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Analysis of the Project ALERT (Adult Literacy Enhanced & Redefined through Training) Workplace Literacy Project produced a description of the needs assessment process, steps, and instruments that can be used for needs assessment in other workplace education projects. The data for the needs assessment were collected through the following methods: a written document detailing actual workplace literacy requirements, descriptions of employees, and organizational climate; records of interviews with employees and management; orientation and planning materials; and a comprehensive program plan. Site-specific components were also added to the needs-assessment model, and the program was pilot tested before being broadly implemented. The data collection instruments used during the needs assessment are appended. (KC)

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Needs Assessment in Workplace Education

Based on Work Completed during Project ALERT

Funded by the US Department of Education

National Workplace Literacy Program

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Introduction

This description of the needs assessment process, steps, and instruments was assembled over the first twelve months of the project following refinements from field tryouts and internal project team review. Documentation begins with our original concepts for literacy needs assessment as project work began. After a complete iteration of defining parameters, translating the concepts into process and data collection tools, field testing at one site, and revisions for completion at that site, we generalized the results in this form.

Initial Concepts for Literacy Needs Assessment

This section describes the original thinking on performing a literacy needs assessment based upon a thorough review of the literature and the experience of the Principal Investigators. Portions of these concepts were modified through discussions and field testing by the entire project team.

This comprehensive contextual analysis identifies the basic literacy needs of each organizational setting, and addresses those aspects of workplace training needs assessment that are currently being suggested in contemporary literature. Expansion of the typical literacy front-end analysis is seen here as a critical aspect of designing literacy programs that will have the prospects of skill improvement for the worker and organizational productivity and work behavior relevant to both employer and employee.

Manufacturing and organized labor partners have agreed to support these analysis activities. Specifically, analyses will be completed by the project staff, who will use on-site observation, worker/management questionnaires, interviews, and focus groups to determine what programs or workplace materials currently exist to assist workers; to complete a job literacy audit; to determine the nature of the organizational climate; to identify elements that will be important to instruction transfer; to identify elements that will affect this transfer including but not limited to cultural diversity.

Data for this objective will include:
- A written document detailing actual workplace literacy requirements, descriptions of employees, and organizational climate.
- Records of interviews with employees and management
- Orientation and planning materials
- A comprehensive program plan
- Minutes of the Steering Committee

Program planning will begin with a thorough analysis of the workers and manufacturers to be served. To accomplish this, a four-part analysis must be conducted. This pre-design analysis phase is critical to the success of the project. This activity will yield at least the following information:

*Job Descriptions*, including
- a clear description of each critical job task, including data such as: component procedures, degree of difficulty, quality criterion, required resources, required skills
• a determination of the literacy skills required to be successful with each job task
• projected literacy needs for future hires

*Employee Descriptions* including:
• general literacy levels
• an identification of potential program participants, including information such as cultural and ethnic background, educational level and training experience, work experience, literacy level, English proficiency, current attitudes toward employee training
• past interest and/or involvement in available literacy or language-related training

*Instructional Environment Descriptions* including:
• a description of existing literacy or language-related instructional programs
• an inventory of available instructional materials
• an inventory of available instructional equipment
• a description of existing instructional facilities and other types of instructional support available

*Organizational Climate Descriptions* including:
• an overview of the current organizational climate
• a determination of the existing incentives for literacy and/or language learning in each organization
• a description of those problems within the organization that are affected by literacy and language deficiencies
• a determination of the impact of new technology in each workplace
• a description of other existing or anticipated training needs of the organization
• an identification of those aspects of the organizational climate that are likely to facilitate or impede the transfer of literacy and language training.

