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ORGANIZATIONAL ANALYSIS OF THE NAVY
PRIMARY STANDARDS LABORATORY-WEST

by

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A formal analysis of the Navy Primary Standards Laboratory-West (NPSL-W) has been performed to assess two objectives: 1) the strengths and weaknesses of current job design and organizational support systems and 2) to determine the readiness for job design change.

Evaluation of the current job and organizational characteristics have been performed using the Job Diagnostic Survey (JDS), the Job Rating Form (JRF), two feedback sessions and questionnaires.

The results of the data shows that the organization has strengths in its job characteristics. The jobs are worth doing as perceived by the employees. The weakness in the organization comes from the organizational support systems. These weaknesses are exemplified by dissatisfaction with pay, co-workers and supervision.

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Navy Primary Standards Laboratory-West

by

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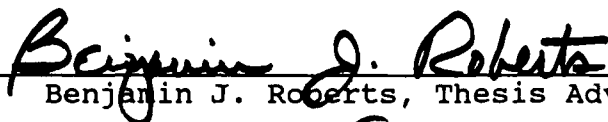
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ABSTRACT

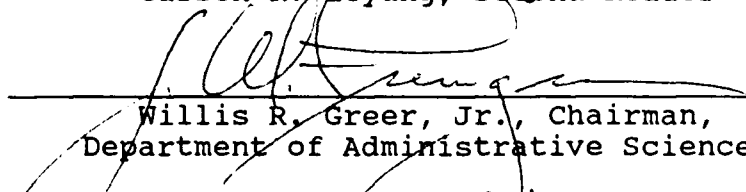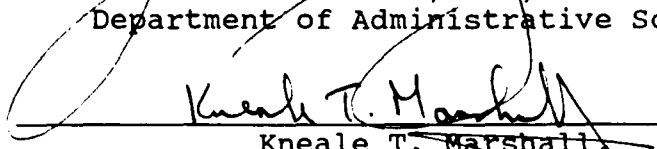A formal analysis of the Navy Primary Standards Laboratory-West (NPSL-W) has been performed to assess two objectives: 1) the strengths and weaknesses of current job design and organizational support systems; and 2) to determine the readiness for job design change.

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I. INTRODUCTION

The Navy Primary Standards Laboratory-West (NPSL-W) has felt the pains of the new work force generation along with the economic impingements felt by the older stabilized work force. The economic force of high inflation during the seventies and the eighties has led to a change in job structure and work attitude at the NPSL-W. In the eighties workers expect to be paid more and to be challenged with "worthwhile" work. The static work force no longer exists; workers now feel the urge to push and be pushed and the management team must respond to these needs if efficiency and effectiveness is to be realized in the organization.

Based upon the aforementioned premise a formal analysis of the NPSL-W is necessary in order to assess the needs of the worker and how those needs can best be met by the organization to promote efficiency and effectiveness. In order to illuminate these characteristics of the worker the Job Diagnostic Survey (JDS) and the Job Rating form (JRF) were given to the work force at the NPSL-W. Also, a pre-JDS interview and two post-JDS feedback sessions were given to the management team and the employees.

The JDS data and the analysis is to support the proposition that a well designed job can promote a high level of effectiveness in the environment of a supportive management

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team that knows of the weaknesses and strengths of job characteristics. The objective is to ensure that appropriate designed jobs are constructed, maintained and supported by the management team.

Therefore, the research questions to be answered by the analysis are:

1. Does the current job design fit the needs of the organization and the employee and is it so designed to induce favorable outcomes to both the employee and the organization.

2. If there is a need for future change in job redesign can management use the data collected by the JDS, JRF and feedback sessions to support realistic job design changes and can it help determine levels of success or failure from this data?

The analysis of job design and redesign is based upon the responses of the employees of the NPSL-W through the JDS, JRF and feedback sessions. A current assessment of the jobs was performed during the time period of February-May of 1986. The number of employees surveyed was 34 out of 45. The department head was excluded from the survey. Four managers were included in the survey, as well as, 30 employees. The analysis will treat the NPSL-W as a complete organizational entity with four major divisions. These major divisions are as follows: 1) Electrical/Electro-optics Standards Division (code 061), 2) Mechanical Standards Division (code 062), 3) Electromagnetics Standards Division (code 065), and 4) Fluids Standards Division (code 066). The Oil and Gas Analysis section (code 06601) is a unit of the Fluids Standards Division. The director of Code 061 is

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now managing both Codes 061 and 065. The data taken will reflect this change and will be denoted as Code 061/065. The NPSL-W is a department of the parent organization the Naval Air Rework Facility (NARF) located at the Naval Air Station North Island in San Diego, California. The NPSL-W is one of nine major departments in the NARF.

The basic research method employed was the use of a well established survey to evaluate job characteristics and process consultation used in feedback sessions with the management team and the employees.

The data from the JDS and the JRF profiles the strengths and weaknesses of the job and organizational characteristics of the NPSL-W. From this data in conjunction with the feedback sessions with the management team and the employees further data was gathered to see if these strengths and weaknesses in the profile were areas of concern. The outcome of further investigation shows there are several areas that needed to be addressed by the management team in order for continued efficient operations and for future job redesign considerations. These areas are: 1) supervisor satisfaction, 2) co-worker satisfaction, 3) feedback from agents (supervisor), and 4) growth need strength (GNS).

In the following section the theoretical framework for the diagnostic model for organizational analysis will be discussed and how it was applied in the analysis of the NPSL-W. The Job Characteristics Model will also be

discussed.   In Section III a literature review in individual behavior   is   reviewed.   Section   IV   covers   pertinent background information concerning the structure and the job characteristics of the NPSL-W.   Section V describes the methodology used in this study.   Section VI presents the data and section VII analyzes the data collected.   Section VIII discusses the conclusions and the recommendations.   The appendices contain a JDS and JRF instrument.

II.   THEORETICAL FRAMEWORK

This section elaborates on both the diagnostic model for the evaluation of an organization to determine its strengths and weaknesses and the job characteristics model to determine the elements and the environment of the job in which it must exist in order to promote motivation, satisfaction, growth and effectiveness.   The Nadler-Tushman Congruence Model [Ref. 1] is used to help diagnose the NPSL-W organization.   The basic model is shown below.
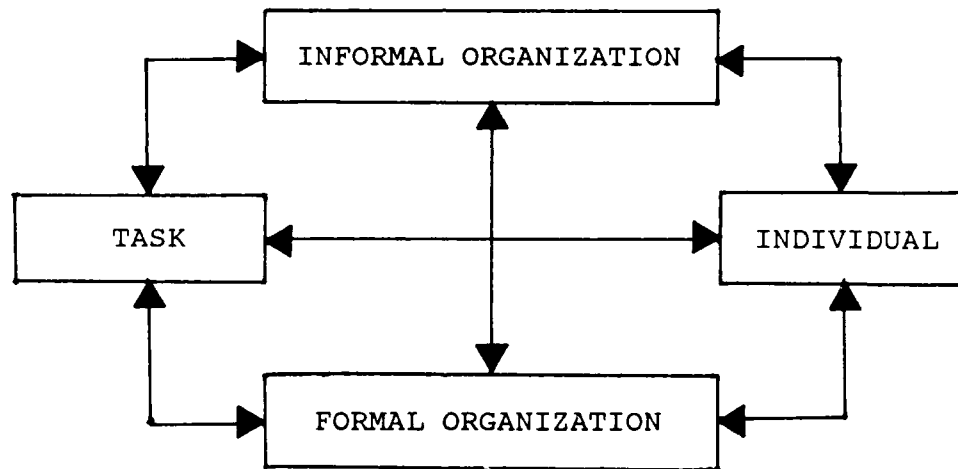
Figure 1.   Nadler-Tushman Congruence Model

The model encompasses six relationships.   They are the following:

1.   task--formal organization

2.   task--informal organization

3.   task--individual

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4. formal organization--informal organization

5. formal organization--individual

6. informal organization--individual

The model suggests that for the organization to be effective and efficient the organization must "fit" or make congruent these six relationships. It will be the purpose of this study to assess the congruence of these relationships. Since these six relationships encompass all pertinent relationships inside the organization the author, based upon the data gathered, found it necessary to focus on the following relationships: 1) task--formal organization, 2) task--individual, and 3) formal organization--individual. It should be noted that the informal organizational element has been deleted from the analysis and methodology. There was insufficient data collected to support a critical analysis of the informal organization but a communications network analysis has been performed to analyze communication links in general.

A. TASK - FORMAL ORGANIZATION

The task--formal organization relationship encompasses the concepts of Information Processing, Contingency Theory, and Social-Technical Analysis.

1. Information Processing

The task in relationship to information processing says that the amount of information will determine the form of the organization. If information is lacking to perform

the task the organization must respond to accommodate the missing information. The organization can respond in four different ways: 1) creation of slack resources, 2) creation of self-contained tasks, 3) investment in vertical information systems, and 4) creation of lateral relationships [Ref. 2]. The organization has the option to use a single strategy or a combination of strategies.

2. Contingency Theory

In contingency theory the task is defined such that if the organization is highly differentiated the task will also most likely be differentiated. A highly differentiated task is one that is very specific and highly independent of other tasks. A formal definition of differentiation is as follows:

> Differentiation is defined as the state of segmentation of the organizational system into subsystems, each of which tends to develop particular attributes in relation to the requirements posed by it's relevant external environment, differentiation includes the behavioral attributes of the members of the original subsystem. [Ref. 3:pp. 3,4]

This theory allows the author to look at the affects of the organizational structure and how it affects the task itself.

3. Social-Technical Systems Orientations

Social-Technical analysis states that the task (the technological aspect of the analysis) must be related to the social environment in the organization. If the task is designed with social considerations one may expect a higher quality product and a higher productivity level. [Ref. 4]

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This analysis allows the author to develop a relationship between the formal organization and the task in such a way as to help evaluate the formulations of coalitions and cliques and its affect on productivity.

If the formal organization does not allow for social considerations and constraints are placed on the task adverse outcomes concerning organizational output could be realized.

B.   TASK--INDIVIDUAL

The task--individual relationship is one of the most important aspects of the organizational analysis that is to be performed.   In this section the Job Characteristics Model (JCM) is analyzed along with its companion instrument the Job Diagnostic Survey (JDS).

1.   Job Characteristics Model

The basic analysis of the Job Characteristics Model was developed by G.R. Oldham and J.R. Hackman [Ref. 5]. The model is shown in Figure 2 and the discussion follows.

a.   Critical Psychological States

The model has three critical psychological states that must be met to realize the derived outcomes from the model.   These states are: 1) experienced meaningfulness of work (EM), 2) experienced responsibility for the outcomes of the work (ER), and 3) knowledge of the actual results of the work activity (KR).   These states are difficult to

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CORE JOB ━━━━━━━━━━▶   CRITICAL ━━━━━━━━━━▶   OUTCOMES
CHARACTERISTICS           PSYCHOLOGICAL
                          STATES


Skill Variety              Experienced               High internal
                           meaningfulness            work motivation
Task Identity        ━━▶   of work

Task significance


                                                     High " growth "
                                                     satisfaction

                           Experienced
Autonomy             ━━▶   responsibility      ━━▶
                           for outcomes
                           of work                   High general
                                                     job satisfaction


                           Knowledge of the
Feedback                   results of work           High work
from job             ━━▶   activities                effectiveness



                        MODERATORS
        ▲                                         ▲
        │      1.   Knowledge and Skill           │
        └──────2.   Growth need strength ─────────┘
               3.   "Context" satisfactions
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Figure 2.   Job Characteristics Model

measure because they are internal to the person. What is needed are objective and measurable properties of the work itself that create these psychological states.

b. Core Job Characteristics

There are five core job characteristics that are the objective measures of the three critical psychological states. The five core job characteristics are skill variety (SV), task identity (TI), task significance (TS), autonomy (A), and feedback from job (FBJ). Skill variety, task identity and task significance are all related to the psychological state of experienced meaningfulness of work. Autonomy is related to the psychological state of experienced responsibility for the outcome of the work. Feedback from job is related to the psychological state knowledge of the actual results of the work activity.

c. Moderators

Since the job itself does not exist in a vacuum, external influences affect this model. The following moderators will greatly affect the outcomes of this model.

(1) Knowledge and Skill Level. These two moderators must exist in order for the individual to be able to meet the challenge and complexity of the job and to be able to succeed.

(2) Growth Need Strength (GNS). This moderator must be high in individuals in order for them to have the

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internal motivation to accept higher levels of challenge and complexity of the job.

(3) "Context" Satisfaction. These satisfactions: pay, growth, co-worker, security, and supervision must be in consonance with the core job characteristics. Any one of these moderators can affect the outcome of any job, therefore, these moderators must exist and contribute positively if there is to be potential for success.

d. Outcomes

The outcomes of this model are: 1) high internal work motivation, 2) high "growth" satisfaction, 3) high general job satisfaction, and 4) high work effectiveness. To measure the potential of success of these outcomes a figure of merit has been formulated it is called the "motivational potential score" (MPS).

The MPS is an over-all figure of merit for how well the job characteristics are perceived by the employee to be considered acceptable conditions for work. The MPS is formulated by the following relationship.

$$MPS = \{[SV + TI + TS]/3\} \times A \times FBJ$$

This relationship is heavily weighted by the variables autonomy and feedback from the job. If either of these variables is zero the MPS goes to zero. Whereas, the variables SV, TI, and TS only affect the MPS by one-third. A high MPS score implies that the job perceived by the

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employee can in itself induce motivation, satisfaction, growth, and effectiveness.

e. Problems with the JDS Model

Some problems associated with the Job Characteristics Model are: 1) the linkages (relationships) between the five core dimensions and the three critical psychological states are not empirically independent, 2) autonomy is the least independent and correlates highly with the other core dimensions, and 3) feedback is confounded by the fact that feedback is generated by more than the job itself (supervisors, co-workers, work environment). [Ref. 6]

Other researchers [Ref. 7] have found that occupational levels moderate job characteristic relationships, as well as, whether one lives in a rural or urban areas.

