

DOCUMENT RESUME

ED 418 211

CE 075 021

TITLE The DACUM Job Analysis Process.
INSTITUTION Dofasco, Inc., Hamilton (Ontario).
REPORT NO HR-6685-TR002
PUB DATE 1996-10-18
NOTE 79p.; For a related document, see CE 074 908.
PUB TYPE Guides - Non-Classroom (055)
EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Check Lists; *Competency Based Education; *Curriculum Development; Data Collection; Education Work Relationship; Educational Needs; *Job Analysis; *Job Skills; *Needs Assessment; Occupational Information; Postsecondary Education; Recordkeeping; Records (Forms); Secondary Education; Task Analysis; Validity; *Vocational Education; Worksheets; Workshops
IDENTIFIERS *DACUM Process

ABSTRACT

This document explains the DACUM (Developing A Curriculum) process for analyzing task-based jobs to: identify where standard operating procedures are required; identify duplicated low value added tasks; develop performance standards; create job descriptions; and identify the elements that must be included in job-specific training programs. The following are among the topics discussed in sections 1-14: purpose and scope of the process; responsibilities of key players in the process (level 3 facilitators, customers, sponsors, task analysts, workshop facilitation team members); process overview (conducting information presentations, and DACUM Job Analysis Process High Level Flow Diagram); DACUM process policies and guidelines; needs assessment process; considerations in establishing a priority process; customer service agreements; job site visits; three phases of the DACUM job analysis process (DACUM workshop); validation; task analysis; evaluations and audits; DACUM facilitator development process; and recordkeeping and tracking. Concluding the document are a list of four references and the history of the process's revision. Appended are a DACUM information packet and various job analysis process-related forms, including the following: DACUM needs assessment form; internal customer/supplier form agreement; DACUM duty templates; DACUM profile, priority rating chart, and validation letter; task analysis data sheet; job reengineering worksheet; template for developing performance standards; sample level 1 evaluation; audit check sheet; and facilitator evaluation check sheet. (MN)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

The DACUM Job Analysis Process



DOFASCO

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- This document has been reproduced as received from the person or organization originating it.
- Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND
DISSEMINATE THIS MATERIAL
HAS BEEN GRANTED BY

K. McLean

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)

BEST COPY AVAILABLE

TABLE OF CONTENTS

1.0 PURPOSE AND SCOPE 6

2.0 RESPONSIBILITY 7

 2.1 Level 3 Facilitator 7

 2.2 Customer 7

 2.3 Sponsor 7

 2.4 Task Analyst(s) 8

 2.5 Workshop Facilitation Team 8

3.0 PROCESS OVERVIEW 9

 3.1 Conducting Information Presentations 9

 Chart 3.A - DACUM Job Analysis Process High Level Flow Diagram 10

4.0 DACUM PROCESS POLICIES AND GUIDELINES 11

5.0 NEEDS ASSESSMENT PROCESS 12

 Chart 5.A - Needs Assessment Process 13

6.0 ESTABLISHING PRIORITY PROCESS 14

 Chart 6.A - Establishing Priority Process 15

 6.1 Priority Assessment Criteria 16

 6.1.1 Probability of Success 16

 6.1.2 Cost/Impact of Problem 16

 6.1.3 Cost of Solution 16

 6.1.4 Time to Implement 16

 6.2 Priority Index Formula 17

 6.3 Over-Riding Factors 17

 6.4 Alternative Methods 17

7.0 CUSTOMER SERVICE AGREEMENT 20

 Chart 7.A - Customer Service Agreement Process 21

8.0 JOB SITE VISIT 22

 Chart 8.A - Job Site Visit Process 23

9.0 PHASE 1: DACUM WORKSHOP 24

 9.1 Criteria for Panel Selection 24

9.2	Guidelines for Running a DACUM Workshop	24
9.3	DACUM Profile Quality Criteria	26
	Chart 9.A - Phase 1: DACUM Workshop Process (Day 1)	28
	Chart 9.B - Phase 1: DACUM Workshop Process (Day 2)	29
10.0	PHASE 2: VALIDATION	30
	Chart 10.A - Phase 2: Validation Process	31
11.0	PHASE 3: TASK ANALYSIS	32
11.1	Development of Standard Operating Procedures and Job Aids	32
11.2	Development of Training Programs	32
11.3	Job Re-Engineering and Job Comparison	33
11.4	Development of Performance Standards and Competency Evaluations	33
11.5	Development of a Job Description	33
	Chart 11.A - Phase 3: Task Analysis Process	34
12.0	EVALUATIONS AND AUDITS	35
12.1	Evaluations	35
	12.1.1 Purpose of Level 1 Evaluation	35
	12.1.2 Responsibility	35
	12.1.3 Data Collection Process	35
12.2	Conducting Audits	35
	12.2.1 Purpose of Audits	36
	12.2.2 Responsibility	36
	12.2.3 Audit Criteria	36
	12.2.4 Providing Feedback	36
	Chart 12.A - Audit Process	37
13.0	DACUM FACILITATOR DEVELOPMENT PROCESS	38
13.1	Criteria for Selection	38
13.2	Facilitator Development	38
	13.2.1 Level 1 Facilitator Development	38
	13.2.2 Level 2 Facilitator Development	39
	13.2.3 Level 3 Facilitator Development	40
13.3	Facilitator Evaluation	40
14.0	RECORD KEEPING AND TRACKING	42
14.1	Software	42
14.2	Software Criteria	42
14.3	Additional Software Options	43
15.0	REFERENCES	44

16.0 REVISION HISTORY 45

APPENDIX A: DACUM INFORMATION PAMPHLET 46

APPENDIX B: DACUM NEEDS ASSESSMENT FORM 48

APPENDIX C: ANALYSIS OF NEEDS ASSESSMENT DATA FORM 50

APPENDIX D: INTERNAL CUSTOMER/SUPPLIER AGREEMENT FORM FOR DACUM ANALYSIS 51

APPENDIX E: DACUM DUTY TEMPLATES 52

APPENDIX F: DACUM PROFILE, PRIORITY RATING CHART, VALIDATION LETTER 53

APPENDIX G: TASK ANALYSIS DATA SHEET 60

APPENDIX H: JOB RE-ENGINEERING WORK-SHEET 62

APPENDIX I: TEMPLATE FOR DEVELOPING PERFORMANCE STANDARDS 64

APPENDIX J: EXAMPLE OF LEVEL 1 EVALUATION (SMILE SHEET) 66

APPENDIX K: AUDIT CHECK SHEET 67

APPENDIX L: FACILITOR EVALUATION CHECKSHEET 69

1.0 PURPOSE AND SCOPE

DACUM is a tool that is used to produce a job profile for the purpose of analyzing task based jobs. The analysis will be used to: identify where standard operating procedures are required; identify duplicated, low value added tasks; develop performance standards; create job descriptions; and identify what elements must be included in job specific training programs.

DACUM will not be used for or in association with: developing pay for skills programs; eliminating jobs; or analyzing jobs currently impacted by the 'Management Resourcing' succession planning system.

2.0 RESPONSIBILITY

Experienced Level 3 DACUM Facilitators (*See Facilitator development section 13.2.3 page 40*) within the Human Resources Training Department are responsible for ensuring that the process defined within this document is followed, administered, and adhered to. Level 3 Facilitators are responsible for ensuring that the following responsibilities and roles are understood and carried out by the Business Units and Staff Departments.

2.1 Level 3 Facilitator (Assigned by Training Department)

- Provides information/presentations to customer
- Conducts the needs assessment
- Determines priority index
- Develops customer service agreement
- Arranges DACUM workshop(s)
- Coordinates workshop facilitation team
- Ensures profiles are produced
- Initiates the validation process
- Provides training, support, and consulting services during the Task Analysis Phase of process
- Conducts audits and assessments

2.2 Customer (Business Units/Staff Department)

- Provides the required resources
- Provides a sponsor
- Provides task analyst(s) (if required)
- Determines objectives and purpose of the analysis
- Identify what jobs need to be analyzed
- Determines the time-lines
- Communicates the process to rest of the Staff Department/Business Unit
- Ensures the process is carried out to completion

2.3 Sponsor (Assigned by Business Unit/Staff Department)

- Selects the panel(s) members based on the outlined criteria defined in section 9.1 page 24.
- Preps the panel members
- Monitors and adheres to the time-lines
- Coordinates the validation session(s)

-
- Acts as liaison between Lead Facilitator and Customer
 - Ensures the process is brought to completion

2.4 Task Analyst(s) (Assigned by Business Unit/Staff Department)

- Attends the required training
- Has the time and support to fulfil this function
- Develops the profile into the end product

2.5 Workshop Facilitation Team (Assigned by Training Department)

- Facilitator(s) • Leads and facilitates the two day workshop
- Leads and facilitates the validation session
- Recorder • Records the information generated during the two day workshop

3.0 PROCESS OVERVIEW

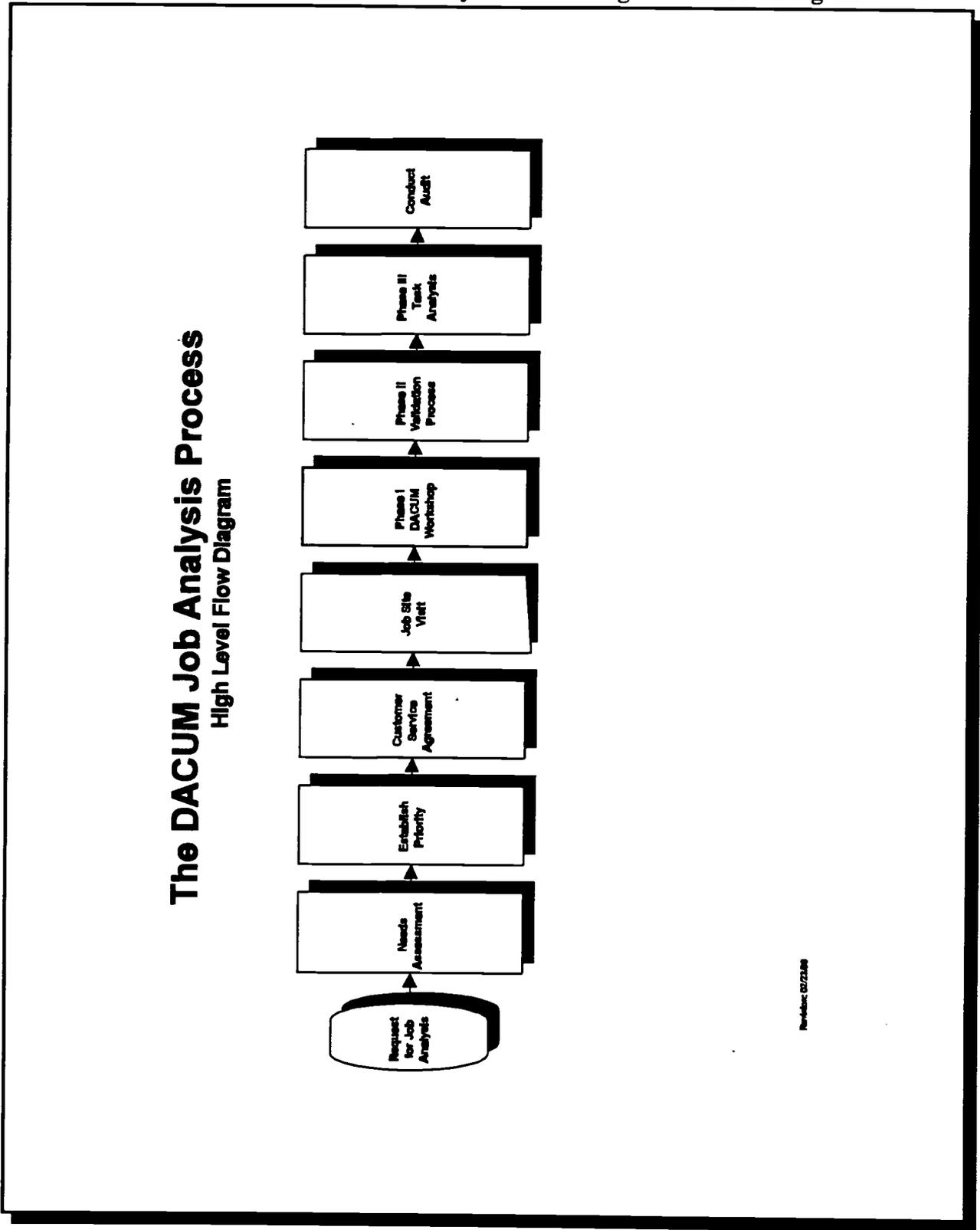
The job analysis process consists of three phases: the two-day workshop phase; the profile validation phase; and the task analysis phase. Information describing the phases and outcomes can be found in a pamphlet titled "The DACUM Approach to Occupational Analysis" in Appendix A page 46.