**Refined Needs Assessment Process**

The primary goal of our needs assessment was to obtain justification for the instructional program and materials we were going to create at each site. Thus, although the process created was general, specific activities could differ from site to site modified by the context of the site. The data collection instruments at this initial stage of assessment remained the same. At one site, it was also necessary to perform a detailed task analysis, and that is included as part of the multimedia development documentation. Many of the separate activities were defined as a result of the proposal for federal funding, but would be similar for any project of this magnitude having a substantial research component.
Figure 1
Needs Assessment Process

- Identify Parameters
  - Define Curriculum (process) Concepts
  - Search Literature
  - Match Results to Parameters

- Match to General Business Issues
  - Work Area
  - Work Process
  - Link to Project Measures

- Define Process & Sequence Steps for Site
- Plant Tour
- Target Employee Group(s)
- Repeated Site Visits

- Determine Feasibility of Proposed Process
- Define Selection Process for Pilot Group / Area Contacts

- Construct Pilot Instruments
  - Perform Pilot Test
  - Analyze Data

- Match Results to Data Gathering Matrix

- Construct Final Instruments
  - Employee Data: Interview, Tests, Work Products, & Tools
  - Supervisor Interview
  - Job Observation

- Execute Full Data Collection & Analysis

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The diagram shown in Figure 1 portrays the steps that were taken to not only collect the data needed for curriculum development, but to set the stage for implementation of the program. The six shaded boxes on the left-hand side indicate major steps in the sequence. The first three steps were executed before we had made any attempts at defining the context at any site. The first step, Identify Parameters, is by far the most conceptual of any step. In defining the Curriculum Concepts, our proposal called for the use of Whole Language concepts, Multimedia techniques, and some combination of the two across the three major sites. To these three curricular possibilities, we also added a Traditional component to catch issues not falling into other categories. Each site was to have a particular orientation, that is, one site would be primarily Whole Language, another primarily Multimedia, and the third to be a combination. In order to accommodate these approaches to curriculum development, it was necessary that we specify the concepts that would permit the most advantageous testing for research comparison.

Another important step at this stage was to match the parameters to business needs which was generally performed during initial discussions with company representatives. There was no defined format for these discussions, but we wanted to make sure there was some link one or more business concerns. The data we collected was also to be tiered at three levels, the work area, the work process and the work output. Thus, our data needed to have focus where impact could be observed or measured. We also linked these parameters to overall project measures as defined in the proposal. Looking ahead to actual instruments, we also defined three targets for instruments: the employee, the supervisor, and an observation (as shown in the major process step #6). To manage interaction of the parameters, we created a Data Gathering Matrix (shown in Table 1) so that we could keep a big picture of what the end result needed to satisfy. This Data Gathering Matrix is described later.

1 We are aware that presuming an instructional solution to problems we had yet to observe runs counter to the accepted practice of needs assessment. However, our proposal dictated that these three methods were to be used as described. While we began with this research orientation, the business issues we found resulted in modifying this "pure research" approach. Nonetheless, the requirements of testing Whole Language and Multimedia methods meant the parameters of these concepts had to taken into account for the needs assessment process, and the latter is still a justified reason for including concepts of these methods at an initial stage of the process.
Table 1 – Data Collection Matrix

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Literacy Content</th>
<th>Target Audience Description</th>
<th>Contextual Description</th>
<th>Measures of Work Output &amp; Productivity</th>
<th>Job Process</th>
<th>Job Tools &amp; Resources</th>
<th>Instructional Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Interview</td>
<td>Major focus (on the job use of reading, writing, listening speaking, mathematics)</td>
<td>Major focus (work experience, training experience)</td>
<td>Minor focus (perceptions of environmental support)</td>
<td>Major focus (general description)</td>
<td>Minor focus (obtain examples possible)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supervisor/Union Leader Interview</td>
<td>Major focus (perceptions of context needs &amp; organizational problems)</td>
<td>Minor focus (general perceptions of employee back-grounds &amp; characteristics)</td>
<td>Major focus (job pressures management &amp; co-worker support, facilities, etc.)</td>
<td>Minor focus</td>
<td>Minor focus</td>
<td>Minor focus</td>
<td>Minor focus (identification of teaching area, contrast)</td>
</tr>
<tr>
<td>On-Site Observation</td>
<td>Minor focus (verification of previous data)</td>
<td>Major focus (physical facilities, environmental support, etc.)</td>
<td>Major focus (verification &amp; or new data)</td>
<td>Major focus (verification &amp; or new data)</td>
<td>Major focus (verification &amp; or new data)</td>
<td>Major focus (verification &amp; or new data)</td>
<td></td>
</tr>
</tbody>
</table>
The Search Literature step was partially performed at the beginning of the project, but this step required reconfirming our results to date with published research. Some new information was found that we could incorporate into some portions of the instruments as well as in the process steps.