2. Job Diagnostic Survey (JDS)

The Job Diagnostic Survey was derived from the Job Characteristics Model [Refs. 5, 6]. The JDS is a widely used and accepted perceptive instrument used to evaluate job characteristics. (see Appendix A for the complete survey instrument). In the following paragraphs: use, problems, complexity, and construction of the JDS will be discussed along with the Job Rating Form (JRF).

a. Use of the JDS

Some uses for the JDS are as follows: 1) diagnosis of a job being considered for redesign, 2) to

determine existing potential of job engendering internal work motivation, 3) identify specific job characteristics that are in need of improvement, 4) assess the readiness of employees to respond positively to work enrichment, 5) evaluate the effects of changed (pre-post)job enrichment, and 6) evaluate the effects of changes on motivation and growth and growth need strengths. [Ref. 8]

b. Problems with the JDS

The JDS must be used with caution; it can easily be faked and should be used anonymously. The JDS should be used with other data collection systems in evaluating change efforts. The JDS does not assess the level of employee skill or knowledge. What it does assess is the job characteristics themselves. One should be conservative when drawing conclusions from data derived from use of the JDS. It is highly recommended that the JDS be used as a part of a more complete system analysis of a job design or assessment effort.

c. Complexity of the JDS

The complexity of the JDS has been analyzed by its authors. The reliability of the JDS has been proven to be about 70% for each one of the categories in the core job characteristics. The model has been validated three different ways: 1) zero-order correlation, 2) partial correlation and multiple regression, and 3) test of the degree to which employee's reaction to their work is

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moderated by the individual growth need strength as specified by the model.

The motivational potential score (MPS) has been modeled five different ways. All tests had insignificant differences. The combination multiplicative/additive model was chosen to show the relative impacts of the effects of autonomy and feedback from the job. Other researchers have found that the additive model had given better results consistently [Ref. 9].

d. Construction of the JDS

The JDS has 83 questions in seven parts covering 21 categories. Redundancy is built into the survey. Certain categories are supported by only two questions such as pay and job security satisfaction. Reverse scoring is utilized, as well as, change of scoring scale. The basic scoring scale is 1 to 7. Seven being the most desired outcome.

3. Job Rating Form (JRF)

The JRF is essentially the first two parts of the JDS. It has 21 questions and covers 7 categories. The use of the JRF is such that the technician and engineer evaluate their supervisor's job and the supervisors evaluate their subordinate's job. The JRF is usually performed in conjunction with the JDS. The JRF allows the employee to

evaluate another's job based upon the employee's perception of that particular job.

C. FORMAL ORGANIZATION--INDIVIDUAL

The formal organization--individual relationship is analyzed based upon the following aspects: feedback, education, participative decision making, event-structured analysis, group size, and self-actualization.

1. Feedback

Feedback is a form of decreasing the incongruence between the formal organization and the healthy individual. C. Argyris points out that a "favorable change in employee morale is proportional to feedback" [Ref. 10:p. 185]. Feedback reduces uncertainty in the job and helps the employee to better evaluate how he or she is actually doing on the job. This also helps the employee to maintain a healthy mental attitude about one's job.

2. Education

Education affects the individual in the organization in a sense that higher education levels require higher pay and more job challenge and complexity. If the organization does not meet this requirement dissatisfaction occurs and high turnover rates are likely. Higher education in workers implies higher expectations in rewards and job perceptions [Ref. 11].

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3. Participative Decision Making

Individuals with a need for high independence and a low need in authoritarianism will actively seek out participative decision making processes and will most likely increase their productive output. [Ref. 12] The organization must be aware of the these needs and the types of employees that it has in its work force. The organization must evaluate the characteristics of the employees in order to determine if the employees can indeed participate effectively in participative decision making. Analysis of employees may determine that participative decision making may not be all that effective in promoting good job performance. Those employees found to be authoritarians and with weaker independence needs may not benefit from participative decision making.

4. Event-Structure Analysis

Event-structured analysis is based upon the concept of "trend-cycles or trend structures" which refers to what the individual is "characteristically trying to do." The individual has many trend cycles and these form trend systems. Closure completes the cycle and generally satisfaction occurs since this is what the individual wants to do. "How hard" the individual is trying to achieve closure in a trend cycle indicates an energy level. This level relates to the individual the strength of his attitude toward the trend system. If the individual has a strong

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trend to work with others and the organization allows this situation to occur, closure of the trend cycle is very probable. [Ref. 13]

The organization must fit the work structure to these trend cycles so that the individual will feel "suited" to his or her line of work. If the organization fits the job structure to the trend cycle the individual will most likely feel greater satisfaction and liking for the job than those "unsuited" for that same job.

5. Group Size

Group size is a consideration the organization must be aware of if effective levels of production are to be maintained. There are three elements that the group depends upon to determine how well it performs the task:demands, resources, and process [Ref. 14]. The group size greatly affects the process element. If we look at the following equation we can see the negative effect it has on productivity.

Actual productivity = potential productivity - process losses

The emphasis on size indicates that the process losses are due to increasing size of the group. Simply, "too many cooks spoil the broth."

This is not to say that increasing the size of the group is all bad. Up to a certain point productivity will increase with an increase in group size. After a critical point production output will diminish and the process losses will increase at an accelerating rate . See Figure 3.
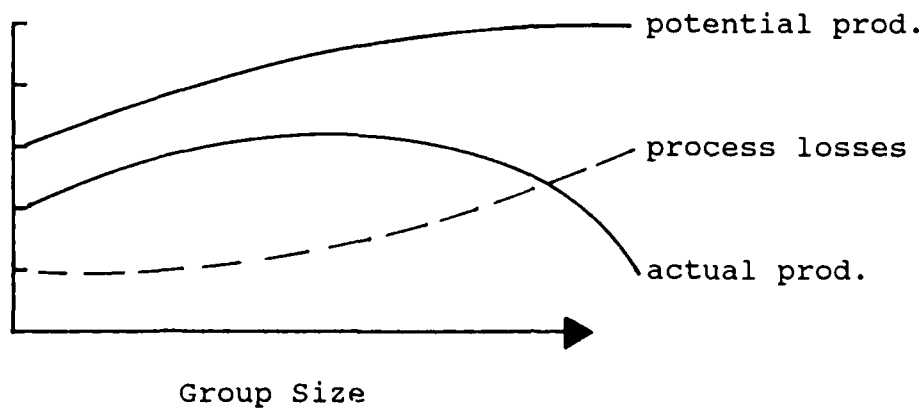
Group Size

Figure 3. Productivity And Group Size

Specific concern to this analysis is the dyad. The dyad has group size of two. The organization should be aware of this relationship because of the peculiar nature of the dyad. The dyad tends to be very neutral when it is confronted with conflict. Each member tries to avoid expressions of disagreement or antagonism and this action hides the true nature of the relationship between the workers in the dyad. Each worker is highly dependent on the other for success.

6. Self-Actualization

Self-actualization of the employee through leadership and job enlargement is necessary to cope with today's new work force. The organization must be aware of the new work force generation needs for self-fulfillment and self-control in the work area. The organization must train all supervisors to be employee-centered. For a supervisor to be employee-centered his supervisor should also be employee-centered, etc, etc [Ref. 10:p. 81]. In job enlargement schemes, the job must not only be enlarged technically but also mentally. The employee must be given tasks that are important to him or her and with more personal control over these tasks if self-actualization is to occur.

III. LITERATURE REVIEW

In the search for understanding the Job Characteristics Model (JCM) the following theories and views are discussed in order to support the analysis of the data taken from the JDS and the feedback sessions and questionnaires. The author believes that the JCM can be analyzed with different points of views and that the literature review contains only those references pertinent to the present study.

The following theories have been reviewed: 1) Expectancy Theory, 2) Equity Theory, 3) Network Analysis, Contingency Theory (Integration), 4) Growth Need Strength (GNS), and 5) Herzberg's Theory.

A. EXPECTANCY THEORY

Expectancy Theory gives the author a view of the individuals in the work place such that each individual should be analyzed in the following view, " different people have different needs, desires and goals and that they make decisions based upon these perceived behaviors" [Ref. 15]. From this basis the organization must be aware of the perceptions and expectancies that each individual has developed. Most managers rely on their own perception about the behavior of their employees. These perceptions may lead to inaccurate decisions concerning the employee's behavior. To determine how the employee perceives the organization and

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his or her job the manager must _ask_ the employee how he or she feels about the organization and the job.

The function of the manager should encompass the following: 1) determine employee values, 2) set reachable goals, 3) explicitly link desired employee's outcomes to specific performances desired by the manager, and 4) minimize conflicting expectancies. Each employee relates his effort through performances to a specific outcome, the organization must be aware of this relationship if it is to maintain organizational efficiency and effectiveness.

B. EQUITY THEORY

Equity Theory addresses social comparisons between individuals and others. This analysis is based upon a perceived input and output ratio. (OUTPUT/INPUT). It is necessary for the organization to be aware how the employees rate themselves. The more the employees feels that there is agreement in what they perceive about their inputs and their outputs on the job to others the less dissatisfaction there will be in the work place.

It has been found in research that the magnitude of tension should be proportional to the magnitude of the inequity [Ref. 16]. If the employees perceive that there is an inequity they will seek ways to reduce it such as: 1) leaving the job, 2) change their inputs, 3) change their outputs, 4) distort the inputs and outputs to their

advantage, 5) change the comparison to their advantage, and 6) try to change the "other" in the comparison.

Equity Theory places the notion "a fair day's pay for a fair day's work" in the open for analysis. The problem is what defines a "_fair_ day's work? " or a "_fair_ day's pay?" since these are both perceptions of the individual. The organization must be aware of this dilemma that the individual and the organization face. In the area of rewards this theory has definite application and tries to answer the question " are the rewards in consonance with the effort " [Refs. 17, 18]

C. NETWORK ANALYSIS

This approach affords the author to look at existing networks of communication among the employees. The approach systematizes the data gathering and if supported by computer based algorithms can provide information in the following ways: 1) provide over-all perspective of the organization, 2) differentiate among organizational multiple networks (emergent networks from prescribed ones), 3) cluster data defining relationships in the organization, 4) provide standard measures, 5) relates the individual to the larger social structure, and 6) forces the relationships of the informal system. [Ref. 19]

The network analysis can assist in the analysis of the organization in such a fashion that it can help determine

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how the work and communications are performed in the organization via the emergent and prescribed networks.

D. CONTINGENCY THEORY (INTEGRATION)

The aspect of the integration must be addressed to complete the usefulness of the Contingency Theory. If the organization is highly differentiated, as discussed in the previous section, a conflict arises in that "who will bring the segmented groups back together to make a useful whole since the groups want to be separate in the first place." The integrator or an integrating system is the approach provided by the theory. If an organization is highly specialized and the differentiated groups need to assist one another to complete a product then an integrator or an integration system is needed.

An integrator must be aware of common goals, problems and have an interpersonal orientation between those groups they link. They must also have a high influence in the decision making process based upon their professional expertise, knowledge, trust and formal position [Ref. 20]. The integrators are the individuals or the systems that unites the differentiated groups to create a synergistic reaction.

E. GROWTH NEED STRENGTH (GNS)

This concept is enlarged from the previous section. High GNS is congruent with the organization when the

following conditions exist: 1) the organization is organic (that is, the organization is decentralized, adapts to a changing environment easily, and has a high level of lateral communication), 2) jobs are enlarged to challenge the employee, and 3) if the individual also has a high social need strength with a high GNS then the organization must provide self-regulating work groups. [Ref. 21]

High GNS is a very necessary condition when considering job redesign that involves jobs that are more complex and challenging. If the individual has a low GNS the organization should not challenge the employee with a more complex job; failure is more likely to occur if this happens.

GNS can be moderated by the type of job one has and how long one has done that job. "Most need theorists and researchers agree that many important needs, goals, and motives are learned" [Ref. 22]. Many jobs held for a long period of time may lower the GNS of an employee if the job has not been challenging and stimulating. In other words, the job gets to be boring.

F. HERZBERG THEORY

Herzberg's Theory is used to support the internal motivation theory and the effects of moderators used in the Job Characteristics Model. Herzberg states, "man has two sets of needs, his need as a animal to avoid pain and his need as a human to grow psychologically". [Ref. 23]. Obtaining data via the critical incident method on a study

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done on two hundred accountants and engineers Herzberg derives the relationship between man and his work through sixteen first level-factors. These sixteen factors consist of six motivators (intrinsic job factors) and ten hygiene factors (extrinsic job factors). Herzberg states that the motivators can bring great job satisfaction while the hygiene factors can bring only moderate satisfaction and great dissatisfaction. Motivators are defined as achievement, recognition for achievement, work itself, responsibility, advancement, and possibility of growth. Hygiene factors are defined as supervision, personal life, company policy, working conditions, salary, job security, and interpersonal relations with peers, subordinates and superiors. This theory manifests the need for the organization to support the hygiene factors for successful operations.

IV. BACKGROUND

The Navy Primary Standards Laboratory-West (NPSL-W) formerly known as the Western Standards Laboratory (WSL) has been in existence for over 26 years. The laboratory is the highest echelon calibration facility in the Navy. Its function is to maintain and disseminate standards that are directly traceable to the National Bureau of Standards (NBS) to the United States Navy. NBS maintains and disseminates standards for the United States.

NPSL-W is responsible for certification of all primary standards west of the Mississippi and in the pacific area. Its sister laboratory the Navy Primary Standards Laboratory-East (NPSL-E) located in the Washington Naval Ship Yard in Washington D.C. is responsible for certification of primary standards east of the Mississippi and the Mediterranean area and England.

The department head located at NPSL-W is responsible for both laboratories. The Navy Primary Standards Department (NPSD) is the official name of the complete organization that represents both laboratories. Both laboratories are part of the Naval Air Rework Facility (NARF) North Island. Each laboratory had been a separate organization operating independently from each other until they were consolidated in the mid-seventies.

Two major areas of discussion focus on 1) the structure of the organization and its effects on management and 2) the job characteristics of the non-managerial employee.

