spaces and Hazardous Materials were extremely helpful.

How to use the standards and flexibility in instituting ALARA principles. Hazard Reduction.

All especially contacts in compliance.

Hazard/Violation search workshop (finding violation standards/regulations).

Discussion on techniques to use 29 CFR 1910. The homework assignment was very useful.

Hazard Communication and Lock-Out Tag-Out.

All of them.

Ability to use CFR.

Fire Safety, Chemical Hazards, Hazard Communication.

29 CFR 1910.

General interpretation, use of book (CFR)

The least helpful things discussed or done were:

Ladders, Machine Guarding, Walkways.

Machine Safety.

Specific example: skimming CFR. This was done and a nuisance.

Material covered by LBL. Hazard Communication, Electrical.

Fork lifts, Confined Spaces.

Machine Safeguards.

Machine Guarding, areas are still left vague.

The anecdotes and the stupid ladder film.

Nothing.

Hand and Power Tools

Early morning jokes, pitches on how good the rules were, minor chauvinism.

As important but not as well presented or organized: Material Handling, Machine Guarding, Electrical Safety.

Machine Guarding, already know via tigers, Working Surfaces.

Arguing with students.

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

Methods and examples of implementing accepted safety programs which comply with DOE and OSHA regulations and orders.

More on implementation of standards. Case studies of laboratory standards.

More on safety standards for the research laboratory.

You people missed nothing. There were more areas covered than was anticipated.

Appeal process, more discussion of implementation at large multi-discipline DOE sites.

Radiation Protection.

More on lab standards, job hazard evaluation methods, risk assessment related to OSHA.

Electrical.

What specific suggestions do you have for improving future sessions?

More information on training others.

More lab oriented and less factory oriented lectures and examples.

The instructors should be familiar with LBL operation and diversified safety needs.

Reduce the number of hazard violation searches. Incorporate more LBL problems, and solutions.

Less emphasis on the specific technical standards and more on direct application in a situation where communication - human interaction is the primary problem.

One more day. More time is needed to present this much material.

Be more specific to audience - break up in 1. shops 2. chemical laboratories and 3. electrical.

Possibly increasing length of course.

Better, more organization of material.

Make more specific to DOE contractor, break into 2 day courses that are more focused to the needs of chemists vs. shops, etc.

Use lab-specific examples for all categories.

Relate to LBL needs more directly.

A better preview by LBL on what this course is designed for and would cover I just got a "one liner".

Address questioners' relevant concerns.

What the participants might do?

More student activity on regulation findings in CFR. Homework not needed, we have to make up site work missed during course. Do 40 CFR look-up in class.

Brief instruction on LBL safety program, deficiency and safety problem issue.

Participation was encouraged. Instructors were very patient in attempting to answer questions.

Do a physical evaluation of a site in the same context as the area where we work.

Identify topics ahead of time so instructors can tailor the course.

Identify their safety responsibilities in the organization rather than just where they work.

Other materials to supplement or substitute for the provided handouts?

The exercise on finding items in the CFR

ANSI standards.

Common OSHA violation in various areas and probable solutions.

For laboratory personnel, more information would be helpful.

More required. The handouts are sufficient in addition to this training by the instructors.

DOE orders and notices. Secretary's self assessment program.

Nothing I know of.

More OSHA related checklist.

Better indexing for supervisors manual.

Daily schedule/timing of activities, worktime?

Worked well.

Satisfactory.

Could go to 1/2 days. 8 hours is a long time to sit and absorb verbal information. Too long!

This is never really a good time frame for these kinds of things. The fact is, they are necessary and have to be fit into the programmatic work schedule.

Timing very good.

No suggestions, improvements or changes.

With more organization of part of the schedule, the course could certainly be shorter and more focused. 2 1/2 to 3 days to accommodate many more people who need it.

Facilities/training room arrangements?

On sight LBL facility would be more convenient.

Satisfactory except for poor lighting. Pleasant building.

Poor - a noisy, poorly lighted, uncomfortable room.

Excellent.

Temperature control improvement. Excellent.

"High Tech" overhead projection system is very poor. Go back to using viewgraphs! Specifically the illumination level at the screen is too low.

Insufficient emergency exit.

Good, Berkeley is very interesting.

Some donuts would be helpful, more caffienated coffee.

Better visibility for overheads, more elbow room.

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

NFPA 101, NFPA 70.

Cal OSHA standards and requirements.

Cryogenics.

Laboratory safety. Apparently there is an additional and/or another site of regulations for labs.

Courses based upon physically conducting hazard evaluation in chemical-biological laboratory setting.

A review course of the same material only some in-depth process information as per questions which can only arise after implementation of this course material.

Field work as part of the class.

None that I can think of.

More OSHA training.

Radiation Training.

P101 here in the Bay Area.

How to set up training (real, not hypothetical) of employees (first time).

Material Handling.

Any further comments?

Good course, good instructor.

My concerns deal with massive information of regulation, supervisors are held responsible to know. It seems there is significant subjective discretion left to the inspectors and governing personnel leering citations and fines. It is conceivable that one could be responsible, criminally, and financially liable for situations existing in the regulations presenting no feasible solution of which there is no authority or control by that individual.

If EH&S is going to increase the number of multi-day training courses, then they should be provided with on-site conference facilities. This would be more convenient for attendees and probably for the EH&S staff also. Excellent course materials. Obviously experienced instructors. Their enthusiasm for worker safety was contagious. Thank you.

We don't, at LBL, do industrial production. Make the course relevant to our direct responsibilities i.e., laboratory, many people, small experiments many one of a kind problems. Dealing with two people, one experiment, small quantities of many reagents, on few days is very different from a large fixed facility with a repetitive industrial production line.

Excellent course. The instructors Roy Shrove and Carl Heise were very knowledgeable in all aspects of the material offered. Their presentation was excellent. All questions were fielded in such a manner to ensure all of them answered. I would welcome continued instruction in this fashion. All presentations made the material easily understandable considering the complexities involved.

Overall the course is very complete. Instructors knowledgeable and helpful. Specific portions of course should be available lab-wide.

I liked the contact with LBL personnel (listened to a lot of common problems).

Enjoyed the class.

Excellent Instructors. All excellent answers to all questions. No phoney answers at all! Know their stuff intimately. Shrove: be less caustic and more responsive to participants relevant questions. Great enthusiasm though. Make more lab specific.

I suspect a lack of coordination between the instructors (had they met?). Would like to see a more coordinated effort and instructors who are generally educated to the same level as the class members. Boo-boos in chemistry lead to a loss of credibility in general. Roy was energetic and reasonably good. Carl seems out of place.

In this course the skills of the instructors were not equivalent. Part of the course was well organized and extremely useful. If it had been it would have been a valuable course. R&D laboratory setting should be recognized and addressed: one-time experimenting unique equipment, single supplies and other specifics different from industry. More information on resources for solutions and aids would be helpful. It would also be nice if women were included as part of the workforce! All references were to men. Perhaps women never have problems!!

APPENDIX D

TRAINEE EVALUATION FORM

EVALUATION FORM

Supervisors Orientation to Occupational Safety in DOE

Date _____
Name (optional) _____
Title _____
Location _____

Please evaluate various features of the course you have just completed. 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 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

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	

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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