The third major step of Matching Results to Parameters included adding Federal Grant Requirements to the plan, and then constructing initial items for the three instruments. The entire project team prior to making an initial visit to our first selected site reviewed these documents.

The fourth step of Defining Process and Sequence Steps for Sites included more of an iterative process than we first thought. Before we conducted the needs assessment, we found that a number of visits to the sites were necessary. Since there was a long delay between the time initial information was gathered for proposal development and the time the project was funded, we found numerous changes in personnel as well as business issues. In reality, it was starting over again with identifying key personnel contacts. Another factor was that the people who wrote the proposal were not the staff who performed the site visits, and because some were less experienced with the workplace context, it was apparent that a considerable learning curve was needed. Finally, we found that a number of visits were necessary in order to build credibility so that frank discussions about business links and context of match for literacy instruction could occur. The major outcomes for this step included the identification of target employees and work areas for assessment, management - union constraints regarding data collection, and identification of “liaison” personnel who could assist us at this and later stages of the project.

The fifth step of Constructing Pilot Instruments occurred only the first time through the process and was taking place simultaneously with the previous step. This piloting followed a typical process with the exception of adding a final step to crosscheck our three instruments with the Data Gathering Matrix.

Following a short pilot test, the instruments were finalized in the sixth step and then used on a consistent basis for all sites. Only very minor modifications had to be made following their use at the first site. Very detailed instruments were developed for Employees (Appendix A), Supervisors (Appendix B), and Observation Checklist (Appendix C). The schedule for conducting the interviews included a mix of employees and supervisors, but the observation form was used only after the interviews were completed and a first pass at the analysis was performed.

About 20 to 25 individuals were interviewed at each site with 5 to 8 supervisors included. Persons were selected separately and jointly by union and management to be representative of either a potential target participant or one who would be knowledgeable and candid about issues in that work area or the facility in general. Employee interviews, while the number of questions appears large, typically lasted from 20 to 45 minutes. Supervisor interviews were generally 30 minutes and the Observation form took about 90 minutes to complete. Two staff used the observation form independently and then notes were compared in order to have one complete data set for each site. All data was entered into a customized database for review and analysis.
Employee Interview Instrument

Appendix A
11. Who do you work with? (Circle all responses)

(01) Alone  (02) Co-workers  (03) Supervisors  (04) Engineers  (05) Others

12. What are their job titles?

________________________________________________________________________
________________________________________________________________________

13. What are their job titles?

________________________________________________________________________

14. What are their job titles?

________________________________________________________________________

15. Do any of the people you work with have difficulty speaking English because they learned a different language at home? (circle answer)

(01) yes  (02) no

16. How many people?

________________________________________________________________________

17. What language(s) do they speak?

________________________________________________________________________
________________________________________________________________________

18. Do you think this is typical of most areas here?

________________________________________________________________________

19. What do you do on your job?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

20. On a normal day, how are directions given to you?

(1) Orally  (2) Written  (3) No directions given
21. Do you think this is typical?
   (01) Yes   (02) No

22. Any comments regarding the manner in which you get directions?

   ______________________

23. On an average day, how frequently do you get **spoken** directions?
   (0) never   (1) one to two times   (2) three to four times   (3) five to six times
   (4) seven or more