A. STRUCTURE OF THE ORGANIZATION

The structure of the organization (NPSL-W) was initially composed of two divisions and one department head (GS-15). (see Figure 4). Each division had a division director (GS-14) and a project engineer (GS-13). This structure lasted until 1982 when four divisions were created. Now, each division is managed by single division director (GS-13). (see Figure 5). Assisting in the managerial duties are collateral duty members of each division who volunteer to be division relief. The relief takes over the operation of the division in the absence of the division director. Also, GS-12 senior level technicians are responsible for work flow control in the laboratory and GS-12 senior level engineers are responsible for research and development and analysis of new system or projects.

Manpower levels have increased about only 30 percent in the last 26 years. The initial manpower level was about 36 and today the work force level is 47.

In the initial structure that existed before 1982 all of the managerial functions were performed by the division director and the project engineer. All customer phone calls were handled through the division director or the project engineer. If a technical response was needed from the

customer the person on the bench doing the actual
certification of the standard was used only to relay the
information to the project engineer or the division

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                      ┌──────────────────────┐
                      │   DEPARTMENT HEAD     │
                      └──────────────────────┘
          ┌──────────────────────┴──────────────────────┐
┌──────────────────────┐                      ┌──────────────────────┐
│   DIVISION DIRECTOR   │                      │   DIVISION DIRECTOR   │
│       (GS-14)         │                      │       (GS-14)         │
├──────────────────────┤                      ├──────────────────────┤
│   PROJECT ENGINEER    │                      │   PROJECT ENGINEER    │
│       (GS-13)         │                      │       (GS-13)         │
└──────────────────────┘                      └──────────────────────┘
┌──────────────────────┐                      ┌──────────────────────┐
│   BRANCH HEAD #1      │                      │   BRANCH HEAD #1      │
│   BRANCH HEAD #2      │                      │   BRANCH HEAD #2      │
│       (GS-12)         │                      │       (GS-12)         │
└──────────────────────┘                      └──────────────────────┘
```
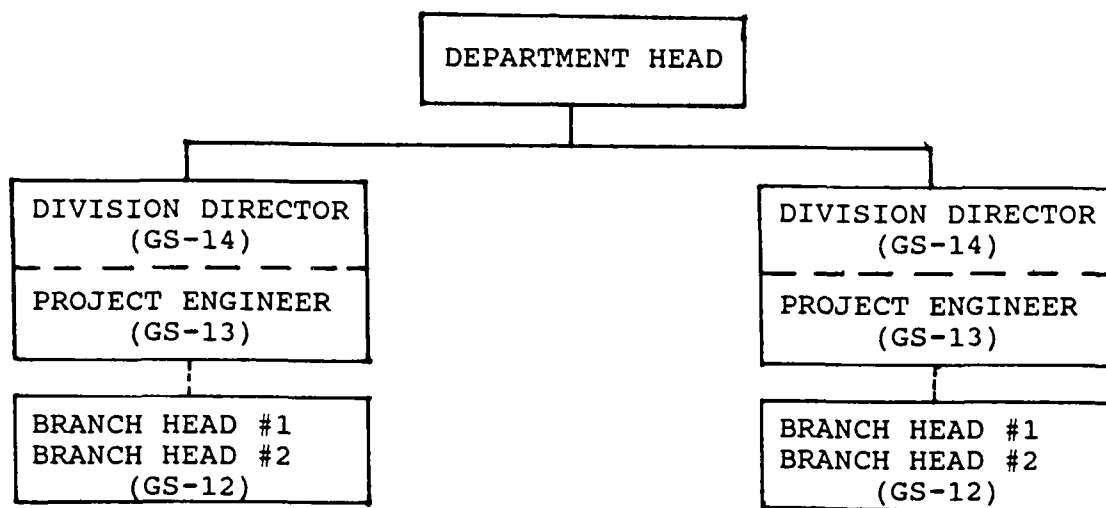
FIGURE 4. Organization Before 1982

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                      ┌──────────────────────┐
                      │   DEPARTMENT HEAD     │
                      └──────────────────────┘
┌─────────────┬─────────────┬─────────────┬─────────────┐
┌───────────┐ ┌───────────┐ ┌───────────┐ ┌───────────┐
│ DIV DIR #1│ │ DIV DIR #2│ │ DIV DIR #3│ │ DIV DIR #4│
│  (GS-13)  │ │  (GS-13)  │ │  (GS-13)  │ │  (GS-13)  │
└───────────┘ └───────────┘ └───────────┘ └───────────┘
┌───────────┐ ┌───────────┐ ┌───────────┐ ┌───────────┐
│  SENIOR   │ │  SENIOR   │ │  SENIOR   │ │  SENIOR   │
│ TECH/ENGR │ │ TECH/ENGR │ │ TECH/ENGR │ │ TECH/ENGR │
│  (GS-12)  │ │  (GS-12)  │ │  (GS-12)  │ │  (GS-12)  │
└───────────┘ └───────────┘ └───────────┘ └───────────┘
```
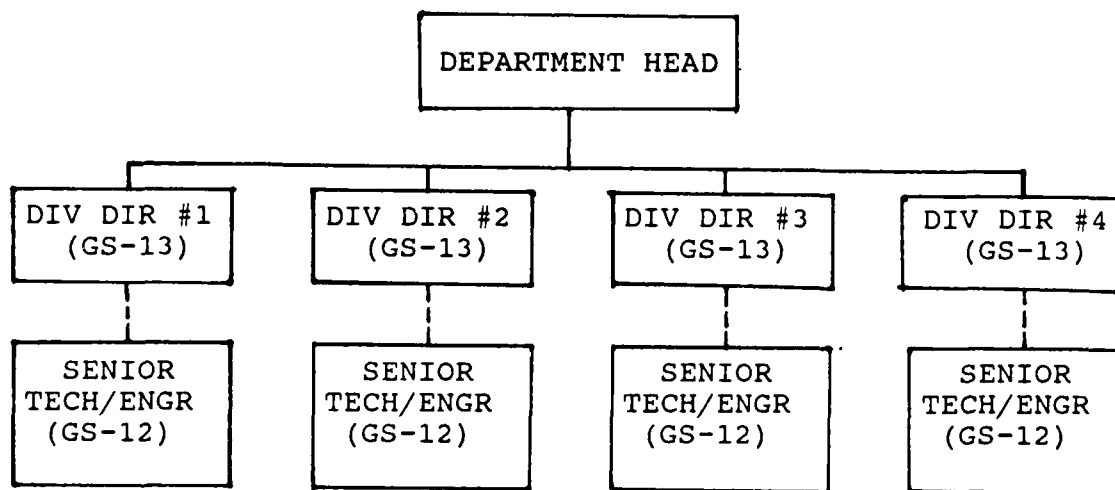
FIGURE 5. Organization After 1982

director. All the decision making ability about fulfilling the customer needs were done in the division director's office. All resource requirements and management of the laboratory operations were done either in the department or division office. Some decision making was done in the laboratory by GS-12 level engineers and technicians. Each division had two quasi-branches headed by a GS-12 but the GS-12's did not have any real decision making power. (see Figure 4 dotted lines). The GS-12 had responsibility but no formal authority. These GS-12's mainly monitored the work flow in their branches in the laboratory. Most of the individuals in the laboratory monitored their own work loads in conjunction with the GS-12 and controlled most of the work flow in their own areas. Most of the employees work independently as each have their own work specialty.

In 1982 the structure of the organization changed to four divisions with each division having a single division director to manage it. The project engineer position was abolished. The management tasks had been filtering down to the bench level employees due to prior restructuring of positions and lowering of grade levels based upon the redefinition of positions. The project engineer position had become a political football and was very unstable. The employees at the bench level had to make up for the insta-bility in the project engineers position in order for the laboratory to maintain continuity in its daily operations.

In 1980 the creation of the senior position at the GS-12 level helped alleviate some of the managers customer interactions by putting the responsibilities of customer interactions and support of work flow control in the new Position Descriptions of the senior positions. (See Figure 5 dotted lines) The evolution of customer support by the non-managerial employee began without the compensation of a job description to accommodate the effort needed to support the added effort of customer service. This had made laboratory operations less effective. Now, employees have as a part of their Basic Performance Appraisal Program (BPAP) a critical element that they are rated on that says they perform customer service and support. Customer support can be related to the number of phones that the laboratory currently has, which is about 26. Prior to 1980 there were about ten phones. Most of the inquiries from the customers are now handled by the person responsible for the certification of the standard.

There has been a dilution of the engineer and technician positions since the beginning of the laboratory. Certification work has put the engineer and the technician side by side on the work bench. This problem is approached in he next section.

B. JOB CHARACTERISTICS AT THE NPSL-W

The focus will be on the non-managerial job positions. All the jobs in the laboratory are either filled by techni-

cians or engineers. Since the beginning of the laboratory engineers and technicians have worked side by side in the work areas. The job function of certification of standards was done by either. Also, the function to modify, maintain and use certification systems was common to both jobs. Both were rotated through the same certification systems and both were evaluated by the same criteria. Their work was based upon the quality and the timeliness of the certifications.

This commonality was challenged in 1980 by a group of GS-11 technicians. During this time the engineer pay scale had a premium rate for the GS-11 engineer of about three steps on the regular pay scale. This meant that the engineer was getting from two to three thousand dollars more a year than the technician at the same rate. The technicians thought that this was a great pay inequity since they considered that they were doing the same work as the engineers.

The managerial solution was to create the senior technician positions at the GS-12 level. This put the "senior technicians" on the same pay scale as the engineers. The engineer pay scale at the GS-12 level was now on par with the regular pay scale since the premiums no longer applied at this pay level. Though this alleviated the pay inequity it did not alleviate the basic commonality in the job characteristics. Both groups still do the fundamental certification of standards. Progress in job

differentiation has been made in the area of job enlargement. The senior technician jobs have been enlarged to include workload control and the senior engineer jobs include more research and development and analysis. The current management team is in the process of trying to enhance the differentiation of these jobs.

The author has recently reviewed revisions of the BPAPs for the engineers and the technicians and has found that the engineers are now characterized by more R&D efforts and project work verses certification work while the technicians still have a small portion of their job (10%) doing R-D efforts. This ten percent of R-D effort is a necessary part in the justification of the GS-12 senior technician job. Presently, this condition has to exist in order to maintain the senior technicians positions.

The situation that the organization must face is the following: " does the organization need to develop and support positions of pure engineering work to differentiate the engineer from the technician or does the organization live with the convoluted job characteristics of the engineer and the technician?" This has important implications for future job design and organizational structure.

V. <u>METHODOLOGY</u>

The methodology employed to gather data from the NPSL-W included group feedback sessions, standardized survey instruments (JDS/JRF) and questionnaires. The author has been a member of the organization since 1970 and is a current member of the management team (the author is the director of the Electromagnetics division, code 065). Permission to perform the surveys and to question the employees was obtained through top management (the department head).

The author recognizes that his relationship with the organization has certain complications. This was a concern noted by all employees and the author tried to neutralize this effect by utilizing process consultation and feedback techniques. The power relationship could not be avoided. The author insured that when talking to the employees that no other manager would be in the room (this was inadvertently done with the first feedback group). Also, the author asked the employees to view him as an outside consultant or as a student working on his thesis. This would help him appear as neutral as possible to the group.

The outcome of the above explanation and the author's rapport with the employees in the past "opened" the lines of communication, apparently. Apparently, because one will

never know how freely the flow of information could or would have been if the consultant had not been part of the management team. There had appeared to be a free exchange of information between the author and the employees. This is supported by the following response of one of the non-managerial employees "things I said to you (author) I probably would not have said to my supervisor."

The following is the sequence of the data gathering process.

A. INTERVIEW MANAGEMENT TEAM

A phone call to the department head asking permission to begin the organizational analysis was done in December 1985. Permission to begin the analysis of the organization was given. During the month of December a two day meeting with the management team was performed. The major topics that were to be discussed are as follows: management development, functions of the NPSL-W, differences between the engineer and technician duties, and changes in the organization to meet the current organizational needs.

The major items that were revealed from this meeting were the following: lost of image as being "the best standards laboratory in the navy" due to the rotation in the department head's position, lack of direction (apparent) from the systems commands, lack of consensus of what is the NPSL-W's mission and function, the difficulty of trying to tie the NPSL-W's mission to a weapon system for the

justification of dollars, and historically there has been no real difference in the job functions between the technicians and engineers on the bench, which has been a noted problem in the past.

These meetings set the stage for further analysis. It was evident that the management team had global concerns about the organization as a whole. The author's decision was to focus on the intra-structure of the organization. This would build a foundation for further investigation in the future.

B. JOB DIAGNOSTIC SURVEY

To look at job and organizational characteristics a JDS was given. The JDS would give a profile of the jobs as perceived by the employee and profile the perceptions of the employee about the organization (see Appendix A). Prior to the administration of the JDS a memo (see Appendix D) from the department head was given to all employees stating that this would be voluntary and anonymous. The JDS profiled the jobs and the organization perceived by the employee through 21 categories. See Table 1.

TABLE 1

JDS CATEGORIES

CATEGORY	ABBREVIATION
1. SKILL VARIETY	SV
2. TASK IDENTITY	TI
3. TASK SIGNIFICANCE	TS
4. AUTONOMY	A
5. FEEDBACK FROM JOB	FBJ
6. FEEDBACK FROM AGENTS	FBA
7. DEALING WITH OTHERS	DWO
8. MOTIVATIONAL POTENTIAL SCORE	MPS
9. EXPERIENCED MEANINGFULNESS	EMW
10. EXPERIENCED RESPONSIBILITY	ERW
11. KNOWLEDGE OF RESULTS	KR
12. GENERAL SATISFACTION	GES
13. INTERNAL WORK MOTIVATION	IWM
14. PAY SATISFACTION	PS
15. JOB SECURITY SATISFACTION	JSS
16. CO-WORKER SATISFACTION	CWS
17. SUPERVISORY SATISFACTION	SS
18. GROWTH SATISFACTION	GRS
19. "WOULD LIKE" GNS	WL
20. "JOB CHOICE" GNS	JC
21. "TOTAL" GROWTH NEED STRENGTH	GNS

C. JOB RATING FORM

In conjunction with the JDS the Job Rating Form (JRF) was also given at the same time. (See Appendix B.) The JRF was used to allow the subordinate to rate how they perceived their supervisor's job, as well as, allowing the supervisor to rate in general their subordinate's job. Code 061 director rated the subordinate jobs in both code 061 and in code 065. At the same time the engineers and the technicians of both Codes 061 and 065 rated the code 061 director.