However the entire process, shown in the high level flow diagram (Chart 3.A, page 10), consists of conducting a full needs assessment, establishing priority, developing a customer service agreement, conducting a job site visit, conducting the three phase DACUM process, and monitoring success through audits.

3.1 Conducting Information Presentations

Prior to conducting the needs assessment, an information presentation is usually required. The Level 3 Facilitator provides a formal or informal presentation to the staff/management of the requesting area. In this presentation the facilitator explains the job analysis process by explaining each of the following components: needs assessment, customer service agreement, job visit, workshop, validation, tasks analysis, and auditing. The Facilitator also provides examples of the end uses, explains the responsibilities of the Business Unit/ Staff Department, identifies the resource requirements, and explains the criteria for panel selection. An example of a DACUM profile (Appendix F, page 53) and an information pamphlet (Appendix A, page 46) is distributed to all participants. The Facilitator also brings examples of completed job aids, learning guides, and other products developed from the profile.

Chart 3.A - DACUM Job Analysis Process High Level Flow Diagram



4.0 DACUM PROCESS POLICIES AND GUIDELINES

The following policies and guidelines will be enforced by all DACUM Facilitators. Level 3 Facilitators are responsible for ensuring compliance with the policies and revising them as required.

1. Each request for a DACUM job analysis will be assessed by a Level 3 DACUM Facilitator using the needs analysis questionnaire found in Appendix B, page 48. The Level 3 Facilitator will determine the priority status and feasibility of conducting workshops for the requesting area.
2. Each Department or Business Unit will sign an agreement which identifies resources, jobs to be analyzed, time-lines, and purpose of the analysis. Breach of the agreement will result in termination of the process.
3. The agreement approves a maximum of four (4) DACUM Workshops to be conducted and upon completion will be reviewed for compliance to agreement. Incompliance will terminate any additional workshops.
4. The DACUM profiles are the property of the customer and any reproductions of the profiles can only be made with the customers full approval. This approval is gained during the validation session and is noted on the profile in the 'approval to copy' field.
5. All DACUM Facilitator(s) and staff will maintain full confidentiality during and after the workshop. Any confidential information inadvertently disclosed will remain confidential and not be discussed outside the workshop by any Facilitator(s) or DACUM Staff members.
6. Each profile will comply with Government legislation and Dofasco policies.
7. Deviation from the process ie. by-passes the validation phase, will be investigated and could result in termination of agreement and services.
8. The Level 3 Facilitator may assist in the audits being conducted within his/her area of involvement, but may not lead the audit.
9. DACUM will not be used for job elimination, job or salary evaluations, pay for skills, and management jobs that are covered by succession planning.

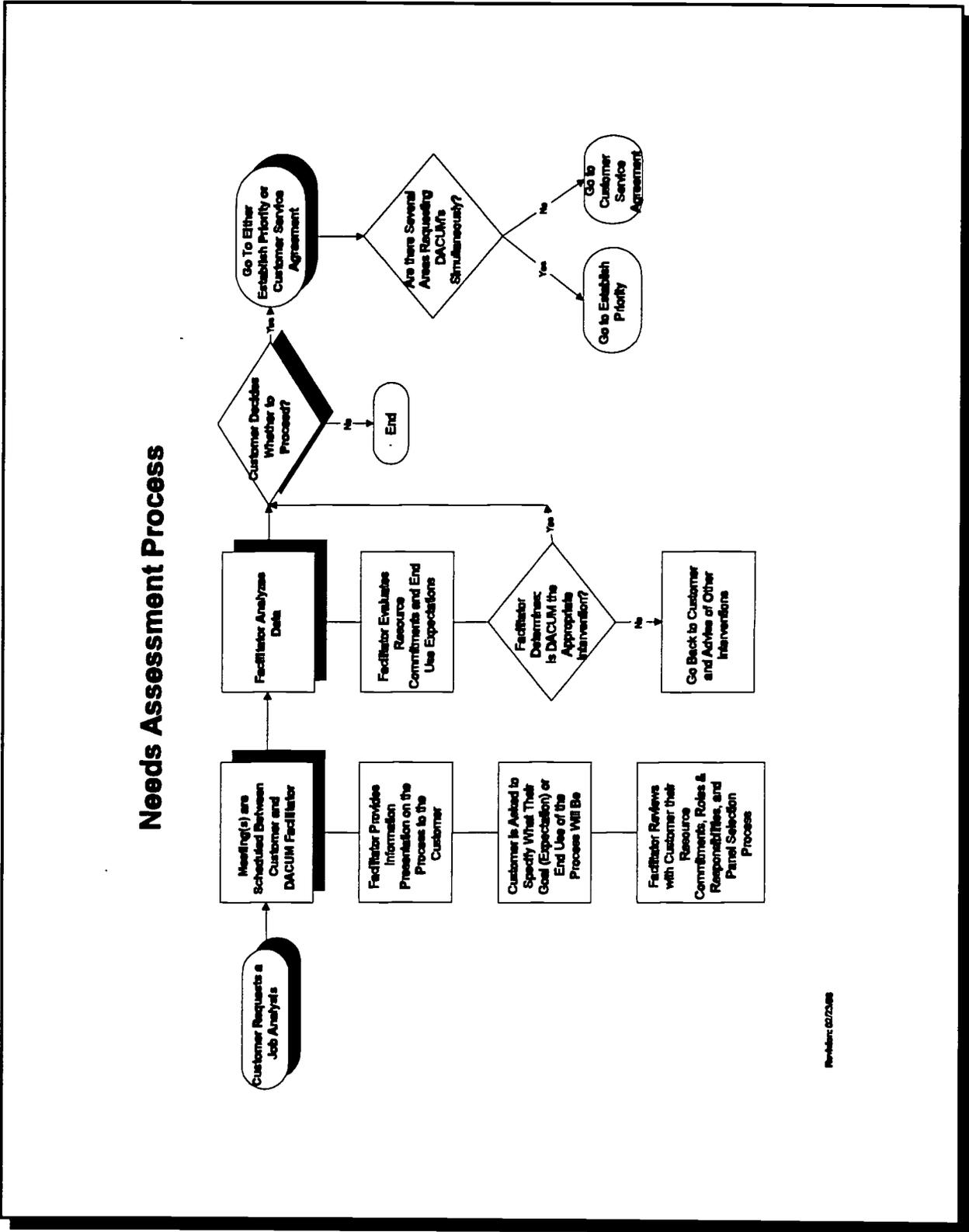
5.0 NEEDS ASSESSMENT PROCESS

A full needs assessment is conducted by a Level 3 Facilitator upon receiving the request for a job analysis. Flow chart 5.A on page 13 defines the needs assessment process. The analysis identifies how many jobs will need to be analyzed and whether DACUM is the appropriate intervention. The needs assessment is conducted using the form in Appendix B, page 48.

The data gathered from the customer in the needs assessment is then analyzed using the form in Appendix C, page 50. The analysis ensures that a clear identification of previous history, need, use, application, time, and resource requirements are noted. This information is used to establish priority, determine whether all the elements are in place to proceed, and develop the customer service agreement.

4

Chart 5.A - Needs Assessment Process



BEST COPY AVAILABLE

6.0 ESTABLISHING PRIORITY PROCESS

This process is initiated when two or more requests come in concurrently. The Level 3 Facilitator(s) conduct the needs assessment for each request. Once all the needs have been analyzed and identified as valid, the prioritization process is initiated. Chart 6.A on page 15 describes the process.

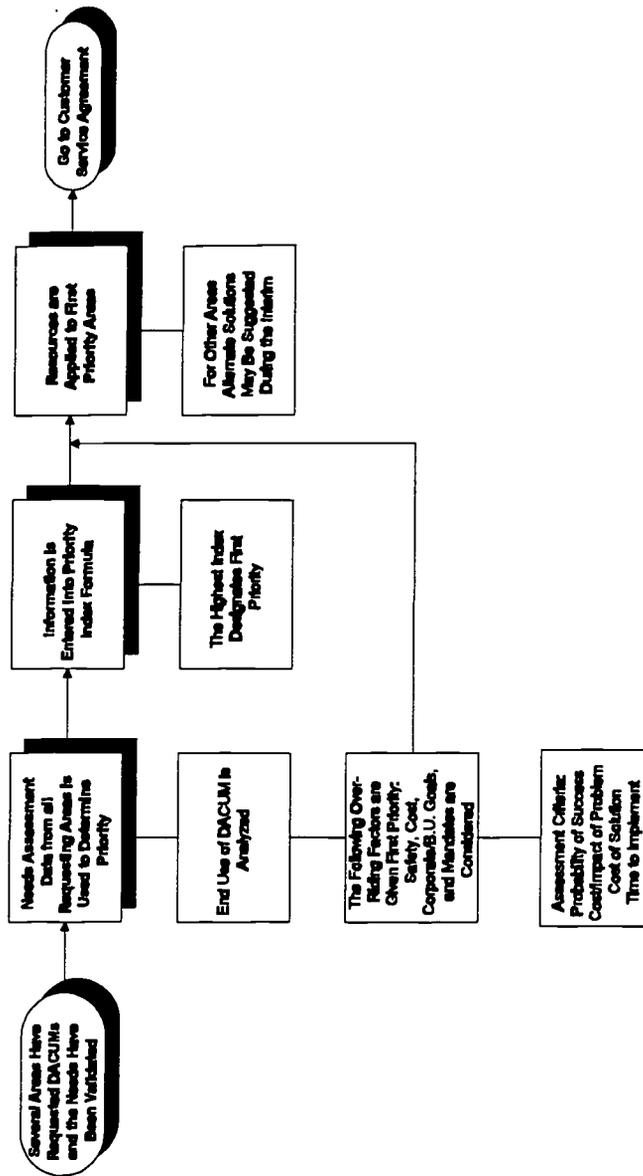
The end-use stated on the needs assessment is classified in one of the three categories listed in the table below:

Safety / Environment / Legislation	Quality / Productivity / Efficiency	Human Resource Issues
Development of S.O.P.'s Equity Issues Training	Job Comparison Development of S.O.P.'s Job Re-Engineering Ensuring Consistent Training & Procedures Multi-Skilling	Job Definition Development of Job Aids Development of Training Development of Performance Standards Recruitment Competency Evaluation Identification of Skills & Knowledge Requirements

Chart 6.A - Establishing Priority Process

17

Establish Priority Process



Revised: 02/2/00

BEST COPY AVAILABLE

6.1 Priority Assessment Criteria

The assessment criteria consists of the following four components:

1. Probability of Success
2. Cost / Impact of Problem
3. Cost of Solution
4. Time to Implement

From the information gathered in the needs assessments a relative measure is determined by weighing the critical success factors associated with each component.

6.1.1 Probability of Success

The critical success factor is found by determining - "How many factors are there that could stop this process?" Ie. Prevent us from completing the full process and achieving the desired result or end product.

The relative measure is a scale of 1 - 10 with 1 = Low probability; 5 = Moderate probability; 10 = High probability of success.

6.1.2 Cost/Impact of Problem

The critical success factor is found by determining - "What would the impact of not doing it be?" Ie. Would it result in high cost, poor quality, loss of productivity, safety issues etc.

The relative measure is a scale of 1 - 10 with 1 = Small cost/impact; 5 = Moderate cost/impact; 10 = High cost/impact.

6.1.3 Cost of Solution

The critical success factor is found by determining - "What will the cost be to H.R.?" Ie. Costs in terms of resources (internal/external), time and availability, and additional support services (long term/short term).

The relative measure is a scale of 1 - 10 with 1 = Low cost; 5 = Moderate cost; 10 = High cost.

6.1.4 Time to Implement

The critical success factor is found by determining - "Are the necessary elements for implementation available?" Ie. Does the customer have the people, time, and motivation to complete the process in a reasonable time frame.

The relative measure is a scale of 1 - 10 with 1 = Short time frame; 5 = Moderate time frame; 10 = Long time frame.

6.2 Priority Index Formula

The subjective ratings for each component is entered into the following formula and calculated out to determine the 'Priority Index'. The high priority is granted to the highest Priority Index Number.

$$f(x) = \frac{P[\text{Success}] \times \text{Cost/Impact of Problem}}{\text{Cost of Solution} \times \text{Time to Implement}}$$

6.3 Over-Riding Factors

This process would not be used if any of the following factors are present:

- The analysis is being conducted due to safety, environment, or legislated issues.
- Cost reduction initiatives have become a priority.
- Other Corporate or Business Unit/Staff Department goals have become a high priority.
- Management has mandated the analysis to be done.

6.4 Alternative Methods

Once the high priority area has been determined, resources are dedicated to that area and the other areas fall into line based on their priority index numbers. For the remaining areas other interventions will be suggested that may provide good alternatives:

- Provide them with existing charts similar to the job function to be analyzed
- Train some of their people to conduct the workshop
- Bring in external resources (depending of critically of situation)

Example:

Three areas simultaneously request a series of DACUM job analysis. Department A, Department B, and Department C all believe their request to be high priority. None of the requests have any over-riding factors prevailing.

