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REPORT ON SUPERVISOR SELECTION PROGRAM  
OAK RIDGE GASEOUS DIFFUSION PLANT

AUTHORS:

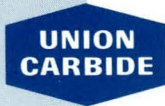
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DATE 4/28/70

**UNION CARBIDE CORPORATION**  
**NUCLEAR DIVISION**  
**OAK RIDGE GASEOUS DIFFUSION PLANT**

operated for the ATOMIC ENERGY COMMISSION under U. S. GOVERNMENT Contract W-7405 eng 26



OAK RIDGE GASEOUS DIFFUSION PLANT  
P. O. Box P  
Oak Ridge, Tennessee 37830

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PROGRESS REPORTS

REPORT ON SUPERVISOR SELECTION PROGRAM

OAK RIDGE GASEOUS DIFFUSION PLANT

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Industrial Relations Division

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UNION CARBIDE CORPORATION  
NUCLEAR DIVISION  
Oak Ridge Gaseous Diffusion Plant  
Oak Ridge, Tennessee

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PROGRAM - OAK RIDGE GASEOUS  
DIFFUSION PLANT

Authors: J. M. Bender  
O. L. Calvert  
C. L. Jaffee

A B S T R A C T

A program utilizing simulation techniques to determine the degree of basic supervisory skills is described. The development and application of this program at the Oak Ridge Gaseous Diffusion Plant is explained.

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REPORT ON SUPERVISOR SELECTION PROGRAMOAK RIDGE GASEOUS DIFFUSION PLANT

The following report describes a program conducted by Union Carbide Corporation's Nuclear Division at the Oak Ridge Gaseous Diffusion Plant to select the best possible candidates for promotion to first-line supervisory jobs. This program utilizes "situational techniques" and a panel of experienced managers in the assessment of supervisory skills observed in group and individual exercises. The program from inception to present is described.

## SUMMARY

The program was begun in the latter part of 1967 as a recognition of an increased need for new supervisors resulting from anticipated plant expansion programs and normal retirement of many existing supervisors. An assessment center was established where supervisory candidates were given a one-day exposure to simulated but work-related situations. They were given opportunity to display different skill dimensions such as forcefulness, leadership skills, sensitivity, etc. Four controlled simulation exercises were used: Life Aims, School Board, In-Basket, and Manufacturing Problem. Group and individual candidate activities in each of these exercises were observed by a trained panel of expert management people. The panel members then discussed and prepared a formal written evaluation on each candidate observed.

Based on experience to date, the quality of supervisors selected by means of the assessment center process has been good; and the trend indicates that the assessment center technique is a dependable tool for use in the total process of selecting new supervisors. It also provides a mass of information that can be incorporated into personnel development programs for those who have been evaluated through this assessment center technique.

## INTRODUCTION

During the latter part of 1967, an increasing awareness of the future expansion plans for the Oak Ridge Gaseous Diffusion Plant, and in particular manpower requirements, led the plant superintendent to request the superintendent of the Industrial Relations Division to initiate a responsible program for selecting new supervisors. Three areas of need were identified: (1) an estimate of the number of new supervisors that would be required during the next five years and the approximate timing; (2) criteria to be used in selecting the supervisory candidates; and (3) an appropriate training and experience program for potential supervisors. At this time, the existing methods and techniques of selecting new supervisors were rather nebulous. There existed no widespread formal employee appraisal system at the Oak Ridge Gaseous Diffusion Plant. Supervisors

had been selected primarily on the basis of whatever performance and other records existed on employees at that time. Various degrees of attention were given to these records, and the results could be correlated with the competence of the manager making the selection.

With this assignment, representatives of the Staff Development and Compensation Department of the Industrial Relations Division invited Dr. C. L. Jaffee of The University of Tennessee to meet and discuss a selection program in effect in the Bell System with which he had worked. A similar program was also in use experimentally in the Plant and Equipment Division at the Oak Ridge National Laboratory. These exploratory meetings indicated the feasibility of such a selection program at the Oak Ridge Gaseous Diffusion Plant. These programs were built around the assessment center concept, where a group of individuals would be evaluated individually and collectively by a panel of trained experts while they participated in simulated exercises under controlled conditions. The assessment center concept was attractive since it would provide: a competitive situation where all participants would have equal opportunity to display their talents; a means of observing several candidates at once; situations designed to bring out the particular skills and ability dimensions previously agreed upon; evaluations performed by trained, impartial assessors.

A detailed plan was developed to provide a total program for selection, orientation, and development of new supervisors. The principal objectives were:

1. Early and careful selection of future supervisors in a uniform manner.
2. Orientation tailored to predetermined needs.
3. Continuous training and development of new supervisors.

The plan also required that a pool of potential supervisors be developed which would become the exclusive inplant source of new supervisors. Adoption of the pool concept would enhance the promotion-from-within policy and in turn assure acceptance of the assessment program by the rank and file.

In general terms, the purpose of the program was in harmony with Union Carbide's objectives set forth by the Union Carbide Corporation Employee Relations Study Committee. In a letter to division employee relations managers on January 3, 1969, the Union Carbide Corporation general manager of Employee Relations reported the following from the Study Committee: "There should be standards for recruiting, selecting, training, retraining...personnel whose primary function is to supervise production and maintenance employees." The description of the supervisor's job developed by that Committee is shown as Appendix A.

When the objectives and basic approach to the program had been agreed upon, the next step was to demonstrate to management an effective approach toward developing potential supervisors. A series of meetings was conducted with a group of key managers to acquaint them with the assessment center concept and provide data on the Bell System program. The managers agreed that the proposal represented a logical, objective, and relatively simple way of providing an improved supervisory force in the future.

It was necessary at this point to proceed with several major tasks before operation of an assessment center could begin. The first task was to select and train the panel members. Particular care was taken to select the highest caliber of managers available at the Oak Ridge Gaseous Diffusion Plant--managers whose success was unquestioned and who possessed those qualities described on page 12 which are desired in new supervisors. Each major operating segment of the installation proposed names of individuals whose judgment could be trusted in the selection of new supervisors. A screening of potential panel members was conducted by the Industrial Relations Division on the basis of attitude, cooperation, absentee record, medical record, history of salary growth, and historical ratings given them by their supervisors. Once the 18 panel members were selected (three panels of six evaluators were formed), a 40-hour training program was conducted under the direction of Dr. C. L. Jaffee. Panel members performed assessment center exercises under the same conditions outlined for the potential supervisory candidates. By this process and the subsequent evaluations of their performance, the panel members were trained in the operation of the assessment center.