D. QUESTIONNAIRE #1

After both the JDS and JRF were given six open-ended questions were asked. These questions were put on a board for everyone to see. The answers were to be written on the backs of the JDS/JRF form. The questions asked were the following:

1. What are your likes/dislikes of your job?
2. What do you think of your job opportunities?
3. Do you feel the BPAP fits your job?
4. Do you feel the PD fits your job?
5. Are you satisfied with your job?
6. Anything you want to say about the job or the other job?

BPAP stands for basic performance appraisal program. It is the rating system used by management to assess the performance levels of the employees.

PD stands for position description. This document states the competencies for a particular job and the level it is to be performed.

The JDS/JRF and the questionnaire were administered in the laboratory with all participants in a single room. Basic instructions were given by the author to the group and the author was available to answers any questions about the survey as the survey was taken. The JDS/JRF and the questionnaire were given in February 1986.

E. FEEDBACK SESSION

In March 1986 a four day feedback session was held at the NPSL-W. The first session was with the management team, it covered all the data previously taken. The following sessions were with each individual division covering only their data in detail with a general over view of the whole laboratory's response. The office and the staff were also handled separately. In the sessions the Congruence Model and the Job Characteristics Model were explained to the employees. The author displayed the data with view graphs showing the profiles from the JDS/JRF data and responses from the questionnaire. After the data was displayed the author utilized process consultation and feedback techniques to invoke added response from the employees.

F. QUESTIONNAIRE #2

In May 1986 a second questionnaire and feedback session was administered at the NPSL-W. The questionnaires were given in two parts. The first part was focused on areas of concern based upon the JDS/JRF and questionnaire #1 data. The questionnaire was administered through the division directors. (See Appendix C.) The questionnaire consisted of the following questions:

1. What specific action(s) create dissatisfaction between you and your supervisor? Why? (If none, state so.)

2. What specific action(s) create dissatisfaction between you and your co-worker(s)? Why? (If none, state so.)

3. Does my job require me to work by myself without interaction with others? (What percent of my job does not involve other people, percent of time work with others, percent of time work alone?)

4. Am I paid fairly for what I contribute to this organi zation? (Do you compare yourself with others relative to pay and effort?) (Who?)

5. Does the job itself tell me how well I am doing? (If it does, how does it? explain.)

6. Am I motivated to seek out challenging work with a high level of uncertainty?

7. Who tells me more about how well I am doing on the job? my supervisor or my co-worker? Or neither?

The second part of the questionnaire which was separate from the first part was a communications network instrument. It required a name. The employee was asked to identify all those to whom he or she talked to either in a social content or a technical content (work related).

After both instruments were administered a feedback session was again held with each division separately. The feedback sessions covered three days. This concluded the data gathering for this project.

G. DEMOGRAPHICS

TABLE 2

JOB CLASSIFICATIONS BY SECTIONS

1. Office (1 supervisory secretary, 2 secretaries)

2. Staff (1 budget analysis, 2 technicians)

3. Code 061 (5 technicians, 5 engineers)

4. Code 062 (8 technicians, 2 engineers)

5. Code 065 (4 technicians, 2 engineers)

6. Code 066 (3 technicians, 2 engineers)

7. Code 06601 (4 technicians, 1 engineer)

8. Code 06 (department head, 1 engineer. . . excluded from survey)

TABLE 3

GRADE LEVELS BY SECTIONS

1. Staff : GS-9 (1), GS-12 (2)

2. Office : GS-6 (1), GS-4 (2)

3. Code 061 : GM-13 (1), GS-12 (6), GS-11 (3), GS-5 (1)

4. Code 062 : GM-13 (1), GS-12 (5), GS-11 (5), GS-9 (2)

5. Code 065 : GM-13 (1), GS-12 (2), GS-11 (4), GS-9 (1)

6. Code 066 : GM-13 (1), GS-12 (3), GS-11 (1), GS-5 (1)

7. Code 06601 : GS-12 (1), GS-11 (1), GS-7 (2), GS-6 (1)

   GS-5 (1)

The following data was gathered from the JDS/JRF instruments. The number of participants in the survey was 34. (There are 47 people in the NPSL-W). The data that follows reflects the lower number of the participants that took the survey.

47

TABLE 4

SEX AND AGE

MALE   :   24

FEMALE : 10

AGE :   NUMBER

	NUMBER
20 - 30 yrs.	6
30 - 40 yrs.	11
40 - 50 yrs.	6
50 - 60 yrs.	7
60 + yrs.	3

TABLE 5

JOB LONGEVITY

HOW LONG AT YOUR PRESENT JOB? :   NUMBER

	NUMBER
0 - 1/2 yr.	3
1/2 - 1 yr.	3
1 - 2 yrs.	7
3 - 5 yrs.	11
5 - 10 yrs.	4
10 + yrs.	6

TABLE 6

EDUCATIONAL LEVELS

EDUCATION :	NUMBER
1. HIGH SCHOOL	2
2. SOME BUSINESS COLLEGE OR TECHNICAL SCHOOL	4
3. SOME COLLEGE	12
4. BUSINESS COLLEGE OR TECHNICAL SCHOOL DEGREE	2
5. COLLEGE DEGREE	14
6. MASTERS DEGREE OR HIGHER	1

VI. <u>DATA PRESENTATION</u>

A. JDS DATA

Based upon the JDS data the following strengths and weaknesses of the job and organizational characteristics are discussed.   The data shows (see Tables 7 thru 13) the following categories of strengths and weaknesses based upon the levels of significance as stated below corresponding to the following groups: 1) engineers and technicians in Codes 061/065, 062, 066, and 06601, 2) staff, 3) office, and 4) management. Sample size is denoted by (N =).

Tables 7 thru 11 represent small sample size statistical analysis of the JDS data. A T-Test was performed with the data.   Levels of significance are at the 10%, 5% and 1% levels for the appropriate degrees of freedom associated with each sample.   The ten percent levels indicate strong trends whereas the five and one percent levels indicate definite deviations from the norm.   Levels of significance for Tables 7 thru 11 are denoted as follows: no asterisk equals 10%, one asterisk equals 5%, and two asterisks equals 1%.

Tables 12 and 13 are based upon norm data derived from the initial study that developed the JDS.   Levels of significance are derived from the one, two, and three sigma limits defined by the original JDS study data.   One sigma

limit indicates a strong trend whereas two and three sigma limits denote definite deviations from the norm. Levels of significance for Tables 12 and 13 are as follows: no asterisk equals one sigma limit, one asterisk equals two sigma limits, and two asterisks equals three sigma limits. The JDS data is displayed below.

TABLE 7

JDS DATA: ELECTRICAL/ELECTRO-OPTICS
AND ELECTROMAGNETICS STANDARDS
DIVISION CODE 061/065 (N = 9)

	strength		weakness	
1.	TASK IDENTITY	**	FEEDBACK FROM AGENTS	*
2.			DEALING WITH OTHERS	**
3.			EXPERIENCE MEANINGFULNESS	
4.			CO-WORKER SATISFACTION	*
5.			SUPERVISOR SATISFACTION	**
6.			JOB CHOICE	
7.			GROWTH NEED STRENGTH	

TABLE 8

JDS DATA: MECHANICAL STANDARDS DIVISION
CODE 062 (N = 7)

	strength		weakness
1.	SKILL VARIETY		DEALING WITH OTHERS
2.	JOB SECURITY SATISFACTION	*	

TABLE 9

JDS DATA: FLUID STANDARDS DIVISION
CODE 066 (N = 4)

	strength		weakness
1.	TASK IDENTITY	**	
2.	TASK SIGNIFICANCE	*	
3.	AUTONOMY	**	
4.	FEEDBACK FROM JOB	*	
5.	EXPERIENCE MEANINGFULNESS	*	
6.	EXPERIENCE RESPONSIBILITY		
7.	PAY SATISFACTION	*	
8.	WOULD LIKE		
9.	MOTIVATION POTENTIAL SCORE	*	

TABLE 10

JDS DATA: OIL/GAS ANALYSIS SECTION
CODE 06601 (N = 6)

	strength	weakness	
1.	TASK SIGNIFICANCE	GENERAL SATISFACTION	**
2.		INTERNAL WORK MOTIVATION	
3.		PAY SATISFACTION	
4.		CO-WORKER SATISFACTION	*
5.		SUPERVISOR SATISFACTION	*
6.		GROWTH NEED STRENGTH	

TABLE 11

JDS DATA: MANAGEMENT (N = 4)

	strength		weakness
1.	AUTONOMY	**	JOB CHOICE
2.	DEALING WITH OTHERS	**	
3.	KNOWLEDGE OF RESULTS		
4.	GENERAL SATISFACTION	*	
5.	INTERNAL WORK MOTIVATION	*	
6.	GROWTH SATISFACTION	*	
7.	JOB SECURITY SATISFACTION	*	
8.	PAY SATISFACTION	*	
9.	SUPERVISOR SATISFACTION		
10.	WOULD LIKE		

TABLE 12

JDS DATA: STAFF (N = 4)

	strength	weakness
1.	SKILL VARIETY	FEEDBACK FROM JOB
2.	AUTONOMY	
3.	GENERAL SATISFACTION	
4.	GROWTH SATISFACTION	

TABLE 13

JDS DATA: OFFICE (N = 2)

	strength	weakness	
1.	FEEDBACK FROM AGENTS	TASK SIGNIFICANCE	
2.	INTERNAL WORK MOTIVATION	AUTONOMY	
3.		GROWTH SATISFACTION	*
4.		PAY SATISFACTION	
5.		CO-WORKER SATISFACTION	
6.		SUPERVISOR SATISFACTION	*
7.		MOTIVATIONAL POTENTIAL SCORE	

B. JRF DATA

This section describes the JRF data based upon Tables 14 thru 17. The description of each section is as follows: 1) section A indicates how management perceived their subordinate's job (engineers and technicians) in reference to how the engineers and the technicians perceived their own jobs. A high score indicates that the manager perceives that the job of the engineer and the technician has higher value or quality associated with that job than does the engineer or technician who perceives the same job. A low score indicates just the opposite; 2) section B indicates how the engineers and the technicians perceive their

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manager's job in relationship to how the managers perceive their own jobs. A high score would indicate that the engineers and the technicians perceive that the manager's job has a higher value or quality associated with that job than the manager who perceives the same job. A low score would indicate just the opposite.

TABLE 14

JRF DATA: ELECTRICAL/ELECTRO-OPTICS AND
ELECTROMAGNETICS STANDARDS DIVISION

CODE 061/065

SECTION A	SECTION B	
FEEDBACK FROM AGENTS: high	TASK IDENTITY	: high
	AUTONOMY	: high

TABLE 15

JRF DATA: MECHANICAL STANDARDS DIVISION

CODE 062

SECTION A		SECTION B	
TASK IDENTITY	: low	TASK IDENTITY	: high
DEALING WITH OTHERS	: high	DEALING WITH OTHERS	: low

TABLE 16

JRF DATA: FLUID STANDARDS DIVISION

CODE 066

SECTION A	SECTION B	
FEEDBACK FROM AGENTS : high	SKILL VARIETY	: low
	DEALING WITH OTHERS	: low

TABLE 17

JRD DATA: OIL/GAS ANALYSIS SECTION

CODE 06601

SECTION A	SECTION B	
FEEDBACK FROM AGENTS : high	SKILL VARIETY	: low
	TASK IDENTITY	: low
	TASK SIGNIFICANCE	: low
	AUTONOMY	: low
	FEEDBACK FROM JOB	: low
	FEEDBACK FROM AGENTS	: low

C.   QUESTIONNAIRE #1

In conjunction with the JDS and the JRF six open-ended questions were asked and an item analysis was performed. The items were categorized as to the number of similar responses made for each question asked.   The results of those questions are as follows (the numbers in the paren- thesis are the number of respondents):

1. WHAT ARE YOUR LIKES/DISLIKES OF YOUR JOB?

    a. LIKES:

        1. freedom (7)

        2. challenge (6)

        3. people (4)

    b. DISLIKES:

        1. supervisor (feedback/communications) (7)

        2. repetitive work (3)

        3. paperwork, money, time, project-production
           conflict, dissatisfaction with co-workers (1)

2. WHAT DO YOU THINK OF YOUR JOB OPPORTUNITIES?

Out of 21 respondents 14.5 responded positively (64.3%)
with the follow range of comments: OK, adequate, good,
satisfactory, excellent, unlimited. There were 7.5 respon-
dents that replied negatively (35.7%) with the following
range of comments: limited at present, no room to move, see
none, nil.

The half of a response (0.5) indicates that the
person was a border line response. He or she was really not
sure of a yes or no because it depended upon the situation.

3. DO YOU FEEL THE BPAP FITS YOUR JOB?

Out of 20 respondents 7.5 responded positively
(37.5%) but the responses were mostly a conditional yes and
the range of responses are as follows: for the most part,
in a general sense. There were 12.5 respondents that

responded negatively (62.5%) and these responses were a very clear no!

4. DO YOU FEEL THE PD FITS YOUR JOB?

Out of the 21 respondents 12 responded positively (58%) and 9 responded negatively (42%). The comments are as follows: inaccurate to what I am doing, does not face some of the realities of the job, some applies/some don't, percent of time does not reflect the actual time spent on each category of work.

5. ARE YOU SATISFIED WITH YOUR JOB?

Out of the 24 respondents 15.5 responded positively (64.6%) and the comments are as follows: slightly satisfied, for the most part, somewhat, if I were not satisfied I would leave, very satisfied. There were 8.5 respondents that replied negatively (35.4%) and there comments are as follows: no!, no-not given any recognition.

6. ANYTHING YOU WANT TO SAY ABOUT THE JOB OR THE OTHER JOB?

The other job refers to the job that the employees rated on the JRF. The responses are as follows:

a. supervisors don't give feedback (6)

b. good job challenge (2)

c. co-worker dissatisfaction, more training for supervisors, good opportunities in code 06 that some employees do not appreciate, not treated fairly, too much emphasis on advancement to supervision--personal advancement is a better measure of success (1)

2. When having to depend on others to complete the job an awareness of the other persons actions and routine become very acute. One becomes very critical of the others actions if the actions are not in support of completing the job.