1. Probability of Success:

Department A's situation - ran DACUM sessions in the past and based on historical data, achieved minor results but did not complete their entire objectives, therefore we will rate them as low giving them a numeric value of 3.

Department B's situation - also perviously ran DACUM sessions with complete success in achieving their objectives, therefore we will rate them as high giving

them a numeric value of 10.

Department C's situation - have never participated in DACUM job analysis sessions and based on the needs assessment have good intentions but may not be able to provide all the resources required, therefore we'll give them a moderate rating of 5 since it could go either way.

2. Cost/Impact of Problem:

Department A - want to use DACUM's to develop S.O.P.'s in order to achieve QS 9000 certification and also reduce the cost of poor quality, therefore we can give them a high rating of 9.

Department B - want to continue with the development of their job aids. They have already completed all their high priority critical jobs and now want to move down to the next level, therefore we will give them a moderate rating of 6.

Department C - are not sure what this can do for them (if anything) and want to try it out by developing a job description for their high priority jobs, therefore we'll give them a small impact rating of 1.

3. Cost of Solution:

Department A - although they have already received substantial training in task analysis, because of constant turn over of resources they will need additional training and support, therefore we will give them a moderate rating of 5.

Department B - having gone through the process, they are well experienced in task analysis and will not require any additional training or support therefore we will rate them as low cost and assign a numeric value of 3.

Department C - are completely novice to the process and will require a lot of training, support, and coaching therefore we will give them a high cost rating of 8.

4. Time to Implement:

Department A - based on historical data, their implementation time was excessively long and resulted in not achieving their objectives. The needs assessment indicates that no measure have been taken to eliminate the problem therefore, we will assume a long time to implement and rate them at 8.

Department B - based on historical data, their original implementation time was long but now they have gained experience and reduced the learning curve

significantly. Their needs assessment shows that the original core group will be heading up the task analysis process and they are bringing in additional resources to assist, therefore we will assume a short time to implement and rate them a 2.

Department C - we have no historical data to go by and based on their needs assessment they have good intentions but some resource problems to sort out, therefore we will assume moderate time to implement and rate them at 4.

The ratings look like this:

Factor	Department A	Department B	Department C
Probability of Success	Low 3	High 10	Mod 5
Cost/Impact of Problem	High 9	Mod 6	Small 1
Cost of Solution	Mod 5	Low 3	High 8
Time to Implement	Long 8	Short 2	Mod 4
Priority Index	.675	10	.156

The results show that we should give first priority to Department B, followed by Department A and then Department C.

7.0 CUSTOMER SERVICE AGREEMENT

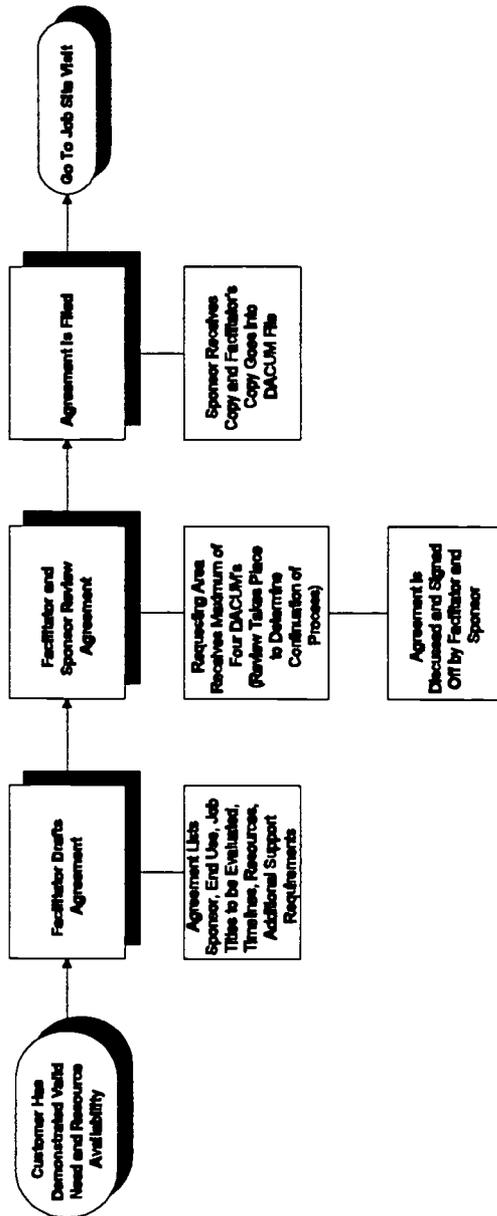
Based on the results of the needs analysis and the prioritization process a customer service agreement is developed using the form found in Appendix D, page 51. This agreement defines the purpose of the analysis, number and title of jobs to be analyzed, time-lines, additional services, training and support requirements, and the resources involved.

The document is completed by the Level 3 Facilitator and presented back to the Business Unit/Staff Department for review and approval. Once approved, the agreement is signed by the Business Unit Manager/Staff Department Manager and Manager of Training.

This assures that full understanding of deliverables are realized by all parties involved. The process is defined in chart 7.A on page 21. Each needs assessment and agreement is valid for a maximum of four DACUM workshops. The task analysis phase is monitored and based on the progress of the task analysis, if additional workshops are required, another needs analysis is conducted and new service agreement developed.

Chart 7.A - Customer Service Agreement Process

Customer Service Agreement Process



Revised: 02/2000

BEST COPY AVAILABLE

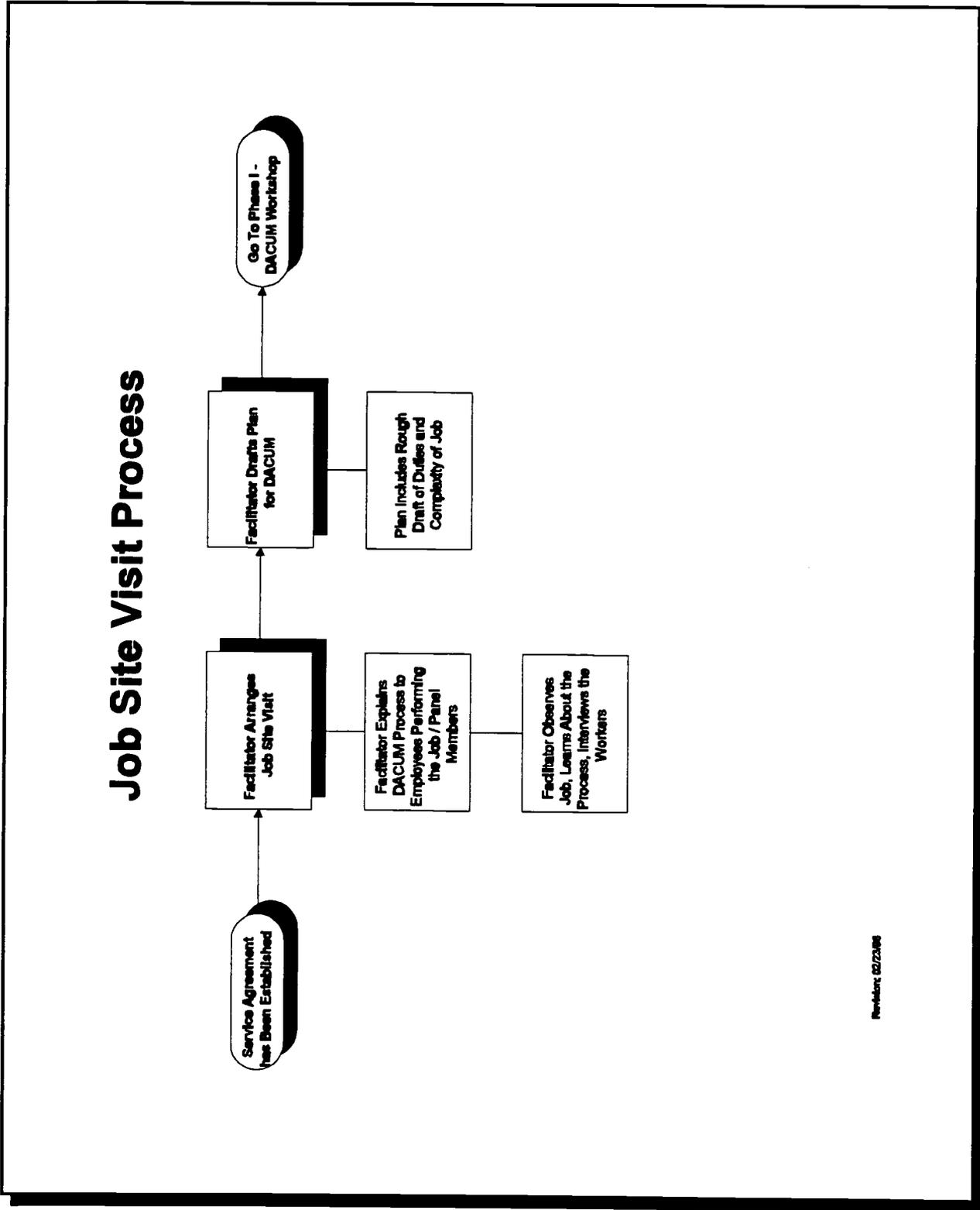
8.0 JOB SITE VISIT

Once the customer service agreement has been developed and signed, a job visit is required. Flow chart 8.A, page 23 depicts the job visit process. The purpose of the visit is to provide the opportunity for the Level 1 Facilitator(s) to gain a little knowledge about the job, gain familiarity with the operations (equipment, terminology, etc.), and provide a brief overview of the DACUM workshop to the employees involved.

The Facilitator(s) notes any concerns, false expectations or impressions brought up by the employees and ensures that the sponsor clarifies and addresses them prior to the workshop. With the information gathered with regard to the job, the facilitator drafts up a plan that identifies potential duties to use as a guide in the workshop. The template shown in Appendix E, page 52 could be used as a guide to ensure consistency among similar jobs.

Chart 8.A - Job Site Visit Process

27



BEST COPY AVAILABLE

9.0 PHASE 1: DACUM WORKSHOP

The DACUM workshop is ready to be scheduled. The Level 3 Facilitator selects the facilitation team which consists of a Level 1 Facilitator (*see section 13.2.1, page 38*) and Recorder to conduct the workshop. Flow diagrams 9.A, page 28 and 9.B, page 29 define the two-day workshop process. The panel is selected based on the criteria defined below in section 9.1. The panel is briefed on the process, facilities are arranged, and the workshop is conducted as per the guidelines stated in section 9.2.

In order to ensure some consistency across the organization, the facilitator refers to the plan drafted during the job visit and the duty template found in Appendix E page 52. This template provides a guide for wording duties that are common in similar jobs across the organization.

After the workshop is complete, the Level 1 Facilitator generates the DACUM profile based on the guidelines defined in section 9.3, page 26 and prepares for the validation phase of the process.

9.1 Criteria for Panel Selection

The DACUM panel should consist of individuals who:

1. Are considered by supervision and fellow workers to be experts in their field.
2. Enjoy group sessions and have good oral communication skills.
3. Enjoy teamwork and a consensus approach towards decision making.
4. Are currently performing the job and have several years experience on the job.
5. Are willing to take part in the workshop.

9.2 Guidelines for Running a DACUM Workshop

1. Start with an organizational chart listing a maximum of 3 levels of management.
2. Avoid writing new a rating number on top of an old number.
3. Determine the level of task detail required and avoid getting into too much - strive for quality not quantity.
4. Ensure that each task results in a product, service, decision.

5. Validate that you have task statements by asking the panel to describe the procedure required to perform the task.
6. Ask the following questions for operations jobs:
 - Safety
 - What is your role with safety contacts? (Develop, administer, file)
 - Do you perform safety of the workplace inspections?
 - Do you generate WHMIS labels?
 - Do you perform fire-watch?
 - General
 - Do you winterize the plant?
 - Do you perform housekeeping duties?
 - Do you generate any reports?
 - Do you order any supplies (using CSM system, or manually)?
 - Do you change printer cartridges, pens, paper rolls etc.?
 - Do you train new employees (on the job or formally in class)?

7. Ask administrative jobs if they perform fire-warden responsibilities.

8. When developing the general knowledge, skills, tools etc. charts:

Behaviours, Attitudes & Traits: Do not use physically fit - have them explain ie must lift 100 lbs., must climb stairs, etc. Do not use must be literate - instead use good oral and writing skills.

Skills & Knowledge: Commonly used phrases, training programs
WHMIS = Workplace Hazardous Materials Information System
OE Training = Occupational Environment training
RCM = Reliability Centred Maintenance
SPC = Statistical Process Control
Juran = Quality Improvement, Planning & Control Training
Pecos = Team building training
Process Knowledge
CSM = Central Stores systems
SOP = Standard Operating Procedures

Tools, Equipment, Supplies: Commonly used phrases and equipment
Personal Safety Equipment = work boots, hard hat, safety glasses, ear plugs
Personal Desk Supplies = pens, stapler, scissors, rulers, paper, etc.