Another task was the selection and development of the material to be used in the simulation exercises. For Exercise #3, the In-Basket, information was solicited from the operating divisions. First- and second-level supervisors provided a list of significant and recurring problems which they experienced in their day-to-day operations. These problems served as guides in localizing the in-basket exercise to actual plant operations. An analysis of these problems also served as an excellent reference in the development of future training programs for existing supervisors. The other exercises were selected as typical examples of Leaderless Group Discussions and Business Games.

The first live panel exercise was held on April 19, 1968.

#### PROGRAM CONSIDERATIONS

In the development of a program to evaluate supervisory skills by the use of simulation exercises, a number of questions had to be answered. A report on the experience of the Office of Strategic Services during World War II describes some of the questions which were considered by the O.S.S. in the development of its simulation program.\*

---

\*Offices of Strategic Services, The Assessment of Men, Holt, Rinehart, and Winston, New York, 1948.

1. What does a supervisor do? Make a preparatory analysis of the job for which the candidate is to be assessed.

The basic requirements of the job must be defined in order to measure an individual's ability and predetermine the likelihood of his performing successfully. A manager's job is twofold: he plans, organizes, directs, and controls; but basically he gets his job done through other people. This latter aspect represents the essential difference between supervisory and nonsupervisory jobs. A supervisor, therefore, must interact with other people through face-to-face contacts and through written communications.

2. What are the skills a supervisor needs? List the characteristics which determine success or failure on the particular job. The consensus of many managers from diversified areas is that the following skills are significantly related to supervisory success:

- a. Energy
- b. Leadership
- c. Forcefulness
- d. Sensitivity
- e. Organizing and Planning
- f. Decision-Making
- g. Oral Communication
- h. Written Communication
- i. Inner Work Standards
- j. Resistance to Stress
- k. Attitude towards Peers
- l. Attitude towards Subordinates
- m. Attitude towards Superiors
- n. Self-Evaluation
- o. Behavioral Flexibility

3. How can you create situations where the individual may be evaluated in these skill areas? Design a procedure which will reveal individual strengths and weaknesses.

The use of the in-basket technique provides an opportunity for an individual to display his abilities in working with written material. Group discussion problems allow an individual to demonstrate his ability to get a task accomplished effectively when other group members have different viewpoints on the problem.

4. Who should be evaluated by the use of simulation techniques?

Those individuals determined by management to be technically competent and acceptable employees in terms of absences, attitude, moral behavior, etc., would be good subjects for evaluation of supervisory skills. The line manager is unable to observe many of the crucial skills in an individual who is performing a nonsupervisory job but can observe certain technical and attitudinal variables.



5. What are some additional strengths of this type of program?

In addition to the evaluation of strengths and weaknesses, this kind of program provides the candidate with the positive aspect of participating in the exercises, the understanding and acceptance by the line organization of the results, and the possibility of using information gathered for the development of individuals within the organization. These by-products give the assessment center technique a distinct advantage over other types of testing for selection of supervisors.

6. What is done with the results?

The results from such an evaluation are fed back to the line organization for use as they see fit. The line organization retains the options as to use of this information: promote the individual, do not promote him, implement developmental steps before promotion. In this way the authority and responsibility for promotion are retained by the line organization.

## PROGRAM OPERATION

### Sequence of Events

Recommending an employee for assessment center evaluation and operation of the assessment center follow prescribed sequential steps:

1. Recommendation of candidates.
2. Prepanel interview of candidates.
3. Screening of candidates' personnel records.
4. Assessment center operation.
5. Panel final evaluation.
6. Panel reporting.

The events in each of the above steps have been reduced to a standard operating procedure. Once an employee becomes a candidate for evaluation, a "business confidential" file is established on him; and all materials related to recommendations, results of initial screening, salary growth, absentee and health records, and completed evaluation exercises are accumulated in the file.

### Recommendation of Candidates

The front-line supervisor prepares a standard recommendation form (Figure 1) on employees who have exhibited a high degree of technical (job) proficiency and who indicate supervisory potential. Recommendations are submitted to the department head who reviews the supervisor's recommendation and, if acceptable, schedules the prospective candidate for a pre-panel interview.

UNION CARBIDE NUCLEAR COMPANY • DIVISION OF UNION CARBIDE CORPORATION

SUPERVISOR'S REPORT

DATE OF INTERVIEW

November 24, 1969

EMPLOYEE'S NAME

John Doe

BADGE NO.

32257

DEPARTMENT NO.

1085

REASON

Review for Potential Supervisor

DETAILS

Mr. Doe has been with the company since 1965. During this period his assignment has been on instruments, pneumatic, electronic, and instrument systems. In each instance, he has done an excellent job in his assignment. He shows excellent leadership and mixing ability. He has a good attitude which tends to reflect on others in his group. He shows a keen ability to diagnose and trouble shoot instruments.

In 1966 he was sent as a member of a group to perform work for Sandia Corporation. We in turn received a special letter of recognition from Sandia Corporation in which they praised among others of the group his excellent workmanship, dependability in getting work done, and ability to deal with other people.

Mr. Doe has a high school education and trade school education from Coyne Electrical and Radio School. Mr. Doe is now considering enrolling in an extension course to increase his educational background.

EMPLOYEE'S ACKNOWLEDGMENT OF RECEIPT OF COPY

SUPERVISOR'S SIGNATURE

*John D. Smith*

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Figure 1

### Prepanel Interview of Candidates

The department head verifies the candidate's interest in being considered for a supervisory position and his willingness to participate in panel exercises and evaluations. In order to ensure uniform administration, it is essential that each candidate who is to go before the panel be informed that:

1. His participation in the program will not guarantee him a supervisory position.
2. The information compiled by the panel is considered "business confidential".
3. He will be participating in a full day of group and individual exercises.
4. His performance during the above exercises will be observed closely and evaluated by a panel of experienced supervisors.
5. He will be given information concerning his performance on request--an excellent guide to self-improvement.
6. The exercises are of a nonpsychological, nontechnical nature and are designed primarily to measure supervisory and administrative skills.

### Formal Screening of Candidates

The department head forwards approved recommendations to the division head who, following approval, forwards them to the Industrial Relations Division. Additional screening is now completed on each candidate to determine if there exist any reasons which would bar him from the program. Absentee records, salary growth, and medical history are among the records considered. Acceptable candidates' records are then placed into a holding file pending operation of the assessment center.

### Assessment Center Operation

When it is decided to conduct an evaluation session, six candidates from the holding file (selected in order of their receipt by the Industrial Relations Division) are scheduled for evaluation. Six panelists from the pool of trained evaluators are also selected to do the evaluation. Each panel session lasts for two days, the first day being devoted to the observation of candidates participating in group and individual exercises. The second day is spent by the panel members in preparing evaluations of each candidate observed.

Once the candidates and panelists are determined, a facility for observation is selected which is private and relatively free of interruptions. The candidates are seated at two tables as shown in Figure 2. The

arrangement of tables is designed to place candidates so that they can see each other and be seen by each of the six panel members. Each candidate is provided with paper and pencil. The actual session is ready to begin.

One of the six panel members is designated Panel Chairman and is responsible for panel operation. Figure 3 is a typical Proctor's Instruction Sheet, which is provided for the Panel Chairman's use as a guideline for the day's activities. The observation schedule section of the Sheet is designed so that no panel member observes the same candidate more than once during the day. This arrangement requires the panelists to write four reports, one for each exercise.

On the morning of the evaluation, the candidates are brought into the evaluation room and seated as indicated in Figure 2. In an adjoining room the Panel Chairman gives a last-minute briefing to all panel members regarding special instructions such as exercise changes and answers questions regarding the day's activities. When the briefing is completed (normally no more than ten minutes), the panel enters the evaluation room and is seated as shown in Figure 2. The Chairman welcomes the candidates to the day's session and introduces the panel members to the candidates. He outlines briefly what the candidates can expect during the day and answers any questions regarding what they will be required to do. He then reads the instructions for the first exercise.

Normally, the initial exercise is considered a warm-up or icebreaker. It gives the candidates the opportunity to get to know one another, to move about, and become more accustomed to the situation. At present, a problem on Life Aims is used for the warm-up exercise. The candidates are required to formulate individual rankings of life goals and to arrive at a group consensus on ranking.

Between each exercise, the candidates are given a break. Upon resuming the exercises, the candidates are instructed in the requirements of Exercise #2, the School Board Problem, which is another leaderless group discussion. The candidates are required to read and study a large amount of given material, select those portions of the material that support an assigned point of view, and then prepare, present, and defend their positions relating to the assigned point of view.

It has been our experience that Exercise #2, the School Board Problem, is the favorite exercise of the candidates. It requires considerable activity, is very interesting, and the candidates are able to relate to the problems involved.

After the School Board exercise, a break is taken for lunch. Upon their return, the candidates are again seated at the table and briefed on Exercise #3, the In-Basket Exercise.

The In-Basket exercise is an individual exercise and requires the candidates to assume the role of a hypothetical supervisor and to react to a

SEATING AND OBSERVATION ARRANGEMENT

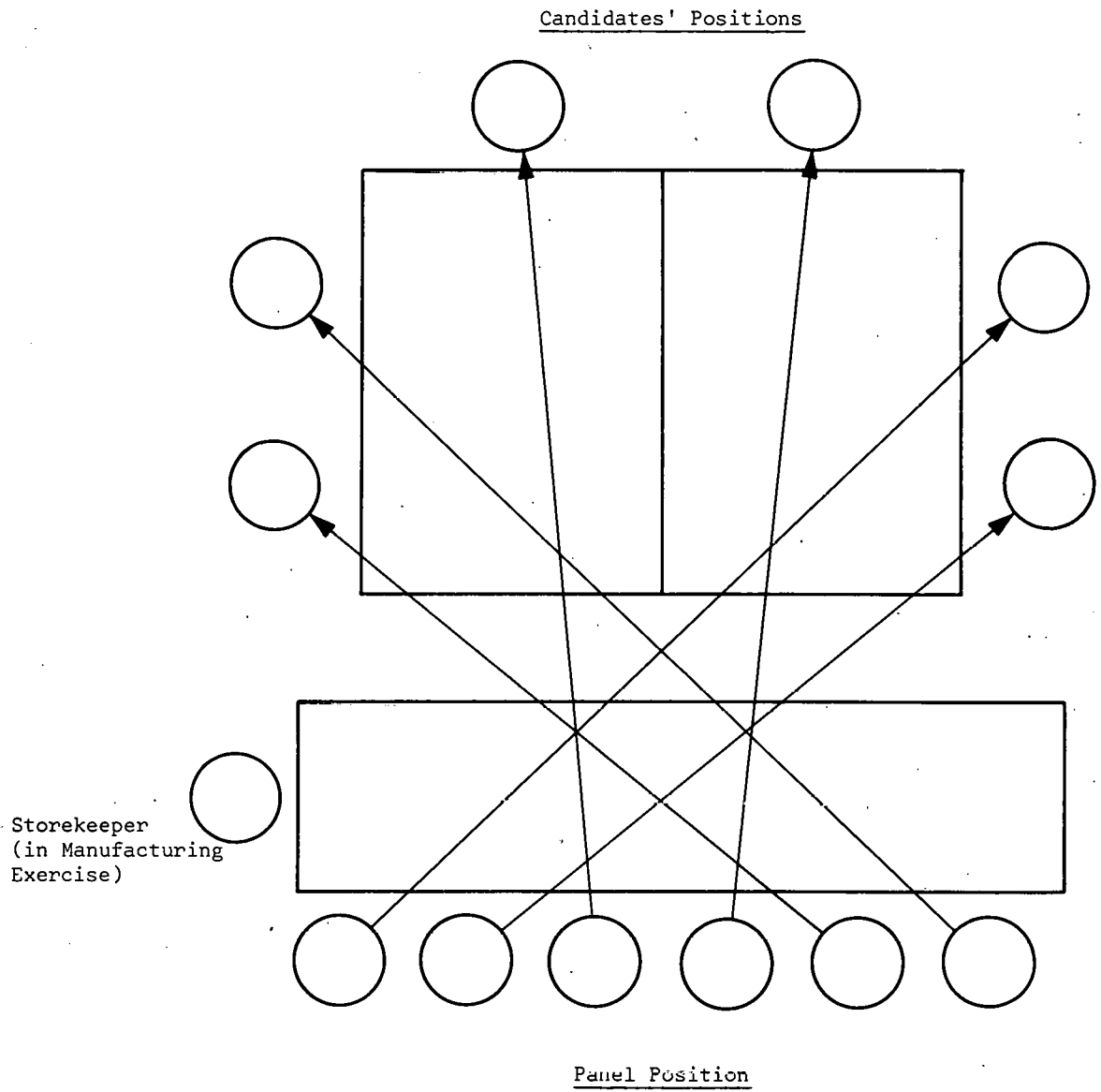


Figure 2

package of written material that is designed to simulate the actual office in-basket of our hypothetical supervisor. Several in-baskets have been developed, and all of them relate to actual organizational situations.

At the end of the timed period, the candidates turn in their completed in-baskets to the Panel Chairman, who gives them to the appropriate panel member for evaluation. The candidates are given a break (normally from 15 to 30 minutes) while the panel members review the actions taken on the in-basket exercise. After the material has been reviewed, each candidate is brought in for an interview with the evaluating panel member. During the interview, the evaluator clarifies actions that the candidate has taken in writing and determines his approach to and feel for the in-basket material. At the conclusion of all the interviews, the candidates are re-assembled in the evaluation room for Exercise #4, the Manufacturing Problem. This is another group interaction exercise in which the candidates are required to work as a team toward a group objective.

Upon completion of the Manufacturing Problem, all materials are collected. The Panel Chairman closes the session by thanking the candidates for their attendance and assuring them that they will be given feedback on their individual performance during the day's activities if they desire. He asks for questions or comments; if there are none, he dismisses the candidates. The Panel Chairman then sets a date for the panel members to reconvene for the final reporting and evaluation session. The panel members are required to write reports on their observations and evaluations of the performance of the candidates they observed.

#### Panel Final Evaluation

When the panel reconvenes to conduct the evaluation, the following general procedure is used. Using the Proctor's Instruction Sheet (Figure 3), the Panel Chairman begins with the first candidate on the list and asks that the report be read on this candidate's handling of Exercise #1. As the exercise report is being read, the other five panel members take notes and prepare any comments they may have regarding the candidate in question. When the presentation is finished, the panel members initiate discussion as required. Next, the evaluator of this candidate in Exercise #2 is called upon and his report is discussed. This procedure is followed for each candidate until all have been reported on in each of the exercises.

During the discussion of each candidate, the panel member uses a Performance Evaluation Scoring Sheet (Figure 4) to record reactions to the 15 supervisor skills. The skills mentioned previously are further defined as follows:

1. Energy - Is the individual active and can he maintain an adequate energy level over an extended period of time?
2. Forcefulness - Does the individual have the ability to pursue his point of view with the people with whom he works?

## PROCTOR'S INSTRUCTION SHEET

PANEL SESSION #10 - JANUARY 23 &amp; 27, 1970

Panel Members:

1. J. Dykstra
2. R. A. Koteski
3. W. H. Lockett
4. W. E. Muldrew
5. S. S. Stief
6. F. Strang - Chairman

Program Coordinator:

O. L. Calvert

Program Consultant:

Dr. C. L. Jaffee (UT)

Observation Schedule:

Exercise & Subject	Potential Supervisor Candidates					
	A	B	C	D	E	F
Ex. 1, LIFE AIMS	4	5	6	2	3	1
Ex. 2, SCHOOL BD.	1	4	5	6	2	3
Ex. 3, IN-BASKET	3	1	4	5	6	2
Ex. 4, MFG. PROB.	2	3	1	4	5	6

Time Schedule:

8:30 - 9:30	Exercise 1, Life Aims
9:30 - 10:20	Exercise 2, School Board - Planning Period
10:20 - 10:30	BREAK
10:30 - 11:30	Exercise 2, School Board - Discussion Period
11:30 - 12:00	LUNCH
12:00 - 2:00	Exercise 3, In-Basket
2:00 - 2:15	BREAK
2:15 - 3:00	Exercise 3, In-Basket Interview
3:00 - 4:00	Exercise 4, Manufacturing Problem
4:00 - 4:05	Wrap-Up

3. Perception - Is the individual sensitive to people and does he see the essential points of a given situation?
4. Leadership - Can the individual get a job done through others utilizing good human relations techniques?
5. Oral Communication Skills - Can the individual communicate effectively in a small group?
6. Written Communication - Does the individual express himself adequately in writing?
7. Organizing and Planning - Can the individual plan and organize his work in a satisfactory manner?
8. Decision-Making Skills - Are the individual's decisions of good quality?
9. Inner Work Standards - Is the individual desirous of doing a good job when a less than good job might be acceptable?
10. Resistance to Stress - Can the individual maintain his performance under pressure?
11. Attitude Towards Peers - Does the individual treat his peers with disdain or is he overly concerned with their opinions?
12. Attitude Towards Subordinates - Does the individual treat his subordinates with disdain or is he overly concerned with their opinions?
13. Attitude Towards Superiors - Does the individual treat his superiors with disdain or is he overly concerned with their opinions?
14. Self-Evaluation - Does the individual have a realistic opinion of himself--does he see himself as others do?
15. Behavioral Flexibility - Does the individual show reasonable flexibility in relation to the demands of the situation?

After panel members have evaluated each candidate's performance in each of the exercises, the Panel Chairman requests that panel members reach an overall rating of each candidate's performance in each of the skill areas using the following rating scale:

Outstanding	- 4
Above Average	- 3.5
Satisfactory	- 3
Below Average	- 2.5
Questionable	- 2
Low	- 1.5
Poor	- 1
Not Rated	- NR



The Chairman receives six ratings for each of the fifteen variables on the Evaluation Sheet. Any significant difference in any of the six ratings on a variable is resolved through group discussion, and the candidate is given a single overall rating for each of the listed skills. Next, the panel members are asked to give their overall rating for that candidate for all exercises using the same rating scale shown earlier. The rating and discussion approach is again used.

As the rating process is completed on each candidate, the Panel Chairman gives all individual reports and rating sheets to the Program Coordinator who prepares the final summary reports (Figures 5 and 6).

The final reports are distributed, one to the candidate's division head and one to the Industrial Relations Division file. Access to the reports is restricted to division heads or their approved representatives.

#### Feedback to Candidates

Feedback to the candidates is handled in the following manner:

1. Report on panel evaluations is guaranteed to those candidates requesting it. The candidate makes his request through his line organization.
2. Presentation of feedback is the responsibility of the candidate's line organization; this is usually done by the department head who held the prepanel interview with the candidate.
3. All feedback must be presented in a constructive manner.
4. The Industrial Relations' Staff Development and Compensation Department will assist the line supervisor in making recommendations for individual development activities.
5. If not satisfied with line feedback, the candidate may request further information from the Industrial Relations' Program Coordinator.
6. A candidate is allowed to read the overall panel evaluation report and then initial the report to indicate he has seen it.
7. The supervisor who recommended the candidate for evaluation is briefed on the candidate's performance; this is usually done by the department head who held the prepanel interview with the candidate.

PERFORMANCE EVALUATION SCORING SHEET  
 BUSINESS-CONFIDENTIAL - FOR STAFF USE ONLY

Overall Rating: \_\_\_\_\_

Variable	Life Aims	School Board	In-Basket	Manufacturing Problem
Energy				
Forcefulness				
Perception				
Leadership				
Oral Communication Skills				
Organizing and Planning				
Decision-Making				
Inner Work Standards				
Resistance to Stress				
Attitude Towards Peers				
Attitude Towards Subordinates				
Attitude Towards Superiors				
Self-Evaluation				
Behavioral Flexibility				

Figure 4

Candidate John DoeBadge No. 32257 Panel Session #10Division Fabrication & Maintenance

## FINAL STAFF EVALUATION

The Life Aims, Exercise #1, is a group-interaction problem. Mr. Doe was active during this problem. He assumed the role of group secretary and discussion leader. His evidenced leadership skills were generally good; however, he did show a tendency to ignore opinions of fellow candidates when they conflicted with his own. His oral communications were clear and easily understandable. He played a significant part in pushing the group to an early end to the problem.

The School Board, Exercise #2, is another group problem. The candidates are required to prepare, present, and defend arguments for a particular point of view based on detailed given material. Mr. Doe gave a good oral presentation. It was evident that he had carefully organized and planned his case. He was familiar with much of the given material and often quoted from it. He used statistics effectively. His oral communications were generally satisfactory. The evaluator felt the candidate could have been more forceful in leading the group to a final allocation of funds. He assumed leadership but failed to follow through. He showed a good resistance to stress and was at all times friendly with the fellow candidates.

The In-Basket, Exercise #3, is an individual exercise and simulates typical supervisory problems in the form of memos, letters, employee ratings, and other written material. Mr. Doe took a logical approach to the in-basket. (He read all given material before setting priorities for action.) While his handling of the in-basket was generally acceptable, he did fail to perceive some of the facts of the problem. His letters and memos were acceptable, but he could use some practice in this area. Mr. Doe put a good deal of work into his preparation of the exercise requirements and completed action on all of the given items. He was alert during the post-exercise interview and readily answered questions.

The Manufacturing Problem, Exercise #4, is a group exercise controlled by a number of variables that change periodically as the exercise progresses. Mr. Doe listened carefully to the instructions, occasionally taking notes. During the first half of the exercise, it became obvious that Mr. Doe did not fully understand the exercise requirements. He was active and displayed a willingness to work; however, he allowed group leadership to pass to a fellow candidate. His biggest contribution was being a hard worker.

Mr. Doe's overall performance was rated satisfactory. He received acceptable ratings in all of the rated skill areas. The panel did feel he needed some work in his leadership approach. There were times when a forceful position was called for and the candidate did not respond. His attitude toward others was very good.

Candidate: John Doe  
 Badge No: 32257 Division: Fab. & Maint.  
 Date: 1-23-70 Panel Session: #10

EVALUATION SUMMARY

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<u>Rating</u>	<u>Variable</u>	<u>Rating Terms</u>
<u>Satisfactory</u>	Energy	OUTSTANDING: Upper 5% of all candidates
<u>Below Average</u>	Forcefulness	ABOVE AVERAGE: 10% of all candidates
<u>Satisfactory</u>	Perception	SATISFACTORY:
<u>Satisfactory</u>	Leadership	BELOW AVERAGE:
<u>Satisfactory</u>	Oral Communication Skills	QUESTIONABLE:
<u>Satisfactory</u>	Written Communication Skills	LOW:
<u>Satisfactory</u>	Organizing and Planning	POOR:
<u>Satisfactory</u>	Decision Making	NOT RATED:
<u>Satisfactory</u>	Inner Work Standards	
<u>Satisfactory</u>	Resistance to Stress	
<u>Satisfactory</u>	Attitude Towards Peers	
<u>Satisfactory</u>	Attitude Towards Subordinates	
<u>Satisfactory</u>	Attitude Towards Superiors	
<u>Satisfactory</u>	Self-evaluation	
<u>Satisfactory</u>	Behavioral Flexibility	

OVERALL RATING: Satisfactory

## CONTINUATION OF DEVELOPMENT

Line Responsibilities

Once the final report has been completed, the employee's division head has available a detailed analysis of the employee's performance relative to the various skills measured. This, coupled with the employee's other records (absenteeism, salary, periodic appraisals of performance), provides the responsible manager with a comprehensive file from which to judge the employee's supervisory potential. After the employee's division superintendent and immediate supervisor have reviewed the panel evaluation, it is desirable that they arrange a conference with Industrial Relations personnel to discuss the employee's potential and his future development program.

The intent of the total program is to ensure that information obtained through evaluation is applied constructively toward continuous individual development for both the successful and unsuccessful candidates. The employee's development is likely to be influenced significantly by how well the supervisor functions as a leader and teacher. Ideally, the employee and his supervisor should mutually decide on a plan for development based on improvement needs revealed through the assessment center evaluation. The supervisor has many training tools which may be utilized, and some obvious ones are:

1. Coaching by Higher Supervision. Under experienced supervisors, new supervisors acquire job know-how, become acquainted with their responsibilities, and gain experience in handling assignments. This is a gradual process in which they become ready for increasing responsibilities.
2. Job Enlargement. If the occasion demands and conditions permit, new supervisors are exposed to wider areas of involvement. Some examples are: committee assignments, covering for other supervisors during absences, participating in job planning and problem solving.
3. Special Assignments. These tend to supplement the new supervisor's growth and may include such activities as: presenting programs at safety meetings, serving on plant inspection and clean-up teams, United Fund efforts, cost reduction programs, or serving as a training instructor.
4. Special Training. Based on specific needs, the employee is provided time away from his regularly assigned duties to participate in specialized training programs. The opportunity also exists for the line management to place the man in travel status and send him to outside conferences such as The American Management Association Programs or special skills schools.

5. Intermediate Promotion. By a promotion from the hourly to weekly payroll, the supervisor may vary the assignments of the employee in an effort to broaden his background and make up his skills deficiencies.
6. Shadow Training. The employee may be assigned to an experienced supervisor in order that he may observe good supervisory conduct and administrative actions.
7. Other. Many academic organizations offer excellent short training courses for supervisory personnel. One such course offered by the Georgia Institute of Technology has become almost an integral part of this program. Members of the Industrial Relations Division staff evaluated this course for use in conjunction with the development part of the Supervisory Selection Program; and, on the basis of positive evaluation, have recommended it as a step in the total development process for several new supervisors.

#### Staff Responsibilities

In addition to discussions with the division head and immediate supervisor, members of the Industrial Relations staff, often at the request of the division, will counsel directly with the employee regarding his long-range development. Also, the Industrial Relations staff, as a routine function of new supervisor orientation, coordinates the rotation of the supervisor in training through various administrative and support organizations in the Plant. This rotation process normally takes a total of 40 hours, and an example of the rotation schedule is shown as Figure 7. However, more detailed schedules are often requested by supervision based on individual needs.

#### Employee Responsibilities

It is recognized that no development activities are successful unless they are oriented toward self-development. The potential supervisor is encouraged to take advantage of Union Carbide's Educational Assistance Program and to use his initiative to improve himself in those skill areas where he has been evaluated as being weak. Experience has shown that employees readily accept this self-development responsibility especially when they know their efforts could lead to job promotion. In many instances, the employee's experiences in the assessment center exercises have been sufficient for him to recognize his own weaknesses. His self-development then becomes a direct product of his effort to improve his weaknesses.

NAME	DEPARTMENT	PAYROLL	BADGE	BUILDING	EXTENSION

NEW SUPERVISOR ORIENTATION POINTS

	(CHECK)		Contact	Ext.	Bldg.	Est. Time (Days)
	Scheduled	Completed				
<u>Industrial Relations</u>						
Program Briefing						
<u>Plant Superintendent</u>						1/8
<u>Industrial Relations</u>						
Photography and News Release Interview						
Benefit Plans						1/2
Staff Development						1/2
SPP, Training, Compensation						1/2
Health and Safety						1/4
Psychologist						1/4
Health Physics, Safety						1/2
Labor Relations (Including observation of hearing)						1 1/2
<u>Finance and Materials</u>						
Timekeeping						1/2
Receiving, Shipping, and Traffic						1
Stores						1
Material Accounting						1
<u>Shift Operations and Security</u>						
Shift Superintendent Functions						1/4
Plant Protection						1/2
Security						1/2
<u>K-25 Engineering</u>						
Machine Design						1/2
Structural						
Piping						
Electrical						
<u>Fabrication and Maintenance</u>						
Work Order Control						1
Division Orientation						
Shops						1/2
Field Tour						1/2

Figure 7



## VALIDATION OF A SELECTION TECHNIQUE

Historical Observations

The question of whether the assessment center technique, such as the one described, actually works can be approached from a number of different ways. The most comprehensive study of the use of assessment centers in predicting managerial success has been carried out in the Bell System by Bray and Grant.\* A sampling of 422 men was assessed by means of a three and one-half day program consisting of group exercises, an in-basket, and an interview. The men involved were rated on some 25 managerial characteristics, and overall predictions were made concerning whether they would make middle management in ten or less years. After a period of eight years, with no information regarding how well any of the individuals had performed fed back to the line organization, those individuals predicted to succeed did so to an overwhelming degree; and those considered weak in managerial skills tended to progress much more slowly. One conclusion reached as a result of this study was that situational tests could be used to predict progress in management.

Unfortunately, for the sake of controlled research, the tremendous expense involved in maintaining the security of the information and completing such large, complex, and costly work without any immediate pay-off to the sponsoring organization certainly makes this supervisor selection approach a unique contribution. The findings are certainly more impressive as a result of the maintenance of the controls.

A second study carried out in the Bell System by Campbell and Bray\*\* evaluated a sampling of 506 men, 471 at the first level at the time of the follow-up study, in four operating companies. Five groups of men were studied: men assessed as acceptable at an assessment center; men assessed as questionable at an assessment center; men assessed as not acceptable; men who were never assessed but promoted after the assessment center began; and men promoted before the assessment center began. All individuals in the different groups were compared according to the formal appraisal rating and a special rating and ranking made by the middle management level supervisor in a special interview. Both performance and potential were compared for all groups which were equal in length of service with the exception of those individuals promoted prior to the start of the assessment program who tended to be two years older in age. The conclusions based on the study were that the assessment center technique appeared to be a valuable means of identifying managerial talent. Those individuals who received a good rating at the

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\*Bray, D. W. and D. L. Grant, "The Assessment Center in the Measurement of Potential for Business Management", Psychological Monographs, vol. 625, 1966.

\*\*Campbell, R. J. and D. W. Bray, "Assessment Centers: An Aid in Management Selection", Personnel Administration, 30:6-13 (1967).

assessment center tended to be evaluated better at the first level of management from the standpoint of both performance and potential for higher level management. One interesting result of this study may be that assessment centers may predict potential for higher level management even better than performance at the first level of supervision.

Overall, the results were quite in keeping with some earlier data obtained by the Bell System\*, which compared the first forty men promoted after attending an assessment center with the forty promoted prior to the program's existence. Results of the assessment center candidates were found to be generally stronger in performance and potential than results obtained on men without assessment center training.

The New England Telephone Company\* compared men rated acceptable at the assessment center with men rated not acceptable and found that the former group was clearly superior on ratings of performance and potential.

All in all, the Bell System studies have been positive, and perhaps no greater endorsement can be given the program than that 50,000 of its employees have gone through assessment centers in the company. In addition, there have been some 100,000 individuals evaluated by means of assessment center programs. Organizations such as Standard Oil of Ohio, J. C. Penney, Peace Corps, Caterpillar Tractor, Sears Roebuck and Company, International Business Machines, General Electric, Internal Revenue Service, Tennessee Valley Authority, Olin-Mathieson Chemical Corporation, Wolverine Tube Company, and Wickes Corporation are all presently conducting assessment center programs, in addition to the Oak Ridge National Laboratory and the Oak Ridge Gaseous Diffusion Plant operated by the Union Carbide Corporation, Nuclear Division. Also, an even greater number of companies have been using in-baskets and group-discussion exercises for selection and training, a strong indication that many competent managers and psychologists are finding these tools valuable in providing information relative to a man's abilities as a manager. The authors know of no company in which an assessment center program was stopped once it began for any reason other than budgetary. With all the problems involved in validating any kind of a selection instrument, the positive support for this type of program may be an even greater indicator of its value than the statistical data with their inherent problems.

The present study is an attempt to evaluate the effectiveness of the selection-by-simulation process and to modify the program format, if necessary, to ensure effective usage. The open communications to line organizations concerning individuals' standing and performances enhanced the program and made interpretation of results subject to the same qualifications found in the Campbell and Bray study.\*\* In addition, the

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\*Bray and Grant, op.cit.

\*\*Campbell and Bray, op.cit.

small sample and the brief period of time under consideration make firm conclusions even more difficult; however, in spite of these limitations, the results have provided some interesting insight into the program which will be discussed later.

### Experimental Procedures

Because of the relatively small number of individuals evaluated by the present program, its having been in operation only one year, there were not enough individuals promoted in all categories (Outstanding, Above Average, Satisfactory, Questionable, Low) to warrant comparisons between the candidates and those individuals who were given all the different evaluations. It was decided, therefore, that to maximize the information available for analysis, a comparison would be made between 13 people promoted by the panel program (experimental group) and the last 13 people to be promoted before the panel program began (control group). The individuals in the experimental group fell into three categories: above average, satisfactory, and questionable, with ten of them being considered in the satisfactory area. Two of the individuals in this group were promoted to nonsupervisory jobs; evaluations for these men were not available from their subordinates.

The 13 individuals in the experimental group were interviewed concerning the adequacy of the feedback they received, their reactions to the program, and their reaction to the panel evaluation of their strengths and weaknesses. In addition, their superiors and some randomly selected subordinates (except in the case of the two previously mentioned individuals) were interviewed concerning their reactions to the individual as a supervisor.

The superiors and randomly selected subordinates of the 13 individuals in the control group were interviewed in order to determine the control group's capabilities as managers. These 13 individuals were the ones promoted immediately before the selection program began.

In all cases, the interviewer assured every interviewee that no names would be mentioned in the final analysis of the program and in no way could their statements be used to help or hurt those individuals under consideration. It was felt by the interviewer that this approach was accepted as the truth in most cases.

### Subject Characteristics

The experimental and control group subjects differed somewhat in terms of age, company service, and time in a supervisory position as described in Table I.

TABLE I  
CHARACTERISTICS OF EXPERIMENTAL AND CONTROL SUBJECTS

	Age Ranges	
	Experimental (Years)	Control (Years)
Mean Age	39	45
Mean Age Range	29 - 49	29 - 56
Company Service	14	19
Company Service Range	2 - 25	3 - 24
Time in Service (Range)	5 mos. - 1 yr.	1 yr., 9 mos. 4 yrs., 9 mos.

Some interesting differences can be seen in a comparison of their characteristics. The experimental subjects are younger, have less company service, and have been in supervision for a much shorter period of time. One interesting product of the program might be the evaluation of younger people for movement to management which would point to a positive aspect of the program. In other regards, the groups were well matched. The number of men reporting to the supervisors was roughly equal; the types of jobs they held were comparable as were the types of supervision. The hourly people under their supervision did not differ in terms of age and company service.

### Results

The results of this validation might be broken down into two categories, namely, the data dealing with (1) absences within a supervisor's work group, grievances, or visits to the infirmary and (2) results of the interviews. The first category has been shown to be related to supervisory behavior at particular times. Data gathered in category one showed no differences between the experimental and control groups. However, considering the short time in a supervisory capacity for most of the experimental group it is not at all surprising that these data did not reveal any meaningful differences.

The results of the interviews are somewhat different. For the experimental group, every superior expressed pleasure at the performance of the new supervisor; and 10 of the 13 superiors expressed extreme satisfaction with the overall performance of their men. Whenever dissatisfaction was expressed, it dealt, for the most part, with weaknesses in the area of

technical competency. This is, in part, understandable because of the younger ages and less experience of the experimental group. Also for the control group, technical competency was most probably a larger contribution to the total promotion decision. In fact, for many in the control group, technical competency was probably the major contribution to the advancement decision. This would then obviously lead to greater satisfaction with the control group on this dimension.

An analysis of the actual number of positive and negative statements expressed in the interview by superiors and subordinates of the new supervisor revealed the following:

TABLE II

	<u>Superiors</u>	<u>Subordinates</u>	
Positive	30	72	Control Group
Negative	20	20	
Positive	45	105	Experimental Group
Negative	13	30	

The experimental group subjects tended to have more positive statements said about them than the control group subjects. By the same token when one looks at the superiors alone, it can be seen that they tend to be almost twice as negative in the control group as they were for the experimental subjects. In the case of the control group, superiors tend to be proportionately more negative than the subordinates. Overall, most of the comments were rather positive, which supports the earlier overall evaluations the panel members gave. When the negative statements concerning technical adequacy are taken out, the experimental group drops in number of negative statements to 6 for the superiors and 14 for the subordinates. These results must certainly be considered carefully and no conclusions of a definitive nature may be drawn, but they are certainly indicative of a trend.

An additional analysis concerned an evaluation of the areas of weaknesses pointed out by the evaluation panel for the subjects in the experimental group.

In only two of the interviews, supervisory skills that were described as questionable or worse by the evaluation panel were reported as being evident on the job. However, this is not a particularly meaningful area of exploration because of the 13 individuals promoted as a result of the panel only 11 traits were rated in this fashion, 7 on one man.

### Feedback

The interviews with the subjects themselves pointed to two major areas; namely, they liked the program very much (they were promoted partially as a result of it) and they felt that the feedback could be made more meaningful if it contained development recommendations.

### Conclusions

The results of the study can in no way be considered conclusive. The small number of subjects studied, the short time many of them had been in management, and the contamination of the feedback information with the criterion information all provide reasons for caution in interpreting the results. However, some points do appear worthy of note.

Both superiors and subordinates view the promotion, considering the Supervisory Selection Panel results, to be extremely good ones. Whenever critical comments were made, they dealt with lack of technical experience rather than a weakness in the areas viewed by the panel such as organizing and planning, decision-making, and leadership ability.

In the control group, the supervisors promoted before the panel selection program were, by and large, effective. However, in a few cases these superiors were considered by some of the individuals interviewed to have some serious weakness. In no case did this type of comment appear in regard to the experimental group. One possible interpretation might be that the old system provided many good supervisors but the addition of the selection panel information can effectively screen the "poor performer".

A word concerning the supervisor's feelings about the program may be warranted. To a man, the individuals selected by means of the program were extremely laudatory. When considering their comments further, however, certain points were repeated a number of times. They all felt the program gave an individual a chance to prove himself in a fair way; they liked the fact that judgments were a result of a group consensus rather than that of one individual. All considered the day's activities to be difficult but enlightening and the feedback of the information about their strengths and weaknesses to be very valuable. In line with the feedback issue, a few points are worth mentioning. The first is that the participants felt, for the most part, that the feedback could have considered their strengths and weaknesses in somewhat more detail and provided developmental recommendations. This is especially important since development is a very important aspect of the program and only 2 men of the 13 are doing anything about correcting weaknesses pointed out by the feedback. This is definitely an area of concern in regards to the total program. The manner of feedback varied; but with the exception of that specifically mentioned above, the developmental information desired, and the speed of the feedback after completing the panel program, the participants were well satisfied.

Overall, the program was extremely well received by everyone with the exception of a very few individuals, mostly hourly people, who felt that technical competency should play a greater role in the selection procedure. Obviously, it can never be discounted completely and is still an important consideration for many jobs, and perhaps this information might be communicated to some of the hourly personnel. The quality of individuals selected by means of the panel was very good.

## DISCUSSION AND COMMENTS

### Costs

A program of this type which consumes the time of key managers and candidates for several days is expensive. Initially, in training the 18 panel evaluators, a period of five man days per panel member was expended. To date, a total of 10 panels have been conducted with 60 people being evaluated, 19 of whom have been promoted. Each panel session involves in excess of 160 hours of key managers' and candidates' time. Generally, the program is considered well worth the expenditure; however, additional experience will be required before a more solid evaluation study can be conducted. The 18 trained panel members uniformly indicated that their initial training was one of the best individual development programs that they had ever experienced in their work careers. Subsequently, their exposure to live panel exercises has, according to them, increased their capabilities as managers.

### Problems

Several problems were anticipated at the outset of this program; however, few have materialized. Some were mentioned for possible value to others considering the assessment center concept. One nagging question was what to do with the man who goes through the exercise, makes a satisfactory showing, and then is not eventually promoted. In response to this, evaluated candidates were placed in a pool mentioned previously. When a requisition for a new supervisor was approved, it was a matter of policy that candidates in the pool were reviewed first. This process assured the individual maximum exposure and consideration. We were also concerned about the effect on the individual of a poor panel evaluation. We feel that this problem was adequately handled by ensuring that the evaluation feedback to the employee was very methodically conducted so as to eliminate both the halo complex of the well-doer and the defeatist complex of the poor performer. Apparently, an excellent guard against problems of good-bad candidate comparison is the program itself. It has now been accepted as being competitive and, above all, fair. Thus, it is generally accepted by the participants and their work associates that poor performance is the fault of the individual and not of the system.

There were also questions as to the applicability of the program to evaluating individuals with different academic training. Experience has proved that the make-up of this program and the simulated exercises are applicable to various academic levels. A college degree is no guarantee of success in the program.

Recapitulation

The apparent success to date of this program has hinged upon several major considerations. The inadequacy of past selection practices was clearly recognized before the new approach was suggested. Key line managers participated in the setup, evaluation, and actual administration of the program. Some of the earliest promotees have been very successful. As a result, the program appears at this time to be implanted firmly as a key factor in manpower selection and development at the Oak Ridge Gaseous Diffusion Plant.



## APPENDIX A

## THE SUPERVISOR'S JOB

A person who is responsible for supervising the work of other people has a job consisting of several integrated elements or functions. He performs as:

1. A leader;
2. A business manager;
3. A teacher;
4. A communicator;
5. An employee relations manager; and
6. A team captain.

As a leader, he establishes a relationship of trust, confidence, and respect between himself and the employees for whom he is responsible so that he can effectively direct their efforts to meet his unit's production, cost, and safety goals. He determines his unit's personnel and skill requirements, assigns work, checks performance as to quality and quantity, recommends promotion or demotion, and takes appropriate action to assure reasonable conduct at the work site. He sets an example which casts credit on himself and the company through his competence, direction, trust, commitment to the company's objectives, and his loyalty to the company.

As a business manager, he searches for better methods and greater conservation of personnel, equipment, and supplies in order to reduce costs, prevent accidents, and improve the quality and quantity of his unit's performance.

As a teacher, he instructs employees or sees that training is given them so that they can perform their work more efficiently and safely. He informs his supervisor about an employee's abilities which would make the employee a likely candidate for promotion or training opportunities. He encourages employees to improve their skills on their present jobs and to develop their potential abilities to qualify for promotional opportunities.

As a communicator, he informs employees of company policies, benefit plans, rules of conduct, standards of production and safety, and other actions by the company affecting employees or of interest to them. He interprets or secures interpretations of these matters for employees. He encourages two-way communications by seeking or inviting discussions with employees and by maintaining a work environment or relationship in which employees feel free to ask questions or to initiate discussions.

As an employee relations manager, he is sensitive to and reports employee attitudes to his supervisor. He acts to prevent or correct situations which are likely to result in misunderstandings, problems, or complaints. When approached by an employee with a complaint, he tries to resolve it consistent with existing company policies. He recommends changes in company policies with the objective of improving relationships between employees and between employees and the company.

As a team captain, he recognizes that the successful operation of the company and the achievement of its goals are more important than the performance of any one unit or group. He conducts himself and leads his unit of employees in cooperation with other individuals and groups for their mutual benefit in furtherance of the company's objectives.

## APPENDIX B

## BIBLIOGRAPHY

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