3. Manager does not have a feel for the area, yet. Too many questions are asked.

4. Employees do not have a feel of what the manager does on his job.

5. Some people expressed how good they felt about the results of the survey.

6. Most expressed concern with the supervisors feedback to the employees. The feedback was either not enough or of the right kind.

E. QUESTIONNAIRE #2 DATA

In the final session a questionnaire containing two sections was given. The first section attempts to expand upon the responses obtained from previous data that was considered important for analysis. The second section was a simple communications network survey. This survey depicted how the employees communicated with each other based upon the nature of the subject matter. The two types of communication patterns evaluated were the social and technical (work related). The network matrix is incomplete at this time but further data gathering will be pursued by the author.

1. Questionnaire #2 Section 1

The following is the list of the responses from the second questionnaire (see Appendix C for questionnaire forms):

time but further data gathering will be pursued by the author.

1. <u>Questionnaire #2 Section 1</u>

The following is the list of the responses from the second questionnaire (see Appendix C for questionnaire forms):

1. WHAT SPECIFIC ACTION(S) CREATE DISSATISFACTION BETWEEN YOU AND YOUR SUPERVISOR? WHY? (IF NONE, STATE SO.)

Out of 25 respondents 13 said that they had no problem with management (53%). While 12 said that they did have problems with management (47%). Some of the comments are as follows: too much time on the phone, does not understand my job, great manager of workload poor manager of people, acts as a gatekeeper between me and the customer, not getting action soon enough, lack of communication, lack of knowledge concerning policy and regulations, lack of interest in the day to day operations, lack of understanding of staffing shortages, lack of ability to back up the employee, unable to make decision and stick to it.

2. WHAT SPECIFIC ACTION(S) CREATE DISSATISFACTION BETWEEN YOU AND YOUR CO-WORKER(S)? WHY? (IF NONE, STATE SO.)

Out of 28 respondents 13 said that they had no problems with co-workers (47%). The other 15 respondents said yes they did have problems with their co-workers (53%). The following is a list of the comments: lack of communication between people, moody-one day they are up and the next day they are down, does not put the equipment away, I am

dissatisfied with the bellyachers and agitators in the lab but this does not affect my work, arguing between engineer and technician but I guess that's normal, engineer right to over power the technician position, co-worker checks to see if the job is done _his way_ not yours, little concern for the timely execution of their duties, lack of enthusiasm about their job, lack of responsibility for getting the job done, unreliable and undependable--too many negative complaints and negative attitudes.

3. DOES MY JOB REQUIRE ME TO WORK BY MYSELF WITHOUT INTERACTION WITH OTHERS? (WHAT PERCENT OF MY JOB DOES NOT INVOLVE OTHER PEOPLE, PERCENT OF TIME WORK WITH OTHERS, PERCENT OF TIME WORK ALONE?)

Out of 26 respondents 10 said that they indeed worked alone at least 50% percent of the time or greater (38%). While 16 of the respondents said that they worked with their co-workers for more than 50% of the time (62%). Only three of the respondents said that they worked with others less than 10% of the time.

4. AM I PAID FAIRLY FOR WHAT I CONTRIBUTE TO HIS ORGANIZA- TION? (DO YOU COMPARE YOURSELF WITH OTHERS RELATIVE TO PAY AND EFFORT?) (WHO?)

Out of 28 respondents 19.5 said that yes they were paid fairly (77%). The other 6.5 respondents said that they were not paid fairly (23%). Comments from this question are as follows: 1) yes responses and comments: but I am paid less than private industry, not enough if compared to others in this organization, but I work four to eight hours of my own time to keep up the work load. When comparing to others

the following responses were made: other people doing the same work, do not compare myself with others, other electronic technicians, I am not qualified to make valid comparisons. 2) no responses and comments: but I compare to others (clerks)--it's fair--federal pay scale is off--input large with little reward, I am paid less as compared to private industry, other people doing the same work, can't compare--only one in my grade level, no I am not comparing myself.

5. DOES THE JOB ITSELF TELL ME HOW WELL I AM DOING? (IF IT DOES, HOW DOES IT?)

Out of 26 respondents 21 responded that yes they did receive feedback from the job (81%). The other five responded that they did not receive feedback from the job (19%). The yes respondents had the following comments: if a mistake is made it shows in the figures, the number of shippers--wrong activity--but it really doesn't tell me when I'm doing good, no feedback from others--I guess it is right, long term customer satisfaction with minimum complaints, questions from others--comparing results with NBS and manufacture, results of the calibration 90% of the time--the numbers speak for themselves--after performing many " cals " you can usually sense if they are good, evaluation of statistical data--comparison to past history, minimum intervention from supervisor tells me I'm doing well, the work load moves in and out without any hiccups, customer and supervisor feedback give me a fair idea of my

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performance, it is on the record, by comparing with previous data--by a low uncertainty figure, reactions from customers are the real key to whether or not I am satisfying their needs, nothing crashes. The no respondents had no comments.

6. AM I MOTIVATED TO SEEK OUT CHALLENGING WORK WITH A HIGH LEVEL OF UNCERTAINTY?

Out of 25 respondents 19 replied yes that they would seek out challenging work (76%). The other six respondents replied with a no (24%). The yes respondents with comments are as follows: find new ways to make my job easier, I like challenging work--computers--learning more, working daily on special challenging projects, work with a high level takes a lot of time--supervisor doesn't realize how long it takes to do a thorough job on a project, new and challenging work is fun and stimulating--routine work gets boring after awhile, but productivity could reduce motivation to seek out that work, only after I get bored--when job becomes unchallenging, although I have been satisfied to do routine work--I am more than willing to seek out challenging work. The only no respondent comment was I try to but being unambitious I guess I'm not very motivated.

7. WHO TELLS ME MORE ABOUT HOW WELL I AM DOING ON THE JOB MY SUPERVISOR OR MY CO-WORKER? OR NEITHER?

Out of 29 respondents eleven said they received feedback from their supervisors (38%). Seven said that they received feedback from their co-workers (24%). The remaining eleven respondents said that they received feedback from neither

(38%). Comments are as follows: neither--I figure it out myself, neither--I get almost no feedback--If a person is doing a good job the supervisor should mention it--I think I am doing a good job but nobody tells me here or from other activities, co-worker day to day--supervisor long term, supervisor--but being left alone is probably the best indication that I am doing well, supervisor--should in periodic reviews (to be honest about it), supervisor--but is not enough--I do receive favorable comments from co-workers on occasion.

2. Questionnaire #2 Section 2

In conjunction with the questionnaire a simple communication survey was given. (See Tables 18 and 19). The survey is incomplete and further data gathering will be done in the future. Table 18 indicates the technical communication interactions that take place. It is observed that most of the interactions take place within each division and with the office and staff personnel. Table 19 depicts the social interactions that take place. It is observed that most of the social interactions take place across all divisions and that the interactions are really based upon the person. If the person is socially active he or she sees no boundary within the organization when it comes to communication.

TABLE 18

TECHNICAL COMMUNICATION NETWORKS

	M123456	M12345678	M1234567891	1234567	M12345	M12345	
M	OTTTTTT	T	T T	T	T	T	
1	TOTTTTT	TT TTT	T T	TT TT	T T	T	
2	TTOTTTT	TTTTTTTT	TTTTTTTTTTT	TTTTTTT	TTTTTT	TTTTTT	OFFICE
3	O						&
4	TT O	T	T		T	T	STAFF
5	TT TTOT	TT T T T	TT T T	TTTTT	T TTTT	TT TTT	
6	TTTTTTO	TTTT TTTTT	TTTTTTTT TT	TT TTT	TTTTTT	TTTTTT	
M		O					
1	TTTTT	TOTTTTTTT	T TT	TTTTTT	T TTTT	TTTTTT	
2		O					
3		O					CODE
4		O					
5		O					061
6	TTTTTT	TTTTTTOTTT	T T T	T	T	T	
7	TTTT	TT OTT	T	TT T			
8	TTTTTT	TTT TTTOT	TT T TT	TT	T T	T	
9		O					
M	T	T T	OTTTTTTTTTT		T	T	
1			O				
2	TTTTT		T O TTTTTT				
3	TTTT	TTT TTTTT	TTTOTTTTTTT	T TT	T	T TT	
4	TTTTTT	TTTTTTTTTT	TTT OTTTTTT		T TT	CODE
5	T TTT	TT	TTT OTT TT	T	TTTT	T	
6			O				062
7		T	T O T				
8	TT TT		T TTT TTO T				
9			O				
10			O				
1				O			
2		T TT T	T	T	TOTTTT		
3	TTTTTT	T			TTOTTTT	T	CODE
4	TTTTTT	T	T T T	TT T	TTTOTTT	T T T	
5	T	T T T	T	T	T TOT	T	065
6	T TTTT	T			TTTTTOT		
7		T			TT T O		
M					O		
1	TTTTTTT	TTT TTTT	TT TT TTT	TTTTTTT	TOTTTT	TTTTTT	
2	T TT	T			TTOTTT	T	CODE
3	T T	T	T	T	T	TOT	T
4			T		T TTOT		066
5	TTTTTT	T TTT TT	TT TTTT TT	T TT	TTTTTO	T T	
M	TTTTTTT	TT T	TT T	T	TTTTT	OTTTTT	CODE
1	T			T	T	TO TTT	
2	TT TTTT	T TTT	T T T	T	T	TTOTTT	06601
3						O	
4					T	TTTTOT	
5					TTTT	TTTTO	