Future Trends: Capture specific things not general ie. instead of increased technology ask what specifically such as new rolls, new MMI computer

system etc.

9. Common used task statements:
Provide on the job training to new employees
Perform safety of the workplace inspections
Perform fire-warden function
Perform fire-watch
10. Facilitator's Responsibilities:
Maintain confidentiality
Maintain an open, non-hostile, comfortable environment
Take a sincere interest in the panel's job
Use phrases such as: "What else do you do? Have we captured everything you do in this duty?" instead of, "Is that it? Is that all you do?"
Be more passive the first day and work toward being more assertive on the second day.
Be a positive role model for panel (have respect for the panel and their job).
11. The DACUM profile will be electronically generated within 48 hours after the workshop and validation session.

9.3 DACUM Profile Quality Criteria

All DACUM profile charts will be evaluated based on the following criteria:

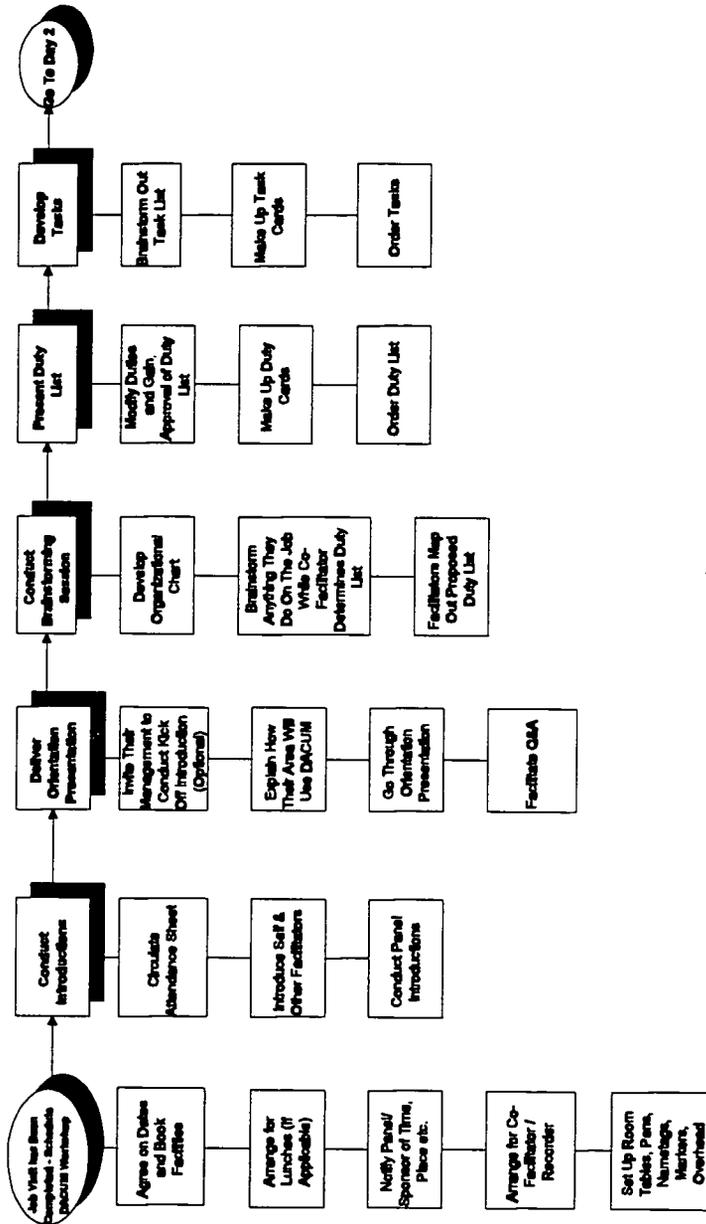
1. One verb per task and duty statement.
2. The verb used to define the duty statement should not be used in the task statements.
3. Ensure verbs are used properly. Big verbs for duty statements, moderate verbs for task statements, and small verbs for step statements (refer to verb document - "A Word to the Why's, A DACUM Verb List" by Dr. John Hart).
4. Each task statement must concisely describe a product, service, or decision.
5. Each profile will consist of an organizational chart, duty statements, task statements, behaviours/attitudes/traits chart, skills and knowledge chart, tools/equipment/supplies chart/ future trends chart, and each task will be rated on frequency, criticality, and difficulty to learn.
6. Future trends will not represent a wish list. They must be linked into a product or

initiative that will allow you to know when it has taken place.

7. No task statements will be duplicated unless the procedure is different in which case the statements will be distinguished by a qualifier.
8. Based on the "DACUM Handbook" by Dr. R. Norton, each task should:
 - Stand alone
 - Be performed independent of other work
 - Be observable / measurable
 - Clearly describe the task
 - Worded in the language of the workers
 - Have a beginning and end
 - Be assignable
9. The profile should consist of four or more duties with no less than four tasks per duty. On average the profile should consist of seven duties and six or more tasks per duty.
10. All abbreviations and acronyms must be written out in full.
11. The profile must be gender neutral.
12. The DACUM profile will be generated electronically using a minimum 10 point pitch in times roman or universal font. It will contain the date of the workshop, duties and tasks, ratings of each task and product calculations, an alpha numeric task code, behaviours, skills, tools, future trends, panel member names, facilitator(s)/recorder names, sponsor name, revision date, computer file name, approval to copy, job title, department, area, organizational chart, and task priority rating chart.

Chart 9.A - Phase 1: DACUM Workshop Process (Day 1)

**Phase I - DACUM Workshop Process
Scheduling & Day 1**



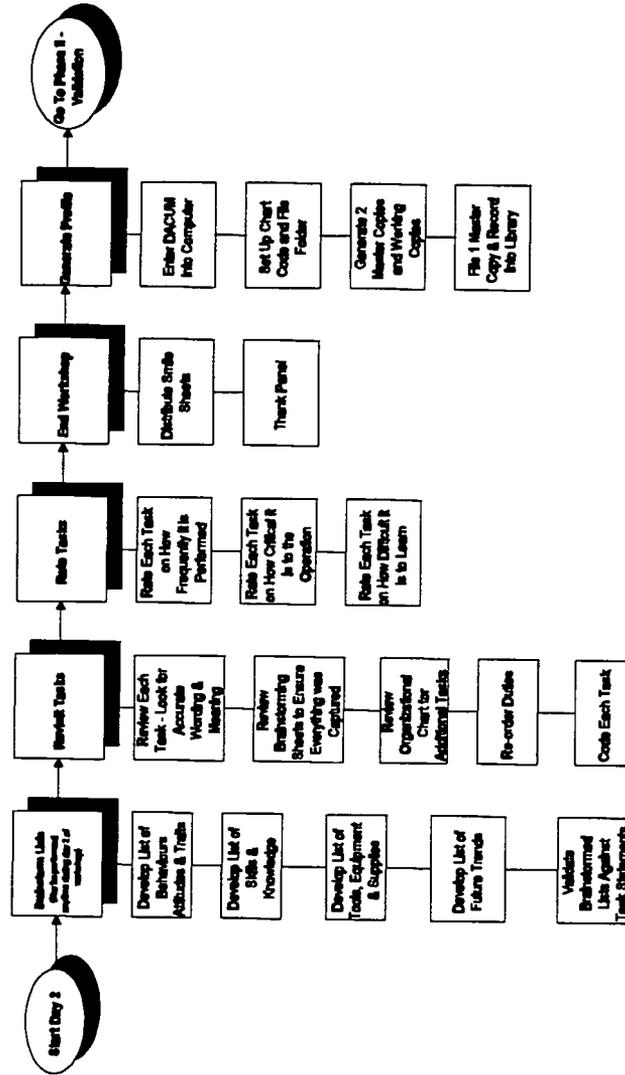
Revised 02/20/96

BEST COPY AVAILABLE

Chart 9.B - Phase 1: DACUM Workshop Process (Day 2)

35

Phase I - DACUM Workshop Process
Day 2 & Chart Production



Revised 02/2000

BEST COPY AVAILABLE

10.0 PHASE 2: VALIDATION

The DACUM profile is generated and sent out into the operations for review by all stakeholders for a three week period. Stakeholders include customers, co-workers, management, suppliers, and the panel members. During the validation stage, stakeholders are looking for inaccuracies, omissions, and incoherent task statements. Stakeholders are to review the profile and provide written feedback to the sponsor. Flow chart 10.A on page 31 describes the validation process.

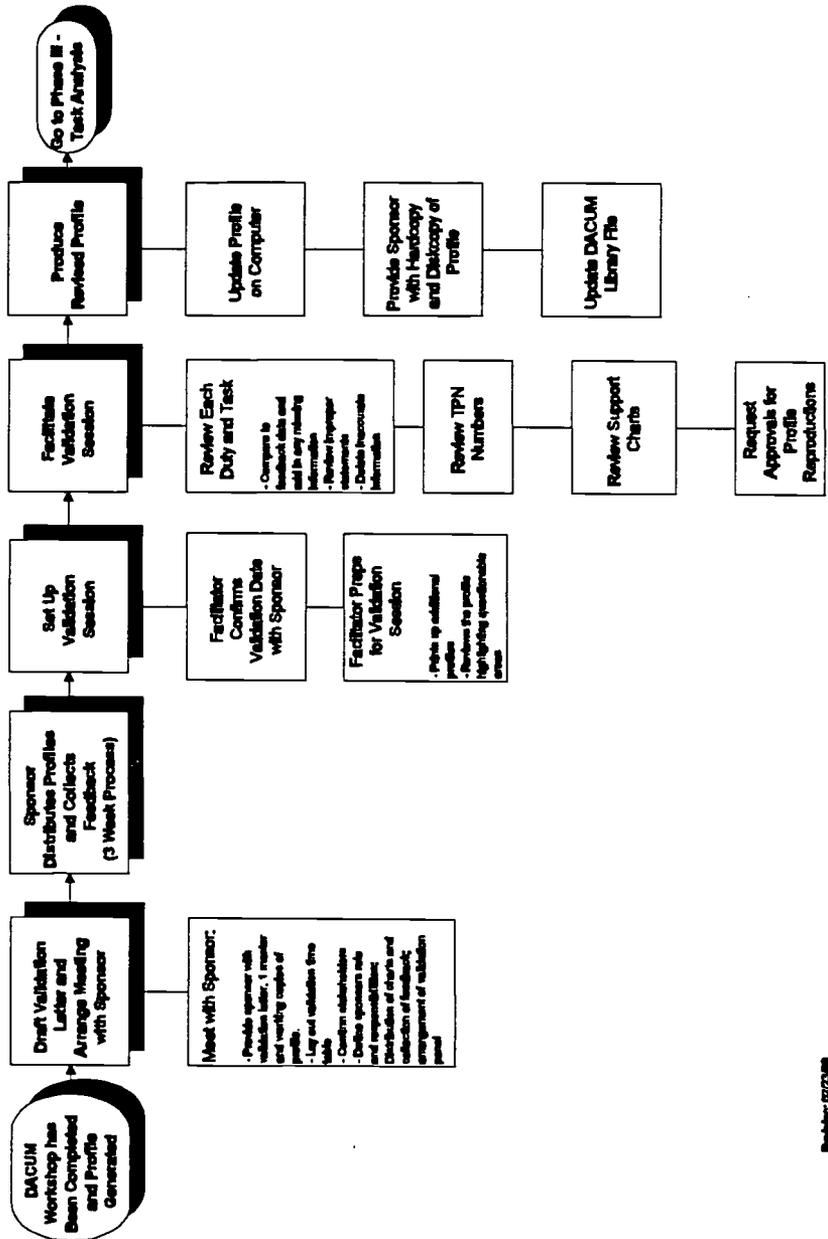
The Level 1 Facilitator monitors the three week validation process and schedules the validation session to take place in the fourth or fifth week. The validation session is a half day session with the sponsor, original panel members, supervisors, and other co-workers performing the job participating. The Facilitator revisits each duty and task statement and using the feedback obtained from the stakeholders, the group makes the appropriate changes to the profile.

The facilitator then generates the validated profile along with a task priority list and delivers it back to the sponsor. An example of the DACUM profile, validation letter, and task priority list can be seen in Appendix F, page 53.

Chart 10.A - Phase 2: Validation Process

38

Phase II - DACUM Validation Process



Revised: 02/2008

BEST COPY AVAILABLE

11.0 PHASE 3: TASK ANALYSIS

Level 2 Facilitators conduct the task analysis by providing training and support to the designated analysts who will be responsible for generating one or more of the products listed below. Flow chart 11.A page 34, defines the task analysis process and results in one or more of the following products or end uses:

1. Development of Standard Operating Procedures and Job Aids
2. Development of Training Programs
3. Development of Performance Standards and Competency Evaluations
4. Job Re-Engineering and Job Comparison
5. Development of a Job Description

11.1 Development of Standard Operating Procedures and Job Aids

In order to develop standard operating procedures or job aids the tasks are analyzed in the order they appear on the task priority sheet. This ensures that the most critical tasks are analyzed first. The tasks are analyzed using the task analysis work-sheet shown in Appendix G page 60, and then each step of the task is flow charted out. The flow charting process clearly identifies all required decisions and prerequisite skills and knowledge required in order to perform the task.