24. Comment

   ______________________

25. On an average day, how frequently do you get **written** directions?
   (0) never   (1) one to two times   (2) three to four times   (3) five to six times
   (4) seven or more

26. Comment

   ______________________

27. On an average day, how frequently do you use forms?
   (0) never   (1) one to two times   (2) three to four times   (3) five to six times
   (4) seven or more

28. Do you use tally sheets? (1) yes (2) no

29. Describe how you use them.

   ______________________

30. Do you use check sheets? (1) yes (2) no

31. Describe how you use them.

   ______________________

32. Do you use log books? (1) yes (2) no
33. Describe how you use them.

34. Do you use charts or graphs? (1) yes (2) no

35. Describe how you use them.

36. Do you use operator guides? (1) yes (2) no

37. Describe how you use them.

38. Do you use any other kind of forms? (1) yes (2) no

39. Describe how you use it.

40. Do you use any other kind of form? (1) yes (2) no

41. Describe how you use it.

42. Do you use computer screens or terminals?
   (01) yes (02) no

43. Where are the computer screens or terminals?

44. How do you use the computer screens or terminals?

45. How often do you use computer screens or terminals on an average day?
   (0) never (1) one to two times (2) three to four times (3) five to six times
   (4) seven or more

46. Who do you contact if there is a breakdown or problem?

47. Who else do you contact if there is a breakdown or problem?
48. How do you contact them?
   (1) spoken (2) written (3) other

49. Are any notations or written reports made?
   (01) yes (02) no

50. Describe them

51. Are there any other reports that you need to complete?
   (1) yes (2) no

52. Describe them

53. What types of tools and equipment do you use on your job?

<table>
<thead>
<tr>
<th>Tools/Equipment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

54. How much difficulty do you feel your coworkers have using these tools or equipment?
   (0) none (1) not much (2) a fair amount (3) a lot

55. What types of gauges or meters do you use?

56. How much difficulty do you feel your coworkers have using these gauges and meters?
   (0) none (1) not much (2) a fair amount (3) a lot

57. What types of computers and electronic equipment do you use?
58. How much difficulty do you feel your coworkers have using these computers and
electronic equipment?
(0) none (1) not much (2) a fair amount (3) a lot

59. How important is reading to your job?
(0) not at all (01) not much (02) a fair amount (03) a lot

60. Comments

61. How frequently must you read on an average day?
(0) never (01) one to two times (02) three to four times (3) five to six times
(4) seven or more

62. What is it that you have to read that is most critical to getting the job done right?

63. What do you do if you cannot read something?

64. What happens if you miss read something?

65. What type of math do you need to perform your job?

66. What types of numbers do you add?
(0) none (1) whole numbers (2) fractions (3) decimals

67. What types of numbers do you subtract?
(0) none (1) whole numbers (2) fractions (3) decimals

68. What types of numbers do you multiply?
(0) none (1) whole numbers (2) fractions (3) decimals
69. What types of numbers do you divide?

(0) none  (1) whole numbers  (2) fractions  (3) decimals

70. What types of numbers do you compare to each other?

(0) none  (1) whole numbers  (2) fractions  (3) decimals

71. What types of numbers do you use in measuring?

(0) none  (1) whole numbers  (2) fractions  (3) decimals

72. Do you use charting?

(1) yes  (2) no

73. Describe

74. Do you use graphing?  (1) yes  (2) no

75. Describe

76. How frequently must you use math on an average day?

(0) never  (01) one to two times  (02) three to four times  (3) five to six times  
(4) seven or more

77. What do you do if you cannot add, multiply, divide or measure something?

78. What happens if you make a math mistake?

79. In the average week, how often are you faced with a problem while you do your job?

(0) never  (01) one to two times  (02) three to four times  (3) five to six times  
(4) seven or more