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TABLE 19

SOCIAL COMMUNICATION NETWORKS

```
     M123456   M12345678   M1234567891   1234567    M12345    M12345
M    OSSSSSS   S           S             S          S         S
1    SO SSSS    SSS S SS    S    S S      SS S       S  S      S SS           OFFICE
2      O                                                                       &
3       O                                                                     STAFF
4    S  O       S                                                      
5     S  SOS    SSS SSSS    SSS S S  SS   S    S     S S SS    SSSSSS
6     S   SO   SS       S    S           S          SS  S       SSSSS
M              O
1    SSSS SS   SO   S SS    S  S SSS SS     SS S     S S            S
2              O                                                              CODE
3               O
4               O                                                            061
5                O
6    SSSSSSS   SSSSSSOSSS   SSSSSSSSSSS   SSSSSSS    SSSSSS    SSSSSS
7     SSSSS    SSSSSSOSS    S SSSSSSSSS   SSSSSSS    SSSSSS    SSSSSS
3    SS SSS    SSSSSSSOS     SSSSSSSS SS   SS SS     S SSSS    S SSS
9                    O
M    SSSSSSS   S           O                        S         S
1                         O
2    S   SSS         SSS    S OSSSSS S
3    SSSSSS    SSSSSSSSSS   SSSOSSSSSSS   SSSSSSS    SSSSSS    SSSSSS          CODE
4                           SO           SSSSSSS    SSSSSS    SSSSSS
5    SS SSSS   SSSS SSSS    SSSSSOSSSSS   SSSSS      SSSSSS    SSSSSS          062
6                          O
7    SSSSSSS   SSSSSSSSSS    SS SSSOSSS   SSSSSSS    SSSSSS    SSSSSS
8    NO ENTRIES                    O
9                                   O
10                                   O
1                                         O
2    SS SSSS   SSSSS SSSS   SSSSSSSSSSS   SOSSSSS    SSSSSS    SSSSSS
3    SSSSSSS   SSSSS SSS    SSSSSS S S    SSOSSSS               S  SSS        CODE
4     S        SSSSSS SS    S  SSSS S S   SSSOSSS               S
5    SS  SS     SS S        S    SS SS    SSSOS     S  S      S               065
6    SSSSSSS   SSSSSSSSS    SSSSSSSS SS   SSSSSOS   SSSSSS    S SS S
7                                         SS  S O                S
M                                                  O
1    NO ENTRIES                                     O
2                                                  SOSSS                      CODE
3    SS S          S        SS    S    SSS    SS    SSSOS     S SS
4                          SSSS SS                  SSSSOS                    066
5    SSSSSSS   SSSSSSSSSS   SSSSSSSSSSS   SSSSSSS   SSSSSO    SSSSSS
M    S SS      S       S        S  S SS      S      S    S    O
1     SS SS    SSSS SSSS    SS SSSS   SS    SS SSS   SSSSSS    SOSSSS
2    SS SSSS   SSSS  SSS    S  SSS  S       SS  S    S         SSOSSS          CODE
3                                                                  O
4     S                         S                   S        SS OS           06601
5    S SS  S   SSSSSSSS S    SSSSSSSSSSS   SSSSS                SSSSO
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F. EMPLOYEE'S EXPRESSED CONCERNS (SESSION #2)

During the feedback session the following concerns were raised by the employees:

1. People are afraid to ask for help.

2. Supervisor should never talk about employees in a demeaning manner.

3. Management needs to build up confidence in the worker and have confidence in the worker.

4. Rotate the managers with the aspect of making the senior people more responsible. This could add confidence to the senior people.

5. Managers need to socialize. Make it a point.

6. Manager questions but never listens.

7. Noticed preferred treatment in training and job assignments due to management decisions.

8. What is the goal of the laboratory? To have all degreed people?

9. Concern of "lost jobs" due to the MAP process.

10. Management needs to review the long term employee needs verse the short term employee needs.

11. Management needs to show a curiosity and a interest in the employee.

12. Appreciate the efforts of your fellow co-worker.

13. Management needs to support the decisions made by the employee to the customer if they are supportive of the mission.

14. Management needs to be more accessible.

15. Management needs to follow up on all project work.

VII.   DATA ANALYSIS

The relationships in the diagnostic model for analyzing a organization are to be reviewed to see how well the data supports the "fit" or congruence of the relationships.   Those relationships are as follows: 1) task-formal organization, 2) task-individual, and 3) formal organization-individual.   If a certain degree of congruence exists then a condition of well being can be attributed to the organization.   If a incongruence exists then one must plan corrective action to manage or eliminate the incongruence.   The three relationships are analyzed using the data gathered from the JDS/JRF, feedback sessions and questionnaires.   The analysis of the data is as follows.

A.   TASK-FORMAL ORGANIZATION

The basis for analysis is the use of Information Processing Theory, Differentiation and Social-Technical Analysis as possible explanations to any weaknesses or strengths in the organization.

1.   Strengths

The JDS data shows (see Tables 7 to 13) that job characteristics (TI,TS,A) and pay satisfaction are strengths in code 066 and that "context" satisfactions (GES, GRS, JSS, PS, CWS, SS) and the job characteristic of autonomy are strengths in the management team.   The staff has strength

in job characteristics (SV, A) and in "context" satisfactions (GRS, GES). One common characteristic in the strengths of these three groups is autonomy. This observation is supported by questionnaire data (VI.C.1.a.1). Having responsibility for your work may rely on having sufficient information to do the job. This has been accomplished by the organization through self-contained work tasks based upon differentiation of jobs. Each person has a very specialized job to perform. The camaraderie expressed by these three groups in the feedback sessions supports the socialization process of these groups. These groups are pleased with their jobs. The management team is apparently autonomous due to their ability to run their own division without interference from top management. This is supported by the fact that they are satisfied with their supervisor (SS). The office shows strength in the job characteristic of FBA. This is supported by the nature of the work. High levels of interaction with the work force is necessary to perform office tasks. Even though this is a strength the negative side of this is that the feedback could be negative as well as positive. The office personnel show strength in internal work motivation (IWM). Management should note this for current or future job assignments and or development. Codes 061 and 065 have little to offer in strengths in job characteristics other than in TI, which appears to be very strong. Code 062 has strength in SV in their job

characteristic and JSS in their "context" satisfaction. Code 06601 shows strength in TS in their job characteristic.

Codes 061/065, 062, and 06601 display normalcy in job characteristic strengths over-all. The information processing, the differentiation, and technical-social aspects of the job allowed by the organization has sufficiently met most of these job characteristic needs. This is demonstrated by the normalcy of the data of the job characteristics. Code 066 has a environment that the organization has supported to allowed the job characteristics to develop into strengths. Questionnaire data supports that some jobs are autonomous (freedom in job) and challenging (see VI.C.1.a.1,2;VI.C.6.b).

2. Weaknesses

Major weaknesses are displayed in Code 061/065, Code 06601, and in the office. (See Tables 7,10,13). The office shows weakness in both job characteristics (TS, A) and "context" satisfactions (GRS, PS, CWS, SS). In Code 061/065 again "context" satisfactions (FBA, DWO, CWS, SS) are a major source of weakness. In Code 06601 "context" satisfactions (GES, PS, CWS, SS) are a major weakness. These weaknesses are supported by questionnaire data (VI.C. 1.b.1,2,3;VI.C.6.a).

The JRF data (see Tables 14 thru 17) supports the deficiency in the organization not meeting the employees needs in supporting the task. The JRF data shows a

desparity in the perception on the amount of feedback that the employee gets from the supervisor. The managers say they get plenty of feedback while the employee says they do not. This is indicated by a high FBA in section A in three out of the four groups examined.

These weakness factors are basically organizational impacts on the job brought on by the organization itself. They are incongruent in the task-formal organization relationships. The use of the information-processes tactics may alleviate the communications process problem by the use of lateral communications networks among the management team and the employees. The socialization process also needs to be enhanced in conjunction with the lateral communication process (see VI.E.2.5). The network communications tables 18 and 19 shows that the managers are talked to by 69% the employees in technical matters and by 68% of the employees in social matters. It appears that a number of lateral communication networks have formed but not for all. The differentiation of jobs appears to have not hampered the formation of lateral communication processes. Data shows sufficient cross-divisional communication is present but the type of communication does not support the proper type of communication for the right type of feedback from the manager to the employee. Since only two out the five managers replied to this survey one cannot fully analyze how the managers communicate to the employees.

B. TASK--INDIVIDUAL

The Job Characteristics Model is used to determine the congruence of the task to the individual. Of major concern is the Motivational Potential Score (MPS). The MPS gives the employee and the organization a profile of the job based upon the employee's perception of that job. The JDS data shows normalcy in most cases of the jobs perceived by the employee. This is supported by the following data (see Table 20).

TABLE 20

MOTIVATIONAL POTENTIAL SCORES BY SECTIONS

	GROUP	MPS	NORM
1.	MGMT	175	156
2.	STAFF	155	154
3.	OFFICE	46	106
4.	CODE 061/065	149	154
5.	CODE 062	194	154
6.	CODE 066	212	154
7.	CODE 06601	158	154

Table 20 shows that the management team, staff, Code 061/065, and Code 06601 meet normative expectations. Codes 062 and 066 show strength in the MPS. This indicates that these jobs are more than sufficient in meeting the job characteristic needs to make the job itself worth doing.

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The perception by these employees is that these jobs are very much self motivating, that is, that these jobs in themselves motivate the employee.

The only group that shows any weakness in the MPS is the office group. The element in MPS of the office that differs from the rest of the groups is autonomy. In reviewing the raw data it appears that the autonomy score for the office is two and a half points lower than the rest of the groups (See Table 21).

TABLE 21

AUTONOMY SCORES BY SECTIONS

	GROUP	AUTONOMY SCORE
1.	MGMT	6.0
2.	STAFF	6.5
3.	CODE 061/065	5.6
4.	CODE 062	5.5
5.	CODE 066	6.2
6.	CODE 06601	5.4
7.	OFFICE	3.0

The rest of the variables in computing the MPS were consistent among the groups.

The suggestion is that the element autonomy in the task should be re-evaluated and enhanced to provide positive

expectations from the office employees. In the feedback sessions with the office group it was brought out that each employee would like to have more responsibility over their jobs. There appears to have been a deficiency in the confidence held in the employees by supervision. This was felt and acknowledged by the employees.

Questionnaire data supports the normalcy and strengths of the jobs themselves by comments like "job is challenging" (VI.C.1.a.1) or responses to "are you satisfied with your job?" 64% responded positively (VI.C.5). Generally, the jobs at the NPSL-W are sufficient to promote motivation, satisfaction and effectiveness.

It should be noted that the data presented cannot differentiate between the engineer and the technician positions as mentioned in section IV.B. The data does support the perceived "sameness" of the job structures since both the engineers and the technicians have responded consistently in the normalcy of the job characteristics. The MPS for 18 technicians is 168 and the MPS for 8 engineers is 182. Both groups perceive the same type of job as having the same job characteristics. Further segmentation of the data between the technicians and the engineers would lead to a breach in confidence in anonymity between the author and the participants. The explicit MPS data for the engineers and the technicians will remain anonymous to the reader.

C. INDIVIDUAL--FORMAL ORGANIZATION

This section takes a in-depth view of the individual and the organization based upon the following aspects: 1) feedback, 2) education, 3) participative decision making, 4) event-structure analysis, 5) group size, 6) self-realization, and 7) growth need strength. The author realizes other factors could have been used to analyze the individual-formal organization relationships but these factors are important to the understanding of this relationship.

1. Feedback

Data shows that this is incongruent and that management should respond by either eliminating or managing the incongruity. It should be remembered that morale is proportional to feedback. Feedback should be considered by the organization as a major dysfunction.

2. Education

Data shows (see Table 6) that 49% of the sampled work force has graduated from college; another 34% has had some college; and 11% have H.S. and some business college or technical school, while only 6% have just a high school education. In other words the work force contains 94% of advanced school employees. The organization must respond with challenging work with commensurate pay. These employees are currently increasing their education levels and the organization must recognize the increased expectations of these employees.

3. Participative Decision Making

The use of participative decision making may greatly reduce the problem of feedback. If the employee can assimilate this process (employee must have high independence needs and low authoritarian needs) then this may be a vehicle to articulate the feedback process into a workable solution. Data supports that most of the employees do talk to each other in both inter and intra-groups settings.

4. Event-Structure Analysis

The organization should accommodate each employee with a job best suited to that employee's needs. The job characteristics data has shown favorable support that the job itself appears to be motivational. Most employees view their jobs favorable and this allows for closure in the event-structured analysis. One exception is the office group. Efforts to obtain closure by can be done by trying to "suit" the job more closely with the employee's need to do what the employee is "characteristically trying to do." The organization must provide an environment for the employee to create a high energy level, permit closure and have a sustained positive attitude toward the job.

5. Group Size

The dyad is of interest due to the concerns shown from the feedback sessions (VI.D.2,E.2.12). Work is done mainly by single employees since each is a specialist in his

or her own area. In Code 06601 a situation exists where two must work together to complete the task. This dyad is the only know dyad in the organization. Other groups may exist in the organization but the assumption is that they are loosely coupled. The strong forces in the dyad (strong coupling) permits for potential stresses that this group may not manifest due to the nature of the group. Data shows that there is a great awareness of this situation. The organization must be aware of this potential conflict and its neutral behavior.

6. Self-Actualization

Data supports that the jobs themselves can motivate the employee. This is in direct support of self-actualization. Data has also shown that the moderators ("context" satisfactions) do not readily support self-actualization needs. The organization must support the employee with its resources in a positive fashion such as reducing the negative effects of the moderators. Another offering is to expand the job and offer new and challenging work. If horizontal loading of the job is to occur, then load the job both technically and mentally and support the effort by allowing for time and needed resources.

7. Growth Need Strength (GNS)

One determination of success or failure for new and challenging work is the individual's GNS. The GNS values for management, office, staff, Code 062, Code 066 are all

within the norm. The GNS values for Codes 061/065 and 06601 are slightly less than the norm. This indicates an over-all normalcy. This does not preclude the fact that there are individuals who do have high GNS scores. In Code 061/065 there were four out of nine individuals who had higher than norm GNS scores and in Code 06601 there was one in six that had a higher than norm GNS score. The indication is there are individuals in the organization that are looking for challenging and complex work. It is the responsibility of the organization to locate these individuals.

VII. CONCLUSIONS AND RECOMMENDATIONS

The NPSL-W has strengths and weaknesses which it should become aware of. Elements of strength should be enhanced and elements of weakness should be strengthened so that both may increase effectiveness and efficiency in the organization.

A. CONCLUSIONS

The strengths of the organization are its job characteristics. The nature of the job itself appears to be acceptable work for most of the employees. In Herzberg's terms the motivators (intrinsic job factors) are present to motivate the worker. In response to question number one (does the current job design fit the needs of the organization and the employee and is it so designed to induce favorable outcomes to both the employee and the organization?) the data suggests that the current job design does affirm the question in most cases. It is not affirmed for the office group. However, the weakness in supporting the job characteristics is in the organizational support of the "context" satisfactions such as pay, co-worker and supervision. Again, in Herzberg's terms the hygiene factors (extrinsic job factors) are producing negative effects on the job. These weaknesses are hindering efficient and effective operations. So, the answer to the first part of

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the research question must be modified to reflect; yes, the job design meets the needs of the organization and the employee but that the moderators ("context" satisfactions) affect it in a negative fashion. The job characteristics and the moderators are in conflict with each other and they must be made congruent with each other in order to achieve a higher level of effectiveness and efficiency.

The second part of the research question states: "if there is a need for future change in job design can management use the data collected by the JDS/JRF to support realistic job design changes and can it help determine levels of success or failure from this data." Based upon the GNS data there is support that some employees are wanting the challenge of more complex work. Yet, there appears to be complacency based upon the GNS data that says most of the employees rate in the norm on the GNS scores. Current data can help determine success levels by identifying those individuals with high GNS. The organization should seek out those who desire this type of new and challenging work. The organization must ask the employees "what kind of work do you need to stay challenged?" and then the organization must support these needs.

B. RECOMMENDATIONS

Based upon the data gathered the following actions should take place in order to reconcile the weaknesses and incongruities brought out in this study.

The office staff should be given more responsibility in their jobs. Management should recognize that the current office staff has high internal work motivation and that the motivation should be allowed to grow and manifest itself through responsible work. Management should define specific tasks to be assigned to specific office personnel with appropriate responsibility and rewards. Management should instill confidence in the office staff for the work that the staff will be responsible for

The Oil/Gas Analysis Section management must expose the subliminal nature of the two-person team. Create an environment that allows for open exchange and confrontation between partners. Create an understanding in the section of the nature of the dyad as well as with the customers that the dyad supports.

Allow the individuals in codes 062 and 066 to share their reasonings as to why they perceive their jobs more "worthwhile" than the other groups. Allow these individuals to share their views with the other groups. This sharing could be facilitated by the author as an organizational development intervention. The outcome of this action should engender a basic understanding of how one can view work at the NPSL-W in a more worthwhile manner.

To ensure that employees with a high level of education and a high level of GNS are challenged by rewarding work construct project work packages to be commensurate with the

employee's needs and abilities. Determination and evaluation of these employees is a necessary condition for successful implementation of the work packages. Allow for a proper monitoring and reward system to support the successful completion of these work packages.

Management training is in order. A team building effort is necessary to coalesce the management team. Once the management team can operate as a team and understand more fully the group process continue the training in the area of feedback processes. Continue this effort by establishing feedback sessions with each manager and his respective group. Allow the employees to develop an understanding of the feedback process. Create a feedback system via written or verbal responses between each manager and employees. This effort should be repeated whenever lines of communication between the manager and the employee appears to break down. The department head should monitor the feedback process by surveys or open discussion among the various groups.

Recommendations are in order for further analysis of the NPSL-W. This initial study on this organization has developed a foundation for further investigation. Further investigation and study should be made in the areas of 1) integration systems focusing on the feedback systems between management and the employees, 2) co-worker relationships and how they affect productivity, 3) job enhancement and job

redesign to meet the future needs of the organization and its employees, 4) an in-depth study on the growth need strengths of the employees for determination of the ability to take on challenging and complex work, and 5) job positions of the engineers and technicians as to what actions the organization needs to take to differentiate the two positions or to make them look more alike.

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APPENDIX A

JDS INSTRUMENT

APPENDIX A
THE JOB DIAGNOSTIC SURVEY

This appendix reproduces the Job Diagnostic Survey (JDS), an instrument designed to measure the key elements of the job characteristics theory. The survey measures several job characteristics, employees' experienced psychological states, employees' satisfaction with their jobs and work context, and the growth need strength of respondents. For a complete description of the job characteristics theory and the variables measured by the JDS, see Chapter 4 of this volume.

The JDS was designed to be completed by the incumbents of the job or jobs in question — not by individuals outside the job. An instrument designed for the latter purpose is entitled the Job Rating Form (JRF) and is reproduced in Appendix B. Instructions for scoring the JDS and JRF may be found in Appendix C. JDS norms for several job families are provided in Appendix E and may be used for comparison purposes with JDS data collected from many jobs.

The JDS is not copyrighted and therefore may be used without the authors' permission. However, prior to using the JDS, one should carefully read the users' guide for administering and interpreting the instrument (see Appendix D).

A short form of the JDS has also been developed. It excludes measures of the experienced psychological states and uses fewer items to measure other key variables in the job characteristics theory. The JDS short form and its scoring key may be found in Hackman and Oldham (1974).

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JOB DIAGNOSTIC SURVEY

This questionnaire was developed as part of a Yale University study of jobs and how people react to them. The questionnaire helps to determine how jobs can be better designed, by obtaining information about how people react to different kinds of jobs.

On the following pages you will find several different kinds of questions about your job. Specific instructions are given at the start of each section. Please read them carefully. It should take no more than 25 minutes to complete the entire questionnaire. Please move through it quickly.

The questions are designed to obtain *your* perceptions of your job and *your* reactions to it.

There are no trick questions. Your individual answers will be kept completely confidential. Please answer each item as honestly and frankly as possible.
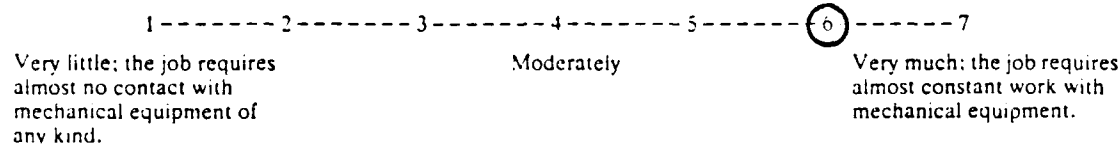
Thank you for your cooperation.

> ### SECTION ONE
>
> This part of the questionnaire asks you to describe your job, as *objectively* as you can.
>
> Please do *not* us this part of the questionnaire to show how much you like or dislike your job. Questions about that will come later. Instead, try to make your descriptions as accurate and as objective as you possibly can.

A sample question is given below.

A. To what extent does your job require you to work with mechanical equipment?

1 ------- 2 ------- 3 ------- 4 ------- 5 ------ (6) ------ 7

| Very little; the job requires almost no contact with mechanical equipment of any kind. | Moderately | Very much; the job requires almost constant work with mechanical equipment. |

You are to *circle* the number which is the most accurate description of your job.

If, for example, your job requires you to work with mechanical equipment a good deal of the time — but also requires some paperwork — you might circle the number six, as was done in the example above.

If you do not understand these instructions, please ask for assistance. If you do understand them, turn the page and begin.

1. To what extent does your job require you to *work closely with other people* (either "clients," or people in related jobs in your own organization)?

1 ------- 2 ------- 3 ------- 4 ------- 5 ------- 6 ------- 7

| Very little: dealing with other people is not at all necessary in doing the job. | Moderately: some dealing with others is necessary. | Very much: dealing with other people is an absolutely essential and crucial part of doing the job. |

2. How much *autonomy* is there in your job? That is, to what extent does your job permit you to decide *on your own* how to go about doing the work?

1 ------- 2 ------- 3 ------- 4 ------- 5 ------- 6 ------- 7

| Very little: the job gives me almost no personal "say" about how and when the work is done. | Moderate autonomy: many things are standardized and not under my control, but I can make some decisions about the work. | Very much: the job gives me almost complete responsibility for deciding how and when the work is done. |

3. To what extent does your job involve doing a *"whole" and identifiable piece of work?* That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small *part* of the overall piece of work, which is finished by other people or by automatic machines?

1 ------- 2 ------- 3 ------- 4 ------- 5 ------- 6 ------- 7

| My job is only a tiny part of the overall piece of work; the results of my activities cannot be seen in the final product or service. | My job is a moderate-sized "chunk" of the overall piece of work: my own contribution can be seen in the final outcome. | My job involves doing the whole piece of work, from start to finish: the results of my activities are easily seen in the final product or service. |

4. How much *variety* is there in your job? That is, to what extent does the job require you to do many different things at work, using a variety of your skills and talents?

1 ------- 2 ------- 3 ------- 4 ------- 5 ------- 6 ------- 7

| Very little: the job requires me to do the same routine things over and over again. | Moderate variety. | Very much: the job requires me to do many different things, using a number of different skills and talents. |

5. In general, how *significant or important* is your job? That is, are the results of your work likely to significantly affect the lives or well-being of other people?

1 ------- 2 ------- 3 ------- 4 ------- 5 ------- 6 ------- 7

| Not very significant: the outcomes of my work are *not* likely to have important effects on other people. | Moderately significant. | Highly significant: the outcomes of my work can affect other people in very important ways. |

6. To what extent do *managers or co-workers* let you know how well you are doing on your job?

1 ------- 2 ------- 3 ------- 4 ------- 5 ------- 6 ------- 7

| Very little: people almost never let me know how well I am doing. | Moderately: sometimes people may give me "feedback"; other times they may not. | Very much: managers or co-workers provide me with almost constant "feedback" about how well I am doing. |

7. To what extent does *doing the job itself* provide you with information about your work performance? That is, does the actual *work itself* provide clues about how well you are doing—aside from any "feedback" co-workers or supervisors may provide?

```
1 ------ 2 ------ 3 ------ 4 ------ 5 ------ 6 ------ 7
```

Very little: the job itself is set up so I could work for- ever without finding out how well I am doing.	Moderately: sometimes doing the job provides "feedback" to me: some- times it does not.	Very much: the job is set up so that I get almost constant "feedback" as I work about how well I am doing.

SECTION TWO

Listed below are a number of statements which could be used to describe a job.

You are to indicate whether each statement is an *accurate* or an *inaccurate* description of *your* job.

Once again, please try to be as objective as you can in deciding how accurately each statement describes your job—regardless of whether you like or dislike your job.

Write a number in the blank beside each statement, based on the following scale:

How accurate is the statement in describing your job?

1	2	3	4	5	6	7
Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate

---

_____ 1. The job requires me to use a number of complex or high-level skills.

_____ 2. The job requires a lot of cooperative work with other people.

_____ 3. The job is arranged so that I do *not* have the chance to do an entire piece of work from beginning to end.

_____ 4. Just doing the work required by the job provides many chances for me to figure out how well I am doing.

_____ 5. The job is quite simple and repetitive.

_____ 6. The job can be done adequately by a person working alone—without talking or checking with other people.

_____ 7. The supervisors and co-workers on this job almost *never* give me any "feedback" about how well I am doing in my work.

_____ 8. This job is one where a lot of other people can be affected by how well the work gets done.

_____ 9. The job denies me any chance to use my personal initiative or judgment in carrying out the work.

_____10. Supervisors often let me know how well they think I am performing the job.

_____11. The job provides me the chance to completely finish the pieces of work I begin.

_____12. The job itself provides very few clues about whether or not I am performing well.

_____13. The job gives me considerable opportunity for independence and freedom in how I do the work.

_____14. The job itself is *not* very significant or important in the broader scheme of things.

SECTION THREE

Now please indicate how *you personally feel about your job.*

Each of the statements below is something that a person might say about his or her job. You are to indicate your own personal *feelings* about your job by marking how much you agree with each of the statements.

Write a number in the blank for each statement, based on this scale:

How much do you agree with the statement?

1	2	3	4	5	6	7
Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly

_____ 1. It's hard, on this job, for me to care very much about whether or not the work gets done right.

_____ 2. My opinion of myself goes up when I do this job well.

_____ 3. Generally speaking, I am very satisfied with this job.

_____ 4. Most of the things I have to do on this job seem useless or trivial.

_____ 5. I usually know whether or not my work is satisfactory on this job.

_____ 6. I feel a great sense of personal satisfaction when I do this job well.

_____ 7. The work I do on this job is very meaningful to me.

_____ 8. I feel a very high degree of *personal* responsiblity for the work I do on this job.

_____ 9. I frequently think of quitting this job.

_____10. I feel bad and unhappy when I discover that I have performed poorly on this job.

_____11. I often have trouble figuring out whether I'm doing well or poorly on this job.

_____12. I feel I should personally take the credit or blame for the results of my work on this job.

_____13. I am generally satisfied with the kind of work I do in this job.

_____14. My own feelings generally are *not* affected much one way or the other by how well I do on this job.

_____15. Whether or not this job gets done right is clearly *my* responsibility.

SECTION FOUR

Now please indicate how *satisfied* you are with each aspect of your job listed below. Once again, write the appropriate number in the blank beside each statement.

How satisfied are you with this aspect of your job?

1	2	3	4	5	6	7
Extremely Dissatisfied	Dissatisfied	Slightly Dissatisfied	Neutral	Slightly Satisfied	Satisfied	Extremely Satisfied

_____ 1. The amount of job security I have.

_____ 2. The amount of pay and fringe benefits I receive.

_____ 3. The amount of personal growth and development I get in doing my job.

_____ 4. The people I talk to and work with on my job.

_____ 5. The degree of respect and fair treatment I receive from my boss.

_____ 6. The feeling of worthwhile accomplishment I get from doing my job.

_____ 7. The chance to get to know other people while on the job.

_____ 8. The amount of support and guidance I receive from my supervisor.

_____ 9. The degree to which I am fairly paid for what I contribute to this organization.

_____10. The amount of independent thought and action I can exercise in my job.

_____11. How secure things look for me in the future in this organization.

_____12. The chance to help other people while at work.

_____13. The amount of challenge in my job.

_____14. The overall quality of the supervision I receive in my work.

SECTION FIVE

Now please think of the *other people* in your organization who hold the same job you do. If no one has exactly the same job as you, think of the job which is most similar to yours.

Please think about how accurately each of the statements describes the feelings of those people about the job.

It is quite all right if your answers here are different from when you described your *own* reactions to the job. Often different people feel quite differently about the same job.

Once again, write a number in the blank for each statement, based on this scale:

How much do you agree with the statement?

1	2	3	4	5	6	7
Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly

_____ 1. Most people on this job feel a great sense of personal satisfaction when they do the job well.

_____ 2. Most people on this job are very satisfied with the job.

_____ 3. Most people on this job feel that the work is useless or trivial.

_____ 4. Most people on this job feel a great deal of personal responsibility for the work they do.

_____ 5. Most people on this job have a pretty good idea of how well they are performing their work.

_____ 6. Most people on this job find the work very meaningful.

_____ 7. Most people on this job feel that whether or not the job gets done right is clearly their own responsibility.

_____ 8. People on this job often think of quitting.

_____ 9. Most people on this job feel bad or unhappy when they find that they have performed the work poorly.

_____10. Most people on this job have trouble figuring out whether they are doing a good or a bad job.

SECTION SIX

Listed below are a number of characteristics which could be present on any job. People differ about how much they would like to have each one present in their own jobs. We are interested in learning *how much you personally would like* to have each one present in your job.

Using the scale below, please indicate the *degree* to which you *would like* to have each characteristic present in your job.

NOTE: The numbers on this scale are different from those used in previous scales.

4	5	6	7	8	9	10
Would like having this only a moderate amount (or less)			Would like having this very much			Would like having this *extremely* much

_____ 1. High respect and fair treatment from my supervisor.

_____ 2. Stimulating and challenging work.

_____ 3. Chances to exercise independent thought and action in my job.

_____ 4. Great job security.

_____ 5. Very friendly co-workers.

_____ 6. Opportunities to learn new things from my work.

_____ 7. High salary and good fringe benefits.

_____ 8. Opportunities to be creative and imaginative in my work.

_____ 9. Quick promotions.

_____10. Opportunities for personal growth and development in my job.

_____11. A sense of worthwhile accomplishment in my work.

SECTION SEVEN

People differ in the kinds of jobs they would most like to hold. The questions in this section give you a chance to say just what it is about a job that is most important to *you*.

For each question, two different kinds of jobs are briefly described. You are to indicate which of the jobs you personally would prefer—if you had to make a choice between them

In answering each question, assume that everything else about the jobs is the same. Pay attention only to the characteristics actually listed.

Two examples are given below.

JOB A			JOB B	
A job requiring work with mechanical equipment most of the day			A job requiring work with other people most of the day	
1	2	③	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

If you like working with people and working with equipment equally well, you would circle the number 3, as has been done in the example.

•   •   •   •   •   •   •   •   •   •   •   •   •   •   •

Here is another example. This one asks for a harder choice—between two jobs which both have some undesirable features.

JOB A			JOB B	
A job requiring you to expose yourself to considerable physical danger.			A job located 200 miles from your home and family.	
1	②	3	4	5
Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

If you would slightly prefer risking physical danger to working far from your home. you would circle number 2, as has been done in the example.

Please ask for assistance if you do not understand exactly how to do these questions.

	JOB A			JOB B	
1.	A job where the pay is very good.			A job where there is considerable opportunity to be creative and innovative.	
	1	2	3	4	5
	Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

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MICROCOPY RESOLUTION TEST CHART

JOB A   **JOB B**

2. A job where you are often required   A job with many   pleasant people to
   to make important decisions.   work with.

   1------------2------------3------------4------------5
   Strongly   Slightly   Neutral   Slightly   Strongly
   Prefer A   Prefer A   Prefer B   Prefer B

3. A job ... which greater responsibility   A job in which greater responsibility
   is given to those who do the best   is given to loyal employees who have
   work.   the most seniority.

   1------------2------------3------------4------------5
   Strongly   Slightly   Neutral   Slightly   Strongly
   Prefer A   Prefer A   Prefer B   Prefer B

4. A job in an organization which is in   A job in which you are not allowed
   financial trouble—and might have to   to have any say whatever in how
   close down within the year.   your work is scheduled, or in the
                                                procedures to be used in carrying it
                                                out.

   1------------2------------3------------4------------5
   Strongly   Slightly   Neutral   Slightly   Strongly
   Prefer A   Prefer A   Prefer B   Prefer B

JOB A   **JOB B**

5. A very routine job.   A job where your co-workers are not
                                                very friendly.

   1------------2------------3------------4------------5
   Strongly   Slightly   Neutral   Slightly   Strongly
   Prefer A   Prefer A   Prefer B   Prefer B

6. A job with a supervisor who is often   A job which prevents you from using
   very critical of you and your work in   a number of skills that you worked
   front of other people.   hard to develop.

   1------------2------------3------------4------------5
   Strongly   Slightly   Neutral   Slightly   Strongly
   Prefer A   Prefer A   Prefer B   Prefer B

7. A job with a supervisor who respects   A job which provides constant
   you and treats you fairly.   opportunities for you to learn new
                                                and interesting things.

   1------------2------------3------------4------------5
   Strongly   Slightly   Neutral   Slightly   Strongly
   Prefer A   Prefer A   Prefer B   Prefer B

	JOB A			JOB B	

8. A job where there is a real chance
you could be laid off.

A job with very little chance to do
challenging work.

1 -------------- 2 -------------- 3 -------------- 4 -------------- 5

Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

9. A job in which there is a real chance
for you to develop new skills and
advance in the organization.

A job which provides lots of vaca-
tion time and an excellent fringe
benefit package.

1 -------------- 2 -------------- 3 -------------- 4 -------------- 5

Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

10. A job with little freedom and
independence to do your work in the
way you think best.

A job where the working conditions
are poor.

1 -------------- 2 -------------- 3 -------------- 4 -------------- 5

Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

	JOB A			JOB B	

11. A job with very satisfying team-
work.

A job which allows you to use your
skills and abilities to the fullest
extent.

1 -------------- 2 -------------- 3 -------------- 4 -------------- 5

Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

12. A job which offers little or no
challenge.

A job which requires you to be
completely isolated from co-workers.

1 -------------- 2 -------------- 3 -------------- 4 -------------- 5

Strongly Prefer A	Slightly Prefer A	Neutral	Slightly Prefer B	Strongly Prefer B

SECTION EIGHT

Biographical Background

1. Sex: Male_____   Female_____

2. Age (check one):

_____ under 20   _____ 40-49

_____ 20-29   _____ 50-59

_____ 30-39   _____ 60 or over

3. Education (check one):

_____Grade School

_____Some High School

_____High School Degree

_____Some Business College or Technical School Experience

_____Some College Experience (other than business or technical school)

_____Business College or Technical School Degree

_____College Degree

_____Master's or Higher Degree

4. What is your brief job title?_____

APPENDIX B

JRF INSTRUMENT

APPENDIX B
THE JOB RATING FORM

This appendix reproduces the Job Rating Form (JRF). This is a companion
instrument to the Job Diagnostic Survey and is designed to be used by
supervisors of the focal job (or by outside observers) in rating job character-
istics. The JRF provides measures of the key job dimensions; none of the
scales measuring affective reactions to the job or work context are included.
Scoring procedures for the JRF are included in Appendix C.

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JOB RATING FORM

</div>

This questionnaire was developed as part of a Yale University study of jobs and how people react to them. The questionnaire helps to determine how jobs can be better designed, by obtaining information about how people react to different kinds of jobs.

You are asked to rate the characteristics of the following job:

_____

Please keep in mind that the questions refer to the job listed above, and *not* to your own job.

On the following pages, you will find several different kinds of questions about the job listed above. Specific instructions are given at the start of each section. Please read them carefully. It should take no more than 10 minutes to complete the entire questionnaire. Please move through it quickly.

SECTION ONE

This part of the questionnaire asks you to describe the job listed above as *objectively* as you can. Try to make your description as accurate and as objective as you possibly can.

A sample question is given below.

A. To what extent does the job require a person to work with mechanical equipment?

1 -------- 2 -------- 3 -------- 4 -------- 5 ------ (6) ------ 7

Very little: the job requires almost no contact with mechanical equipment of any kind.

Moderately

Very much: the job requires almost constant work with mechanical equipment.

You are to *circle* the number which is the most accurate description of the job you are rating.

If, for example, the job requires a person to work with mechanical equipment a good deal of the time—but also requires some paperwork—you might circle the number six, as was done in the example above.

•   •   •

1. To what extent does the job require a person to work *closely with other people* (either "clients," or people in related jobs in the organization)?

1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7

Very little: dealing with other people is not at all necessary in doing the job.

Moderately: some dealing with others is necessary.

Very much: dealing with other people is an absolutely essential and crucial part of doing the job.

2. How much *autonomy* is there in the job? That is, to what extent does the job permit a person to decide *on his or her own* how to go about doing the work?

1 - - - - - - - 2 - - - - - - - 3 - - - - - - - 4 - - - - - - - 5 - - - - - - - 6 - - - - - - - 7

Very little: the job gives a person almost no personal "say" about how and when the work is done.	Moderate autonomy; many things are standardized and not under the control of the person, but he or she can make some decisions about the work.	Very much; the job gives the person almost complete responsibility for deciding how and when the work is done.

3. To what extent does the job involve doing a *"whole"* and *identifiable piece of work?* That is, is the job a complete piece of work that has an obvious beginning and end? Or is it only a small *part* of the overall piece of work, which is finished by other people or by automatic machines?

1 - - - - - - - 2 - - - - - - - 3 - - - - - - - 4 - - - - - - - 5 - - - - - - - 6 - - - - - - - 7

The job is only a tiny part of the overall piece of work; the results of the person's activities cannot be seen in the final product or service.	The job is a moderate-sized "chunk" of the overall piece of work; the person's own contribution can be seen in the final outcome.	The job involves doing the whole piece of work, from start to finish; the results of the person's activities are easily seen in the final product or service.

4. How much *variety* is there in the job? That is, to what extent does the job require a person to do many different things at work, using a variety of his or her skills and talents?

1 - - - - - - - 2 - - - - - - - 3 - - - - - - - 4 - - - - - - - 5 - - - - - - - 6 - - - - - - - 7

Very little; the job requires the person to do the same routine things over and over again.	Moderate variety.	Very much; the job requires the person to do many different things, using a number of different skills and talents.

5. In general, how *significant or important* is the job? That is, are the results of the person's work likely to significantly affect the lives or well-being of other people?

1 - - - - - - - 2 - - - - - - - 3 - - - - - - - 4 - - - - - - - 5 - - - - - - - 6 - - - - - - - 7

Not at all significant: the outcomes of the work are *not* likely to affect anyone in any important way.	Moderately significant.	Highly significant: the outcomes of the work can affect other people in very important ways.

6. To what extent do *managers or co-workers* let the person know how well he or she is doing on the job?

1 - - - - - - - 2 - - - - - - - 3 - - - - - - - 4 - - - - - - - 5 - - - - - - - 6 - - - - - - - 7

Very little; people almost never let the person know how well he or she is doing.	Moderately; sometimes people may give the person "feedback"; other times they may not.	Very much; managers or co-workers provide the person with almost constant "feedback" about how well he or she is doing.

7. To what extent does *doing the job itself* provide the person with information about his or her work performance? That is, does the actual *work itself* provide clues about how well the person is doing—aside from any "feedback" co-workers or supervisors may provide?

1 - - - - - - - 2 - - - - - - - 3 - - - - - - - 4 - - - - - - - 5 - - - - - - - 6 - - - - - - - 7

Very little; the job itself is set up so a person could work forever without finding out how well he or she is doing.	Moderately; sometimes doing the job provides "feedback" to the person; sometimes it does not.	Very much; the job is set up so that a person gets almost constant "feedback" as he or she works about how well he or she is doing.