These flow charts can now be incorporated into Standard Operating Procedures or developed into Job Aids. On average it takes one-full-time-equivalent five to eight months to analyze one profile to the required level of detail needed to produce Standard Operating Procedures or Job Aids. Flow charting procedures are defined in the Quality Tools manual Flow Charting section and the corporate standard format for generating standard operating procedures can be found in the 'Procedure for the Management and Control of Documents' manual in Quality Systems.

11.2 Development of Training Programs

In order to develop the DACUM profile into a full training program, it would require one-full-time-equivalent an average of eight to twelve months. The process would entail the breaking out of each task into step by step procedures identifying all the required decisions, cues, tools, skills, knowledge, and safety components that enable the proper execution of the task. This information would be gathered and developed into a learning guide for the purpose of training and evaluating.

11.3 Job Re-Engineering and Job Comparison

To re-engineer a job, the tasks in the profile are analyzed using the work-sheet shown in Appendix H on page 62. The tasks are identified as high value added, low value added, not required, and duplicated by another job. Those tasks that are marked as low value added and no longer required are either redesigned or eliminated from the job. Tasks that are found to be duplicated by other job are re-assigned to the job that they give the most value to.

On average it takes one-full-time-equivalent two to six months to complete the re-engineering task analysis.

Job comparisons are conducted by doing a DACUM on each job and then looking for duplications between them. The goal is to ensure efficient work flow from one job to the next. This analysis is conducted by developing work flow-charts which link the tasks across the jobs. Once this is complete the next step is to re-engineer the jobs.

It takes approximately six to eight weeks for one-full-time-equivalent to conduct a job comparison task analysis.

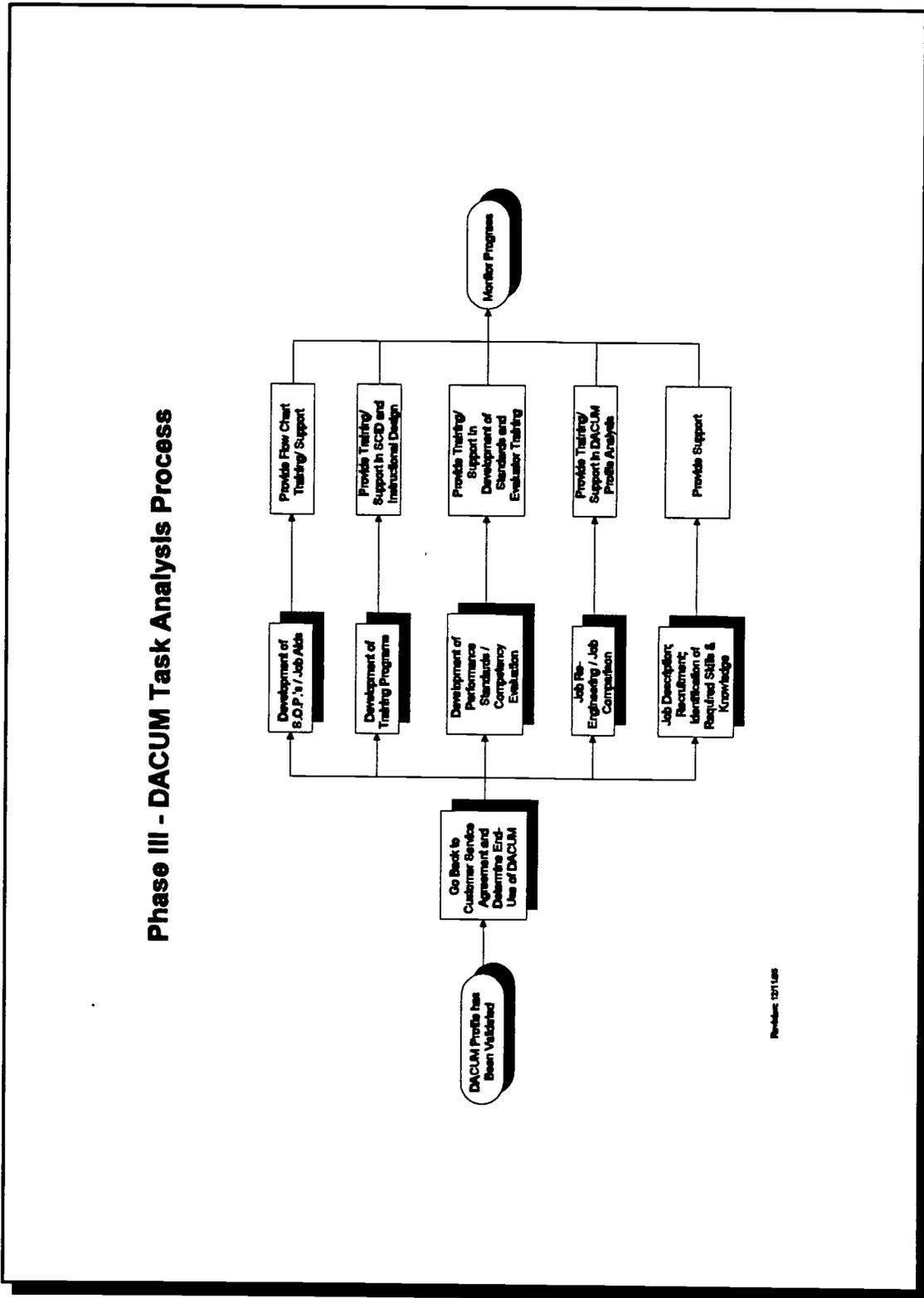
11.4 Development of Performance Standards and Competency Evaluations

To develop performance standards each task would be analyzed using template in Appendix I, page 64. This template would identify all the elements within the task that are key to determining that the task has been performed correctly. Once these elements have been identified, they make up the standard by which to evaluate the employee against. On average it would take one-full-time-equivalent six to eight weeks to define the performance standards and three to six months to develop the evaluation process.

11.5 Development of a Job Description

To develop a job description it requires the basic definition of the job through conducting the two-day DACUM workshop and validation of the profile. This requires a total of four to six weeks to complete. Skills and knowledge are also defined through the process of developing the profile.

Chart 11.A - Phase 3: Task Analysis Process



BEST COPY AVAILABLE

12.0 EVALUATIONS AND AUDITS

Each DACUM workshop is evaluated on its effectiveness. Changes are made accordingly to ensure effectiveness. The customer service agreement is audited to ensure the contract has been fulfilled. Flow diagram 12.A on page 37, describes the audit process.

12.1 Evaluations

Each DACUM workshop will be evaluated using the Level I evaluation system (smile sheet).

12.1.1 Purpose of Level 1 Evaluation

Level 1 evaluation provides immediate feedback on issues or concerns that are usually easy to fix such as: room temperature, few breaks, difficulties encountered by the participants, facilitator's inability to deal with disruptive behaviour, etc.

The evaluation instrument is a questionnaire (*example can be found in Appendix J on page 66*) that will be distributed to the panel at the end of each workshop enabling them to state their satisfaction/dissatisfaction with the session or facilitator(s).

12.1.2 Responsibility

It is the responsibility of the DACUM workshop Level 1 Facilitator to distribute the questionnaire to the participants. The Level 3 Facilitator is responsible for analyzing, and making improvements to the process based on the feedback.

12.1.3 Data Collection Process

The questionnaires will be collected and reviewed after each workshop. Feedback that promotes improvement will be assessed and effective interventions instituted. Further monitoring through level 1 evaluation will continue to ensure the interventions have been successful.

12.2 Conducting Audits

Audits will be conducted within two to twelve months after the completion of four DACUM workshops. Audits will be conducted using the check-sheet in Appendix K, page 67.

12.2.1 Purpose of Audits

The main purpose for conducting an audit is to evaluate whether the DACUM process is being followed in accordance with the customer service agreement and to determine if the expected results have been achieved.

12.2.2 Responsibility

It will be the responsibility of an impartial Level 3 Facilitator to conduct the audit two to twelve months after the contracted four DACUM workshops have been completed. The audit will consist of collecting data to evaluate compliance with the service agreement, achievement of desired outcomes, roadblocks, and continuation of the process.

12.2.3 Audit Criteria

The audit instrument is a check sheet focusing on the following categories:

- Effective use of DACUM's
- Results obtained
- Resource commitment
- Additional training and consulting needs
- Constraints and weaknesses

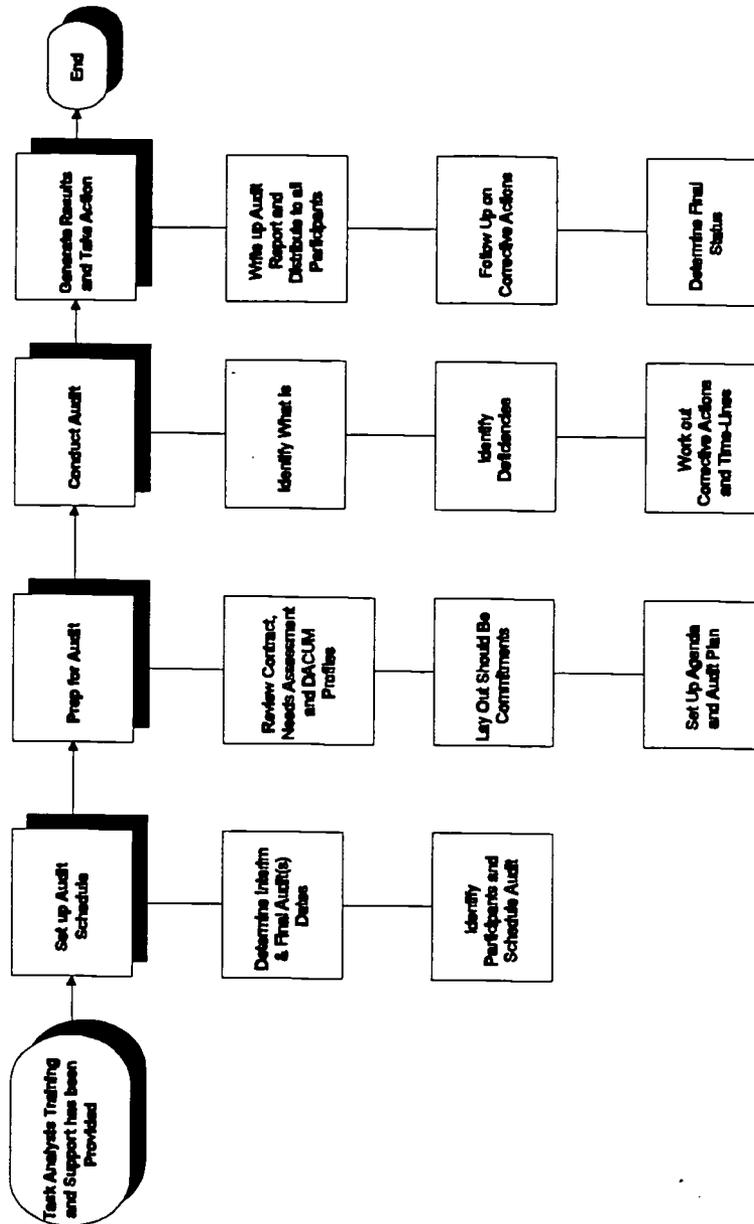
12.2.4 Providing Feedback

The Facilitator(s) conducting the audit will provide immediate feedback to the area after the assessment. A copy of the assessment document will be given to the sponsor and the original will be kept on file with the Facilitator who established the contract.

Through the audit, non conformance issues will be identified and reasonable deadlines set for corrective actions before further work will continue in that area. Another audit will be conducted prior to resuming work to ensure the problems have been resolved.

Chart 12.A - Audit Process

Conduct Audit



Revised: 05/06/96

13.0 DACUM FACILITATOR DEVELOPMENT PROCESS

DACUM Facilitators will be developed following a three level developmental process defined in this section. Yearly evaluations will be conducted by Level 3 Facilitators to ensure all the Facilitators are properly trained and follow the DACUM process defined in this document.

13.1 Criteria for Selection

When selecting DACUM Facilitator candidates the following criteria should be used. The candidate should have the following prerequisite skills:

- Training and experience in facilitation
- Background in training
- Analytical skills
- English language skills
- Oral communication skills
- Conflict resolution skills
- PC skills
- Interpersonal skills

13.2 Facilitator Development

The 3 level Facilitator development process ensures that new Facilitators gain experience while learning by applying new learned skills immediately to the job.

13.2.1 Level 1 Facilitator Development

Qualified novice Facilitators will start from point 0 and by the end of Level 1 development they will be able to record at DACUM workshops, facilitate DACUM workshops, conduct job site visits, produce DACUM charts, and facilitate validation sessions.