80. Describe a typical or common problem.
81. Describe the most recent problem you had to solve.

82. Do you usually solve these types of problems alone or in a group?
   (1) alone (2) group

83. How important is problem solving to your job?
   (0) not at all (1) a little (2) average (3) very much so

84. Is there a difficult part of your job? (1) yes (2) no

85. Describe

86. Did you have any training connected with this particular job? (1) yes (2) no

87. What training?

88. When did it occur?
   (0) none (1) at the very beginning of the job (2) every so often throughout the years I've been here (3) quite frequently

89. Comments

90. How was the training conducted? (Choose 2)
   (1) individual (2) small group (3) large group (4) instructor led (5) computer based
   (6) video (7) other

91. Comments

92. In general, was the training you had helpful? (1) yes (2) no

93. Is there any other training you think would have been helpful to have had?
   (1) yes (2) no

94. What is that training?
95. How did you learn to do your job?
   (1) formal training  (2) someone showed me  (3) by myself  (4) other

96. How are employees chosen for new job opportunities?

97. Comment

98. How satisfied are you with your job? (circle answer)
   (1) Very Satisfied                      (4) Somewhat Dissatisfied
   (2) Satisfied                          (5) Dissatisfied
   (3) Somewhat Satisfied                 (6) Very Dissatisfied

99. What could be done to make it easier for you to do your job?
   Comments: ________________________________

100. On average, how do you think most of your fellow workers feel about their jobs and/or work here?
   Comments: ________________________________

101. How would you describe the relationship between your co workers and upper management?
   (01) Poor    (02) Fair    (03) Good    (04) Very Good    (05) Excellent
   Comments: ________________________________

102. Do you feel you're good at what you do?  (1) yes  (2) no

103. Why?

__________________________________________________________________________
104. How is your job success measured? (what things are looked at to determine if you are good at your job)

105. Is there anything else you would like to tell me about your job?

106. What do you think should be taught in this educational program?

107. I have asked a lot of questions; do you have any for me?

THANK YOU !!!!!!
Supervisor Interview Instrument

Appendix B
<table>
<thead>
<tr>
<th>Code_ _ _ _</th>
<th>Date_ _ _ _</th>
<th>Start Time_ _ _ _</th>
<th>End Time_ _ _ _</th>
</tr>
</thead>
</table>

1. What is your job title?

2. What are the primary responsibilities of your department?

3. What are the measures of productivity in your area?

4. How much of the work involves other departments or external customers?

5. Has the company identified any productivity problems related to your area?

6. How many people do you supervise in your area?
   
   (0) none  (1) one to two  (2) three to four  (3) five to six  (4) seven or more

7. What are the job titles in your area?

8. Number in this classification
   
   (0) none  (1) one to two  (2) three to four  (3) five to six  (4) seven or more

9. What are the job titles in your area?

10. Number in this classification
    
    (0) none  (1) one to two  (2) three to four  (3) five to six  (4) seven or more

11. What are the job titles in your area?

12. Number in this classification.
    
    (0) none  (1) one to two  (2) three to four  (3) five to six  (4) seven or more
13. What is the typical work experience in your area?

14. Do any of the people you work with have difficulty speaking English because they learned a different language at home? (circle answer)
   (1) Yes  (2) No

15. Is this typical of most areas here? (circle answer)
   (1) Yes  (2) No

16. Comments: __________________________________________

17. On a normal day, how do you give directions to the people you supervise?
   (1) Orally  (2) Written  (3) No directions given

18. Do you think this is typical?
   (1) yes  (2) No

19. On an average day, how frequently do you give spoken directions?
   (0) never  (1) one to two  (2) three to four  (3) five to six  (4) seven or more

20. Comment  __________________________________________

21. How critical are these spoken directions?
   (0) not at all  (1) a little  (2) average  (3) very much so

22. On an average day, how frequently do you give written directions?
   (0) never  (1) one to two  (2) three to four  (3) five to six  (4) seven or more

