

Database Management of Cartridge Tape Library
Of
Oil & Gas Development Corporation Limited (OGDCL)

By

M.Zahid Afzal Durrani
Khawer Abbasi

Department of Computer Center
Quaid-I-Azam University
Islamabad

MFN=6533

Project brief

Project Title: Database Management of Cartridge Tape
Library Of OGDCL.

Organization: OGDCL

Submitted by: Zahid Afzal Durrani
Khawer Abbasi

Submitted to: Mr. Munawar Tawana
(Lab Administrator)
Department of Computer Sciences
Quaid-I-Azam University
Islamabad.

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Software Used: Oracle/Developer2000.

System Used: Intel pentium3 compatible.

Operating System: Windows 98.

Preface

This report is the description of analysis, design, development of the Database Management of cartridge tape library of Oil & Gas Development Corporation limited. (OGDCL).

Chapter 1: This Chapter is the introduction of the system Design. Technical terms are defined.

Chapter 2: This chapter is about the introduction of the Organization. (OGDCL)

Chapter 3: This chapter describes the introduction and working of the Proposed system.

Chapter 4: This chapter describes the design and interface design and the data design.

**M.Zahid Afzal Durrani
Khawer Abbasi**

*Dedicated to my Parents,
brothers
&
My Sisters*

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We would like to thank our supervisor Mr. Munawar Tawana for his guidance and supervision in our project.

We are also thankful to our friends and class fellows for their cooperation and company during our stay in Quaid-I-Azam University.

Zahid Afzal Durrani

Khawer Abbasi

Abstract

OGDCL cartridge/tape library comprises a number of data types in a variety of formats, each available in a network of heterogeneous computing platform ranging from PC's to Mainframe computers. For integrated approach for effective and efficient data management. My project is to implement the integrated data management in ORACLE. Some additional things have been added.

In the present project the task of computerizing the cortridge tape library management of OGDCL. The purpose of computerization task was to facilitate the working procedures, utilizing the available facilities in a better and efficient way and to make the better use of available time.

The computerization of the system was done in three steps.

First of all system was studied and analyzed the purpose of which was to design and implement a better system, for its better functions and drawbacks. The existing system of OGDCL cortridge tape library was present in Fox pro and excels sheets. The cortridge tape library maintains thousands of data in its library, the existing system of OGDCL library has many drawbacks of data archiving and security. Our aim was to purpose a system to abolish these draw backs using oracle tool.

In the second system the new system was designed keeping in view was the results of study and analysis of existing system.

In the third and last step the designed system was implemented within the existing system with the newly design one, and evaluated, with the newly implemented system was tested and results compared with those of old existing system.

System Design

System Design

1.1 Introduction to the System

My project is the relational database management of the cartridge tape library of the Oil & Gas Development Corporation Limited (OGDCL). In the system developed System one can enter the query and execute query and get the information about the required date of the Cartridge tape library of the OGDCL in the form of the forms and reports. We can get information about the Seismic lines data, Cartridges data, and Processing type done on the Seismic line. Designing is the most important of all phases in a system life cycle. I have developed the system in Oracle.

System design presents specific information for the designing of the input forms, output forms, codes and table structure.

1.2 RDBMS

A DBMS (data base management system) is basically a computerized record keeping system I-e it is a computerized system whose overall purpose is to maintain that information and to make that information available on demand.

A relational database is a database that is perceived by its user as a collection of time-varying, normalized relations of assorted degress. The software that manages the relations of assorted degress. The software that manages the relational database is known as relation database management system (RDBMS)

1.3 DEVELOPER/2000

After considering a number of relation of relation database management systems available these days, DEVELOPER/2000 was selected the product from ORACLE Corporation that make it easy to build database applications it handles most of the issues elegantly and well using the features of ORACLE 7.

DEVELOPER/2000 provide a number of sophisticated tools for the development of applications. Some of these tools are given as:

Oracle SQL * PLUS is an interface through which SQL commands may be entered and executed. We can use SQL * PLUS program in conjunction with SQL data base language and its procedural language extension PL/SQL. The SQL database language allows us to store and retrieve data in the ORACLE.SQL * PLUS, SQL, and PL/SQL command language are powerful enough to serve the needs of users with some database experience. Yet straight forward enough for new users who are just learning to work with ORACLE.

1.4 ORACLE * FORMS

The form component of DEVELOPER/2000 is the environmental component in which you develop, not surprisingly form modules. It also provides the development framework for developing menu and PL/SQL library modules. These forms provide

fast and easy access data entry updating, deletion and queries to an ORACLE database.

1.5 ORACLE * REPORTS:

The report component of DEVELOPER 2000 is used to create different reports in a variety of styles. The report designer also includes libraries and data object. It can be used to produce a report derived from a single oracle table with column headings, columns of database information system and totals as desired.

1.6 ORACLE * GRAPHS

The graph component of DEVELOPER 2000 is used to create different types of graphs (e-g pie chart, bar chart, etc) based on the one or more tables of a database.

Number of utilities is also available which allow easy manipulation of data. Structures along with the data stored in these structures. For example DEVELOPER 2000 provide import/export utilities with the help of which it is possible to move structures along with the data contained in these field, from one to another

1.7 SYSTEM DEVELOPMENT

Each system comprises of one or more components relation to one specific branch of system, a description of system components are given below.

1.7.1 EDITORS

DEVELOPER/2000 provides editors, which are:

- Layout Editor
- PL/SQL Editor
- Object Navigator

1.7.2 LAYOUT EDITOR

IT is used for creating, formatting and arranging interface items and boilerplate graphics. It provides us with complete set of drawing and editing tools. It provides quick access to frequently used commands.

1.7.3 PL/SQL EDITOR

It is use to write triggers, program units, procedure etc.

1.7.4 OBJECT NAVIGATOR

It is used to display editors. It provides work area for creating and modifying objects.

1.7.5 FORMS

A form application represents data in an on line format consisting of a series of fields lay out in one or more windows. They also provide a good way of executing and changing that information. You can type data in to the form fields or change that is in them, depending upon what the form designer let you does.

There is a particular kind of form called a master/detail form that divides the form in to a master record and several detail records.

Once a form has been designed, data entry operators need not to know the SQL commands.

1.7.6 CANVAS

A canvas Is the “surface” on which you paint objects like text item, push buttons and check boxes etc. the window is the “frame” or “border” which forms a “view port” for the user. The user may not sell all of the canvas at any one time, only as mush as the windows on the canvas allows him to. This view is some time refered to as the canvas view.

1.7.7 BLOCK

Block is the intermediate building units for forms. You can think of a block in two ways: as a collection of items or as a collection of records, each of which has the same structure of items.

Blocks usually correspond to one table in the database. A form may have one or more blocks. A block contains a groups of related fields that are used store some specific information.

1.7.8 BASE TABLE

A data base table, which is associated to a block, is called the base table for that block. This block contains all or some of the fields defined in that particular base table.

1.7.9 FIELD

A block item is the primary building unit of the form. Represent columns or data entry areas and describe hoe the data should be displayed and validated and how an operator should interact with the data while it is entered. At the most basic level, field serves as container for data with in a form. A field is always owned by or associated with a block. Each block normally owns one or more fields.

1.7.10 MASTER DETAIL RELATIONSHIP

A form may contain more than one block. These forms may have independent status or they may have master detail relationship. A block is called master block if in mater, there exists one or multiple records in detail blocks. There is primary to foreign key relationship between blocks.

1.7.11 TRIGGER

A trigger is a block of PL/SQL code you write to customize your application. You use triggers to respond run time events with appropriate processing. Triggers are set of processing commands. Triggers can be impose at field level, block level and form level.

1.8 SYSTM DESIGN

The system design phase can be classified into two categories:

- Logical database design
- Physical database design

1.8.1 LOGICAL DATA BASE DESIGN

This phase simplifies the approach to design large relational data base by reducing the number of data dependencies that need to be analyzed. Logical database design consists of:

- Output Design
- Input Design

1.8.1.1 OUTPUT DESIGN

The output design constitutes and important part of the system. The out put may either be in soft form (displayed on screen) or in hand form (print out)

The output design of the proposed system consists of the following:

- Query: normally screen oriented.
- Report: normally printed out.
- Graphics display: normally printed out for decision purpose.

1.8.1.2 INPUT DESIGN

Input design is the main source of interaction between the user of the system and Developer. The output of the system is based upon this design. More efficient and accurate would be the output design.

1.9 FORM DESIGNING

The input screens for the system are designed so as to handle exceptional cases, checks for possible errors are provided and resulting into an error free output. The general characteristics of the input screens are:

1.9.1 Password

The password system would be implemented for the successful purpose, whenever a user logs in. Such users are called registered users.

1.9.2 Validation Checks

These checks are imposed at different hierarchical levels. For instance at the menu level, block level, form level which do not allow the user to move ahead until a valid data is entered.

1.9.3 Duplicate codes

The possibility of entering a duplicate code has been totally eliminated.

1.9.4 List Of Values

LOVs are provided for various items, online help, this help is provided for a better understanding of the system and for ease of the user.

1.9.5 Error Messages And Alerts

These are the handled in the forms and as soon as the user commits the mistake, an error message or an alert is displayed on the screen.

1.9.6 Data Types Checks

These checks are taken care of by oracle itself and in case of type mismatch, error messages are shown on the message line at the bottom of screen.

1.9.7 Modification And Deletion

These strategies are defined in such a way that under certain circumstances no modification or deletions are allowed.

1.10 Physical Database Design

A database is the physical design matured from the local design, it is based upon the relationship among the data rather than the conveniences of the storage structure. A remarkable feature of the database is that, the data is organized in systematic way, such that a tabular format depending upon the structured defined for it. The systematic organization of data, applied in a computer based system, makes a database distinct form of record keeping.

While designing the database the facts such as data sharing, data integration, consistency, no redundancy and data standardization have taken care of.

1.32 Table Design

The system contains 10 tables. Some of them are code tables while others are transaction

Introduction to the **O**rganization



Oil and Gas Development Company Limited (OGDCL)

2.1 Introduction

The Oil and Gas Development Corporation (OGDC) was established in 1961 as a Statutory Corporation under the Government of Pakistan. Financial and administrative autonomy was given to the Corporation during the 7th Five Year Plan (1988-1993). It has been incorporated as a Public Limited Company w.e.f. 23rd October 1997 and is now known as Oil and Gas Development Company Limited (OGDCL). OGDCL owns the Pirkoh Gas Company (Private) Limited, a wholly owned subsidiary established in 1982, to undertake the development of the Pirkoh gas field, one of its major gas producing fields, in Balochistan.



A number of oil and gas discoveries in the eighties provided an impetus to the Corporation's activities. It also completed some major oil and gas projects which increased its profits and revenues manifold. Six new discoveries made in the first year of self-financing i.e. 1989-90 resulted in a 57 percent increase in net sales revenues over 1988-89 including that of its subsidiary, Pirkoh Gas Company Limited.

Oil and Gas Development Limited (OGDCL) is the largest exploration and production (E&P) companies in the Pakistan oil and gas sector currently wholly owned by the Government of Pakistan (GoP). The GoP envisages a strategic sale of 51% of the total shareholding along with transfer of management control. It is an investment opportunity for oil & gas companies or consortiums with international experience. Merrill Lynch International and Khadim Ali Shah Bukhari & Co. Limited (KASB) are the Financial Advisor (FA) for this transaction.

Expressions of Interest (Eoi) for sale of 51% shares in OGDCL were invited in

July 2002 and various oil companies submitting EOIs were invited for pre-qualification. The pre-qualification process has not been closed and the GoP may entertain fresh interest by new prospective/potential investors. The pre-qualified parties that satisfy the necessary financial and technical standards will be invited to sign a confidentiality agreement further to which they will be provided with a copy of the Information Memorandum and allowed access to Data Room to undertake a comprehensive assessment of OGDCL.

2.2 Company History

The Government of Pakistan established Oil and Gas Development Corporation (OGDC) in 1961 as a statutory corporation to undertake exploration and development of oil and gas resources. In October 1997 OGDC was converted into a public limited company and renamed as Oil and Gas Development Company Limited (OGDCL).

2.3 Organization

A Board of Directors comprising eleven Directors, all of whom are nominated by the Ministry of Petroleum and Natural Resources, is responsible for policy related issues. The Board is headed by a non-executive Chairman and there is a Managing Director/Chief Executive Officer. OGDCL has a wholly owned subsidiary Pirkoh Gas Company Limited (PGCL) which is responsible for operating Pirkoh gas field.

2.4 Company description

OGDCL is the country's largest oil exploration and production (E&P) company. As of March 1, 2003 OGDCL had drilled 175 exploratory wells and 229 development wells. As of April 2003, OGDCL is producing 21,768 barrels of oil per day, 847 million cubic feet per day of gas, 216 metric tons per day of LPG and 61 metric tons per day of sulphur.

The company's remaining recoverable reserves as of January 1, 2003 comprised 10.05 trillion cubic feet of gas and 145 million barrels of oil.

OGDCL has implemented a number of major projects for the developments of its oil and gas field including Dhodak gas/condensate field in district D.G. Khan, Punjab, Qadirpur gas field in district Sukkur, Sindh, Pirkoh and Uch gas fields in Dera Bugti Agency, Balochistan, and Nandpur and Panjpir gas fields in Khanewal and Jhang Districts, Punjab.

OGDCL carries out exploration and development activities on its own as well as in joint ventures with other oil companies. Presently OGDCL is 100% owner of four concessions. In addition, it is the operator and major working interest owner in fifteen concessions and is a minority working interest owner in sixteen concessions operated by other oil companies.

OGDCL's equipment base includes nine drilling rigs, two work over rigs, six seismic data acquisition crews, civil works and gas pipeline laying crews, a seismic data processing center, geological analysis laboratory, logging units. It has an Oil and Gas Training Institute with fully equipped laboratories, which has also provided training to professionals from foreign oil companies operating in Pakistan.

The company's head office is located in Islamabad. As of January 1, 2003

OGDCL had total manpower strength of 12,093 comprising 1,634 officers/executives and 10,459 subordinate staff.

2.5 Recent Discoveries

Since March 2002, OGDCL has made eight oil and gas discoveries in Sindh province. Initial production testing results gave a combined flow of 5,122 barrels of oil/condensate per day and 56.8 million cubic feet per day of gas. These discoveries are being appraised to determine their full potential.

2.6 Financial Data

The authorized share capital of OGDCL is Rs. 25 billion. The issued, subscribed and paid-up capital is Rs. 10.752 billion, which is wholly owned by the Government of Pakistan. OGDCL is the largest and most profitable oil company.

Key figures for the financial years ending June 30, 2001 and June 30, 2002 are given;

(Amounts in million rupees)

	FY 2001	FY 2002
Expenses (Government levies)	17,961	39,739
Depletion Costs	12,187	12,740
Profit before taxation	23,227	26,688
Profit after taxation	16,498	16,775
Total assets	67,762	76,208
Shareholders' Equity	31,279	57,239
Total liabilities	16,483	18,969
Volume Sales		
Crude Oil (million barrels)	8,535	8,705
Gas (million cubic feet)	259,395	276,931

- *Includes production from the wholly owned subsidiary Pirkoh Gas Company Limited*

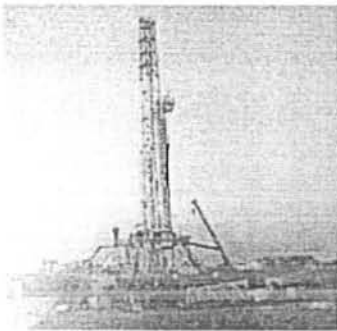
2.7 THE COMPANY'S NEW MISSION STATEMENT

To adopt and maintain a distinct commercial orientation with balanced, efficient and competitive structure to meaningfully explore and exploit indigenous resources for optimum production of oil and gas, besides seeking opportunities abroad.

2.8 FUNCTIONS

The functions of the company are to plan, promote, organize and implement programmed for the exploration and development of oil and gas resources as well as production, refining and sale of oil and gas.

2.9 ADMINISTRATIVE STRUCTURE



Having fulfilled its role as the national oil company, the Company is now ready for another transformation to public and private partnership. The Corporation was restructured into a Public Limited Company henceforth known as OGDCL (Oil and Gas Development Company Limited) with an authorized capital of Rs.25 billion. The

Board of Directors of the Company has since been reconstituted and consists of 10 Directors. The position of Chairman/CEO has been bifurcated into a non-executive Chairman and Managing Director/CEO.

2.10 ACTIVITIES

OGDCL has conducted extensive surveys to identify potential hydrocarbon bearing structures and has carried out drilling in order to exploit available oil and gas resources. As of 1st January 2003, OGDCL has drilled 173 exploratory wells and 228 development wells.

2.11 DISCOVERIES

With the blessings of Almighty Allah, sustained and concerted efforts have so far resulted in nine landmark hydrocarbon discoveries during the period March 2001 till date. These include eight discoveries in Sindh and one in NWFP. These

discoveries are Chanda Deep-1 (NWFP), Chak-63, Chak-66, Chak-02, Resham, Norai Jagir, Hakeem Daho, Bhulan Shah and Chak 7-A. Presently OGDCL is producing an average of 22,214 barrels of oil per day, 743 MMCFD of gas, 217 tons per day of LPG and 60 tons per day of Sulphur (as of 31st December 2003).

2.12 RESERVES

OGDCL's updated estimates for remaining recoverable oil and gas reserves as on 1st January 2003 stood at 10,050 billion standard cubic feet of gas and 145 standard million barrels of oil.

2.13 MAJOR PROJECTS

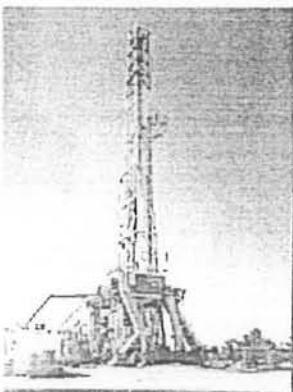
a. Projects Completed

Sadqal Gas Compression Project
Additional 100 MMCFD Gas from Qadirpur gas field
Nandpur / Panjpir Development Project
Kunnar Development Project
Uch Gas Project

b. Projects in Progress

Qadirpur Expansion Project.
Dakhni Expansion Project
Bobi Gas / Condensate Project
Chanda Field Development Project

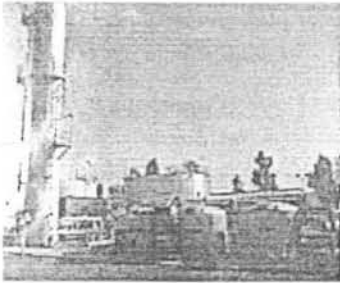
2.14 PROFESSIONAL AND EQUIPMENT BASE



The Company has grown into a technically feasible and commercially viable organization. It has developed a highly qualified pool of professionals who can undertake and supervise all phases of oil and gas exploration and production starting from preliminary geological surveys and

culminating in the operation of oil and gas processing plants. OGDCL has developed a sound equipment and operational base which includes 8 drilling rigs, 2 work over rigs, a geological field party, 6 seismic parties, 5 engineering field parties, a gas gathering party, a seismic data processing center, a geological analysis laboratory, a wireline logging unit, cementing

2.15 WHAT OGDCL CAN OFFER



OGDCL offers a number of facilities for joint venture collaboration to fore[re]ign oil companies. It has an extensive database. It offers valuable local expertise in the field of geology and geophysics whose consultation / advice may be availed. It has also started to lease out its rigs to the private sector for drilling and carries

OGDCL not only carries out exploration and development activities on its own but also enters into joint ventures for oil and gas exploration. Presently OGDCL is 100% owner in 4 concessions. In addition, it is the operator as well as a working interest owner in 15 concessions and partner in 17 concessions operated by other oil companies. (Details attached at Annex-I).

OGDCL has also acquired state-of-the-art seismic technology for improving its ability to discover the un-exploited oil and gas potential in the country. A number of recent reforms and improvements have been made in OGDCL operations giving it a cutting edge of a petroleum company that has taken up the challenge of making the country self reliant in the energy sector.

2.16 FUTURE PLANS

In April/May 1999, Privatization Board of Pakistan approved privatization of OGDCL and appointment of Financial Advisor. Messrs Merrill Lynch have been appointed as Financial Advisor who have started work since 10th January 2001.

The scope of work of Merrill Lynch, is divided into two phases. Phase-1 involves

preparation of the transaction and Phase-II involves implementation of the privatization plan. Details of these phases are as below:-

2.16.1 PHASE-1 (Completed)

1. Report on Privatization & Regulatory Framework.
2. Due Diligence Reports (Accounting, Technical, Legal)
3. Report on Employee Base & Restructuring Recommendations.
4. Preliminary Valuation Model
5. Report on Recommended Transaction Structure & Transaction Process.

2.16.2 Phase-II (Under Process)

1. Solicitation of EOIs/SoQs.
2. Pre-qualification of potential investors.
3. Data Room opens.
4. Data Room closes
5. Pre-Bid Meeting.
6. Receipt of Final Bids.

The company plans to enter the millennium with new strategies for corporate growth and diversification. OGDCL will continue to place emphasis on the need for self reliance in the energy sector, and to strive for a results driven, performance based culture.

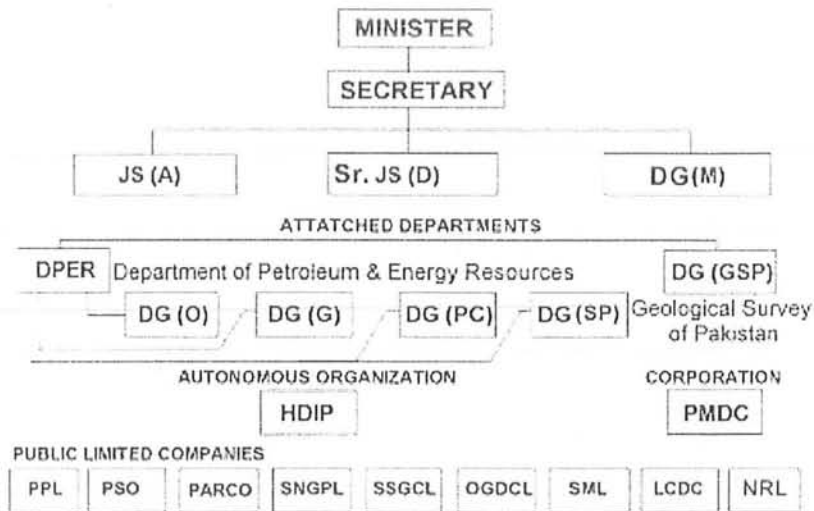
LIST OF CONCESSIONS & LEASES OF OGDCL AND JOINT VENTURES

OGDCL'S OPERATED CONCESSIONS

OGDCL'S NON OPERATED CONCESSIONS

% OGDCL'S (4)	OGDCL'S OPERATED JVs (15)	NON-OPERATED JVS CONCESSIONS (WITH OTHER COMPANIES)	
Jandran	Sohawa	East Badin Extension (Block-B)	Tullow
Discovery Area		Block-28	Tullow (under Force Majeure)
Al-Rehman	Zin	Badin-II	BP
Fateh Jang	Rakhni	Badin-II (Revised)	BP
	Bitrisim	Badin-III	BP
	Tando Allah Yar	Kirthar Block	Lasmo
	Kharar	Tal Block	MOL
	Nim	Miano (D&PL)	OMV
	Khewari	Pindori (D&PL) Soan Block	POL
	Sinjhoro	Kadanwari (D&PL) Tajjal Block	Lasmo
		Sara (D&PL)	Tullow
		Dhurnal (ML) North Potwar	OPI
	Gurgalot	Ratana (ML) Soan Block	OPI
	Nashpa	Bhangali (ML) Soan Block	OPI
	Khajuri	Adhi (ML) East Potwar	PPL
	Kotra (through an assignment)	Ghauspur Block	Premier
	Chak Naurang	Khushalgarh	POL
	Qadirpur		

Organizational Chart



Proposed System

Proposed System

3.1 Introduction

The system is already developed k-tron research incorporated in Fox-Pro. It is proposed to develop the system in the ORACLE.

The reason to develop the system in the Oracle is;

1. Most Oil Companies use Oracle Database. So it is better for Oil industry to have database in Oracle.
2. Retrieval of the Data is fast in the Oracle and as the database is large enough.
3. Oracle provides database management for large database. As the database of the Oil industry is very large so the system in Oracle will be good.
4. Oracle provides high security and networking. The data of Oil & Gas Development Corporation Limited is very confidential. Oracle is better for this purpose.
5. Some additional things will be added.

The proposed system, which will be developed in Oracle, will perform functions of the existing system. Some additional things will also be added.

3.2 Company's Data Information

The system to be developed will also use the following Company's information.

- **Seismic Line Data**
- **Seismic Cartridge Data**
- **Data Format**
- **Crew Information**
- **Channel Information**
- **Processing Type**
- **Geometry of the Data**

The above terms are explained in detail in the existing system;

3.2.1 Seismic Lines Data:

In the Seismic lines data, we will get the information about the Seismic lines like Name navigated record. In the working Area the Oil & Gas Company do the Seismic reflection or refraction survey or both. The data is recorded in the form of Seismic lines. These lines are very important in the way of exploration. From these seismic lines the Oil Company finds the Oil and Gas discoveries.

3.2.2 Seismic Cartridge Data:

The seismic data in the field is recorded in Cartridge and also in the round tapes. The data is more secured in the Cartridge rather than in round tapes. The data in the cartridge is recorded in the form of File no and channel information has been given in that cartridges.

3.2.3 Data Format:

The Seismic data is recorded in the specific format. These format are internationally compatible with the different software which the companies has. These formats are describes as under;

- SEG A
- SEG B
- SEG C
- SEG D
- SEG Y

3.2.4 The Crew Information:

The exploration Oil company has the different crew at different Crew working on different projects. A particular crew is head by the Party Manager and Party Chief.

3.2.5 The Channel Information:

The recorded data has different channels information, which shows the checking of particular point at number of time. Normally we have the data of channel described as under;

- 24 Channel
- 48 Channel
- 96 Channel
- 120 Channel
- 240 Channel

3.2.6 Processing Type:

After the data has been acquired in the form of seismic line, it has been brought to the Seismic Data Processing department through Seismic Operation Section. The different software is used to process the data for the further interpretation in the Prospect generation department.

3.2.7 Geometry of the Data:

The geometry of the data has been defined in the Seismic Data processing by the specific software used by the company. Then it has been further processed. The field geometry has been added in the software for the processing.

3.3 Requirements of the System:

The system was design keeping in view the requirements of the system, which are describe as under:

- **With the Line No information, we get the Area and Date of line Acquisition.**
- **With the line No information, we are able to get the information of the processing type and Process Date.**
- **The information of the line whether it is present in the CTL or Not.**
- **The information of the line whether the DMX (Demultiplex) plot of the line has been obtained or Not.**
- **What is the data format of the line?**
- **From the Area specified, we get the Total Data Records in the files.**
- **Total channel recorded in the Area.**
- **The type of the crew present in the working area.**
- **List of the cartridge in particular date.**
- **Total cartridge having the recorded data for the specific Area.**

The proposed system meets the above requirements in better way provided by the Company. It is successful in its implementation.

System Design

System Design

4.1 Introduction

It is the second stage in which the new system is designed, which is going to replace the old existing one. The analyzed results of the first stage, system analysis, provide the basis for designing. Keeping in mind the results of the analyzed existing system, an attempt is made to design a system, which is simple. Efficient and comprehensive. The existing system is computerized on two main categories namely books and journals which are mainly used in the organization. While designing the new system it was kept in mind:

4.2 System Designing

While designing the system, the subsystems, which are considered, are;

- Data entry
- Search/view
- Circulation
- Acquisition
- Reports

These will be considered one by one in perspective of the task that could be performed keeping in view.

4.3 Design

In the Software development phase, design is the first step. It is very important in the development phase. For example quality factor is very necessary and design is the place where the quality is fostered in the development phase. Design provides us with the representations of software that can be accessed for quality.

4.4 Database design:

The database design transforms the flow of information into the data structures that will be required to implement the software. The data objects, their relationships and detailed data contents described in the data dictionary provide the basis for the database design activity. The description of data objects and their relationships is given below.

4.5 (Tables)

4.5.1 Table: 01

Description: It contains the information about the

Primary key: Primary key is file_no.

Table name: field_data

Field name	Data type	Description
File_no	Number(5)	It is no of line
Record_format	Char	It has cortidges & round tapes
Quantity	Number(5)	It has quantity of record format

4.5.2 Table: 02

Table name: channel_inform

Primary key: Primary key is chan_sno.

Description:

Field name	Data type	Description
Chan_sno	Number(5)	It gives information about channels
Channel_type	Number(5)	It is type of channels

4.5.3 Table: 03

Table name: crew

Primary key: Primary key is chan_sno.

Description:

Field name	Data type	Description
Crew-no	Number(5)	It is no of crew
Crew_type	Char	It is type of crew in field

4.5.4 Table: 04

Table name: proc_type

Primary key: Primary key is proc_no.

Description:

Field name	Data type	Description
Proc_no	Number(5)	It is no of process
Proc_type	Char	It has type of process i.e. Processed or not processed

4.5.5 Table: 05

Table name: data_format

Primary key: Primary key is format_no.

Description:

Field name	Data type	Description
Format_no	Number(5)	It is no of data format
Format_type	Char	What is format

4.5.6 Table: 06

Table name: line_info

Primary key: Primary key is line_no.

Foreign key: file_no, which references field_data.

Chan_sno, which references channel_inform

Description:

Field name	Data type	Description
Line_no	Number(5)	It is no of line
File_no	Number(5)	It is no of file
Chan_sno	Number(5)	It is no of channel_information
Area	Char	Area of Cartridge
Date_acq	Date	It is date acquisitions

4.5.7 Table: 07

Table name: files_inform

Foreign key: file_no, which references field_data.

Description:

Field name	Data type	Description
S_no	Number(5)	It is no of files information
File_no	Number(5)	It is no of file
T_files	Number(5)	Total no of files

4.5.8 Table: 08

Table name: operation_section

Primary key: Primary key is ref_no.

Foreign key: line_no, which references line_info

Crew_no, which references crew.

Description:

Field name	Data type	Description
Ref_no	Number(5)	It indicates no of references
Line_no	Number(5)	It is no of line
Crew_no	Number(5)	No of crew working on the field
Date_received	Date	Date received

4.5.9 Table: 09

Table name: processing_dept

Foreign key: ref_no, which references operation_section

Proc_no, which references proc_type

Format_no, which references format_no

Description:

Field name	Data type	Description
S_no	Number(5)	It is serial_no
Ref-no	Number(5)	It is references no
Proc_no	Number(5)	It is no of process
Date_processed	Date	When data is processed
Format_no	Number(5)	It is no of data format

4.5.10 Table: 10

Table name: CTL

Foreign key: line_no, which references line_info.

Description:

Field name	Data type	Description
S_no	Number (5)	It is no of central table library
Client	Char	Whether OGDCL, LMKR etc.
Year	Number (5)	
Crew type	Char	Identification of crew which is in field
Line no	Number (5)	It is no of line
DMX_print	Char	Whether Demultiplex plot exits or not
Status	Char	CTL or not
Observer_report_no	Number (5)	It is no of observer report no
S_I	Char	Type of sampling interval