Criteria

Record at Workshops:

- Accurately per facilitators instructions
- Clearly and legibly
- Refrains from providing input into session
- Records at a minimum of 3 workshops under the direction of 2 different Facilitators

Facilitate Workshops:

- Has recorded at 3 workshops
- Conducts brainstorming session to define the job
- Delivers orientation presentation
- Conducts brainstorming session to develop attribute lists
- Conducts rating sessions
- Assesses and develops duty list
- Breaks out simple duty bands
- Conducts review process
- Breaks out difficult duty bands
- Co-facilitates a minimum of 3 workshops
- Attends training at Ohio State University
- Facilitates workshop on own

Conduct Job Visit:

- As per section 8.0 page 22
- Uses good questioning techniques
- Develops familiarity of job
- Develops plan of potential duties

Generate Chart:

- Electronically on standard software as per section 14.0 page 42
- Produces chart within 48 hours after last day of workshop
- Delivers chart to sponsor and preps sponsor for validation

Facilitate Validation:

- Sets up validation session
- Preps for validation
- Reviews feedback
- Facilitates session
- Produces revised chart within 48 hours after the session

13.2.2 Level 2 Facilitator Development

By the end of Level 2 development, qualified Level 1 Facilitators will be able to provide full consulting, task analysis training, and support services.

Criteria**Provide Consulting Services:**

- Advises and makes recommendations on course of action

Provide Task Analysis Training:

- Learns flow charting, SCID, profile analysis, development of standards, and job re-engineering techniques

- Trains the tasks analysts

Provide Support Services:

- Monitors progress of task analyst(s)
- Provides additional training, coaching, and support when required

13.2.3 Level 3 Facilitator Development

By the end of Level 3 development, qualified Level 2 Facilitators will be able to provide information sessions, conduct needs assessments, establish priorities, develop customer/supplier agreements, and conduct audits.

Criteria

Conduct Information Sessions:

- As per section 3.1 page 9
- Answers all questions with regard to the process
- Provides accurate information
- Develops open honest rapport

Conduct Needs Assessments:

- As per section 5.0 page 12
- Gains good understanding of customers needs

Establish Priorities:

- As per section 6.0 page 14
- Determines priority accurately and rationally

Develop Service Agreements:

- As per section 7.0 page 20

Conduct Audits:

- As per section 12.0 page 35
- Remains impartial
- Accurately identifies non-conformances
- Provides clear feedback and ensures understanding
- Works with area to develop reasonable time-lines and solutions
- Monitor progress and conducts re-assessments

13.3 Facilitator Evaluation

Once completing each level of the Facilitator Development program, newly trained Level 1 and 2 Facilitators will be evaluated on a regular basis - once out of every three DACUM workshops conducted for a total of four evaluations (during twelve workshops

facilitated). This will taper off to two evaluations per twelve workshops and down to regular yearly evaluation.

Newly trained Level 3 Facilitators will be evaluated on each step of the process (excluding the 3 Phase DACUM processes) a total of three times during the first year. This will taper off to once a year after the successful of completion of year one assessments.

The audits will be conducted by experienced Level 3 Facilitators using the check-sheet in Appendix L page 69.

14.0 RECORD KEEPING AND TRACKING

All generated DACUM profiles are stored electronically in a DACUM library (*see section 14.1 below*) within the DIS (DACUM Information System) software. Hard copies are stored by the Level 3 Facilitator responsible for those profiles. Rights are assigned based on each situation and access requirements.

14.1 Software

The software used to generate the DACUM profiles will be DIS version 1.0 by Archway Computer Systems. The software was evaluated to ensure that it meets the criteria described below in section 14.2. This software is used by all Facilitators to generate and track the DACUM profiles.

14.2 Software Criteria

1. Can be loaded on any IBM compatible PC within Dofasco. Does not require any special hardware/software needs other than those that are corporate standard.
2. Easy editing features such as: moving data; inserting new duties/tasks; re-numbering; deleting duties/tasks.
3. Search/query features such as: field searches; key word/phrase search; querying on skills, tools, and knowledge fields.
4. Variable print features such as: various size formats ie. portrait, landscape, legal, letter; individual duty bands.
5. Calculation features such as: calculation of TPN's; generating task priority lists; assigning task codes.
6. Spell check capabilities.
7. Builds library listings that list all the DACUM's and their status.
8. Contains security levels such as: read only for basic users; read write for developers; viewing privileges.
9. Fields for demographic information such as: sponsor; Department/Business Unit name; area; Facilitator, panel members; approval to copy; status; end use; job

code.

10. Program must be user friendly and work in a network windows environment.

14.3 Additional Software Options

- Fields on chart consists of:
 - ▶ Issue date
 - ▶ Revision date
 - ▶ Validation date
 - ▶ Workshop date(s)
 - ▶ Chart code
 - ▶ Approval to copy Y/N
- Option on draft copy of additional blank boxes or rows for validation
- Option of various types of Task Priority Charts ie. sort by task priority number; sort by criticality then by task priority number.
- Duties bolded
- Total number of tasks and duties

15.0 REFERENCES

"A Word to the Why's: A DACUM Verb List" by Dr. John Hart - Humber College

DACUM Handbook by Dr. Robert Norton - Ohio State University

Flow Charting - Quality Tools by Quality Systems - Dofasco

Procedure for the Management and Control of Documents - QS-6955-001 revision
01 Oct. 1995

16.0 REVISION HISTORY

Issued: December 6, 1995

Revised: October 18, 1996

APPENDIX A: DACUM INFORMATION PAMPHLET**THE DACUM APPROACH TO OCCUPATIONAL ANALYSIS**

DACUM is a job analysis tool. Its purpose is to develop a competency profile for a job by identifying all the duties, tasks, skills, knowledge and tools required to perform that job competently. This competency profile serves as the foundation for various outputs ranging from the development of training programs to the development of operating procedures for quality initiatives.

DACUM is an effective method of job analysis data collection. Through a unique method of group consensus facilitation, a comprehensive profile (graphical representation) of a job is developed. The profile can be used for a variety of products ranging from the development of job descriptions to complete training programs.

The DACUM process consists of three phases: During **Phase I** a certified DACUM Facilitator conducts a two-day workshop with a panel of subject matter experts (usually 6 to 8). Their task is to identify, in performance terms, major duties and tasks that a worker must be able to perform. **Phase II** is the three-week validation process where the profile is validated by all the stakeholders and revised based on their feedback. **Phase III** is the task analysis stage that analyses the profile and uses the information to develop the

required end use.

The **DACUM** approach is based upon three critical beliefs:

- Expert workers are better able to describe/define their occupation than anyone else.
- Any job can be effectively and sufficiently described in terms of observable, measurable performances (tasks) successful workers in that job perform.
- All tasks performed have direct implications to the knowledge and attitudes that workers must demonstrate to perform the tasks correctly.

The completed profile is captured in chart form and represents a competency profile of the job performed.

DACUM END USES & BENEFITS

The competency profile may be used for:

- ▶ Creating **job descriptions** for new or emerging jobs.
- ▶ **Updating existing job descriptions.**
- ▶ Developing **performance standards and competency evaluations.**
- ▶ **Comparing / re-engineering jobs**

- ▶ Designing **new training programs** quickly and cost-effectively.
- ▶ Assessing and **validating the appropriateness of existing training programs.**
- ▶ **Reducing costs and start-up time** for design and delivery of training programs.
- ▶ Developing **standard operating procedures and job aids.**
- ▶ Increasing the **participation of employees** in development of training.
- ▶ **Prioritizing training.**
- Identifying **skills and knowledge required** for recruitment purposes.

WHAT IS REQUIRED OF THE DACUM CLIENT

If you are considering requesting a DACUM job analysis there are a number of factors you should consider.

An individual will be required to act as a **Sponsor** for the DACUM process. This individual will be responsible for:

- ▶ **Overseeing the process to ensure time-lines are met.**
- ▶ **Providing 6 to 8 individuals for two consecutive days to form a panel.**

The DACUM panel should

consist of individuals who:

- are considered by supervision and fellow workers to be experts in their field.
- enjoy group sessions and have good oral communication skills.
- enjoy team work and a consensus approach towards decision making.
- preferably have several years experience at the job being analyzed and who are currently performing the job.

► **Coordinating the validation of the completed profile.**

The sponsor will be responsible for:

- validating the DACUM chart with all stakeholders
- ensuring that all concerns are returned to panel members
- reviewing information with panel members.

► **Ensuring required follow-up activities are carried out.**

TASK ANALYSIS AND DEVELOPMENT OF TRAINING PROGRAMS

Depending on the end use several alternatives methods for task evaluation and development of training material may be applied.

Your DACUM Facilitator can provide you with more details on available training for:

- **Development of Performance Standards**

- **Development of Learning Objectives**
- **Development of Learning Guides**
- **Development of Standard Operating Procedures**
- **The use of flow-charting in developing Job Aids**
- **The use of standard operating procedures in Curriculum and Instructional Development**
- **Establishing a Departmental Training Program**

For Information on DACUM Occupational Analysis and Task Analysis or for a presentation on how the process works contact:

Krystyna McLennan
 Training Department
 Human Resources
 D.F. Hassel Centre
 Phone: 548-7105
 Fax: 548-4311

Stan White
 Training Department
 Human Resources
 Training & Development Centre
 925 Century Drive,
 Burlington
 Phone: 632-6903
 Fax: 639-6275

Mike Zagorac
 Training Department
 Human Resources
 Training and Development Centre
 925 Century Drive,
 Burlington
 Phone: 632-5126
 Fax: 639-6275

Rev. 01/17/96



The DACUM Approach to Occupational Analysis

DOFASCO

APPENDIX B: DACUM NEEDS ASSESSMENT FORM

DACUM Needs Assessment
Rev. 01/10/96

Date of Assessment: _____
Participants: _____

Dept./B.U.: _____
Analyst: _____
Request #: _____

1. What is the customers purpose for using DACUM?
 - Safety / Environment / Legislation
ie. Increase in number of accidents due to inconsistent practices? Increase in severity of accidents? Equity?
 - Quality / Productivity / Efficiency
ie. Standardize procedures? Poor efficiency (duplication of responsibility)?
 - Human Resource Issues
ie. Development of personnel? Substantial staffing change?
 - Other _____

2. What is the desired outcome (product) the customer needs?
 - Job definition
 - Develop training programs
 - Validate existing training programs
 - Job re-engineering
 - Develop job aids
 - Develop standard operating procedures (S.O.P.'s)
 - Define required skills and knowledge
 - Develop performance standards
 - Competency evaluations
 - Other _____

3. Have they been involved in the DACUM process previously?
Yes No

4. What is the customer's commitment and resource availability?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	Can they provide a sponsor?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Can they provide a sufficient panel?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Can they provide a full time task analyst(s)?
<input type="checkbox"/> Yes	<input type="checkbox"/> No	Do they have the required resources to carry out the full task analysis?

Comments _____

5. What are the expected deadlines and time-lines?

What are the areas within the Department/B.U. that will be involved?

- 1. _____
- 2. _____
- 3. _____
- 4. _____

How many jobs within each area are to be analyzed?

- 1. _____ # Jobs: _____
- 2. _____ # Jobs: _____
- 3. _____ # Jobs: _____
- 4. _____ # Jobs: _____

What is the expected start date? _____

Panels can be provided:

- Weekly
- Bi-weekly
- Monthly
- Other _____

What is the expected completion date? _____

6. What would be the impact of not doing it?

7. Are there any factors that could prevent the completion of the process?

8. What additional training and support services will be required?

- Training:
- SCID Training Support:
 - Flow Charting
 - Standards/Criteria
 - Instructional Design
 - Evaluator Training
 - Profile Analysis
 - Other: _____
- Consulting
 - Coaching
 - External Support

9. Has the customer tried other interventions?

- No Yes Intervention: Result:
- _____
- _____
- _____

APPENDIX C: ANALYSIS OF NEEDS ASSESSMENT DATA FORM

Analysis of Needs Analysis Data
Rev. 01/10/96

Request #: _____ Dept./B.U.: _____
Priority Index: _____ Analyst: _____

- 1. Is this the customers first involvement with DACUM?
 Yes No
If yes - look for historical data to determine success rate of completion.
- 2. Is the request reasonable?
 Yes No Viable end use
 Yes No Customer's resource availability
 Yes No Time-lines
 Yes No Number of DACUM's requested

Comments: _____

- 3. Is DACUM the appropriate intervention?
 Yes No
Comments: _____

- 4. Does the customer have all the necessary elements for implementation available?
 Yes No

- 5. What are the factors that could stop the process?

- 6. Are there Facilitator(s)/other H.R. resources available?
 Yes No

- 7. What will the cost be to H.R.?