23. Comment  __________________________________________
24. How critical are these written directions?

(0) not at all  (1) a little  (2) average  (3) very much so

25. Is there any difference in this communication when there's a breakdown or material problem?

26. What tools and equipment do your employees have problems with?

27. On an average week how frequent are those problems?

(0) never  (1) one to two  (2) three to four  (3) five to six  (4) seven or more

28. How critical are these problems?

(0) not at all  (1) a little  (2) average  (3) very much so

29. How does this impact productivity?

30. Do you think your employees have adequate tools and resources to get the job done?

(circle answer)

(1) Yes  (2) No

31. Comments:

32. Describe situations involving math that employees seem to have difficulty with.

33. On an average week, how frequent are those math problems?

(0) never  (1) one to two  (2) three to four  (3) five to six  (4) seven or more

34. How critical are these math problems?

(0) not at all  (1) a little  (2) average  (3) very much so
35. What impact do these math difficulties have on productivity?

36. What kind of math do employees need to know?

37. Describe any situations involving reading that your employees have problems with.

38. On an average week, how frequent are those reading problems?
   (0) never  (1) one to two  (2) three to four  (3) five to six  (4) seven or more

39. How critical are these reading problems?
   (0) not at all  (1) a little  (2) average  (3) very much so

40. What impact do these reading difficulties have on productivity?

41. Describe any situations involving problem solving that your employees have problems.

42. On an average week, how frequent are these problem solving problems?
   (0) never  (1) one to two  (2) three to four  (3) five to six times  (4) seven or more

43. How critical are these problem solving problems?
   (0) not at all  (1) a little  (2) average  (3) very much so

44. What impact do these problem solving difficulties have on productivity?

45. What kind of problem solving skills do employees need to have?

46. Is there any training provided for your employees?  
   (1) Yes  (2) No
47. What training?

48. When does it occur?
   (0) None         (1) at the very beginning of the job
   (2) every so often throughout the years they have been here  (3) quite frequently

49. Comments

50. How is the training conducted?
   (1) individual  (2) small group  (3) large group  (4) instructor led  (5) computer based
   (6) video      (7) other

51. Comments

52. Is there any other training you think that would have been helpful for your employees to have had?
   (1) Yes        (2) No

53. What is that training?

54. How do your employees learn to do their jobs?
   (1) Formal training  (2) somebody showed them  (3) by themselves  (4) other

55. How are employees chosen for new job opportunities?

56. Comments

57. Describe charges in the next 2 years that may require employees to use higher level skills.
58. How satisfied are your employees with their job? (circle answer)

(1) Very Satisfied  (4) Somewhat Dissatisfied
(2) Satisfied       (5) Dissatisfied
(3) Somewhat Satisfied (6) Very Dissatisfied

59. Comments:________________________________________________________

60. How satisfied are supervisors with their jobs? (circle answer)

(1) Very Satisfied  (4) Somewhat Dissatisfied
(2) Satisfied       (5) Dissatisfied
(3) Somewhat Satisfied (6) Very Dissatisfied

61. Comments:________________________________________________________

62. What could the company do to make it easier for you to do your job?

______________________________________________________________

63. How would you describe the relationship between other supervisors and the employees?

(01) Poor (2) Fair (3) Good (4) Very Good (5) Excellent

64. Comments __________________________________________________________

65. What do you think should be taught in this educational program?

________________________________________

66. I have asked a lot of questions. Do you have any questions for me?

________________________________________

Thank You!
Observation Checklist

Appendix C
Contextual Description

1. What is the physical environment of the workplace in general?
   A. Clean (01) or Dirty (02)?
   B. Quiet (01) or Noisy (02)?
   C. Ventilation - Good (01) or Bad (02)?
   D. Lighting - Good (01) or Bad (02)?
   E. Temperature - Too Hot (01), Just Right (02), or Too Cold (03)?
   F. Vandalism/Graffiti - Yes (01) or No (02)?
   G. What furnishings are used by employees?
   H. What personalization of employee work areas exist?
   I. What is the overall atmosphere of the plant?
   J. Draw a physical map of the workplace and attach to form.
   K. Comments:

2. What is the physical environment of the individual work areas or lines?
   A. Clean (01) or Dirty (02)?
   B. Quiet (01) or Noisy (02)?
   C. Ventilation - Good (01) or Bad (02)?
   D. Lighting - Good (01) or Bad (02)?
   E. Temperature - Too Hot (01), Just Right (02), or Too Cold (03)?
F. Vandalism/Graffiti - Yes (01) or No (02)?__________________________

G. What furnishings are used by employees?

_______________________________________________________________

H. What personalization of employee work areas exist?

_______________________________________________________________

I. What is the overall atmosphere of the plant?

_______________________________________________________________

J. Comments:____________________________________________________

Job Process

3. What interaction/communication does the worker have with...

Frequency Codes: 01-Frequent, 02-Infrequent, 03-Not at all
Criticality Codes: 01-Very Critical, 02-Critical, 03-Less Critical

<table>
<thead>
<tr>
<th>Person</th>
<th>Verbal Frequency</th>
<th>Verbal Criticality</th>
<th>Non-verbal Frequency</th>
<th>Non-verbal Criticality</th>
<th>Written Frequency</th>
<th>Written Criticality</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Supervisor</td>
<td></td>
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<tr>
<td>02 Co-worker</td>
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<tr>
<td>03 Clients</td>
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<tr>
<td>04 Vendors</td>
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<tr>
<td>05 Front Office</td>
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<tr>
<td>06 Others</td>
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</tbody>
</table>

3A. Comments:____________________________________________________

4. What is the reaction of the workers to the observers? (circle answer)

01-Friendly 02-Open 03-Suspicious 04-Nervous 05-Relaxed
5. Does the worker have suggestions to improve the job process? (circle answer)
   01-No (Skip to 6)  02-Yes

5A. Has the worker communicated the suggestions? (circle answer)
   01-No (Skip to 6)  02-Yes

5B. How has the worker communicated the suggestions?

5C. To whom were the suggestions communicated?

5D. What action was taken on the suggestions?

6. What print material is present in the plant in general?
   A. Bulletin Boards - Yes (01) or No (02)?
   B. Newspapers - Yes (01) or No (02)?
   C. Safety Signs - Yes (01) or No (02)?
   D. What signs are present?
   E. What notices or announcements are present
   F. Comments:

7. What print materials are at the work stations?
   A. Preventative Maintenance Notices - Yes (01) or No (02)?
   B. Safety Signs - Yes (01) or No (02)?
   C. Books or Manuals - Yes (01) or No (02)?
   D. Tally Sheets - Yes (01) or No (02)?
   E. Tags in Baskets - Yes (01) or No (02)?
8. Is there any indication the worker avoids reading? (circle answer)

   01-No (Skip to 9)    02-Yes

8A. What are the indications? __________________________________________________________

9. What documents have to be read?

   Frequency Codes: 01-Frequent, 02-Infrequent, 03-Not at all
   Criticality Codes: 01-Very Critical, 02-Critical, 03-Less Critical

<table>
<thead>
<tr>
<th>Document</th>
<th>Frequency</th>
<th>Criticality</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Tally Sheets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>02 Downtime Sheets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03 Rejection Tags/Red Tags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>04 Memos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>05 Alerts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>06 Manuals</td>
<td></td>
<td></td>
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<tr>
<td>07 Logbooks</td>
<td></td>
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<tr>
<td>08 Other:</td>
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<td>08 Other:</td>
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<tr>
<td>08 Other:</td>
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</tr>
</tbody>
</table>