```
┌─────────────────────────────────────────────────────────────────────────────┐
│                                SECTION TWO                                    │
│                                                                               │
│  Listed below are a number of statements which could be used to describe a job.│
│                                                                               │
│  You are to indicate whether each statement is an *accurate* or an *inaccurate* description of the job you are rating. │
│                                                                               │
│  Once again, please try to be as *objective* as you can in deciding how accurately each statement describes the job— │
│  regardless of your own *feelings* about that job.                            │
└─────────────────────────────────────────────────────────────────────────────┘
```

Write a number in the blank beside each statement, based on the following scale:

How accurate is the statement in describing the job you are rating?

1	2	3	4	5	6	7
Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate

_____ 1. The job requires a person to use a number of complex or sophisticated skills.

_____ 2. The job requires a lot of cooperative work with other people.

_____ 3. The job is arranged so that a person does *not* have the chance to do an entire piece of work from beginning to end.

_____ 4. Just doing the work required by the job provides many chances for a person to figure out how well he or she is doing.

_____ 5. The job is quite simple and repetitive.

_____ 6. The job can be done adequately by a person working alone—without talking or checking with other people.

_____ 7. The supervisors and co-workers on this job almost *never* give a person any "feedback" about how well he or she is doing the work.

_____ 8. This job is one where a lot of other people can be affected by how well the work gets done.

_____ 9. The job denies a person any chance to use his or her personal initiative or discretion in carrying out the work.

_____ 10. Supervisors often let the person know how well they think he or she is performing the job.

_____ 11. The job provides a person with the chance to finish completely any work he or she starts.

_____ 12. The job itself provides very few clues about whether or not the person is performing well.

_____ 13. The job gives a person considerable opportunity for independence and freedom in how he or she does the work.

_____ 14. The job itself is *not* very significant or important in the broader scheme of things.

GENERAL INFORMATION

1. What is your name? _____

2. What is your own job title? _____

3. What is your age? (Check one)

   _____under 20   _____40-49

   _____20-29   _____50-59

   _____30-39   _____60 or over

4. How long have you been in your present position? (Check one)

   _____0-½ yr.   _____3-5 yrs.

   _____½-1 yr.   _____5-10 yrs.

   _____1-2 yrs.   _____10 or more yrs.

In the space below, please write down any additional information about the job you rated that you feel might be helpful in understanding that job. Thank you for your cooperation.

QUESTIONNAIRE #2

Code: _____

Job Title: _____

Sex: Male _____ Female _____

Age: 20 - 30 _____
30 - 40 _____
40 - 50 _____
50 - 60 _____
60+ _____

NPSL Personnel,

In the following questions, would you please elaborate on your responses? I am looking for reasons that support your answers.

Thank you,

MIKE CRUZ

1. What specific action(s) create dissatisfaction between you and your supervisor? Why? (If None, state so.)

_____

_____

_____

2. What specific action(s) create dissatisfaction between you and your co-worker(s)? Why? (If None, state so.)

_____

_____

_____

3. Does my job require me to work by myself without interaction with others? (What percent of my job does not involve other people, percent of time work with others, percent of time work alone?)

_____

_____

_____

4. Am I paid fairly for what I contribute to this organization? (Do you compare yourself with others relative to pay and effort?) (Who?)

_____

_____

_____

5. Does the job itself tell me how well I am doing? (If it does, how does it? Explain.)

_____

_____

_____

6. Am I motivated to seek out challenging work with a high level of uncertainty?

_____

_____

_____

7. Who tells me more about how I am doing on the job – my supervisor or my co-worker? Or neither?

_____

_____

_____

Please write next to each name on the list the letter(s) or group of letters that describe the following situation:

    S: Who you communicate with socially.
    T: Who you communicate with technically (job related).
    NS: Who you would <u>need</u> to communicate with socially.
    NT: Who you would <u>need</u> to communicate with technically.

(There may be more than one letter or group of letters per name - example: Anderson <u>S, T, NT</u>.)

Your Name: _____

Name List

Code 06:

Tietje, G. R. _____
Laughlin, L. S. _____
Lee, R. H. _____
Libby, R. G. _____
Collins, B. E. _____
Slack, J. G. _____
Tohir, S. M. _____

Code 061:

MacKinnon, J. B. _____
Artman, P. A. _____
Bradford, J. T. _____
Cox, W. W. _____
Koontz, W. A. _____
Mikita, G. W. _____
Riddell, W. E. _____
Santos, S. D. _____
Tabler, J. H. _____
Wolk, M. _____

Code 062:

Rand, B. G. _____
Berlanga, J. F. _____
Brech, R. V. _____
Cretella, L. S. _____
Hoover, J. M. _____
Hunter, L. A. _____
Kremer, E. T. _____
Lea, R. L. _____
McBride, W. J. _____
Mooney, M. L. _____
Morales, H. W. _____

Code 065:

Braun, P. L. _____
Lucas, C. _____
Millspaugh, J. D. _____
Moore, J. W. _____
Rizzi, A. A. _____
Tong, C. J. _____
Wheeler, J. C. _____

Code 066:

Anderson, R. D. _____
Campbell, I. G. _____
Meserole, L. T. _____
Moore, R. S. _____
Sachs, C. L. _____
Todd, D. A. _____

Code 06601:

Friesinger, C. L. _____
Copp, T. S. _____
Powell, R. J. _____
Rizk, M. E. _____
Sheridan, M. E. _____
White, M. A. _____

APPENDIX D

JDS LETTER REQUEST

MEMORANDUM

From: Code 06
To: Code 06 Personnel

Subj: JOB DIAGNOSTIC SURVEY

1. As you know, Mike Cruz, one of our Code 06 Division Directors, is presently attending Naval Postgraduate School in Monterey. He is pursuing an advanced degree in Organizational Development. One of his requirements for graduation is completion of a thesis.

2. Mike will be in the Oil Analysis laboratory the morning of 18 February. His purpose will be to administer a "Job Diagnostic Survey" to employees in the Laboratory. It will involve questions regarding how people look at their jobs, how they look at their supervisors, and how their supervisors look at them. People who fill out the survey will not be asked to place their name on the survey, thereby ensuring anonymity. Overall survey results will, however, be shared with Laboratory personnel.

3. The survey will be administered between 0800 and 0845 on 18 February. Mike will take the first few minutes to discuss the survey and how he will use the data in his thesis. He will also answer any questions about the survey.

4. You are all invited to participate in the survey on a voluntary basis. I'm sure that Mike would appreciate your help.

                                    G. R. TIETJE

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06(f)

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   San Diego, California 93125

4. Mr. Benjamin J. Roberts, Code 54Ro   1
   Naval Postgraduate School
   Monterey, California 93943-5000

5. Mr. Michael A.V. Cruz   1
   1845 Citadel Ct.
   Chula Vista, California 92013

END

2-81-

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