THE REPORT OF DETAILED SYSTEM DESIGN ON THE PETROLEUM EXPLORATION AND PRODUCTION DATA BANK SYSTEM DEVELOPMENT PROJECT IN THE REPUBLIC OF INDONESIA

(VOLUME I)

AUGUST 1981

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

In response to a request of the Government of the Republic of Indonesia, the Japanese Government decided to conduct a survey on the "Petroleum Exploration and Production Data Bank System Development Project" and entrusted the survey to the Japan International Cooperation Agency (J.I.C.A.). The J.I.C.A. sent to Indonesia a survey team headed by Mr. Daishiro Kasahara from May 25 to June 16, 1981.

The team exchanged views with the officials concerned of the Government of Indonesia and conducted a field survey in PERTAMINA EP UNIT II area and in Jakarta. After the team returned to Japan, further studies were made and the present report has been prepared.

I hope that this report will serve for the development of the Project and contribute to the promotion of friendly relations between the two countries.

I wish to express my deep appreciation to the officials concerned of the Government of Indonesia for their close cooperation extended to the team.

August, 1981

Keisuke Arita

President

Japan International Cooperation Agency

CONTENTS

(VOLUME I) Page

REFERENCE I SCOPE OF WORK FOR THE TECHNICAL COOPERATION OF THE PETROLEUM EXPLORATION AND PRODUCTION DATA BANK SYSTEM DEVELOPMENT PROJECT (CTA-71) AND MINUTES OF MEETING ON THE TECHNICAL COOPERATION FOR THE DETAILED DESIGN OF THE PETROLEUM EXPLORATION AND PRODUCTION DATA BANK SYSTEM DEVELOPMENT PROJECT IN THE REPUBLIC OF INDONESIA

REFERENCE II INDONESIAN PARTICIPANTS' ACTIVITY REPORT

(VOLUME II)

APPENDIX I OUTPUT REPORT LAYOUT

APPENDIX II METHOD OF ASSIGNMENT

(VOLUME III)

APPENDIX III DATA BASE STRUCTURE

APPENDIX IV CODE SYSTEM

APPENDIX V INPUT DATA FORMAT

APPENDIX VI PROGRAM SPECIFICATION OF MASTER FILE PROCESSING

APPENDIX VII PROGRAM SPECIFICATION OF INPUT PROCESSING FOR DATA BASE

APPENDIX VIII PROGRAM SPECIFICATION OF OUTPUT PROCESSING FOR DATA BASE

APPENDIX IX INSTRUCTION ON INPUT DATA PROCESSING

Chapter 1.

INTRODUCTION

Chapter 1 Introduction

(1) Background of the Survey

The Government of Japan, in response to a request of the Government of the Republic of Indonesia, agreed to conduct a survey on the "Petroleum Exploration and Production Data Bank System Development Project" and entrusted Japan International Cooperation Agency (JICA) to carry out the survey.

After preliminary JICA's mission to the Republic of Indonesia February 28 to March 12, 1978, the following JICA's technical cooperations, in response to again request of the Republic of Indonesia, were conducted November, 1978 to August, 1980 on the said project according to the preliminary survey results.

Period	
Nov. 20, 1978 - Dec. 24, 1978	Dispatch of the development survey mission.
January, 1979 - March, 1979	Preparation of A Draft Survey Report on The Petroleum Exploration and Production Data Bank System Development Project in the Republic of Indonesia.
Jul. 14, 1979 - July 22, 1979	Presentation of the above-mentioned Draft Report.
August, 1979	Preparation of A Survey Report on The Petroleum Exploration and Production

		Data Bank System Development Project in The Republic of Indonesia, August, 1979 (hereinafter called "The Field Survey Report").
Sept., 1979	- March, 1980	Preparation of The Draft Report of Conceptual System Design on the Petroleum Exploration and Production Data Bank System Development Project in The Republic of Indonesia.
June 2, 1980	- July 1, 1980	Presentation of the above-mentioned Draft Report of Conceptual System Design.
July, 1980	- August, 1980	Preparation of The Report of Conceptual System Design on the Petroleum Exploration and Production Data Bank System Development Project in The Republic of Indonesia, August, 1980 (hereinafter called "The Report of Conceptual System Design").

The Government of the Republic of Indonesia requested again the Japanese technical cooperation of the detailed system design work on the said project, in succession to the conceptual system design work.

The Government of Japan felt this technical cooperation necessary to contribute to the promotion of friendly relation between our two countries in view of the importance of the said project, decided to conduct the survey for the detailed system design and entrusted again JICA with the survey.

In response to the again request, JICA decided to conduct the technical cooperation of the detailed system design and dispatched during September 25, 1980 to October 1, 1980 the Japanese mission which was headed by Mr. D. Kasahara, to the Republic of Indonesia, for settlement of scope and programme of the technical cooperation.

As a result of discussion between the Japanese mission and the Republic of Indonesia, "Scope of Work of the Technical Cooperation dated September 30, 1980 (Reference is made to REFERENCE I)", settled the scope and program, was signed by Mr. D. Kasahara, the leader of the mission and by Mr. Wijarso, Director General of Oil and Gas (MIGAS), the Republic of Indonesia.

The detailed system design has been carried out based on the above-mentioned agreement, in succession to the conceptual system design.

(2) Survey Method and Period

The survey for designing in detail the system and preparing the draft report had been conducted according to the agreement, which was concluded between JICA and the Government of the

Republic of Indonesia. That is, the survey had been conducted during period between October 1, 1980 and March 25, 1981 by the team which was headed by Mr. D. Kasahara and consisted of expert members listed in Table 1-1, taking into account the results of conceptual system design described in "The Report of Conceptual System Design" and the requirements of the Indonesian participants (Reference is made to REFERENCE II), and prepared the draft report of detailed system design on the Petroleum Exploration and Production Data Bank System Development Project in the Republic of Indonesia.

During the survey, Indonesian counterparts, listed in Table 1-1, participated in the survey in pursuit of technology transfer. Their activities have been cumulated to 13 man-months and are recorded in REFERENCE II for reference to their future work.

Subsequently, the mission headed by Mr. D. Kasahara and consisted of members in TABLE 1-1 conducted the field survey from May 25 to June 16, 1981 to explain the said draft report to Indonesian counterpart team and discussed their requirements with them.

As a result of field survey, "Minutes of Meeting" dated June 15, 1981 was signed by Mr. D. Kasahara, Team Leader of the survey and by Mr. B.S. Sitoemorang, Coodinator of the Indonesian Counterpart Team.

After their returning to Japan, the team analyzed the survey results, corrected the draft report subject to their requirements in "Minutes of Meeting" and prepared the final report of "Detailed System Design on the Petroleum Exploration

and Production Data Bank System Development Project in the Republic of Indonesia".

(3) Outline of Survey Report

This gives an outline of the report as follows.

Chapter 2 [Summary] presents the summary of the survey.

Chapter 3 [Naming Convention] lists the naming convention Which is related to data bases and computer programs in detailed system designing work for the Petroleum Exploration and Production Data Bank System.

Chapter 4 [Output Reporting Method] describes output reporting methods by which user of the Petroleum Exploration and Production Data Bank System can realize what reports come out and how to retrieve them.

Chapter 5 [Data Base] describes the detailed system designing related to the data base which is based on the Petroleum Exploration and Production Data Bank System. Attention should be paid on the data structure, the code system and the master file which will characterize the data bank system to be established.

Chapter 6 [Program Specification] describes processing for master file, data base input processing and data base output processing. In this chapter, programs for the above processing were designed and the specification of these programs is referred to APPENDIX VI, VII and VIII.

In Chapter 7, a plan is proposed for the implementation of computer application and introduction of the system to the PERTAMINA Unit II computer system.

This report consists of three volumes and the content for each volume is as follows.

- Volume I — Chapter 1 - Chapter 7 in the text
  REFERENCE I & II.
- Volume II — APPENDIX I - APPENDIX II
- Volume III — APPENDIX III - APPENDIX IX

TABLE 1-1 Members List of Survey Team

Name	Title
Japan Side	
DAISHIRO KASAHARA*	Team Leader, Petroleum Engineer (JICA)
SHUICHI SASAKI*	Technical Coordinator (MITI)
HIDEAKI ISONO*	Assistant Team Leader, System Analyst (JICA)
MASANORI EZOE*	Mechanical Engineer (JICA)
JUNNOSUKE YANAGAWA*	Drilling Engineer (JICA)
HIROO TAKIZAWA*	Geologist (JICA)
HARUMASA KUSANO	Drilling Engineer (JICA)
TAIJI ICHINOKAWA*	System Analyst (JICA)
SUSUMU TAI*	System Analyst (JICA)
TOSHIHIRO INAMORI*	Reservoir Engineer (JICA)
ARITAKE SHIBUYA	Geophysicist (JICA)
SHINICHI NAKAMURA	System Analyst (JICA)
TAKASHI HARUYAMA	System Analyst (JICA)
KIYOHARU KOBAYASHI	System Analyst (JICA)
YAEKO YAZAWA	System Analyst (JICA)
ISAO ASAI*	Coordinator (JICA)
KIMIO HADA*	(JICA JAKARTA)

Indonesia Side

1) Jakarta

ROHALI SANI	(MIGAS)	Deputy Chairman
R.S. ROBOT	BPD/DIT. UMUM (PERTAMINA)	Head of Secretary of Indonesia Team
B.S. SITOEMORANG**	Dit. EP (PERTAMINA)	Coordinator
R. DIRK PAULUS	BKKA (PERTAMINA)	Petroleum Engineer
ZAINAL ABIDIN	BKKA (PERTAMINA)	Petroleum Engineer
SEMBODO	BKKA (PERTAMINA)	Petroleum Engineer
ERWIN KASIM	BPD/DIT. UMUM (PERTAMINA)	System Analyst

Name	Title	
ZANIAL ACHMAD**	Geologist (PERTAMINA)	Geologist
DJUMERO S.**	Res.Eng.MIGAS EP (PERTAMINA)	Reservoir Engineer
S. ANWAR ZEN	Res.Eng.MIGAS EP (PERTAMINA)	Reservoir Engineer
DJUSLIZAR SYAFIRIN	Din.Eks.MIGAS EP (PERTAMINA)	Geologist
SUMANTRI**	Res.Eng.MIGAS EP (PERTAMINA)	Reservoir Engineer
M. JUSUF C.A.	Drilling Eng. MIGAS EP (PERTAMINA)	Drilling Engineer
S. AD. PONTOH	Din.Eks.MIGAS EP (PERTAMINA)	Geologist
T. SOELAIMAN	EP Migas Prod (PERTAMINA)	Petroleum Engineer
A.C. SUSWANTORO	BKKA (PERTAMINA)	Petroleum Engineer
GATOT KARIYOSO	BKKA (PERTAMINA)	Geologist
KARNATA	Litbang EP (PERTAMINA)	Reservoir Engineer
H. LUBIS	EPT Div. Migas (PERTAMINA)	Petroleum Engineer
MAROENO S.	Litbang EP (PERTAMINA)	Reservoir Engineer
SOESANTO	Litbang EP (PERTAMINA)	Reservoir Engineer
HEROE S.	(MIGAS)	Geologist
HARIADI	Litbang EP (PERTAMINA)	Geologist
SUDJANA**	BPD/DIT. UMUM (PERTAMINA)	System Analyst
AGUNG WITONO**	BPD/DIT. UMUM (PERTAMINA)	Data Base Administrator
EMIL SILVAN**	BPD/DIT. UMUM (PERTAMINA)	Data Base Administrator
S. ALI GAYO**	BPD/DIT. UMUM (PERTAMINA)	System Analyst

2) Unit EP-II

B. SUMANTRI	P.Kh.PU EP-II (PERTAMINA)	
Z.A. KAMILI	Eks. (PERTAMINA)	Geologist
EDDY SOENOTO	Bid. Prod. (PERTAMINA)	Petroleum Engineer
Y. SURONO P.	Bid. TMG. (PERTAMINA)	Mechanical Engineer
SOENOKO	Exploitation (PERTAMINA)	Petroleum Engineer
SAGIMIN KH.	Drilling (PERTAMINA)	Drilling Engineer
P. WAWIKERE	Tek-EP. (PERTAMINA)	Mechanical Engineer
SAYONO	Exploitation (PERTAMINA)	Petroleum Engineer
NUR RUSLAN**	PDE-II Plaju (PERTAMINA)	System Analyst
TJIPTO BASUKI	Eks. (PERTAMINA)	Geologist
DJONI BASIR	EPT-EP. (PERTAMINA)	Petroleum Engineer

Name	Title	
HASSANAL	Exploitation (PERTAMINA)	Petroleum Engineer
PRINGGAYUDA	EPT-EP. (PERTAMINA)	Petroleum Engineer
LILI HAMBALI**	PDE-II Plaju (PERTAMINA)	System Analyst
AHMAD ALBANI**	PDE-II Plaju (PERTAMINA)	Data Base Administrator
R. HARYOKO	EPT-Plaju (PERTAMINA)	Geologist
S. HARDIMAN	Bid. TMG (PERTAMINA)	Petroleum Engineer
RACHMAN**	Bid. Prod. (PERTAMINA)	Petroleum Engineer
SUWITO RUDYATMOKO**	Exploitation (PERTAMINA)	Petroleum Engineer

Remarks

* They joined in the Field Survey performed in the Republic of Indonesia.

** They participated in the Survey performed in Tokyo, Japan.

Chapter 2.

SUMMARY

Chapter 2 Summary

(Chapter 3 Naming Convention)

1. Following items are named in accordance with the naming convention which is described in Chapter 3 and is under use of PERTAMINA at present, for the purpose of promoting an efficiency of designing, programming and managing the system.

(1) Data Base

- Data base name
- Segment name
- Field name

(2) Program

- Program name
- Report name

(Chapter 4 Output Reporting Method)

2. New output reporting methods of eighty-six (86) were added to the two hundred and fourty-four (244) methods, which had been proposed in "The Report of Conceptual System Design", in accordance with the request of the Indonesian participants.

The detailed system design was carried out finally on the three hundred and thirty (330) methods classified into

the following nine (9) information groups. The result of detailed system design for output reporting methods is described in Chapter 4, the output report layout is shown in APPENDIX I and the method of assignment is described in APPENDIX II respectively.

	Information group	No. of output reporting method	No. of sheet	No. of assignment parameter
(1)	A-Geological Data and Contract Area Information	23 (23)	37	34
(2)	B-Geophysical Data Information	35 (31)	96	17
(3)	C-Well Data Information	40 (39)	90	26
(4)	D-Petrophysical and PVT Analysis Data Information	4 (5)	5	9
(5)	E-Production Data Information	159 (85)	179	22
(6)	F-Reserves Data Information	20 (15)	28	12
(7)	G-Production Operation Data Information	24 (21)	61	14
(8)	H-Production Facilities Data Information	17 (17)	69	14
(9)	I-Pipeline Data Information	8 (8)	14	11
	Total	330 (244)	579	

Note 1. Number of output reporting methods proposed in "The Report of Conceptual System Design" is shown in ( ).

Note 2. "No. of Sheet" means number of sheet of output report layout drawn for output reporting methods (refer to APPENDIX I).

3. A data base structure is established in the detailed system design based on the results of the analysis of the output reporting methods mentioned in 2. and the previous data structure proposed in "The Report of Conceptual System Design". The seventeen (17) data bases in the conceptual system design were reorganized into twenty-one (21) data bases for the detailed system design.

In conclusion, data base structure has been established as the hierarchical structure with twenty-one (21) root segments on the top level followed segments at second and third levels.

Followings are the data base name and the common name of the twenty-one (21) structures with total number of segments including the respective root segment. Reference is made to 5-1 and APPENDIX III.

Data Base Name	Common Name	No. of Segment
PAACONTR	Contract Area	4
PABGLSVY	Geological Survey	2
PACGLANL	Geological Analysis	4
PADPROSP	Resource Prospect	3
PAEGLMAP	Geological Map and Figure	3
PAFGLREP	Geological Report	2
PBAGPSVY	Geophysical Survey	15
PBBGPMAP	Geophysical Map	2

PBCGPSEC	Geophysical Seismic Section	2
PBDGPREP	Geophysical Report	1
PCAWELL	Well Data	32
PDAPTPVT	Petrophysical and PVT Analysis Data	3
PEAPRDIN	Production and Injection	5
PEBOILCS	Oil Consumption	1
PECGASCS	Gas Consumption	2
PFARESVS	Reserves Data	3
PGAWELTS	Well Test and Stimulation	7
PGBFLUID	Field Laboratory Fluid Analysis	5
PHASTATN	Station	5
PHBEQUIP	Equipment	2
PIAPIPLN	Pipeline	2
Total		105

4. The codes being used in the Petroleum Exploration and Production Data Bank System have been classified into two groups, Code-Class A and Code-Class B.

Code-Class A consists of the codes which are used as updating keys of described in 5-3 and the codes which are composed of more than two subcodes described in APPENDIX IV.

Code-Class B is defined as the code that since the code is very simple and seldom expected to update or renew, it will be built in programs as a copy library. All the codes but Code-Class A are classified in the Code-Class B.

Followings are the number of codes classified.

Code-Class		No. of Code
(1)	Code-Class A	22
(2)	Code-Class B	
1)	Common	20
2)	A-Geological Data and Contract Area Information	11
3)	B-Geophysical Data Information	16
4)	C-Well Data Information	33
5)	D-Petrophysical and PVT Analysis Data Information	4
6)	E-Production Data Information	3
7)	F-Reserves Data Information	1
8)	G-Production Operation Data Information	14
9)	H-Production Facilities Data Information	22
10)	I-Pipeline Data Information	4
	Total	150

5. Considering the output reporting method described in 2., data properties in data base structure in 3. and the code system in 4., data items such as Field, Well, Zone and Company have been selected from the standpoint that those are in use of high frequency and have a higher grade of independency. Taking the followings into account, these are designed in the manner of filing together with their subsequent information as master files independently of the data base.

1) Efficient usage of memory of disk to be for the data base.

2) Efficient treatment of input data and simplification of input work.

3) Efficient treatment of output data.

4) Convenience of insertion, replacement and deletion of data concerned.

A format of the master files is shown in 5-3.

(Chapter 6 Program Specification)

6. As described in "The Report of Conceptual System Design", it was concluded that the Petroleum Exploration and Production Data Bank System be designed and managed on the basis of the following matters.

- Utilization of IMS (Information Management System) for processing of data base
- Data processing by the batch system
- Utilization of diskettes for input data
- Utilization of COBOL language for programming

In accordance with the aforementioned matters, the detailed system design for the following processing was performed based on the results of the output reporting methods described in 2., the data base structure in 3., the code system in 4. and the master file in 5.

- Updating and maintaining master files
- Inputting the data into the data bases
- Outputting the output reports from the data bases

The results of the abovementioned detailed system design are described together with input data format in APPENDIX V, the program specifications in APPENDIXES VI, VII and VIII and the instruction on input processing in APPENDIX IX.

The followings are summary of processing for master file data base input processing and data base output processing.

(1) Processing for Master File

1) Processing for master file is performed for each master file (Field master, Well master, Zone master or Company master).
2) A proof list of master file updating processing would be output in order to find and correct an error data.
3) All data stored in master files would be output in a form of master list.
4) Eight (8) programs, which are four (4) updating programs for master files and four (4) output programs for the master list, were designed in detail.

(2) Data Base Input Processing

1) Data base input processing is performed for each data base.

2) Input data for data bases are prepared based on the input data format described in APPENDIX V.

3) A proof list of data base input processing would be output in order to find and correct an error data.

4) The system was designed in the manner that IMS recovery utility program can be applied to the recovery processing of data bases.

5) As for programs for data base input processing, a total of twenty-three (23) programs was designed, of which twenty-one (21) programs for updating processing of data base and two auxiliary programs for assisting input data preparation.

(3) Data Base Output Processing

1) Data base output processing is performed by using the following assignment cards described in APPENDIX II.

- Header card
- Independent assignment card
- End card

2) A check list for assignment parameter would be output in order to find an error assignment.

3) Following items would be output on the cover list of each output report.

- The name and abbreviation of the output reporting method assigned by a header card.

- "PERTAMINA UNIT EP-II"
- Assignment parameters assinged by a header card and independent assignment parameter cards.
- The definition of "FISCAL YEAR", in case of using a fiscal year instead of calendar year, as described in 5 of "INTRODUCTORY REMARKS" of APPENDIX I.
- The full description for, such as, "*1", "*2" instead of headword described in 6 of "INTRODUCTORY REMARKS" of APPENDIX I.
- The definition of "HIGH PRESSURE GAS", "MEDIUM PRESSURE GAS" and "LOW PRESSURE GAS" described in 7 of "INTRODUCTORY REMARKS" of APPENDIX I.
- Date, month and year when the execution is carried out.

4) As for programs for data base output processing, a total of one hundred and fifty-six (156) programs was designed, of which twenty-two (22) programs are for the basic output reporting method and one hundred and thirty-four (134) programs for the combined output reporting method.

(Chapter 7 A Plan for Computer Application and Introduction to PERTAMINA Unit II Computer System)

7. On the basis of the program specification described in 6., an estimation is made 379,500, as follows, for the number of line statments for data base input and output processing and master file processing.

(1) Data Base Input and Output Processing

	Input processing	Output processing	Total
A-Geological Data and Contract Area Information	13,400	12,000	25,400
B-Geophysical Data Information	23,900	29,000	52,900
C-Well Data Information	56,300	29,000	85,300
D-Petrophysical and PVT Analysis Data Information	2,000	2,000	4,000
E-Production Data Information	9,800	71,000	80,800
F-Reserves Data Information	13,600	41,000	54,600
G-Production Operation Data Information	17,100	15,600	32,100
H-Production Facilities Data Information	17,300	15,000	32,300
I-Pipeline Data Information	4,100	4,000	8,100
Subtotal	157,500	218,000	375,500
(2) Master File Processing			
Field master, Well master, Zone master and Company master	2,000	2,000	4,000
Grand total	159,500	220,000	379,500

8. As for the computer application and the introduction of the system to the computer system, the job was analyzed and itemized as follows.

I. Programming

1) Preparation for programming
2) Coding
3) Preparation of test data
4) Program test
5) Drafting input data sheet

II. Introduction of the system

III. Preparation of manual

9. The manpower to be required for the implementation of the job described in 8. is estimated in a man-month unit, as follows, on the basis of 379,500 x 0.7 = 265,650 line statements.

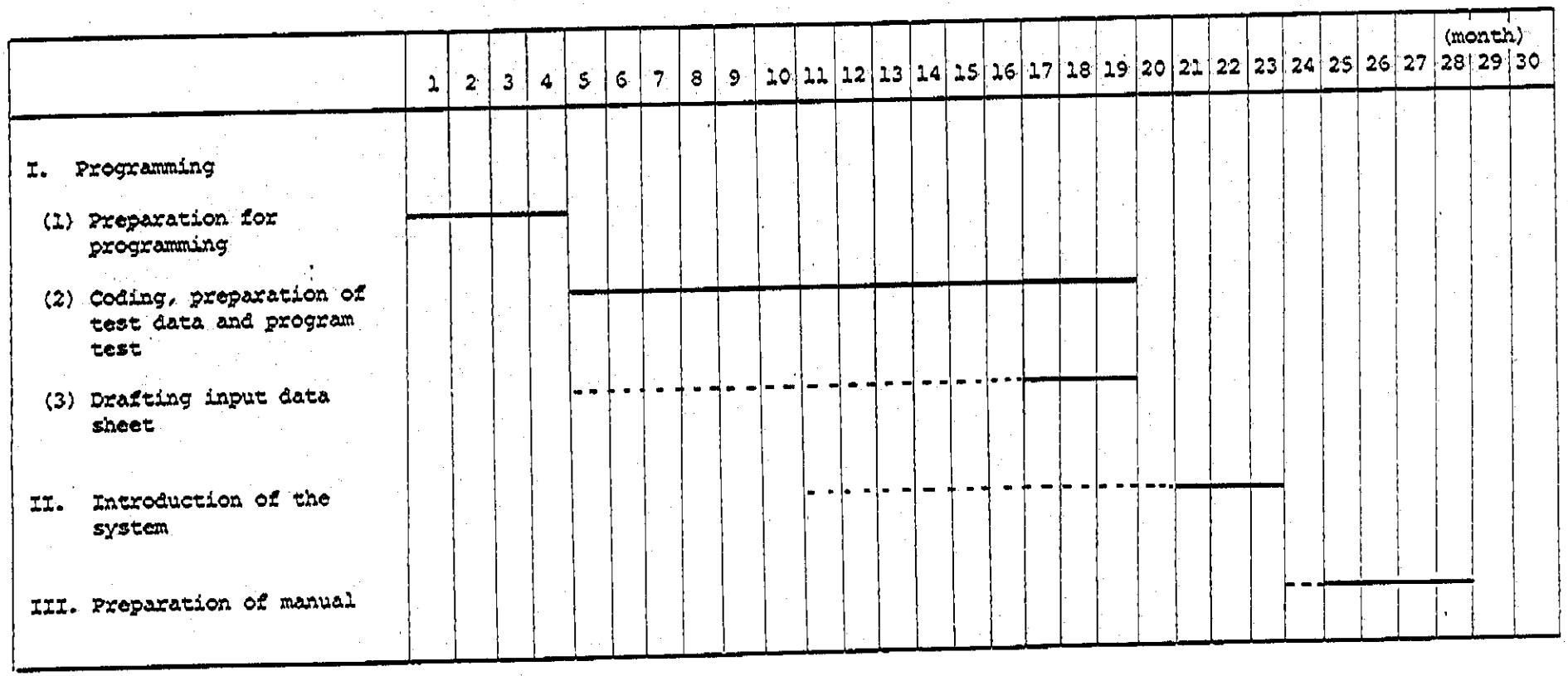
I. Programming	
- Senior engineer	49
- Engineer	225
(Total)	274
II. Introduction to the system	
- Senior engineer	20

III. Preparation of manual	
- Senior engineer	7
- Engineer	5
(Total)	12
Grand total	306

10. In Table 2-1 of page 23 are shown a time schedule of the implementation of the computer application and the introduction of the system to PERTAMINA Unit II computer system.

Since this is one proposal on the basis of the manpower estimated in 9., there should be alternatives adjusting number of programers to be involved at the same time.

Table 2-1 Work Schedule for Programming, Introduction of the System and Preparation of Manual



Chapter 3.

NAMING CONVENTION

Chapter 3 Naming Convention

The Petroleum Exploration and Production Data Bank System will be composed of followings,

- 330 output reporting methods in Chapter 4
- 21 data bases in Chapter 5
- 105 segments in Chapter 5
- 1979 data items in Chapter 5
- 102 input formats in Chapter 6
- 187 programs in Chapter 6

Consequently for the purpose of promoting an efficiency of designing, programming and managing the system in future, it is imperative to identify a specific item among the above by naming properly.

In compliance with a request of the Indonesian counterpart, the above items are named in accordance with the following naming convention which is under use of PERTAMINA at present.

(1) Naming Convention for Data Base

1) Data base name

AABCCCCC	Where
AA------	Data entity code
--B-----	Data base identifier code
---CCCCC	Mnemonic

Note 1 The naming convention for data base is applied to "Data" data bases or logical data bases, but the following convention is applied to "Index" data bases:

AABCCCNN	Where
AA------	Data entity code
--B-----	Data base identifier code
---CCC--	Constant: "INX"
------NN	Index code:
	"00" -for HIDAM index data base
	"01" -for the 1st secondary index data data base.
	"02" -for the 2nd secondary index data base, etc.

Note 2 The data entity code and the data base identifier code are used as following examples.

Examples

- Data entity code

  PA------: A-Geological Data and Contract Area Information

  PB------: B-Geophysical Data Information

- Data base identifier code

  (PA)A---: "Contract Area" data base

  (PA)B---: "Geological Survey" data base

2) Segment name

AABCCNNN	Where
AA------	Data entity code
--B-----	Data base identifier code
---CC---	Segment identifier code
------NN	Mnemonic

Note 1 The naming convention for segment is applied to physical or logical segments, but the following convention is applied indexing data bases:

AABCCDNN	Where
AA------	Data entity code
--B-----	Data base identifier code
---CC---	Segment identifier code
-----D--	Constant: "X"
------NN	Index sequence number: "00" -for HIDAM index segment "01" -for the 1st secondary index segment "02" -for the 2nd secondary index segment, etc.

Note 2 The segment identifier code is used as following examples.

Examples

(PAA)01---: "Contract Area" Segment

(PAA)02---: "History of Relinquished" segment

3) Field element name for COBOL I/O area element name

XX...X Field name (1 to 26 characters)

(2) Naming Convention for Program

1) Program name

AAABBCNN	Where
AAA-----	System name for program: "BPB"
---BB---	System code for program
-----C--	Input/Output code
------NN	Sequence number

Note: The system code for program and the input/output code are used as follows.

- System code for program

  50: A-Geological Data and Contract Area Information

  51: B-Geophysical Data Information

  ⋮

  58: I-Pipeline Data Information

  59: Master File, etc.

- Input/Output code

  0: Input program

  1 - 8: Output program

  9: Maintenance program

2) Report name

AAAAAAAABCNN	Where
AAAAAAAA----	Program name
--------B---	Hyphen: "-"
---------C--	Output printer: "2"
----------NN	Sequence number

Chapter 4.

OUTPUT REPORTING METHOD

Chapter 4 Output Reporting Method

As for the output reporting methods of two hundred and fourty-four (244) each, which were classified into the following nine (9) data information groups and proposed in the conceptual system design, the purpose, the output items and the assignment parameters by which limit a scope of retrieval output data were described by output reporting methods in "The Report of Conceptual System Design".

(1) A-Geological Data and Contract Area Information

(2) B-Geophysical Data Information

(3) C-Well Data Information

(4) D-Petrophysical and PVT Analysis Data Information

(5) E-Production Data Information

(6) F-Reserves Data Information

(7) G-Production Operation Data Information

(8) H-Production Facilities Data Information

(9) I-Pipeline Data Information

An investigation was made on a further requirement of the Indonesian couterpart during their participation (REFERENCE II) in the course of the detailed system design and also during the Japanese field survey from May 25 to June 16, 1981. As the results, eighty-six(86) output reporting method were newly added to the above two hundred and fourty-four (244) so as to make a total three hundred and thirty (330).

As for these three hundred and thirty (330) output reporting methods, in Table 4-1 are listed their abbreviation, their common name and the report name which is named in accordance with the naming convention in Chapter 3, by data information groups.

As shown in the table, the output reporting methods are abbreviated such as A0-1, A0-11, A0-12, A1 and A2. In this case, A0-1 stand for the basic output reporting method in the position of the first level of the hierarchical structure and A0-11 and A0-12 stand for the basic output reporting mehtod in the position of the second level of the structure which is subordinate to A0-1. And also, A0-11 or A0-12 stands for that it is possible to output A0-11 or A0-12 independently from A0-1 as one output reporting method. In the basic output reporting method, data are output in the same arrangement as they keep their arrangement in the data base of the system. Consequently, the basic output reporting method is useful for output of the basic information in the data base.

A1 and A2 without 0 unlike the above represents a combined output reporting method. In the combined output reporting method, to the contrary, data is rearranged or calculated statistically and output in accordance with the purpose of data usage.

"Report Name" is named for the purpose that system analysts or programmers can acknowledge the correspondance of output reporting methods and programs and the output machine concerned with the output report.

Further, "Common Name" stands for the content of the output reporting method and mostly coincides with the name which will be output on the cover list of the report described later in this chapter. Consequently it will be convenient for users to make use of.

As for the aforementioned three hundred and thirty (330) output reporting methods, the detailed layout of output reports is shown in APPENDIX I and the assignment method of assignment parameters is described detailedly in APPENDIX II.

In the following is outlined APPENDIX I and APPENDIX II and are described the cover list of output reporting methods and check lists related to output reporting methods.

APPENDIX I shows the layout of each output reporting method by data information groups and their remarks are described in "INTRODUCTORY REMARKS" at the head of the APPENDIX.

APPENDIX II introduces the detail of the assignment method of data for each output reporting method.

Although an explanation of the assignment method is made in "INTRODUCTORY REMARKS" attached to the head of APPENDIX II, here is repeated the explanation because of a special importance in the following.

Three hundred and thirty (330) reporting methods are classified into twenty-six (26) output reporting method groups, each of which holds some of assignment parameters in common. Consequently, each output reporting method group has their common assignment parameters other than the independent assign-

ment parameters which are used independently for two or more groups.

In application to computer, accordingly, assignment parameter cards for output of reports are organized as follows,

Header Card

Independent Assignment Cards

End Card

A header card is for assignment parameters which are held in common by a group, independent assignment cards are for assignment parameters which are used independently for groups more than two and an end card is used for marking the end of assignment.

In this APPENDIX, relation of an output reporting method and assignment parameters is shown in Paragraph 1 by output reporting method groups, a header card layout is shown in Paragraph 2 by output reporting method groups and an independent assignment card layout is shown in Paragraph 3.

Following are output on the cover list of output reporting methods.

- The name and abbreviation of the output reporting method assigned by a header card.
- "PERTAMINA UNIT EP-II"
- Assignedment parameters assinged by a header card and independent assignment parameter cards.
- The definition of "FISCAL YEAR", in case of using a fiscal year instead of calendar year, as described in

5 of "INTRODUCTORY REMARKS" of APPENDIX I.

- The full description for, such as, "*1", "*2" instead of headword described in 6 of "INTRODUCTORY REMARKS" of APPENDIX I.
- The definition of "HIGH PRESSURE GAS", "MEDIUM PRESSURE GAS" and "LOW PRESSURE GAS" as described in 7 of "INTRODUCTORY REMARKS" of APPENDIX I.
- Date, month and year when the execution is carried out.

Although there is a little bit difference in a layout of a cover list for output reporting methods because of their different report name and assignemnt parameters, a layout is not much different from the layout of an example shown in page 37-42.

Since output data is identified, retrieved and output by the assignment parameters of output reporting method, it becomes very important that a consistency among assignment parameters should be kept. As for a assignment method of assignment parameters, following error message would be output before the cover list output for each kind of error if the consistency among assignment parameters does not keep. These are detailedly described in Chapter 6.

Error condition	Error message
- The input order of assignment card is not correct.	INVALID ORDER
- Output reporting method is assigned incorrectly.	INVALID METHOD
- Indispensable assignment parameters are not input.	PARAMETER EXPECTED
- Improper assignment parameters are input.	UNAVAILABLE PARAMETER ASSIGNED
- There is logic contradictions among assignment parameters.	ERROR ON LOGICAL RELATION

P E R T A M I N A U N I T E P - II

B A S I C O U T P U T R E P O R T

F O R

C O N T R A C T A R E A

ASSIGNMENT PARAMETER

METHOD : AC-11, ORIGINAL AREA

PROVINCE : JAMBI
S.SUMATRA
RIAU
W.JAVA
W.KALIMANTAN

KIND OF CONTRACT : P.S.CONTRACT
WORKING CONTRACT
TECHNICAL ASSISTANCE CONTRACT

CONTRACT CODE :

CONTRACTOR NAME : P.T. CALTEX INDONESIA
SUMATRA GULF OIL
JAMBI SHELL

OPERATOR NAME :

PERIOD : 01.01.1979 - 31.12.1979

EXECUTION DATE : 09.01.1981

PERTAMINA UNIT EP - II

BASIC OUTPUT REPORT FOR

WELL DATA INFORMATION

ASSIGNMENT PARAMETER	
METHOD :	CO-11 : BASIC WELL DATA
PROVINCE NAME :	JAMBI S.SUMATRA W.SUMATRA W.JAVA W.KALIMANTAN
AREA NAME :	KOMPLEKS PALEMBANG TENGAH MUSI KLINGI JAMBI
FIELD OR PROSPECT NAME :	
WELL NAME :	
OBJECTIVE OF WELL :	DELENATION AND / OR APPRAISAL PRODUCER INJECTOR
OBJECTIVE OF WORKOVER :	RECOMPLETION BY CHANGING COMPLETED ZONE RECOMPLETION BY ADDING NEW COMPLETED ZONE MECHANICAL REPAIR
COMPLETION STATUS :	COMPLETED
WORKOVER NUMBER AND PERIOD :	CURRENT 01.01.1900 - 31.12.1980
EXECUTION DATE :	10.01.1981

PERTAMINA UNIT EP - II

MONTHLY PRODUCTION BY WELL

OIL & TOTAL CONDENSATE AND TOTAL GAS

MAY - 1980

ASSIGNMENT PARAMETER

METHOD : E3

AREA NAME :

FIELD NAME : PRABUMULIH CENTRE
PRABUMULIH WEST
LEMBAK

STRING SYSTEM CODE :

KIND OF COMPLETED ZONE : OIL

WELL STATUS

STRING SPECIFICATION : 1
CURRENT STATUS : 0

WATER CUT [%] : 50 - 100

GAS OIL RATIO [M3/M3] : 1500 - 2000

HISTORY OF RECOMPLETION : HISTORY

DATE : MM.YYYY

EXECUTION DATE : DD.MM.YYYY

PERTAMINA UNIT EP - II

MONTHLY PRODUCTION BY FIELD

HIGH PRESSURE GAS MEDIUM PRESSURE GAS

AND LOW PRESSURE GAS

MAY 1980

ASSIGNMENT PARAMETER

METHOD : E13

AREA NAME :

STRING SYSTEM CODE : SINGLE

KIND OF COMPLETED ZONE : GAS CAP

WELL STATUS

STRING SPECIFICATION :

CURRENT STATUS :

TYPE OF RESERVOIR CONTENT : ASPHALT OI

WATER CUT [%] :

GAS OIL RATIO :

DATE : MM.YYYY

EXECUTION DATE : DD.MM.YYYY

DEFINITION OF HIGH, MEDIUM AND LOW PRESSURE GAS [KSC]

KOMPLEX PALEMBANG SELATION

MUSI KLINGI

40 ≤ HP

20 ≤ MP < 40

0 ≤ LP < 20

KOMPLEX PALEMBANG TENGAH

JAMBI

20 ≤ HP

10 ≤ MP < 20

0 ≤ LP < 10

PERTAMINA UNIT OP-II

REMAINING RESERVES FOR FORMATION BY FIELD

OIL & TOTAL CONDENSATE

1980

ASSIGNMENT PARAMETER

METHOD : F2

AREA NAME : MUSI KUINGI JAMBI

FORMATION NAME : KASAI

DEVELOPMENT STATUS RESERVOIR UNIT : PRODUCING UNDER PRIMARY RECOVERY

KIND OF RESERVES : OIL & TOTAL CONDENSATE

KIND OF RECOVERY METHOD : PRIMARY RECOVERY

ABANDON CONDITION FOR GAS CAP ZONE AND GAS RESERVOIR (KSC) : 60

DATE : YYYY

EXECUTION DATE : DD MM YYYY

P E R T A M I N A U N I T E P - II

B A S I C O U T P U T R E P O R T

F O R

W E L L T E S T A N D S T I M U L A T I O N I N F O R M A T I O N

ASSIGNMENT PARAMETER

METHOD : GO-II

AREA NAME :

FIELD NAME : LEMBAK A
LEMBAK B

WELL NAME : LBA-M001 , LBA-M002 , LBA-M003 ,
LBA-M004 , LBA-M005 , LBB-M002 ,
LBB-M001 , LBB-M003 , LBA-M100 ,
LBA-M001

RESEVOIR UNIT NAME : LBA-1000 , 1100 , 1120 , 1150 ,
1200
LBB-2100 , 2110 , 2120 , 2130 ,
2150 , 2200

LAYER NAME :

KIND OF PRODUCTION TEST : INITIAL PRODUCTION TEST BEFORE
STIMULATION

TYPE OF PRODUCTION TEST : FLOW TEST FOR OIL

WORKOVER NUMBER AND PERIOD : CURRENT (DD.MM.YYYY - DD.MM.YYYY)

EXECUTION DATE : DD.MM.YYYY

Table 4-1. List of Output Reporting Method

	Abbreviation	Common Name	Report No.
(A - Geological Data and Contract Area Information)			
1)	A0-1	Contract area information	EPB50100-210
2)	A0-11	Orinigal area	EPB50100-211
3)	A0-12	History of relinquishment	EPB50100-212
4)	A0-2	Geological survey report information	EPB50110-210
5)	A0-3	Geological analysis activity report information	EPB50120-210
6)	A0-4	Prospect information	EPB50130-210
7)	A0-5	Map and figure information	EPB50140-210
8)	A0-6	Report information	EPB50150-210
9)	A1	List of contract area	EPB50200-201
10)	A2	List of relinquished area	EPB50205-201
11)	A3	Geological survey list completed by year	EPB50210-201
12)	A4	Geological analysis activities list completed by year	EPB50215-201
13)	A5	Exploration activities summary completed by year	EPB50220-201
14)	A6	List of map and figure	EPB50225-201
15)	A7	List of report	EPB50230-201
16)	A8	Lithological information summary by well	EPB50235-201
17)	A9	Lithological core description summary by well	EPB50240-201
18)	A10	Lithological side wall core description summary	EPB50245-201
19)	A11	Hydrocarbons indication summary	EPB50250-201
20)	A12	Correlation of formation tops	EPB50255-201

	Abbreviation	Common Name	Report No.
21)	A13	Estimated hydrocarbons in place and recoverable hydrocarbon resources	EPB50260-201
22)	A14	Estimated hydrocarbons in place by formation	EPB50265-201
23)	A15	Estimated hydrocarbons in place for prospect by type of trap	EPB50270-201

(B - Geophysical Data Information)

1)	B0-1	Seismic survey information	EPB51100-210
2)	B0-11	Field operation	EPB51100-211
3)	B0-12	Data processing	EPB51100-212
4)	B0-13	Interpretation	EPB51100-213
5)	B0-14	Interpretation map	EPB51100-214
6)	B0-15	Seismic section	EPB51100-215
7)	B0-2	Magnetic survey information	EPB51110-210
8)	B0-21	Field operation	EPB51110-211
9)	B0-22	Data processing	EPB51110-212
10)	B0-23	Interpretation	EPB51110-213
11)	B0-24	Interpretation map	EPB51110-214
12)	B0-3	Gravity survey information	EPB51120-210
13)	B0-31	Field operation	EPB51120-211
14)	B0-32	Data processing	EPB51120-212
15)	B0-33	Interpretation	EPB51120-213
16)	B0-34	Interpretation map	EPB51120-214
17)	B0-4	Well velocity survey information	EPB51130-210
18)	B0-5	Special study information	EPB51140-210
19)	B1	Geophysical survey list by year	EPB51200-201
20)	B2	Geophysical survey list by area	EPB51205-201

	Abbreviation	Common Name	Report No.
21)	B3	Summary of geophysical data processing	EPB51210-201
22)	B4	Summary of geophysical interpretation and special study	EPB51215-201
23)	B5	List of geophysical report by field or prospect name	EPB51220-201
24)	B6	List of geophysical map by field or prospect name	EPB51225-201
25)	B7	List of magnetic tape for geophysical survey	EPB51230-201
26)	B8	Summary of geophysical survey unit cost	EPB51235-201
27)	B9	Survey method for seismic survey	EPB51240-201
28)	B10	Total length for geophysical field operation	EPB51245-201
29)	B11	Total fuel for geophysical survey	EPB51250-201
30)	B12	Total explosive for seismic survey	EPB51255-201
31)	B13	Total geophysical survey cost by area	EPB51260-201
32)	B14	Total geophysical survey cost by year	EPB51265-201
33)	B15	List of geophysical report by survey	EPB51270-201
34)	B16	List of geophysical map by survey	EPB51275-201
35)	B17	List of seismic section by field or prospect	EPB51280-201

(C - Well Data Information)

1)	C0-1	Well data	EPB52100-210
2)	C0-11	Basic well data	EPB52100-211
3)	C0-12	Well completion data	EPB52100-212
4)	C0-13	Drilling and workover operation data	EPB52100-213

	Abbreviation	Common Name	Report No.
5)	C0-14	Geological data	EPB52100-214
6)	C0-15	Testing data	EPB52100-215
7)	C0-16	Well cost data	EPB52100-216
8)	C1	Well summary	EPB52200-201
9)	C2	Well list	EPB52205-201
10)	C3	Well completion summary	EPB52210-201
11)	C4	Completion record diagram	EPB52215-201
12)	C5	Drilling activity summary	EPB52220-201
13)	C6	Workover activity summary	EPB52225-201
14)	C7	Contractor	EPB52230-201
15)	C8	Hole and casing	EPB52235-201
16)	C9	Completion string specification	EPB52240-201
17)	C10	Rod pump summary	EPB52245-201
18)	C11	Submargible pump summary	EPB52250-201
19)	C12	Gas lift summary	EPB52255-201
20)	C13	Well head assembly summary	EPB52260-201
21)	C14	Bit record summary	EPB52265-201
22)	C15	Mud record summary	EPB52270-201
23)	C16	Primary cementing summary	EPB52275-201
24)	C17	Mud off test record summary	EPB52280-201
25)	C18	Downhole trouble summary	EPB52285-201
26)	C19	Abandonment record summary	EPB52290-201
27)	C20	Correlation of layer tops	EPB52295-201
28)	C21	Well log information summary	EPB52300-201
29)	C22	Mud log information summary	EPB52305-201
30)	C23	Coring information summary	EPB52310-201

	Abbreviation	Common Name	Report No.
31)	C24	Side wall sample information summary	EPB52315-201
32)	C25	Cutting sample information summary	EPB52320-201
33)	C26	Drill stem test information summary	EPB52325-201
34)	C27	Wireline formation test information summary	EPB52330-201
35)	C28	Yearly historical drilling statistics by field	EPB52335-201
36)	C29	Yearly historical drilling statistics by area	EPB52340-201
37)	C30	Well cost summary	EPB52345-201
38)	C31	Time analysis summary	EPB52350-201
39)	C32	Mud consumption summary	EPB52355-201
40)	C33	Cement consumption summary	EPB52360-201

	Abbreviation	Common Name	Report No.
(D - Petrophysical and PVT Analysis Data Information)			
1)	D0-1	Core and PVT analysis information	EPB53100-210
2)	D1	List of analysis report	EPB53200-201
3)	D2	Core analysis record	EPB53205-201
4)	D3	PVT analysis record	EPB53210-201
(E - Production Information)			
1)	E0-1	Production information	EPB54100-210
2)	E0-2	Injection information	EPB54110-210
3)	E1	Monthly oil, total condensate and total gas production by field	EPB54200-201
4)	E2	Monthly oil, total condensate and total gas production by block station	EPB54200-202
5)	E3	Monthly oil, total condensate and total gas production by well	EPB54200-203
6)	E4	Monthly oil, total condensate and total gas production for formation by field	EPB54200-204
7)	E5	Monthly oil, total condensate and total gas production by reservoir unit	EPB54200-205
8)	E6	Monthly oil, total condensate and total gas production by well by block station	EPB54200-206
9)	E7	Monthly oil, total condensate and total gas production by reservoir unit by well	EPB54200-207
10)	E8	Monthly oil, total condensate and total gas production by well by reservoir unit	EPB54200-208
11)	E9	Monthly oil, gas cap condensate and non-associated condensate production by field	EPB54205-201

	Abbreviation	Common Name	Report No.
12)	E10	Monthly oil, gas cap condensate and non-associated condensate production by block station	EPB54205-202
13)	E11	Monthly oil, gas cap condensate and non-associated condensate production for formation by field	EPB54205-203
14)	E12	Monthly oil, gas cap condensate and non-associated condensate production by reservior unit	EPB54205-204
15)	E13	Monthly high pressure gas, medium pressure gas and low pressure gas production by field	EPB54210-201
16)	E14	Monthly high pressure gas, medium pressure gas and low pressure gas production by block station	EPB54210-202
17)	E15	Monthly high pressure gas, medium pressure gas and low pressure gas production by well	EPB54210-203
18)	E16	Monthly high pressure gas, medium pressure gas and low pressure gas production by well by block station	EPB54210-204
19)	E17	Monthly high pressure gas, medium pressure gas and low pressure gas production for formation by field	EPB54210-205
20)	E18	Monthly high pressure gas, medium pressure gas and low pressure gas production by reservoir unit	EPB54210-206
21)	E19	Monthly solution gas, gas cap gas and non-associated gas production by field	EPB54215-201
22)	E20	Monthly solution gas, gas cap gas and non-associated gas production by block station	EPB54215-202
23)	E21	Monthly solution gas, gas cap gas and non-associated gas production for formation by field	EPB54215-203

	Abbreviation	Common Name	Report No.
24)	E22	Monthly solution gas, gas cap gas and non-associated gas production by reservoir unit	EPB54215-204
25)	E23	Historical monthly oil, total condensate and total gas Production for unit EP-II	EPB54220-201
26)	E24	Historical monthly oil, total condensate and total gas production for area	EPB54220-202
27)	E25	Historical monthly oil, total condensate and total gas production for field	EPB54220-203
28)	E26	Historical monthly oil, total condensate and total gas production for block station	EPB54220-204
29)	E27	Historical monthly oil, total condensate and total gas production for well	EPB54220-205
30)	E28	Historical monthly oil, total condensate and total gas production for formation	EPB54220-206
31)	E29	Historical monthly oil, total condensate and total gas production for reservoir unit	EPB54220-207
32)	E30	Historical monthly oil, gas cap condensate and non-associated condensate production for unit EP-II	EPB54225-201
33)	E31	Historical monthly oil, gas cap condesate and non-associated condensate production for area	EPB54225-202
34)	E32	Historical monthly oil, gas cap condensate and non-associated condensate production for field	EPB54225-203
35)	E33	Historical monthly oil, gas cap condesate and non-associated condensate production for block station	EPB54225-204

	Abbreviation	Common Name	Report No.
36)	E34	Historical monthly oil, gas cap condensate and non-associated condensate production for formation	EPB54225-205
37)	E35	Historical monthly oil, gas cap condensate and non-associated condensate production for reservoir unit	EPB54225-206
38)	E36	Historical monthly high pressure gas, medium pressure gas and low pressure gas for unit EP-II	EPB54230-201
39)	E37	Historical monthly high pressure gas, medium pressure gas and low pressure gas for area	EPB54230-202
40)	E38	Historical monthly high pressure gas, medium pressure gas and low pressure gas for field	EPB54230-203
41)	E39	Historical monthly high pressure gas, medium pressure gas and low pressure gas for block station	EPB54230-204
42)	E40	Historical monthly high pressure gas, medium pressure gas and low pressure gas for well	EPB54230-205
43)	E41	Historical monthly high pressure gas, medium pressure gas and low pressure gas for formation	EPB54230-206
44)	E42	Historical monthly high pressure gas, medium pressure gas and low pressure gas for reservoir unit	EPB54230-207
45)	E43	Historical monthly solution gas, gas cap gas and non-associated gas production for unit EP-II	EPB54235-201
46)	E44	Historical monthly solution gas, gas cap gas and non-associated gas production for area	EPB54235-202
47)	E45	Historical monthly solution gas, gas cap gas and non-associated gas production for field	EPB54235-203
48)	E46	Historical monthly solution gas, gas cap gas and non-associated gas production for block station	EPB54235-204

	Abbreviation	Common Name	Report No.
49)	E47	Historical monthly solution gas, gas cap gas and non-associated gas production for formation	EPB54235-205
50)	E48	Historical monthly solution gas, gas cap gas and non-associated gas production for reservoir unit	EPB54235-206
51)	E49	Historical yearly oil, total condensate and total gas production for unit EP-II	EPB54240-201
52)	E50	Historical yearly oil, total condensate and total gas production for area	EPB54240-202
53)	E51	Historical yearly oil, total condensate and total gas production for field	EPB54240-203
54)	E52	Historical yearly oil, total condensate and total gas production for block station	EPB54240-204
55)	E53	Historical yearly oil, total condensate and total gas production for well	EPB54240-205
56)	E54	Historical yearly oil, total condensate and total gas production for formation	EPB54240-206
57)	E55	Historical yearly oil, total condensate and total gas production for reservoir unit	EPB54240-207
58)	E56	Historical yearly oil, gas cap condensate and non associated condensate production for unit EP-II	EPB54245-201
59)	E57	Historical yearly oil, gas cap condensate and non-associated condensate production for area	EPB54245-202
60)	E58	Historical yearly oil, gas cap condensate and non-associated condensate production for field	EPB54245-203
61)	E59	Historical yearly oil, gas cap condensate and non-associated condensate production for block station	EPB54245-204

	Abbreviation	Common Name	Report No.
62)	E60	Historical yearly oil, gas cap condensate and non-associated condensate production for formation	EPB54245-205
63)	E61	Historical yearly oil, gas cap condensate and non-associated condensate production for reservoir unit	EPB54245-206
64)	E62	Historical yearly high pressure gas, medium pressure gas and low pressure gas for unit EP-II	EPB54250-201
65)	E63	Historical yearly high pressure gas, medium pressure gas and low pressure gas for area	EPB54250-202
66)	E64	Historical yearly high pressure gas, medium pressure gas and low pressure gas for field	EPB54250-203
67)	E65	Historical yearly high pressure gas, medium pressure gas and low pressure gas for block station	EPB54250-204
68)	E66	Historical yearly high pressure gas, medium pressure gas and low pressure gas for field	EPB54250-205
69)	E67	Historical yearly high pressure gas, medium pressure gas and low pressure gas for block station	EPB54250-206
70)	E68	Historical yearly high pressure gas, medium pressure gas and low pressure gas for field	EPB54250-207
71)	E69	Historical yearly solution gas, gas cap gas and non-associated gas production for unit EP-II	EPB54255-201
72)	E70	Historical yearly solution gas, gas, medium pressure gas and low pressure gas for area	EPB54255-202
73)	E71	Historical yearly solution gas, gas cap gas and non-associated gas production for field	EPB54255-203

	Abbreviation	Common Name	Report No.
74)	E72	Historical yearly solution gas, gas cap gas and non-associated gas production for block station	EPB54255-204
75)	E73	Historical yearly solution gas, gas cap gas and non-associated gas production for formation	EPB54255-205
76)	E74	Historical yearly solution gas, gas cap gas and non-associated gas production for reservoir unit	EPB54255-206
77)	E101	Monthly water injection by field	EPB54300-201
78)	E102	Monthly water injection by well	EPB54300-202
79)	E103	Monthly water injection for formation by field	EPB54300-203
80)	E104	Monthly water injection by reservoir unit	EPB54300-204
81)	E105	Monthly water injection by reservoir unit by well	EPB54300-205
82)	E106	Monthly water injection by well by reservoir unit	EPB54300-206
83)	E107	Monthly gas injection by field	EPB54300-211
84)	E108	Monthly gas injection by well	EPB54300-212
85)	E109	Monthly gas injection for formation by field	EPB54300-213
86)	E110	Monthly gas injection by reservoir unit	EPB54300-214
87)	E111	Monthly gas injection by reservoir unit by well	EPB54300-215
88)	E112	Monthly gas injection by well by reservoir unit	EPB54300-216
89)	E113	Historical monthly water injection for unit BP-II	EPB54310-201
90)	E114	Historical monthly water injection for area	EPB54310-202
91)	E115	Historical monthly water injection for field	EPB54310-203

	Abbreviation	Common Name	Report No.
92)	E116	Historical monthly water injection for well	EPB54310-204
93)	E117	Historical monthly water injection for formation	EPB54310-205
94)	E118	Historical monthly water injection for reservoir unit	EPB54310-206
95)	E119	Historical monthly gas injection for unit EP-II	EPB54310-211
96)	E120	Historical monthly gas injection for area	EPB54310-212
97)	E121	Historical monthly gas injection for field	EPB54310-213
98)	E122	Historical monthly gas injection for well	EPB54310-214
99)	E123	Historical monthly gas injection for formation	EPB54310-215
100)	E124	Historical monthly gas injection for reservoir unit	EPB54310-216
101)	E125	Historical yearly water injection for unit EP-II	EPB54320-201
102)	E126	Historical yearly water injection for area	EPB54320-202
103)	E127	Historical yearly water injection for field	EPB54320-203
104)	E128	Historical yearly water injection for well	EPB54320-204
105)	E129	Historical yearly water injection for formation	EPB54320-205
106)	E130	Historical yearly water injection for reservoir unit	EPB54320-206
107)	E131	Historical yearly gas injection for unit EP-II	EPB54320-211
108)	E132	Historical yearly gas injection for area	EPB54320-212
109)	E133	Historical yearly gas injection for field	EPB54320-213

	Abbreviation	Common Name	Report No.
110)	E134	Historical yearly gas injection for well	EPB54320-214
111)	E135	Historical yearly gas injection for formation	EPB54320-215
112)	E136	Historical yearly gas injection for reservoir unit	EPB54320-216
113)	E201	Monthly gas consumption by area	EPB54400-201
114)	E202	Monthly gas consumption by field	EPB54400-202
115)	E203	Summary of monthly gas consumption by field	EPB54405-201
116)	E204	Summary of monthly own use gas consumption by field	EPB54405-202
117)	E205	Summary of monthly process gas consumption by field	EPB54405-203
118)	E206	Historical monthly gas consumption for unit EP-II	EPB54410-201
119)	E207	Historical monthly gas consumption for area	EPB54410-202
120)	E208	Historical monthly gas consumption for field	EPB54410-203
121)	E209	Summary of historical monthly gas consumption for unit EP-II	EPB54415-201
122)	E210	Summary of historical monthly gas consumption for area	EPB54415-202
123)	E211	Summary of historical monthly gas consumption for field	EPB54415-203
124)	E212	Summary of historical monthly own use gas consumption for unit EP-II	EPB54420-201
125)	E213	Summary of historical monthly own use gas consumption for area	EPB54420-202
126)	E214	Summary of historical monthly own use gas consumption for field	EPB54420-203
127)	E215	Summary of historical monthly process gas consumption for unit EP-II	EPB54425-201

	Abbreviation	Common Name	Report No.
128)	E216	Summary of historical monthly process gas consumption for area	EPB54425-202
129)	E217	Summary of historical monthly process gas consumption for field	EPB54425-203
130)	E218	Historical yearly gas consumption for unit EP-II	EPB54430-201
131)	E219	Historical yearly gas consumption for area	EPB54430-202
132)	E220	Historical yearly gas consumption for field	EPB54430-203
133)	E221	Summary of historical yearly gas consumption for unit EP-II	EPB54435-201
134)	E222	Summary of historical yearly gas consumption for area	EPB54435-202
135)	E223	Summary of historical yearly gas consumption for field	EPB54435-203
136)	E224	Summary of historical yearly own use gas consumption for unit EP-II	EPB54440-201
137)	E225	Summary of historical yearly own use gas consumption	EPB54440-202
138)	E226	Summary of historical yearly own use gas consumption for field	EPB54440-203
139)	E227	Summary of historical yearly process gas consumption for unit EP-II	EPB54445-201
140)	E228	Summary of historical yearly process gas consumption for area	EPB54445-202
141)	E229	Summary of historical yearly process gas consumption for field	EPB54445-203
142)	E230	Monthly oil consumption by area	EPB54450-201
143)	E231	Historical monthly oil consumption for unit EP-II	EPB54455-201
144)	E232	Historical monthly oil consumption for area	EPB54455-202

	Abbreviation	Common Name	Report No.
145)	E233	Historical yearly oil consumption for unit EP-II	EPB54460-201
146)	E234	Historical yearly oil consumption for area	EPB54460-202
147)	E301	Well status report for all wells by field	EPB54500-201
148)	E302	Well status report for all wells by reservoir unit	EPB54500-202
149)	E303	Status report for producer by field	EPB54505-201
150)	E304	Status report for producer by reservoir unit	EPB54505-202
151)	E305	Well status report for injector by field	EPB54510-201
152)	E306	Well status report for injector by reservoir unit	EPB54510-202
153)	E307	Status report for shut-in well by field	EPB54515-201
154)	E308	Status report for shut-in well by reservoir unit	EPB54515-202
155)	E309	Well status report for waiting well by field	EPB54520-201
156)	E310	Well status report for waiting well by reservoir unit	EPB54520-202
157)	E311	Well status of reservoir unit	EPB54525-201
158)	E312	Shut-in, waiting and observating wells information by wells	EPB54530-201
159)	E313	Abandoned wells and suspended wells information by wells	EPB54530-202

	Abbreviation	Common Name	Report No.
(P - Reserves Data Information)			
1)	F0-1	Reserves information	EPB55100-210
2)	F0-2	Reservoir parameter information	EPB55110-210
3)	F0-21	Reservoir parameter of oil zone	EPB55110-211
4)	F0-22	Reservoir parameter of gas cap zone and gas reservoir	EPB55110-212
5)	F1	Remaining reserves by field by kind of reserves	EPB55200-201
6)	F2	Remaining reserves for formation by field by kind of reserves	EPB55200-202
7)	F3	Remaining reserves by reservoir unit by kind of reserves	EPB55200-203
8)	F4	Remaining reserves by reservoir unit	EPB55200-204
9)	F5	Initial hydrocarbon in place and recoverable hydrocarbon by field by kind of reserves	EPB55210-201
10)	F6	Initial hydrocarbon in place and recoverable hydrocarbon for formation by field by kind of reserves	EPB55210-202
11)	F7	Initial hydrocarbon in place and recoverable hydrocarbon by reservoir unit by kind of reserves	EPB55210-203
12)	F8	Initial hydrocarbon in place and recoverable hydrocarbon by reservoir unit	EPB55210-204
13)	F9	Historical remaining reserves summary for unit-II by kind of reserves	EPB55220-201
14)	F10	Historical remaining reserves summary for area by kind of reserves	EPB55220-202

	Abbreviation	Common Name	Report No.
15)	F11	Historical remaining reserves summary for field by kind of reserves	EPB55220-203
16)	F12	Historical remaining reserves summary for formation by kind of reserves	EPB55220-204
17)	F13	Historical remaining reserves summary for reservoir unit by kind of reserves	EPB55220-205
18)	F14	Historical remaining reserves summary for reservoir unit	EPB55220-206
19)	F15	Reservoir parameter for oil zone	EPB55230-201
20)	F16	Reservoir parameter for gas cap zone and gas reservoir	EPB55240-201

(G - Production Operation Data Information)

1)	G0-1	Well test and stimulation information	EPB56100-210
2)	G0-11	Production test information	EPB56100-211
3)	G0-12	Injection test information	EPB56100-212
4)	G0-13	Subsurface pressure survey information	EPB56100-213
5)	G0-14	Production log information	EPB56100-214
6)	G0-15	Well stimulation information	EPB56100-215
7)	G0-2	Field laboratory fluid analysis information	EPB56110-210
8)	G0-21	Oil analysis information	EPB56110-211
9)	G0-22	Condensate analysis information	EPB56110-212
10)	G0-23	Gas analysis information	EPB56110-213
11)	G0-24	Water analysis information	EPB56110-214
12)	G1	Production test result	EPB56200-201
13)	G2	Injection test result	EPB56205-201

	Abbreviation	Common Name	Report No.
14)	G3	Bottom hole pressure survey record diagram	EPB56210-201
15)	G4	Current bottom hole pressure survey record	EPB56215-201
16)	G5	Current buildup and falloff pressure survey result	EPB56220-201
17)	G6	List of production log survey	EPB56225-201
18)	G7	Stimulation job activity record	EPB56230-201
19)	G8	Field laboratory fluid analysis data summary by well	EPB56235-201
20)	G9	Field laboratory fluid analysis data summary by block station	EPB56235-202
21)	G10	Field laboratory gas analysis data summary by well	EPB56240-201
22)	G11	Field laboratory gas analysis data summary by block station	EPB56240-202
23)	G12	Field laboratory water analysis data summary by well	EPB56245-201
24)	G13	Field laboratory water analysis data summary by block station	EPB56245-202

(H - Production Facilities Data Information)

1)	H0-1	Station information	EPB57100-210
2)	H0-11	Station resume	EPB57100-211
3)	H0-12	Station modification	EPB57100-212
4)	H0-2	Equipment information	EPB57110-210
5)	H0-21	Equipment resume	EPB57110-211
6)	H0-22	Equipment maintenance	EPB57110-212
7)	H1	Summary of station	EPB57200-201
8)	H2	Station cost data by kind of station	EPB57205-201

	Abbreviation	Common Name	Report No.
9)	H3	Station cost data by fiscal year	EPB57210-201
10)	H4	Summary of equipment	EPB57215-201
11)	H5	Equipment cost data by kind of equipment	EPB57220-201
12)	H6	Equipment data by manufacturer	EPB57225-201
13)	H7	Equipment cost data by fiscal year	EPB57230-201
14)	H8	Summary of station modification	EPB57235-201
15)	H9	Summary of equipment maintenance	EPB57240-201
16)	H10	Equipment maintenance cost data by fiscal year	EPB57245-201
17)	H11	System's equipment data	EPB57250-201

(I - Pipeline Information)

1)	I0-1	Pipeline information	EPB58100-210
2)	I0-11	Pipeline resume	EPB58100-211
3)	I0-12	Pipeline maintenance	EPB58100-212
4)	I1	Summary of pipeline	EPB58200-201
5)	I2	Pipeline cost data by kind of linepipe	EPB58205-201
6)	I3	Pipeline cost data by year	EPB58210-201
7)	I4	Summary of pipeline maintenance	EPB58215-201
8)	I5	Pipeline maintenance cost data fiscal year	EPB58220-201

Chapter 5.

DATA BASE

Chapter 5 Data Base

In "The Report of Conceptual System Design" were proposed Data Structure, Data Volume, Code System, Master File, Processing and Computer Program as the results of the conceptual system design of Petroleum Exploration and Production Data Bank System.

In this chapter was investigated three hundred and thirty (330) output reporting methods described in Chapter 4 and was designed, in detail, the data bases, the code system and the master files on the basis of the results of the investigation.

Firstly, the structure of the data bases, on which the system design was based, was rearranged in the form of storing an actual data in the data base, together with their segment diagrams.

Secondly, after the assignment parameters and the output data had been investigated, the code system was established on the basis of the results of the investigation.

Lastly were designed, in detail, the master files such as Field Master, Well Master, Zone Master and Company Master, which are made use of independently of the data bases, taking the efficiency of processing and the convenient utilization of the data bases into consideration.

In section 1 is described Data Base Structure, in section 2 Code System, and in section 3 Master File in the following.

5-1 Data Base Structure

After an investigation had been made on the layout of the output reporting methods in APPENDIX I and the assignment method in APPENDIX II, the data bases, on which the system design was based, were constructed as shown in APPENDIX III.

It is reminded that the followings have been proposed and agreed in "The Report of Conceptual System Design" as for the Petroleum Exploration and Production Data Bank System.

- Batch processing
- Utilization of IMS (Information Management System)
- Utilization of COBOL Language

Taking accounts of the above, in this detailed design were constructed twenty-one (21) data bases with a hiararchical structure, which have third level at the maximum.

In Table 5-1 are listed a data base name which was named in accordance with the naming convention described in Chapter 3, a common name of the data bases, and the numbers of segments and data items of each data base.

In Table 5-2 are listed a segment name, common name, a key name required for segment processing, and the number of data items of each segment.

In APPENDIX III are shown segment diagrams in the way of "Top to down and left to right", layouts of the segments and formats of data items in the layouts.

Reference is made to "INTRODUCTORY REMARKS" of APPENDIX III on noted matter as for segment diagrams, layout of the segments and formats of data items.

5-2 Code System

A code system to be utilized in the Petroleum Exploration and Production Data Bank System was established in this section on the basis of the results of an investigation of the assignment parameters and the input-output data described in Chapter 4.

In APPENDIX IV are described codes, a code name, an abbreviation and a format as for the code system which is classified into two groups, Code-Class A and Code-Class B.

Since remarks of APPENDIX IV are described in the "INTRODUCTORY REMARKS" attached at the head of the APPENDIX, here is described two groups, Code-Class A and Code-Class B in the following.

(1) Code-Class A

This consists of the following codes.

1) Following codes which are used as updating keys described in 5-3.
   - Field code
   - Facilities field code
   - Reservoir unit code

- Layer code
- Contractor code
- Operator code
- Company code
- Manufacturer code

2) Following codes which are composed of more than two subcodes, respectively.
   - Map code
   - Report code
   - Contract code
   - Geological survey code
   - Geophysical survey code
   - Well status code
   - Petrophysical and PVT analysis code
   - Well test and stimulation code
   - Field laboratory fluid analysis code
   - Equipment code
   - Station code
   - Pipeline code

3) Well code which are used as the updating key, and also composed of more than two subcodes.

(2) Code-Class B

Code-Class B is defined as the code that since the code is very simple and seldom expected to update or renew, it

will be built in programs as a copy library. All the codes but Code-Class A are classified in this Code-Class B. Followings are noted as for Code-Class B.

1) Code-Class B is classified and described by information data groups in APPENDIX IV.

2) For the purpose of simplifying a preparation of copy library, in APPENDIX IV are described Field Name of COBOL language and a length and an occurrence of data of the code.

5-3 Master File

Considering the output reporting methods described in Chapter 4, data properties in data base structure in Section 1 and the code system in Section 2 of this chapter, data items such as Field, Well, Zone and Company have been selected from the standpoint that those are in use of high frequency and have a higher grade of independency. Taking the followings into account, these are designed in the manner of filing together with their subsequent information as master files independently of the data base.

1) Efficient usage of memory of disk to be for the data base.
2) Efficient treatment of input data and simplification of input work.

3) Efficient treatment of output data.

4) Convenience of insertion, replacement and deletion of data concerned.

It is also designed in the manner that data of the file be accessed by Index Sequencial Access Method taking accounts of a usage of high frequency. A format of the files is shown in page 78 to 83,as for these followings are specially noted.

1) Field master has the data that is indicated by the format in page 78, and can be accessed by Field code or Facilities field code which is called as updating key.

2) Well master has the data that is indicated by the format in page 79, and can be accessed by Well code or String number called as updating key. On the file, one well has space for ten (10) data of reservoir unit and each reservoir unit has space for twelve (12) data of Layer.

Note: As explained in APPENDIX III, any string is treated as a well in the system. As the result, a well with two strings is to be treated as two wells, each of which has one string.

(3) Zone master has the data that is indicated by the format in page 81, and can be accessed by Field code, Reservoir unit code and Layer code.

On the file, one reservoir unit has space for twenty (20) data of Layer.

(4) Company master has the data that is indicated by the format in page 83,and can be accessed by Contract code, Operator code, Company code or Manufacturer code.

Table 5-1 List of Data Base

Data Base Name	Common Name	No. of Segments	No. of Items
PAACONTR	Contract Area	4	38
PABGLSVY	Geological Survey	2	19
PACGLANL	Geological Analysis	4	48
PADPROSP	Resource Prospect	3	30
PAEGLMAP	Geological Map and Figure	3	42
PAFGLREP	Geological Report	2	18
PBAGPSVY	Geophysical Survey	15	187
PBBGPMAP	Geophysical Map	2	32
PBCGPSEC	Geophysical Seismic Section	2	17
PBDGPREP	Geophysical Report	1	13
PCAWELL	Well Data	32	577
PDAPTPVT	Petrophysical and PVT Analysis Data	3	28
PEAPRDIN	Production and Injection	5	76
PEBOILCS	Oil Consumption	1	10
PECGASCS	Gas Consumption	2	7
PFARESVS	Reserves Data	3	153
PGAWELTS	Well Test and Stimulation	7	198
PGBFLUID	Field Laboratory Fluid Analysis	5	95
PHASTATN	Station	5	80
PHBEQUIP	Equipment	2	238
PIAPIPLN	Pipeline	2	73
	Total:	105	1,979

Table 5-2 List of Segment

(1/7)

Segment Name	Common Name	Key Items	Segment Length	No. of Items
(PAACONTR,	"Contract Area")			
PAA01CRT	Contract Area	Contract Code	303	24
PAA02HIS	History of Relinquishment	No. of times	59	6
PAA03PRB	Points of Relinquished Boundary	Points No.	17	4
PAA04OPB	Points of Original Boundary	Points No.	17	4
(PABGLSVY,	"Geological Survey")			
PAB01SVY	Geological Survey	Survey code	198	17
PAB02MAP	Geological Report and Map Reference	Type of map, figure and report Map, figure and report code	11	2
(PACGLANL,	"Geological Analysis")			
PAC01ANL	Geological Analysis	Analysis code	81	14
PAC02SAM	Geological Sampling	Sample group No.	177	28
PAC03KIN	Kind of Geological Analysis	Kind of analysis performed	25	4
PAC04FIG	Geological Report and Figure Reference	Type of figure and report Figure and report code	11	2
(PADPROSP,	"Resource Prospect")			
PAD01PRO	Resource Prospect	Prospect code	81	9
PAD02PHC	Prospective Hydrocarbon Information	Formation code	83	19
PAD03MAP	Prospect Report and Map Reference	Type of map and report Map and report code	11	2

Segment Name	Common Name	Key Items	Segment Length	No. of Items
(PAEGLMAP,	"Geological Map and Figure")			
PAE01MAP	Geological Map and Figure	Map code	337	37
PAE02WEL	Well Reference	Well code	8	2
PAE03FOL	Formation and Layer Reference	Formation code Field code Layer code	8	3
(PAFGLREP,	"Geological Report")			
PAF01REP	Geological Report	Report code	249	17
PAF02MAF	Geological Map and Figure Reference	Map code	10	1
(PBAGPSVY,	"Geophysical Survey")			
PBA01SVY	Geophysical Survey	Survey code	135	9
PBA02FLD	Field Operation	Nothing	787	74
PBA03LOC	Location Map and Report Reference	Type of map, section and report Map and report code	11	2
PBA04COS	Field Operation Cost	Date	110	12
PBA05DPR	Data Processing	No. of times	319	34
PBA06LIN	Line Number	Identification of line No.	102	2
PBA07REP	Section and Report Reference	Type of map, section and report Map and report code	11	2
PBA08COS	Data Processing Cost	Date	47	6
PBA09INT	Interpretation	No. of times	126	14
PBA10LIN	Line Number	Identification of line No.	106	3
PBA11MR	Map and Report Reference	Type of map, section and report Map and report code	11	2

Segment Name	Common Name	Key Items	Segment Length	No. of Items
PBA12SDY	Objective of Special Study	Nothing	200	2
PBA13WVS	Well Velocity Survey	Nothing	313	22
PBA14REP	Well Velocity Survey Report Reference	Type of map, section and report Map and Report code	11	2
PBA15PLD	Field or Prospect Reference	Field code	3	1
(PBBGPMAP,	"Geophysical Map")			
PBB01MAP	Geophysical Map	Map code	266	31
PBB02SEC	Section Reference	Map code	10	1
(PBCGPSEC,	"Geophysical Seismic Section")			
PBC01SEC	Geophysical Seismic Section	Map code	98	16
PBC02MAP	Map Reference	Map code	10	1
(PBDGPREP,	"Geophysical Report")			
PBD01REP	Geophysical Report	Report code	188	13
(PCAWELL,	"Well Data")			
PCA01WEL	Well	Well code Workover number	755	114
PCA02WEH	Workover History	Workover number	12	4
PCA03STR	Stratigraphy	Stratigraphy No.	45	8
PCA04HOC	Hole and Casing	Hole section and casing No.	147	24
PCA05CST	Completion String	String code	131	28
PCA06ROD	Rod Pump	Nothing	132	17
PCA07SUB	Submergible Pump	Nothing	79	7
PCA08GAS	Gas Lift	Nothing	628	69
PCA09PFR	Perforation	Perforation No.	57	12

Segment Name	Common Name	Key Items	Segment Length	No. of Items
PCA10PLG	Plug Back	Plug No.	31	6
PCA11ABD	Abandonment Record	Nothing	400	4
PCA12BIT	Bit Record	Run No.	41	9
PCA13MUD	Mud Record	Mud record No.	61	18
PCA14MOT	Mud Off Test	Test No.	18	4
PCA15MCK	Mud Consumption in Kg	Kind of mud agents	8	2
PCA16MCL	Mud Consumption in Litter	Kind of mud agents	8	2
PCA17PCM	Primary Cementing	Cementing No.	78	9
PCA18SCM	Squeeze Cementing	Squeeze No.	146	18
PCA19CCK	Cement and Additive Consumption in Kg	Kind of cement and additives	8	2
PCA20CCL	Cement and Additive Consumption in Litter	Kind of cement and additives	8	2
PCA21DHT	Downhole Troubles	Trouble No.	229	8
PCA22MCT	Miscellaneous Trouble	Trouble No.	202	3
PCA23WEL	Well Log	Run No.	41	12
PCA24COR	Coring	Core No.	40	9
PCA25LIT	Core Lithology	Core lithology No.	61	10
PCA26WAL	Side Wall Sample	Sample No.	67	11
PCA27CUT	Cutting Sample	Sample No.	24	5
PCA28HYD	Hydrocarbon Indication	Indication No.	46	12
PCA29DRL	Drill Stem Test	Test No.	289	44
PCA30WIR	Wireline Formation Test	Test No.	197	20
PCA31REP	Well Log Interpretation Report	Kind of interpretation	40	4
PCA32COS	Well Cost	Nothing	680	80

Segment Name	Common Name	Key Items	Segment Length	No. of Items
(PDAPTPVT,	"Petrophysical and PVT Analysis Data")			
PDA01CPA	Petrophysical and PVT Analysis	Analysis code	351	18
PDA02PLC	Sampling Place Information	Sampling identification	29	8
PDA03ANL	Analysis Information	Kind of analysis performed	5	2
(PEAPRDIN,	"Production and Injection")			
PEA01PIN	Production and Injection	Well code String number Recomplétion séquence notation	15	9
PEA02MPR	Monthly Production	Date	125	21
PEA03ZPR	Zonely Production	Reservoir unit code	47	16
PEA04MIJ	Monthly Injection	Date	58	14
PEA05ZIJ	Zonely Injection	Reservoir unit code	47	16
(PEBOILCS,	"Oil Consumption")			
PEB01OCS	Oil Consumption	Area code Date	59	10
(PECGASCS,	"Gas Consumption")			
PEC01GCS	Gas Consumption	Field code Date	11	3
PEC02MCO	Monthly Consumption	Kind of gas consumption	4	4
(PFARESVS,	"Reserves Data")			
PFA01RES	Reserves	Field code Reservoir unit code	14	6
PFA02OSG	Oil and Solution Gas	Date	675	65
PFA03COG	Condensate and Gas	Date	851	82

Segment Name	Common Name	Key Items	Segment Length	No. of Items
(PGAWELTS,	"Well Test and Stimulation")			
PGA01TES	Well Test and Stimulation	Well test and stimulation code	171	45
PGA02PRT	Production Test	Nothing	916	49
PGA03FLW	Flow Rate by Choke Size	Flowing method for test	57	14
PGA04IJT	Injection Test	Nothing	863	37
PGA05SPS	Subsurface Pressure Survey	Nothing	118	23
PGA06PRL	Production Log	Nothing	287	15
PGA07WLS	Well Stimulation	Nothing	348	15
(PGBFLUID,	"Field Laboratory Fluid Analysis")			
PGB01ANL	Field Laboratory Fluid Analysis	Analysis code	410	49
PGB02OAN	Oil Analysis	Nothing	18	4
PGB03CAN	Condensate Analysis	Nothing	18	4
PGB04GAN	Gas Analysis	Nothing	115	22
PGB05WAN	Water Analysis	Nothing	92	16
(PHASTATN,	"Station")			
PHA01STN	Station	Station code	747	61
PHA02MOD	Station Modification	Modification No.	300	16
PHA03EQP	Equipment in Station	Equipment code	5	1
PHA04REF	Station Reference	Station code	6	1
PHA05WEL	Well Reference	Well code	7	1
(PHBEQUIP,	"Equipment")			
PHB01EQP	Equipment	Equipment code	649	223
PHB02MNT	Equipment Maintenance	Maintenance No.	154	15

Segment Name	Common Name	Key Items	Segment Length	No. of Items
(PIAPIPLN,	"Pipeline")			
PIA01PIP	Pipeline	Pipeline code	517	49
PIA02MNT	Pipeline Maintenance	Maintenance No.	627	24

1. Field Master

Item No.	Item Name	Field Name	Position	Properties	Remarks
1	Flag of field or facilities field [KEY-1]	FLD-FFLD-FG	1	9(1)	1. Field 2. Facilities field
2	Field code [KEY-2]	FIELD-CD	2	X(3)	Refer to APPENDIX IV
3	Facilities field code [KEY-2]	FFIELD-CD	2	X(2)	Refer to APPENDIX IV
4	Unused [KEY-2]	FILLER	4	X(1)	
5	Area code	AREA-CD	5	9(2)	Refer to APPENDIX IV 01. Kompleks palembang selatan 02. Kompleks palembang tengah 03. Musi klingi 04. Jambi
6	Field office code	FLDOFFICE-CD	7	9(1)	Refer to APPENDIX IV 1. Bajubang 2. Prabumulih
7	Flag of field or prospect	FLD-PROS-FG	8	9(1)	In case of field 1. Prospect 2. Field 3. Depleted
8	Abbreviation of field or facilities field	FLD-FFLD-ABB	9	X(3)	
9	Field name or facilities field name	FLD-NM	12	X(25)	
10	Unused	FILLER	37	X(6)	
11	Updating date	UPDATE-DT	43	X(8)	Ex. "DDMMYYYY"

2. Well Master (1/2)

Item No.	Item Name	Field Name	Position	Properties	Remarks
1	Well code [KEY-1]	WELL-CD	1	X(7)	Refer to APPENDIX IV
2	String number [KEY-2]	STRING-NO	8	9(1)	
3	Recompletion sequence notation	RECOMP-NO	9	9(2)	
4	String code	STRING-CD	11	9(1)	Refer to APPENDIX IV 1. Short length tubing 2. Middle length tubing 3. Long length tubing 4. Annulus
5	Province code	PROVINCE-CD	12	9(1)	Refer to APPENDIX IV 1. Jambi 2. S. Sumatra 3. W. Sumatra 4. Riau 5. Bengkulu 6. Lampung 7. W. Java 8. W. Kalimantan
6	Facilities field code	FFIELD-CD	13	X(2)	Refer to APPENDIX IV
7	Block station number	BLK-STAT-NO	15	9(2)	
8	Completion status	COMPL-ST	17	9(1)	Refer to APPENDIX IV 1. Completed 2. Suspended 3. Abandoned
9	Well status	WELL-ST	18	X(3)	Refer to APPENDIX IV
10	Kind of completed zone	COMPL-ZONE-KD	21	9(1)	Refer to APPENDIX IV 1. Oil zone 2. Gas cup zone 3. Gas zone 4. Water zone
11	Kind of injection fluid	IF-KD	22	9(1)	Refer to APPENDIX IV 1. Fresh water 2. Sea water 3. Formation water 4. Wet gas 5. Dry gas 6. CO_2

2. Well Master (2/2)

Item No.	Item Name	Field Name	Position	Properties	Remarks
					7. Air 8. Other kind of water
12	Filtration	FILTRATION	23	9(1)	Refer to APPENDIX IV 1. With filtration 2. Without filtration
13	Kind of additives	ADDITIVES-KD	24	9(1)	Refer to APPENDIX IV 1. Scale inhibitor 2. Demulsifier 3. Bactericide 4. Surfactance 5. Corrosion inhibitor 6. Others
14-	Reservoir	RESERVOIR		*10	
1.	Reservoir unit code	RESERV-CD	25	X(4)	Refer to APPENDIX IV
2	Kind of recovery method	RECOV-METH-KD	29	9(1)	Refer to APPENDIX IV 1. Primary recovery 2. Secondary recovery 3. Tertiary recovery
3	Type of reservoir content	RESERV-CONT-TY	30	9(1)	Refer to APPENDIX IV 1. Paraffine oil reservoir 2. Asphalt oil reservoir 3. Gas reservoir
4	Share factor for production	SFACT-PROD	31	9(3)V9(2)	
5	Layer code	LAYER-CD	36	X(3)*12	Refer to APPENDIX IV
15-	Unused	FILLER	495	X(48)	
16-	Updating date	UPDATE-DT	543	X(8)	Ex. "DDMMYYYY"

3. Zone Master (1/2)

Item No.	Item Name	Field Name	Position	Properties	Remarks
1	Field code [KEY-1]	FIELD-CD	1	X(3)	Refer to APPENDIX IV
2	Flag of reservoir unit or layer [KEY-2]	RES-LAY-FG	4	9(1)	1: Reservoir unit 2: Layer
3	Reservoir unit code [KEY-3]	RES-CD	5	X(4)	Refer to APPENDIX IV
4	Layer code [KEY-3]	LAY-KEY-CD	5	X(3)	Refer to APPENDIX IV
5	Unused [KEY-3]	FILLER	8	X(1)	
6	Formation code	FORMATION-CD	9	9(2)	Refer to APPENDIX IV 01. Kasai (KAF) 02. Muara Enim (MEF) 03. Air Berakat (ABF) 04. Gumai (GUF) 05. Batu Raja (BRF) 06. Talang Akar (TAF) 07. Lahat (LAF) 08. Basement (BAS)
	(In case of reservoir unit)				
7	Type of reservoir content	RESERV-CONT-TY	11	9(1)	Refer to APPENDIX IV 1. Paraffine oil reservoir 2. Asphalt oil reservoir 3. Gas reservoir
8	Layer code	LAYER-CD	12	X(3)*12	Refer to APPENDIX IV
9	Development status	DEVELOP-ST	48	9(1)	Refer to APPENDIX IV 1. Producing under primary recovery 2. Producing under secondary recovery 3. Producing under tertiary recovery 4. Nonproducing under primary recovery 5. Nonproducing under secondary recovery 6. Nonproducing under tertiary recovery 7. Undevelopment
10	Reservoir unit name	RESERVOIR-NM	49	X(25)	
11	Unused	FILLER	74	X(19)	
	(In case of layer)				
12	Layer name	LAYER-NM	11	X(5)	

3. Zone Master (2/2)

Item No.	Item Name	Field Name	Position	Properties	Remarks
13	Unused	FILLER	16	X(77)	
14	Updating date	UPDATE-DT	93	X(8)	Ex. "DDMMYYYY"

4. Company Master

Item No.	Item Name		Field Name	Position	Properties	Remarks
1	Kind of company	[KEY-1]	COMPANY-KD	1	9(1)	1. Contractor 2. Operator 3. Company 4. Manufacturer
2	Company code	[KEY-2]	COMPANY-CD	2	X(5)	Refer to APPENDIX IV
3	Company name		COMPANY-NM	7	X(30)	
4	Unused		FILLER	37	X(06)	
5	Updating date		UPDATE-DT	43	X(8)	Ex. "DDMMYYYY"