9A. Comments: __________________________________________________________

10. What documents have to be filled out or written?

    Frequency Codes: 01-Frequent, 02-Infrequent, 03-Not at all
    Criticality Codes: 01-Very Critical, 02-Critical, 03-Less Critical

<table>
<thead>
<tr>
<th>Document</th>
<th>Frequency</th>
<th>Criticality</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Tally Sheets</td>
<td></td>
<td></td>
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<tr>
<td>02 Downtime Sheets</td>
<td></td>
<td></td>
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</table>
### Document Frequency Criticality

<table>
<thead>
<tr>
<th>Document</th>
<th>Frequency</th>
<th>Criticality</th>
</tr>
</thead>
<tbody>
<tr>
<td>03 Rejection Tags/Red Tags</td>
<td></td>
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<tr>
<td>04 Memos</td>
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<tr>
<td>06 Manuals</td>
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<td>07 Logbooks</td>
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<td>08 Other:</td>
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<td>08 Other:</td>
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<td>08 Other:</td>
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</tbody>
</table>

10A. Comments: __________________________________________________________

11. What math computations are performed on the job?

Frequency Codes: 01-Frequent, 02-Infrequent, 03-Not at all  
Criticality Codes: 01-Very Critical, 02-Critical, 03-Less Critical

### Math Frequency Criticality

<table>
<thead>
<tr>
<th>Math</th>
<th>Frequency</th>
<th>Criticality</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Addition</td>
<td></td>
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<tr>
<td>02 Subtraction</td>
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</tr>
<tr>
<td>03 Multiplication</td>
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<tr>
<td>04 Division</td>
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<td>05 Fractions</td>
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<td>06 Decimals</td>
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<td>07 Averaging</td>
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<td>08 SPC Charting</td>
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<td>09 Graphing</td>
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<tr>
<td>10 Measurements</td>
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<td>11 Other:</td>
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<tr>
<td>11 Other:</td>
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</tr>
</tbody>
</table>
12. What tools are used on the jobs observed?

Frequency Codes: 01-Frequent, 02-Infrequent, 03-Not at all
Criticality Codes: 01-Very Critical, 02-Critical, 03-Less Critical

<table>
<thead>
<tr>
<th>Tools</th>
<th>Frequency</th>
<th>Criticality</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Screw drivers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>02 Hammers</td>
<td></td>
<td></td>
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<tr>
<td>03 Check Fixtures</td>
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<tr>
<td>04 Other</td>
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<tr>
<td>04 Other</td>
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</tbody>
</table>

12A. Comments:_________________________________________________________________

13. Do tools belong to the individual or company? (circle answer)

01-Individual 02-Company

13A. Comments:_________________________________________________________________

14. Are there adequate tools to do the job? (circle answer)

01-No (Skip to 15) 02-Yes

14A. What tools are needed?_________________________________________________________________
15. Are the tools organized so they’re readily available? (circle answer)
   01-No 02-Yes

15A. Comments:__________________________________________________________

16. What materials are used?______________________________________________

17. Are materials available in a timely manner? (circle answer)
   01-No 02-Yes

17A. Comments:__________________________________________________________

18. When are the materials used? (circle answer)
   01-Before 02-During 03-After

18A. Comments:__________________________________________________________

19. Are there any hazardous materials? (circle answer)
   01-No (Skip to 20) 02-Yes

19A. What types of hazardous materials______________________________________

20. Does the worker have any control over the use of tools or materials? (circle answer)
   01-No 02-Yes

20A. Comments:__________________________________________________________
21. Describe the instructional environment.
   A. Size of room: ________________________________
   B. Tables: ________________________________
   C. Electrical outlets: ________________________________
   D. Storage: ________________________________
   E. Lighting: ________________________________
   F. Accessibility: ________________________________
   G. Areas of privacy: ________________________________
   H. Noise: ________________________________
   I. Temperature: ________________________________
   J. Ventilation: ________________________________
   K. Bulletin Boards: ________________________________
   L. Chalkboards: ________________________________
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