- 8. How much training, support, and consulting services will be required?
Training requirements: _____

Support/Consulting requirements: _____

- 9. Key resources identified:
Lead Facilitator: _____
Sponsor: _____
Task Analyst(s): _____



APPENDIX D: INTERNAL CUSTOMER/SUPPLIER AGREEMENT FORM FOR DACUM ANALYSIS

Internal Customer/Supplier Agreement
Rev. 01/08/96

Dept./B.U. _____ Area(s): _____

Reason(s) for Analysis:

- | | |
|--|--|
| <input type="checkbox"/> Define Job | <input type="checkbox"/> Develop Training Programs |
| <input type="checkbox"/> Job Re-Engineering | <input type="checkbox"/> Validate Existing Training Programs |
| <input type="checkbox"/> Develop Job-Aids | <input type="checkbox"/> Develop Standard Operating Procedures |
| <input type="checkbox"/> Develop Performance Standards | <input type="checkbox"/> Define Required Skills & Knowledge |
| <input type="checkbox"/> Competency Evaluations | <input type="checkbox"/> Other: _____ |

Total Number of Job's to be Defined: _____

Note: This agreement is valid for a maximum of four jobs to be analyzed. Any additional jobs will be reviewed and approved based on the outcome of this agreement.

Jobs to be Analyzed: 1. _____ 2. _____
3. _____ 4. _____

DACUM Workshop's to be conducted: Weekly Bi-Weekly
 Monthly Other: _____

Start Date: _____ Estimated End Date: _____
(For Workshops & Training)

Sponsor: _____ Lead Facilitator: _____

Task Analyst(s): _____

Training/Support Services Required:	Estimated Delivery Date:
<input type="checkbox"/> SCID Training	_____
<input type="checkbox"/> Flow Charting Training	_____
<input type="checkbox"/> Development of Standards/Performance Criteria	_____
<input type="checkbox"/> Instructional Design Training	_____
<input type="checkbox"/> Evaluator Training	_____
<input type="checkbox"/> DACUM Profile Analysis Training	_____
<input type="checkbox"/> Consulting Services	_____
<input type="checkbox"/> Other: _____	_____

Other Resources: Title: _____ Name: _____
 Title: _____ Name: _____
 Title: _____ Name: _____
 Title: _____ Name: _____

Dept./B.U. Mgr.: _____ Training Mgr: _____
Date: _____ Priority Index: _____ Project Plan Ref. #: _____

APPENDIX E: DACUM DUTY TEMPLATES**DACUM Duty Templates**

Operations	Maintenance	Supervisor	Clerical	Technical/Coordinator
Start Up Line	Prepare the Worksite	Participate in Meetings	Word Process Reports and Correspondence	Manage Projects
Shut Down Line	Inspect Equipment	Evaluate Employees Performance	Maintain File Systems	Participate in Meetings
Troubleshoot Line Problems	Perform Scheduled Maintenance	Approve Purchases	Administer Correspondence	Generate Reports
Inspect Line	Plan Work to be Performed	Develop Budgets	Maintain Records	Deliver Presentations
Maintain Line Operation	Perform Preventative Maintenance	Council Employees	Maintain Supply Inventory	Provide Technical Support
Set Up Line	Troubleshoot Equipment Emergencies	Generate Reports	Provide Logistic Support	Determine Department Requirements
Perform Supervisory Functions	Perform Mechanical Repairs	Deliver Presentations	Provide Clerical Support	Audit Systems / Processes
Maintain Equipment	Perform Electrical Repairs	Determine Workforce Requirements	Maintain Schedules	Develop Systems / Processes
Maintain Product Quality	Maintain Equipment Records	Assess Employees Needs	Coordinate Meetings	Provide Consulting Services
Perform General Tasks	Perform New Equipment Installations	Develop Business Plans	Perform General Tasks	Perform General Tasks
	Perform Equipment Modifications & Redesigns	Evaluate Departments Effectiveness		
	Perform General Tasks	Perform General Tasks		

Rev. 09/08/95

APPENDIX F: DACUM PROFILE, PRIORITY RATING CHART, VALIDATION LETTER

**COMPETENCY PROFILE
Quality Systems Administrator - Quality Systems**

August 1 & 2, 1996

Vice President / Quality Management Council

General Manager Business Unit Manager's

QUALITY SYSTEMS ADMINISTRATOR

Coordinators Project Managers Task Managers

Quality Systems B/U's/Dept's External Customers External Consultants

Third Party Auditors Technical Service Managers Suppliers

External Organizations Benchmarking Organizations SRI Registrar
(ASQC, AIAG)

Supervisors Sponsors Process Owners Product Reps

COMPETENCY PROFILE FOR QUALITY SYSTEMS ADMINISTRATOR - QUALITY SYSTEMS DOFASCO INC.

MANAGE QUALITY SYSTEMS	Ensure Conformance of Quality Systems to Standards A-1 1 5 4 20	Determine Documentation Needs A-2 1 4 3 12	Develop Quality Policies and Procedures A-3 1 5 4 20	Set Up Documentation Control A-4 1 4 4 16	Set Up Record Control System A-5 1 4 4 16	Ensure Conformance of Documents to Standards A-6 1 4 3 12	Approve Level I and Level II Document Content A-7 2 4 4 32	Roll Out Policies and Procedures A-8 2 5 5 50
	Conduct Management Review Process A-9 3 5 4 60	Implement Action Plan Based on Deficiencies Identified by Management Review A-10 3 5 4 60	Develop Communication Strategy A-11 1 4 4 16	Conduct Communication Sessions A-12 3 4 4 48	Assess Organizational Structure to Meet Resource Requirements A-13 1 5 4 20	Ensure Resources are Trained A-14 1 5 4 20	Facilitate Identification of Tier I and Tier II Suppliers A-15 1 5 5 25	
IMPLEMENT OUTPUTS OF QUALITY PLANNING PROCESS	Translate Customer Needs into Product Control Standards B-1 1 6 5 30	Translate Product Features into Process & Product Controls B-2 1 6 5 30	Analyze F.M.E.A.'s to Identify Critical Process Controls B-3 1 4 6 24	Translate Internal Customer/Supplier Needs into Customer/Supplier Agreements B-4 1 5 6 30	Review Customer/Supplier Agreement for Capability/Feasibility B-5 1 5 4 20	Design Control Systems B-6 1 5 5 25	Publish Control Plans B-7 1 4 3 12	Roll Out Control Plans B-8 1 5 5 25
	Revise Control Plans B-9 2 5 5 50	Inform Stakeholders of Control Plan Changes B-10 2 5 3 30						
MONITOR QUALITY CONTROL PRACTICES	Schedule Performance/Conformance Reviews C-1 2 5 4 40	Assess Control Charts to Ensure Compliance with Procedures C-2 3 5 4 60	Assess Performance Measures to Ensure Compliance with Plan/Goals C-3 3 5 4 60	Assess Production Records to Ensure Compliance with Procedures C-4 2 4 3 24	Assess Measurement Systems to Ensure Compliance with Procedures C-5 2 5 6 60	Assess Process/Product Stability C-6 3 5 5 75	Assess Process/Product Capability C-7 3 6 5 90	Initiate Corrective Actions to Non-Conformance Issues C-8 3 5 5 75
	Assist in Problem Identification in Cross-Functional Areas C-9 3 5 5 75	Verify Corrective Action Implementation C-10 3 5 4 60	Conduct Employee Interviews to Determine Quality Systems Effectiveness C-11 2 4 3 24					
CONDUCT INTERNAL QUALITY SYSTEM AUDIT	Determine Audit Scope D-1 1 4 4 16	Set Up Audit Plan D-2 1 4 4 16	Select Audit Team D-3 1 4 3 12	Ensure Audit Team is Trained D-4 1 4 3 12	Observe Audit Process D-5 1 4 3 12	Validate Audit Results D-6 1 4 4 16	Clarify Audit Inconsistencies D-7 1 4 4 16	Make Recommendations Based on Audit Results D-8 1 4 4 16
	Report Audit Results to Management D-9 1 4 4 16	Follow Up on Corrective Actions D-10 1 5 4 20	Maintain Audit Records D-11 1 3 3 9					
CONDUCT ANALYSIS FOR BUSINESS PLAN WITH REGARD TO PRODUCT QUALITY	Analyze Product/Process Capability E-1 1 6 5 30	Analyze Product Quality Measures E-2 1 6 5 30	Analyze Customer Complaints E-3 2 5 4 40	Conduct External Survey's (Benchmarking) E-4 1 3 4 12	Conduct Gap Analysis E-5 3 6 5 90	Forecast Trends of Customers, Competitors & Technology E-6 1 4 4 16	Conduct Internal Survey's E-7 1 3 3 9	
COORDINATE PROJECTS	Recommend New Projects F-1 1 3 4 12	Recommend Project Scope Changes F-2 1 3 4 12	Assist in Project Prioritization F-3 1 3 3 9	Assist with Establishing Project Goals F-4 1 3 4 12	Assess Overlap of Projects F-5 2 4 4 32	Assess Project Gaps F-6 2 4 4 32	Assess Project Status F-7 3 4 4 48	

DOFASCO

DACUM Job Analysis Process

Number: HR-6685-TR002
 Issue Date: December 6, 1995
 Rev. Date: October 18, 1996

PERFORM GENERAL TASKS	Complete Customer Survey's G-1 2 2 3 12	Provide Training for Team Members, Tasks Managers, & Project Managers G-2 2 4 5 40	Assist in Customer Audits/ Visits G-3 2 3 3 18	Provide Recognition for Achievements G-4 2 3 1 6	Assist with Performance Evaluation of Quality Systems Coordinators G-5 1 3 3 9	Maintain Quality Systems Information Bulletin Boards G-6 3 3 2 18	Schedule Meetings G-7 4 3 3 36	Conduct Meetings G-8 4 3 4 48
	Generate Meeting Minutes G-9 4 4 2 32	Prepare Presentation Material G-10 2 3 4 24	Summarize Customer Survey Results G-11 1 2 2 4	Maintain Job Currency G-12 3 3 3 27				
PARTICIPATE IN EXTERNAL BUSINESS UNIT / SUPPLIER AUDIT	Review Audit Scope and Plan H-1 1 2 3 6	Collect Objective Evidence During Audit H-2 1 4 4 16	Compare Evidence to Audit Criteria H-3 1 4 4 16	Determine Conformance to Standards H-4 1 4 4 16	Document Audit Results H-5 1 4 3 12	Review Findings with Audit Team H-6 1 4 4 16	Assist with Validation and Clarification of Results H-7 1 4 4 16	Assist with Audit Report Preparation & Presentation H-8 1 4 4 16
	Assist with Corrective Actions Verification H-9 1 4 4 16							

Chart Code: Quality Systems (QS-1) Rev. 08/02/96

Approval to Copy: Yes

**Behaviours, Attitudes,
& Traits**

Assertive
 Professional
 Honest
 Sense of Humour
 Good Listener
 Analytical
 Organized
 Decisive
 Self Starter
 Motivator
 Leader
 Diligent
 Able to Prioritize
 Accountable
 Articulate
 Enthusiastic
 Disciplined
 Fun
 Tactful
 Approachable
 Integrity
 Good Judgement
 Common Sense
 Intelligent
 Flexible

Skills & Knowledge

Quality Systems
 Requirements Knowledge
 Understanding of
 Dofasco Processes
 Knowledge of Statistics
 Knowledge of Audit
 Processes
 Training Knowledge
 Knowledge of Dofasco
 Policies
 Effective Meeting Skills
 Time Management Skills
 Communication Skills
 Oral & Written
 Analytical Skills
 SPC Tools
 Computer Skills
 Audit Techniques
 Project Management
 Skills

Negotiation Skills
 Technical Writing Skills
 Supervisory Skills
 Presentation Skills
 Teaching Skills
 Facilitation Skills

**Tools, Equipment &
Supplies**

Telephone
 Voice Mail
 Computer
 Printer
 Fax
 Photocopier
 Personal Desk Supplies
 Personal Safety
 Equipment
 Strategic Analyst
 Software
 Anstat Software
 SAS Software
 TV
 VCR
 Overhead Projector
 Calculator
 Quality Planning
 Manuals
 Quality Control Manuals
 Quality Improvement
 Manuals
 AIAG Interpretation
 Manuals
 AIAG Manuals

Future Trends

Overlap with Customer
 Service and Process
 Owner Jobs
 Changes in Quality
 System Requirements
 Potential Interaction with
 External Core Businesses
 (Taylor Steel)
 Implementation of TQM
 ISO 14000

Sponsor:
 Ralph Krueger

Panel:
 Anka Backman
 Dave Ford
 Kim Fulcher
 Gas Gebara
 Ralph Krueger
 Art Shaw

Facilitators:
 Krystyna McLennan
 Brian Jackson

Task Priority Chart for Competency Profile
Quality Systems Administrator - Quality Systems
 Chart Code: QS-1

<i>Criticality 5 or 6</i>					
E-5	90	G-2	40	F-2	12
C-7	90	G-7	36	F-4	12
C-6	75	A-7	32	H-5	12
C-8	75	F-5	32	D-11	9
C-9	75	F-6	32	E-7	9
A-9	60	G-9	32	F-3	9
A-10	60	G-12	27	G-5	9
C-2	60	B-3	24	G-4	6
C-3	60	C-4	24		
C-5	60	C-11	24	<i>Total</i>	<i>49</i>
C-10	60	G-10	24		
A-8	50	G-3	18	<i>Criticality 1 or 2</i>	
B-9	50	G-6	18	G-1	12
C-1	40	A-4	16	H-1	6
E-3	40	A-5	16	G-11	4
B-1	30	A-11	16		
B-2	30	D-1	16	<i>Total</i>	<i>3</i>
B-4	30	D-2	16		
B-10	30	D-6	16		
E-1	30	D-7	16	Total Tasks: 82	
E-2	30	D-8	16		
A-15	25	D-9	16		
B-6	25	E-6	16		
B-8	25	H-2	16		
A-1	20	H-3	16		
A-3	20	H-4	16		
A-13	20	H-6	16		
A-14	20	H-7	16		
B-5	20	H-8	16		
D-10	20	H-9	16		
		A-2	12		
<i>Total</i>	<i>30</i>	A-6	12		
		B-7	12		
<i>Criticality 3 or 4</i>		D-3	12		
A-12	48	D-4	12		
F-7	48	D-5	12		
G-8	48	E-4	12		
		F-1	12		

August 6, 1996

Re: Job Analysis Validation

On August 1, & 2, 1996, a six member panel participated in a two-day Job Analysis Workshop to define the job of Quality Systems Administrator. The attached chart is the result of the Phase I workshop where the job was analyzed and divided into major areas of responsibilities (Duties) and each duty was then divided into work units (Tasks).

The next level of analysis is Phase II where the chart is validated by all stakeholders ie. Managers, Customers, Suppliers, Co-Workers, etc. Your expertise and familiarity with this job plays a major role in the Phase II analysis process. Please look at each statement and determine whether it is self explanatory and follows the guidelines outlined on the back of this page. If you feel that any Tasks and/or Duties that have been omitted or require better definition, make note of these additions and/or changes on your chart by writing in your additional tasks in the blank boxes, drawing an 'X' through tasks that should be eliminated, and drawing a '?' through tasks that don't make sense to you. Return your chart to me or any panel member (listed on the back of profile) by August 30, 1996.

Once the chart has been revised based on your feedback, we will proceed with Phase III of the analysis which can consist of many options such as: breaking down each task into step by step procedures; developing performance standards for each task; developing training programs; etc.

The success of this program depends on your input and cooperation. If you have any questions or concerns do not hesitate to call me or Krystyna McLennan at ext. 7105. Thank you for your participation.

Ralph Kruger
Quality Systems

Duty & Task Guidelines

- Duties**
- Groupings of related tasks
 - Usually 8 to 12 duties per job
- Tasks**
- Specific observable units of work
 - Usually 6 to 30 tasks per duty
 - Usually 50 to 200 tasks per job
- Steps**
- Specific elements of activities required to perform a task
 - Several steps per task

Job Tasks consist of the following criteria:

- Smallest unit of job activity with a meaningful outcome
- Assignable units of work
- Result in a product, service, or decision
- Can usually be observed and/or measured
- Have a definite beginning and ending point
- Can be performed over a short period of time
- Can be performed independent of other work
- Consists of several steps

Task Statements must:

- Concisely describe a task in performance terms
- Contain an action and an object that receives the action
- Contain one or more relevant qualifiers (if possible)
- Be explicit, precise, and stand alone
- Avoid references to knowledge and attitudes
- Avoid references to tools and equipment that merely support the task performance

Example:

Job - Home Owner

Duty - Maintain the Yard

Task - Mow the Front Lawn

Step - Start the Mower

APPENDIX G: TASK ANALYSIS DATA SHEET

Task Analysis Process Work-sheet
Revision 04/08/96

1. What are the task inputs?

2. What are the task outputs?

3. What is the final product, service, or decision that determines the end of the task?

4. What is the quality of this task's outputs (product, service, and/or decision)?

Excellent Meets Standard Poor

List output deficiencies: _____

5. What are the prerequisite skills/knowledge required prior to performing this task?

6. What are the cues, performance standards, decisions, tools/equipment/supplies, safety, and errors that need to be captured within this task?

Cues

Performance Standards

Decisions

Tools/Equipment/Supplies

Safety

Errors

7. Flow chart the step by step process required to carry out this task (include all the information captured).

APPENDIX H: JOB RE-ENGINEERING WORK-SHEET

Job Re-Engineering Process Work-sheet
Revision 05/28/96

1. What are the departments goals/objectives/products/services/outputs?

2. What are the jobs goals/objectives/products/services/outputs?

3. Which job tasks support those goals/objectives/products/services/outputs?

4. Out of the above tasks, which tasks are critical?

5. Which tasks are duplicated by other functions?

6. Which tasks are low criticality and high frequency?

7. Which tasks are not working efficiently?

8. Which tasks can be automated / re-engineered and what would the impact be on other jobs / areas?

9. Which tasks can be eliminated and what would the impact be on other jobs / areas?

10. Which tasks can be moved to other functions and what would the impact be on other jobs / areas?

11. Are there any gaps that aren't covered by a task?

12. What are the future trends that will impact on this job and how will they impact?

APPENDIX I: TEMPLATE FOR DEVELOPING PERFORMANCE STANDARDS

Developing Performance Standards - Template		
How do I know if this task has been performed properly?		
Job Code:	Job Title:	Task Code:
Duty:	Task:	
<i>Speed:</i>		
Is there a time frame which the task must be performed?		
<i>Accuracy:</i>		
What is the level of error that is allowed?		
Are there tolerances or limits that must be met?		
Is there a temperature range that must be maintained?		
Is there a speed range that must be maintained?		
Is there a concentration level that must be maintained?		
Is there a weight range that must be maintained?		
Is there a volume that must be maintained?		
<i>Quantity:</i>		
How many times should the employee perform the task correctly before they are deemed as competent?		
How much lag time is allowed before re-evaluation?		
<i>Quality:</i>		
What is the quality of performance that is expected?		
If the task is performed incorrectly, can this lead to production delays?		
If the task is performed incorrectly, can this lead to equipment damage?		
If the task is performed incorrectly, can this lead to injury?		
How can these be avoided in the performance of the task?		
How far does the worker go when performing the task?		
During an inspection of an investigation, list all the characteristics that must be identified.		
If performing a maintenance task, how far must the individual go to complete that task?		

Developing Performance Standards - Template

How do I know if this task has been performed properly?

Job Code:	Job Title:	Task Code:
------------------	-------------------	-------------------

Duty:	Task:
--------------	--------------

What is the final outcome of the task?		
What are the decisions that must be reached?		
Will a completed product result from this task and what is it?		
List the company specifications which impact on how the task is performed.		
List the customer specifications which impact on how the task is performed.		
List the manufacturer specifications which impact on how the task is performed.		
Conditions:		
Will the worker be given a checklist, lab results, reference manuals or other written guideline in order to perform the task?		
Is the task to be completed with assistance from co-workers or supervision?		
Is the task to be completed with the assistance of equipment (cranes)?		
Is the task to be completed unassisted?		
Is the environment critical to the task performance?		
Will the task be performed on the work site, in a lab, etc.?		
Can the task be performed under all operating conditions (eg. emergency, standard operating, standby)?		
Are regulatory certificates, training or qualifications required to perform the task?		
Is specialized safety equipment required in the performance of this task?		

APPENDIX J: EXAMPLE OF LEVEL 1 EVALUATION (SMILE SHEET)

DACUM Workshop Evaluation

DACUM No. _____

Date: _____

1. Was the purpose of this workshop explained to you prior to your attending.

- Thoroughly Sufficiently Fairly Not At All

2. Do you feel that your participation in this workshop was:

- Worthwhile Productive Not Necessary A Waste Of Time

3. Did the workshop meet your expectations.

- Thoroughly Mostly Somewhat Not At All

4. Do you feel the results generated from this workshop will be beneficial?

- Yes No

Please explain why or why not. _____

5. Can you think of any other uses for this process?

6. How would you rate the Facilitator(s) on things such as: creating a comfortable and relaxed environment; encouraging participating; remaining neutral; ensuring involvement from each participant; organization; etc.

7. Please feel free to make any additional comments or recommendations:

APPENDIX K: AUDIT CHECK SHEET

DACUM Process Audit Check Sheet

Depart./B.U. _____ Area _____
Sponsor _____ Auditor _____ Date _____

Audit Time Frame:

- One to Four Months
- Four to Eight Months
- Eight to Twelve Months

1. Number of DACUM workshops completed: _____
2. Purpose and average time length (based on 1 FTE) for development of DACUM profiles:
 - Define Job (4 to 6 Weeks)
 - Define Skills & Knowledge (4 to 6 Weeks)
 - Validate Existing Training Programs (6 to 8 Weeks)
 - Develop Performance Standards (6 to 8 Weeks)
 - Job Comparison (6 to 8 Weeks)
 - Job Re-Engineering (2 to 6 Months)
 - Competency Evaluation (3 to 6 Months)
 - Develop Job-Aids (5 to 7 Months)
 - Develop S.O.P.'s (6 to 8 Months)
 - Develop Training Programs (8 to 12 Months)
 - Other: _____ (Variable) _____

3. To what extent has the purpose been accomplished:
 - 100%
 - 75%
 - 50%
 - 25%
 - Not at All

4. Has the process been followed as per agreement?
 - Yes
 - No - Explain: _____

5. Are there any constraints and weaknesses that are impeding the process? List:
 - _____
 - _____
 - _____

6. Can these constraints/weaknesses be resolved?
 - No
 - Yes - List solutions: _____

7. Have any results or goals been achieved?
 - No
 - Yes - List: _____

8. Are additional training/support services required? List:

9. Summary/ recommendations: _____

Complete Proceed Hold Terminate

10. Alternate proposals: _____

11. Will a follow up audit be required?

No Yes - Date: _____

Auditor

Sponsor

APPENDIX L: FACILITATOR EVALUATION CHECKSHEET

DACUM Facilitator Evaluation			
Facilitator:	Evaluator:	Date:	
Observation	Yes	No	Comments
Conducted panel orientation by thoroughly explaining process			
Created comfortable environment conducive to brainstorming			
Made panel feel at ease			
Maintained a non-threatening environment			
Conducted thorough brainstorming sessions			
Allowed all panel members to participate			
Listened to all panel members and picked up on side conversations			
Handled difficult participants and situations in a positive manner			
Took genuine interest in panels job			
Was attentive and remained neutral			
Developed accurate duty statements			
Developed accurate task statements			
Demonstrated good understanding of verbs			
Kept the panel focused			
Did not lead the panel			
Addressed all panel's questions and concerns			
Remained on schedule			
Kept in charge of the process			
Re-visited and cleaned up poor statements			

DACUM Facilitator Evaluation				
Facilitator:		Evaluator:		Date:
Observation	Yes	No	Comments	
Conducted the task rating process				
Conducted the brainstorming of skills and tools charts				
Maintained a good rapport with the panel				
Provided ample breaks				
Produced a quality chart as per guidelines				
Overall Assessment				
<input type="checkbox"/> Outstanding <input type="checkbox"/> Good <input type="checkbox"/> Needs Improvement <input type="checkbox"/> Poor				
Evaluator(s) Signature:				



U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

CE075021[®]



REPRODUCTION RELEASE

(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title: <i>DACUM JOB ANALYSIS PROCESS</i>	
Author(s): <i>KRISTINA S MCKENNA</i>	
Corporate Source: <i>DOFASCO INC.</i>	Publication Date:

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education (RIE)*, are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign at the bottom of the page.

The sample sticker shown below will be affixed to all Level 1 documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

Level 1

↑

Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g., electronic) and paper copy.

The sample sticker shown below will be affixed to all Level 2A documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2A

Level 2A

↑

Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only

The sample sticker shown below will be affixed to all Level 2B documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2B

Level 2B

↑

Check here for Level 2B release, permitting reproduction and dissemination in microfiche only

Documents will be processed as indicated provided reproduction quality permits.
If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

Sign here, → please

Signature: <i>[Signature]</i>	Printed Name/Position/Title: <i>KRISTINA MCKENNA</i>		
Organization/Address: <i>DOFASCO INC PO Box 2460 Hamilton, IN 48035</i>	Telephone: <i>(905) 548-7105</i>	FAX: <i>(905) 548-4311</i>	
	E-Mail Address: <i>KRISTINA-MCKENNA</i>	Date: <i>MAY 2/98</i>	

© DOFASCO, CA



(over)

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, or, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available through EDRS.)

Publisher/Distributor:
Address:
Price:

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant this reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:
Address:

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse: <p style="text-align: center;">Associate Director for Database Development ERIC Clearinghouse on Adult, Career, and Vocational Education Center on Education and Training for Employment 1900 Kenny Road Columbus, OH 43210-1090</p>
--

However, if solicited by the ERIC Facility, or if making an unsolicited contribution to ERIC, return this form (and the document being contributed) to: