

6-2 データベース入力処理

データベースの入力処理に関し、正確なデータの入力、データ入力処理の効率及び入力データ作成の容易さを考慮し、データベース入力処理フロー及び更新プログラム処理の詳細設計が行われた。

データベース入力処理のためのプログラムは、第5章1節で記述した20個のデータベース毎に更新用として21本、入力データ作成を容易にするため下記の処理として補助プログラム2本、合計23本が設計された。

- Workover された坑井の入力データ処理
- Yearly production and injection by reservoir units
" Remaining reserves " の計算に使用される各 Reservoir unit の年間生産量又は圧入量を計算する処理

上記データベース入力処理のために設計された23本のプログラムは、それぞれ第3章のネーミング規則に従って下記の如く命名された。

更新プログラム

	プログラム名
1. " Contract Area " データベース	EPB50000
2. " Geological Survey " データベース	EPB50010
3. " Geological Analysis " データベース	EPB50020
4. " Resource Prospect " データベース	EPB50030
5. " Geological Map and Figure " データベース	EPB50040
6. " Geological Report " データベース	EPB50050
7. " Geophysical Survey " データベース	EPB51000
8. " Geophysical Map " データベース	EPB51010
9. " Geophysical Seismic Section " データベース	EPB51020
10. " Geophysical Report " データベース	EPB51030
11. " Well Data " データベース	EPB52000
12. " Petrophysical and PVT Analysis Data " データベース	EPB53000
13. " Production and Injection " データベース	EPB54000
14. " Oil Consumption " データベース	EPB54010
15. " Gas Consumption " データベース	EPB54020
16. " Reserves Data " データベース	EPB55000
17. " Well Test and Stimulation " データベース	EPB56000
18. " Field Laboratory Fluid Analysis " データベース	EPB56010
19. " Station " データベース	EPB57000

20. " Equipment " データベース	EPB57010
21. " Pipeline " データベース	EPB58000
補助プログラム	
1. Copy of Well Data	EPB52050
2. Yearly Production and Injection by Reservoir Units	EPB55050

APPENDIX VII はこれらプログラムの仕様書であり、それぞれのプログラムの機能、入力データ、参照データ、出力データ、入力データのチェック及びデータ編集処理等が記載されている。

なお、プログラム仕様書作成過程でデータベースの更新データに関し、入力データ処理規則が検討されその結果がAPPENDIX IX に記載された。

(1) データベース入力処理フロー

更新データに対する下記のデータベース入力処理が Fig. 6-2 に示されている。

- 関連するマスター・ファイル又はデータベースを参照しながら更新データをチェックし、プルーフ・リストを出力する。
- エラー・データをディスクットに出力する。
- データベースを更新する。

(2) 更新プログラム処理

本項目では、Fig. 6-3 に示すデータベースの更新処理手順に従って入力データのフォーマット、入力データの基本チェック、セグメント・レコードの編集、ソーティング、更新・論理チェック、エラー・データのディスクット出力処理及びプルーフ・リスト出力処理及び更新処理が記述されており、APPENDIX III, IV, V, VII及び IX が主に参照される。

1) 入力データ・フォーマット

各データベースのセグメントに属するデータ項目を最小更新単位とすることを前提として、入力データの詳細なフォーマットがAPPENDIX V に記載されている。これらフォーマットの概略図を以下に示す。

Fig. 6-2 Flow of Data Base Input Processing

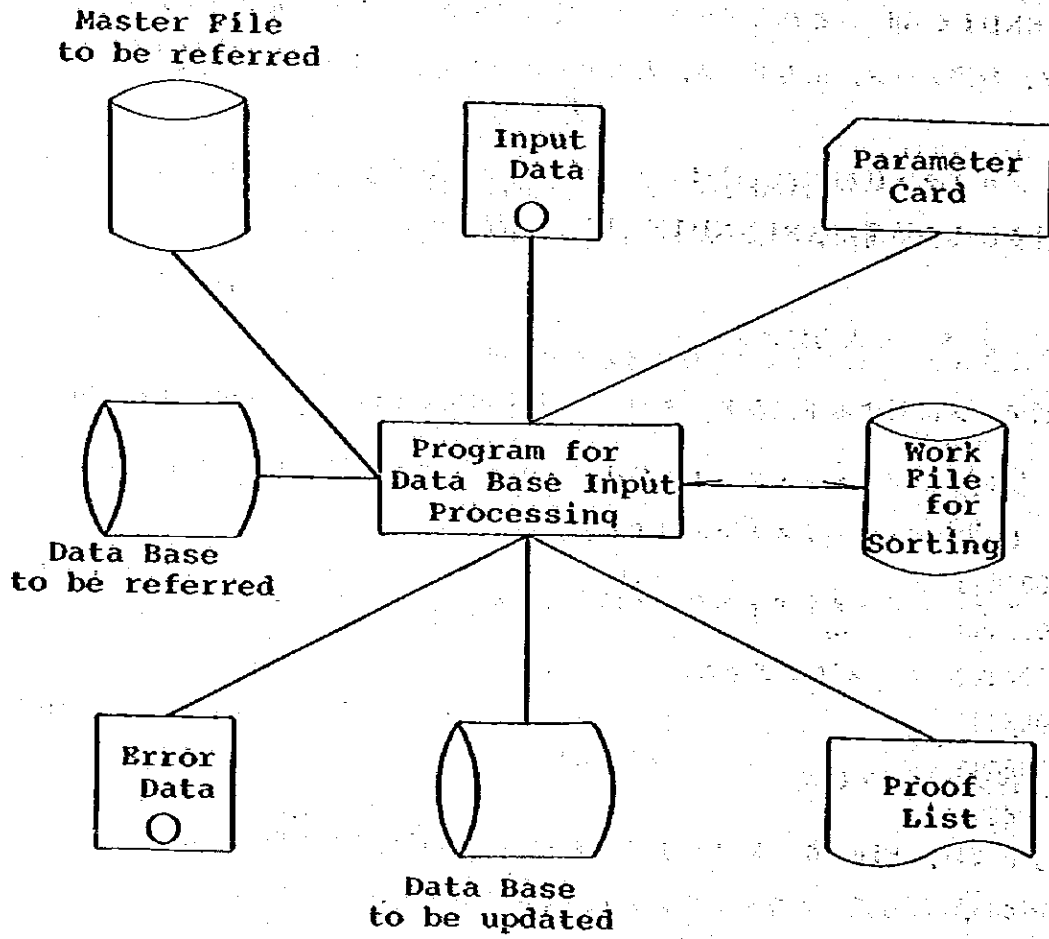
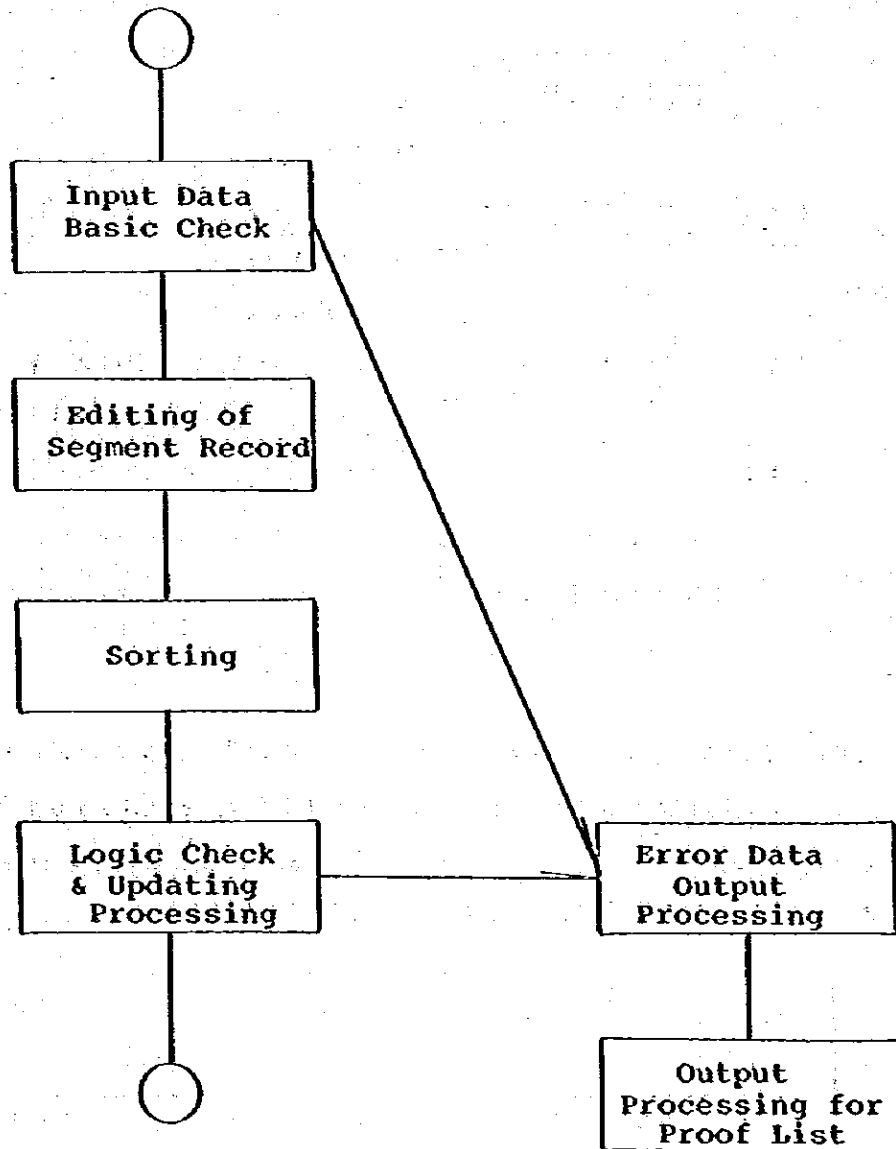


Fig. 6-3 Procedure of Data Base Updating Processing



#1 (1)	#2 (5)	#3	更新実データ	#4 (4)
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()内は桁数を示す。

- #1: 更新区分 (Update-id) I-新規
R-修正
D-削除
- #2: トランザクション・コード... セグメント名の先頭5文字
例 PAA01
PEA02
- #3: 更新用キー... 更新に必要な APPENDIX V 記載の (KEY-1),
(KEY-2) 又は (KEY-3) のキー・項目
- #4: バッチナンバー... データの処理単位に対する識別

注 削除データに対する更新処理では更新区分、トランザクション・コード及び更新用キーのみで更新実データはスペースとし、これらを合わせてディスクットの1レコード長(128バイト)のフォーマットとする。

APPENDIX VI に記載されている21個の更新プログラムのプログラムへの入力データのフォーマットは以上の如くであるがEPB54000, EPB54010, EPB54020 及びEPB55000の4本のプログラムに対しては、上記入力データの他に特別に下記のパラメータ・カードをその目的に応じて使用しなければならない。

プログラム名 (8)	年月 (4)	ブランク
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()内は桁数を示す。

2) 入力データの基本チェック

入力データの基本チェックとしては、必須入力データ項目のチェック、コード・チェック、数値チェック、範囲チェック、マスター・ファイル照合チェック等がある。以下これらに関して詳述する。

a 必須入力データのチェック

- 新規データの更新処理において、入力に際し、ディスクレットにキー・インしなければならない項目に関しては、APPENDIX VIIの“Check of Input Data”に記載されている。
それら必要項目のうち、更新区分、トランザクション・コードおよび更新用キーがキー・インされなかった場合、エラーとなり後述するエラー表示が出力される。他の項目に関してはキー・インされなかった場合、後述する警告の表示のみが出力され、更新処理は実行される。
- 修正データの更新処理では、修正するデータのみが上記1)の更新区分、トランザクション・コード及び更新用キーとともにディスクレットにキー・インされる。既にデータベースに存在しているデータをブランクに置換える場合は、該当するデータ・フィールドの全てのカラムに“*”をキー・インする。
更新区分、セグメント区分及び更新用キーがキー・インされない場合エラーとなり、後述するエラー表示が出力される。
- 削除データの更新処理では、上記1)の更新区分、セグメント区分及び更新用キーのみがキー・インされる。これらがキー・インされない場合エラーとなり、後述するエラー表示が出力される。

b コード・チェック

- 入力データとしてコードが用いられなければならない時に、APPENDIX IVで定めたコード以外を入力した場合エラーとなり、後述するエラー・メッセージが出力される。

c 数値チェック

- 入力フォーマットで数値と規定されている場合、数値以外のデータがキー・インされるとエラーとなり、後述するエラー表示が出力される。

d 範囲チェック

- 下記の例の様に、数値データでその数値の範囲が明確である場合、範囲外のデータがキー・インされるとエラーとなり、後述するエラー表示が出力される。

	範 囲	エラーの例
日 付	$01 \leq \text{日} \leq 31$	51
	$01 \leq \text{月} \leq 12$	15
区 間	From a_1 to a_2	$a_1 > a_2$
Local coordinate	$b_1 \leq \text{Longitude} \leq b_2$ $c_1 \leq \text{Latitude} \leq c_2$	

e. マスター・ファイル照合チェック

- 例えば Field, Well の様にマスター・ファイルに登録されるデータは、データベースを更新する以前に該当するマスター・ファイルに存在しなければならない。もし存在しない場合はエラーとなり、後述するエラー・メッセージが出力される。

3) セグメント・レコードの編集

上述2)の入力データの基本チェック処理でエラーとならない入力データに対し、データベースのセグメント・レコードの編集を行う。これらデータベースのセグメント・レコードの編集に関しては、プログラム毎に APPENDIX VII の "Editing of the Data in the Segment" に記載されているが以下に主な編集処理とその1例を記述する。

a. データベースに蓄積されるデータ・フォーマットへ変換

- APPENDIX IV 記載の "Geological survey code" の様に入力データを内部コードに変換してデータベースに蓄積する。

b. マスター・ファイルからのデータ移行

- "Production Data" データベースの入力処理において "Province code", "Area code" の様に、入力データとして作成せず入力されたデータの "Field code" を通して Field マスターからデータをもってくる。

c. セグメント・レコードへの分割

- 例えば、APPENDIX V の "Geological map and figure" データベースの "Well reference" セグメントの入力処理では、{KEY-2} の発生回数 (Occurrence) の指示によって {KEY-2} が属する10個のセグメントのデータが、同一のフォーマットによって入力される。これらをデータベース上10個のセグメントに分割する。

4) ソーティング

APPENDIX V 記載の [KEY-1], トランザクション・コード及び更新区分 (Update-id) を下記の如く, ソーティングのための第1キー, 第2キー及び第3キーとして使用する。

第1キー : 上述1)の更新用キーのルート・セグメントのキー項目
(KEY-1)

第2キー : 上述1)のトランザクション・コード

第3キー : 更新区分 (Update-id)

5) 更新・論理チェック

上述4)でソーティングされたセグメント・レコードに対し, 論理チェック及びデータベース照合チェックを行う。

a 論理チェック

例えば, "Completion string"のセグメントに属する下記の "String specification" が "Gas lift"でありながら "Rod pump" セグメントのデータを更新しようとした場合, セグメント間に論理的に矛盾があるとしてエラー・メッセージが出力される。

String specification

1. Ordinary
2. Rod pump
3. Submergible pump
4. Gas lift
5. Dump flood water injection
6. Powerd water injection
7. Gas injection

b データベース照合チェック

- 新規データの更新処理では, データベースに新規データと同じ更新用キーのセグメントが存在している場合エラーとなり, 後述するエラー・メッセージが出力される。

- 修正データ又は削除データの更新処理においては、データベースに修正データ又は削除データと同じ更新用キーのセグメントが存在しなければならない。もし存在しない場合はエラーとなり、後述するエラー・メッセージが出力される。
- 第2次階層又は第3次階層に位置するセグメントの更新処理では、それぞれの親セグメントがデータベース上に存在しなければならない。もし存在しない場合はエラーとなり、後述するエラー・メッセージが出力される。
- 2つ以上のセグメントに係るデータの入力に関してはAPPENDIX IXで述べた規則に従って入力しなければならない。規則に違反した場合はエラーとなり、後述するエラー・メッセージが出力される。

6) エラー・データのディスクアウト出力処理

上記2)の入力データの基本チェック及び5)の更新・論理チェックでエラーとなったデータは、1)で記述した入力データ・フォーマットの形でディスクアウトに出力される。

7) ブルーフ・リスト出力処理

2)及び5)で記述したエラー表示又はエラー・メッセージを出力するブルーフ・リストのレイアウトは85ページに示される。これらは、下記事項の出力処理を示したものである。

- 2)の入力データの基本チェック処理でエラーとなったデータはそのデータの下に"*** .."を符し、エラーとなった項目名を共に出力する。
- 2)-aの必須入力データのチェックで記述した警告処理に関しては、警告の対象となるデータ項目が入力されなかった場合、警告の表示として、その項目のあるべき位置の下に"XX..."を符し、その項目名を右はしに出力する。
- 5)の更新・論理チェックに関しては、下記する様にエラーの種類毎のエラー・メッセージを出力する。

エラー内容	エラー・メッセージ
- 更新データに関して、セグメント間に論理的矛盾がある。	LOGICAL RELATION MISSING
- データベースに新規データと同じ更新用キーのセグメントが存在する場合	ALREADY IN DATA BASE

PROOF LIST OF XXXXXX XXXXX XXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Note:

SEGMENT NAME	SEGMENT KEYS	INPUT DATA IMAGE	5	3	5	3
			#	#	#	#

XXXXXXXXXX		XX				XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXX		XX				XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXX		XX				XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXX		XX				XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXX		XX				XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXX		XX				XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXX		XX				XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXX		XX				XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXX		XX				XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXX		XX				XXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXX		XX				XXXXXXXXXXXXXXXXXXXXXXXXXXXX

PROVINCE CODE
CONTRACTOR CODE
OPERATOR CODE
OPERATION PERIOD

NOT FOUND IN DATABASE

Note: Data base name [Example PAXCONTR (CONTRACT AREA)]
Remarks: " " is printed out under place of error.
As for warning message, " " is printed out under place of item to be input.

XXXXXXXXXX

エラー内容	エラー・メッセージ
データベースに修正データ又は削除データと同じ更新用キーのセグメントが存在しない場合	NOT FOUND IN DATA BASE
更新しようとするセグメントの親セグメントが存在しないでエラーとなった場合	PARENT NOT FOUND
2つ以上のセグメントに蓄積されるデータが照合チェックでエラーとなった場合	ERROR AGAINST REGULATION

8) 更新処理

前述の2)の入力データの基本チェック及び5)の更新・論理チェックでエラーとならない入力データに対し、1)で記述した更新区分に従って下記データに対し更新処理を行う。

- 新規データ : 入力データをデータベースに蓄積する。
- 修正データ : 入力データでデータベースに蓄積されているデータを置換える。ただし、" * * * * *"で示されている修正データの場合はスペースで置換える。
- 削除データ : データベースに蓄積されているデータを削除する。

(3) 補助プログラム "Copy of Well Data" 処理

補助プログラム "Copy of Well Data" は Workover された坑井に関するデータの入力を容易にするために以下の1)のパラメータ・カードを用い、2)の移行・変換処理を行い、3)のブルーフ・リストを出力する。

1) パラメータ・カード

この補助プログラムは下記のフォーマットに従うパラメータ・カードを用いる。

プログラム名 (8)	Well コード (最大10個) (7) * 10	ブランク (2)
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()内は桁数を示す。

注

- プログラム名 : EPB52050

- Wellコード :

この補助プログラムで以下の2)の移行・変換処理の対象として指定される坑井のWellコードは最大10個まで指定できる。

2) 移行・変換処理

上述1)のパラメータ・カードで指定されたWellに関して以下の移行・変換処理を行う。移行・変換処理の詳細はAPPENDIX Ⅳに記載されている。

- データベース上にある Workover 直前の Well Data から必要データを移行する。

- " Well " セグメントの " Workover number " 及び " Completion status " のデータを " Workover history " セグメントへ移行する。

- 対象となる坑井の " Original Well " の " Well " セグメント内の " Current workover No. " を " Workover " された坑井の " Workover number " に変換する。

3) ブルーフ・リスト出力処理

2)の移行・変換処理の結果がAPPENDIX Ⅳのプログラム " EPB52050 " のブルーフ・リストのレイアウトに従って出力される。

(4) 補助プログラム " Yearly production and injection by reservoir units " 処理

補助プログラム " Yearly production and injection by reservoir units " は Reserves に関するデータの入力を容易にするため、以下の1)のパラメータ・カードを用い、2)の計算・移行処理を行い、3)のブルーフ・リストを出力する。

1) パラメータ・カード

この補助プログラムは、下記のフォーマットに従うパラメータ・カードを用いる。

プログラム名 (8)	年 (2)	ブ ラ ン ク (70)
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()内は桁数を示す。

注

- プログラム名 : EPB55050

- 年 :

Reservoir unit 毎の年間生産量又は圧入量を計算する対象西暦年の下2桁
(例 1979年の場合は“79”)

2) 計算・移行処理

上述1)のパラメータ・カードで指定された年の生産量又は圧入量に関して、以下の計算・移行処理を行う。計算・移行処理の詳細はAPPENDIX VII に記載されている。

- 指定された年の坑井毎のOil及びGasの生産量又は圧入量を“Share factor”を乗じて、各Reservoir unit毎に分割する。

- Reservoir unit毎に分割された量を下記の統計単位で集計する。

- Kind of recovery method

- Kind of completed zone

- Reservoir unit コード

- 集計された量を“Reserves data”データベースに移行する。

3) プルーフ・リスト出力処理

2)の計算・移行処理の結果がAPPENDIX VII のプログラム“EPB55050”のプルーフ・リストのレイアウトに従って出力される。

(5) データベースのリカバリー処理

上述のデータベース入力処理によって作成されるデータベースのリカバリーに関しては、データベースを処理するIMSが備えている下記のデータベース回復ユーティリティーが使用出来る様に設計されている。

1) データベースのコピーを作成するユーティリティー

2) データベースに対する変更をログするユーティリティー

3) IMSログ・テープから変更を累積するユーティリティー

4) 物理的に損傷を受けたデータベースを回復するユーティリティー

5) プログラムによってデータベースに対して行われた変更を元へ戻すユーティリティ

上記のユーティリティによるデータベースのリカバリー処理は、次段階のプログラミング、デバッグ、テスト・ラン及びデータベースの導入・運営を通して具体的に確立される。

6-3 データベース出力処理

データベースの出力処理に関しては第4章で記述した出力方法に対し、データベース出力処理フロー及び出力処理プログラム処理の詳細設計が行われた。

データベース出力処理のためのプログラムは、下記の如く基本型出力方法と組合わせ出力方法に対して合計156本が設計された。

- 1) 基本型出力方法 : 基本型出力方法の使用目的を考慮し、第4章で記述した第1次階層に位置する基本型出力方法(例えばA0-1, A0-2等)毎に1本を原則とし、合計22本を設計した。
- 2) 組合わせ出力方法 : 組合わせ出力方法毎に1本を原則とするが、Production Data Information, Reserves Data Information 及び Production Operation Informationに属する組合わせ出力方法に関しては類似した出力処理の重複をさけるため数種類をまとめ、合計134本を設計した。

上記データベース出力処理のために設計された156本のプログラムは、それぞれ第3章のネーミング規則に従ってページ97~105のTable 6-1記載の如く命名された。

APPENDIX VIはこれらプログラムの仕様書であり、それぞれのプログラムの指定項目、入力されるセグメント名、参照されるマスター・ファイル名、出力データの順番等の他出力項目がAPPENDIX Iの出力レポート・レイアウトを参照しながら記載されている。

(1) データベース出力処理フロー

出力方法に関する下記のデータベース出力処理フローがFig. 6-4に示されている。

- 関連するマスター・ファイルを参照しながら、指定カードで指定された指定項目をチェックし、指定項目の指示に従ってデータベースからデータを検索し、出力レポートを出力する。
- 指定項目のチェック・リストを出力する。
- 出力レポートのカバー・リストを出力する。

(2) 出力プログラム処理

本項目では、出力方法に関してFig. 6-5に示す処理手順に従って指定カードの指定項目のチェック、検索テーブルの作成、指定項目のチェック・リスト出力処理、出力レポートのカバー・リスト出力処理、レポート出力処理が記述されており、第4章出力方法がAPPENDIX I, II, III及びIVと共に参照される。

1) 指定カード

出力方法の出力プログラム実行時に使用する指定カードとしては、ヘッダー・カード、独立指定カード及びエンド・カードがあり、これらに関する使用方法、レイアウト等が APPENDIX I で詳述されている。

2) 指定項目のチェック

指定項目のチェックとしては、指定カードの順序チェック、指定方法と指定項目の関連チェック、コード・チェック、数値チェック、数値の大小チェック及びマスター・ファイル照合チェックなどがある。以下これらに関して詳述する。

a) 指定カードの順序チェック

APPENDIX I で記述した様に指定カードは、ヘッダー・カード、独立指定カード及びエンド・カードの順序でなければならない。もしこの順序でなければエラーとなり後述するエラー表示が出力される。

b) 指定方法と指定項目の関連チェック

出力方法毎に必要な指定項目及び指定可能な指定項目は、APPENDIX I 記載の関連条件を満足しなければならない。これら条件を満足しない場合、後述のエラー表示が出力される。

c) コード・チェック

指定項目としてコードが用いられなければならない時に、APPENDIX N で定めたコード以外を指定した場合、後述するエラー表示が出力される。

d) 数値チェック

ヘッダー・カード及び独立指定カードのフォーマットで数値と規定されている場合、数値以外のデータが指定されると後述するエラー表示が出力される。

e) 数値の大小チェック

区間で指定される指定項目では、区間の上限値は区間の下限值より小であってはならない。この条件が満足しない場合、後述のエラー・メッセージが出力される。

f) マスター・ファイル照合チェック

例えば Field, Well の様にマスター・ファイルに登録されているコードを指定した場合、指定されたコードはマスター・ファイルに登録されていなければならない。もし登録されていない場合は後述のエラー・メッセージが出力される。

3) 検索テーブルの作成

Fig. 6-4 Flow of Data Base Output Processing

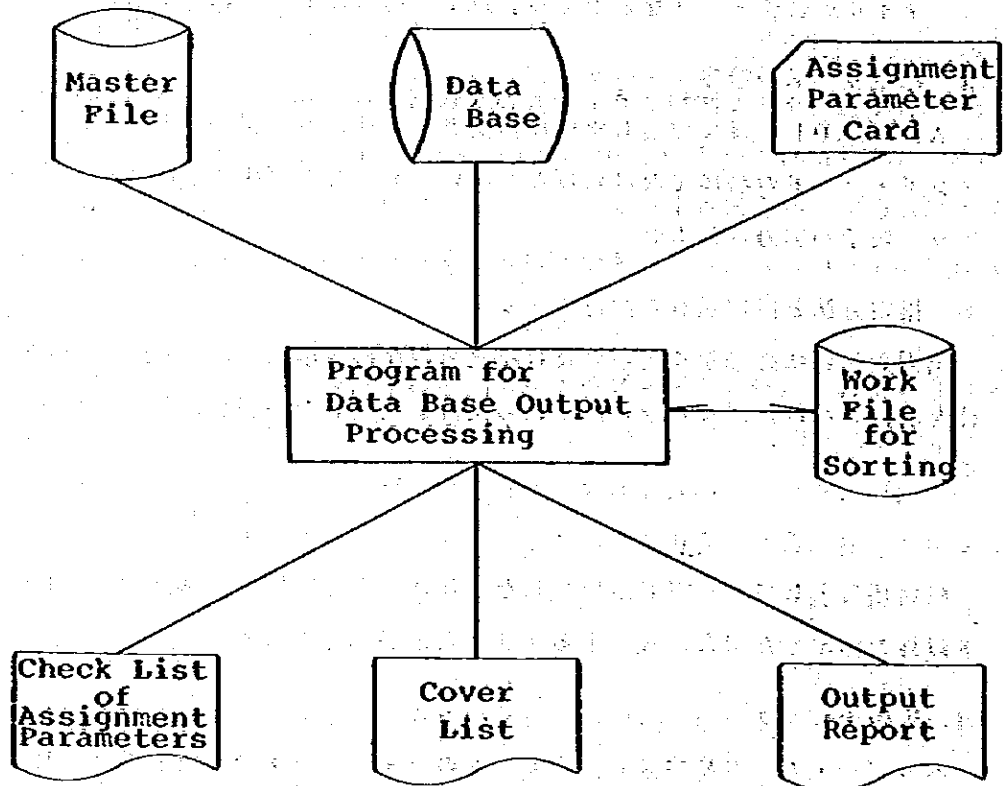
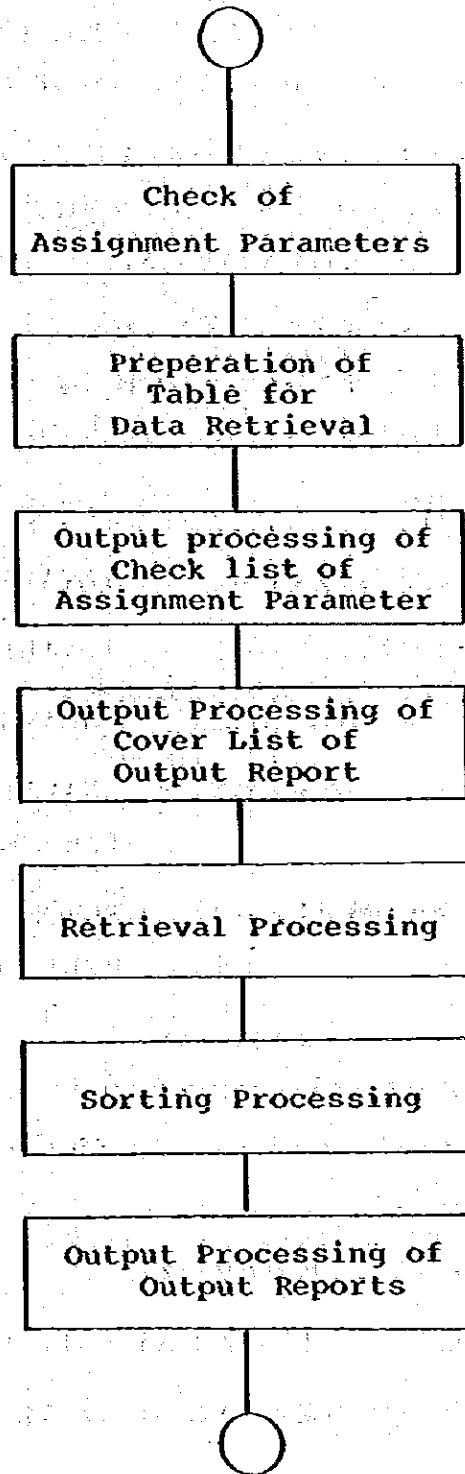


Fig. 6-5 Procedure of Data Base Output Processing



上述 2) の指定項目のチェックでエラーとならない指定項目に対して、後述 6) のレポート出力処理のための検索テーブルを作成する。検索テーブルの作成に関しては APPENDIX I の "INTRODUCTORY REMARKS" の 6~11 が特に注記される。

4) 指定項目のチェック・リスト出力処理

2) で記述したエラー・メッセージを出力する指定項目のチェック・リストのレイアウトはページ 95 に示される。これらは、下記事項の出力処理を示したものである。

- 2) — c のコード・チェック, 2) — d の数値チェック, 2) — e の数値の大小チェック, および 2) — f のマスターファイル照合チェックでエラーとなった指定項目の下に " *** " を付して出力する。
- 2) — a の指定カードの順序チェックおよび 2) — b の指定方法と指定項目の関連チェックに関しては下記する様にエラーの種類毎のエラー・メッセージを出力し、出力プログラムの実行を停止させると同時に停止のメッセージを出力する。

エラー項目	エラー・メッセージ
— 指定カードの順序が誤っている。	INVALID ORDER
— Method の指定が誤っている。	INVALID METHOD
— 必須指定項目が指定されていない。	PARAMETER EXPECTED
— 指定不可の指定項目が指定されている。	UNAVAILABLE PARAMETER ASSIGNED
— 指定項目の組合せが論理上誤っている。	ERROR ON LOGICAL RELATION

5) 出力レポートのカバー・リスト出力処理

出力方法の名称及び指定された指定項目を出力する出力レポートのカバー・リストのレイアウトの 1 例が第 4 章ページ 22~27 に示されている。これらカバー・リストには、下記事項が出力される。

- ヘッダー・カードに指定した出力方法の名称
- 入出力データの管轄を示す " PERTAMINA UNIT BP-1 "
- ヘッダー・カード又は独立指定カードに指定した項目

一 APPENDIX Iの INTRODUCTORY REMARKS 5, 6及び7記載の出力レポートに関する出力注記事項。

一 計算機システムの実行年月日

注) 各出力方法毎に APPENDIX Iで規定した指定項目のみを各出力方法のカバー・リストにページ106の Table 6-2で定めた形式に従って順次出力する。

6) レポート出力処理

上述3)の検索テーブルに従って、第5章1節及びAPPENDIX I記載のデータベースに蓄積されているデータを検索し、必要に応じて合計値等の計算又はソーティングを行い、APPENDIX Iに示した出力レポートのレイアウトに従ってデータを編集し出力する。検索・編集・出力処理に関する詳細をAPPENDIX IIに記載した。

Table 6-1 List of Output Program

<u>Abbreviation</u>	<u>Common Name</u>	<u>Program Name</u>
(A - Geological Data and Contract Area Information)		
1) A0-1, A0-11, A0-12	Contract area information	EPB50100
2) A0-2	Geological survey report information	EPB50110
3) A0-3	Geological analysis activity report information	EPB50120
4) A0-4	Prospect information	EPB50130
5) A0-5	Map and figure information	EPB50140
6) A0-6	Report information	EPB50150
7) A1	List of contract area	EPB50200
8) A2	List of relinquished area	EPB50205
9) A3	Geological survey list completed by year	EPB50210
10) A4	Geological analysis activities list completed by year	EPB50215
11) A5	Exploration activities summary completed by year	EPB50220
12) A6	List of map and figure	EPB50225
13) A7	List of report	EPB50230
14) A8	Main lithological information summary by well	EPB50235
15) A9	Lithological core description summary	EPB50240
16) A10	Lithological side wall core description summary	EPB50245
17) A11	Hydrocarbons indication summary	EPB50250
18) A12	Correlation of formation tops	EPB50255

	<u>Abbreviation</u>	<u>Common Name</u>	<u>Program Name</u>
19)	A13	Estimated hydrocarbons in place and recoverable hydrocarbon resources	EPB50260
20)	A14	Estimated hydrocarbons in place by formation	EPB50265
21)	A15	Estimated hydrocarbons in place for prospect by type of trap	EPB50270
(B - Geophysical Data Information)			
1)	B0-1, B0-11 ~ B0-15	Seismic survey information	EPB51100
2)	B0-2, B0-21 ~ B0-24	Magnetics survey information	EPB51110
3)	B0-3, B0-31 B0-34	Gravity survey information	EPB51120
4)	B0-4	Well velocity survey information	EPB51130
5)	B0-5	Special study information	EPB51140
6)	B1	Geophysical survey list by year	EPB51200
7)	B2	Geophysical survey list by area	EPB51205
8)	B3	Summary of geophysical data processing	EPB51210
9)	B4	Summary of geophysical interpretation and special study	EPB51215
10)	B5	List of geophysical report by field or prospect name	EPB51220
11)	B6	List of geophysical map by field or prospect name	EPB51225
12)	B7	List of magnetic tape for geophysical survey	EPB51230
13)	B8	Summary of geophysical survey unit cost	EPB51235
14)	B9	Survey method for seismic survey	EPB51240

	<u>Abbreviation</u>	<u>Common Name</u>	<u>Program Name</u>
15)	B10	Total length for geophysical field operation	EPB51245
16)	B11	Total fuel for geophysical survey	EPB51250
17)	B12	Total explosive for seismic survey	EPB51255
18)	B13	Total geophysical survey cost by area	EPB51260
19)	B14	Total geophysical survey cost by year	EPB51265
20)	B15	List of geophysical report by survey	EPB51270
21)	B16	List of geophysical map by survey	EPB51275
22)	B17	List of seismic section by field or prospect	EPB51280

(C - Well Data Information)

1)	C0-1, C0-11 ~ C0-16	Well data information	EPB52100
2)	C1	Well summary	EPB52200
3)	C2	Well list	EPB52205
4)	C3	Well completion summary	EPB52210
5)	C4	Completion record diagram	EPB52215
6)	C5	Drilling activity summary	EPB52220
7)	C6	Workover activity summary	EPB52225
8)	C7	Contractor	EPB52230
9)	C8	Hole and casing	EPB52235
10)	C9	Completion string specification	EPB52240
11)	C10	Rod pump summary	EPB52245
12)	C11	Submargible pump summary	EPB52250
13)	C12	Gas lift summary	EPB52255

	<u>Abbreviation</u>	<u>Common Name</u>	<u>Program Name</u>
14)	C13	Well head assembly summary	EPB52260
15)	C14	Bit record summary	EPB52265
16)	C15	Mud record summary	EPB52270
17)	C16	Primary cementing summary	EPB52275
18)	C17	Mud off test record summary	EPB52280
19)	C18	Downhole trouble summary	EPB52285
20)	C19	Abandonment record summary	EPB52290
21)	C20	Correlation of layer tops	EPB52295
22)	C21	Well log information summary	EPB52300
23)	C22	Mud log information summary	EPB52305
24)	C23	Coring information summary	EPB52310
25)	C24	Side wall sample information summary	EPB52315
26)	C25	Cutting sample information summary	EPB52320
27)	C26	Drill stem test information summary	EPB52325
28)	C27	Wireline formation test information summary	EPB52330
29)	C28	Yearly historical drilling statistics by field	EPB52335
30)	C29	Yearly historical drilling statistics by area	EPB52345
31)	C30	Well cost summary	EPB52345
32)	C31	Time analysis summary	EPB52350
33)	C32	Mud consumption summary	EPB52355
34)	C33	Cement consumption summary	EPB52360

<u>Abbreviation</u>	<u>Common Name</u>	<u>Program Name</u>
(D - Petrophysical and PVT Analysis Data Information)		
1) D0-1	Core and PVT analysis information	EPB53100
2) D1	List of analysis report	EPB53200
3) D2	Core analysis record	EPB53205
4) D3	PVT analysis record	EPB53210

(E - Production Information)		
1) E0-1	Production information	EPB54100
2) E0-2	Injection information	EPB54110
3) E1~E8	Monthly oil & total condensate and total gas production	EPB54200
4) E9~E12	Monthly oil, gas cap condensate and non associated condensate production	EPB54205
5) E13~E18	Monthly high pressure gas, medium pressure gas and low pressure gas production	EPB54210
6) E19~E22	Monthly solution gas, gas cap gas and non associated gas production	EPB54215
7) E23~E29	Historical monthly oil & total condensate and total gas production	EPB54220
8) E30~E35	Historical monthly oil, gas cap condensate and non associated condensate production	EPB54225
9) E36~E42	Historical monthly high pressure gas, medium pressure gas and low pressure gas production	EPB54230
10) E43~E48	Historical monthly solution gas, gas cap gas and non associated gas production	EPB54235

	<u>Abbreviation</u>	<u>Common Name</u>	<u>Program Name</u>
11)	E49~E55	Historical yearly oil & total condensate and total gas production	EPB54240
12)	E56~E61	Historical yearly oil, gas cap condensate and non associated condensate production	EPB54245
13)	E62~E68	Historical yearly high pressure gas, medium pressure gas and low pressure gas production	EPB54250
14)	E69~E74	Historical yearly solution gas, gas cap gas and non associated gas production	EPB54255
15)	E101 ~ E112	Monthly injection	EPB54300
16)	E113 ~ E124	Historical monthly injection	EPB54310
17)	E125 ~ E136	Historical yearly injection	EPB54320
18)	E201, E202	Monthly gas consumption	EPB54400
19)	E203 ~ E205	Summary of monthly gas consumption	EPB54405
20)	E206 ~ E208	Historical monthly gas consumption	EPB54410
21)	E209 ~ E211	Summary of historical monthly gas consumption	EPB54415
22)	E212 ~ E214	Summary of historical monthly own use gas consumption	EPB54420
23)	E215 ~ E217	Summary of historical monthly process gas consumption	EPB54425
24)	E218 ~ E220	Historical yearly gas consumption	EPB54430
25)	E221 ~ E223	Summary of historical yearly gas consumption	EPB54435
26)	E224 ~ E226	Summary of historical yearly own use gas consumption	EPB54440

<u>Abbreviation</u>	<u>Common Name</u>	<u>Program Name</u>
27) E227 ~ E229	Summary of historical yearly process gas consumption	EPB54445
28) E230	Monthly oil consumption by area	EPB54450
29) E231, E232	Historical monthly oil consumption	EPB54455
30) E233, E234	Historical yearly oil consumption	EPB54460
31) E301, E302	Well status report for all wells	EPB54500
32) E303, E304	Well status report for producer	EPB54505
33) E305, E306	Well status report for injector	EPB54510
34) E307, E308	Well status report for shut-in well	EPB54515
35) E309, E310	Well status report for waiting well	EPB54520
36) E311	Well status of reservoir unit	EPB54525
37) E312, E313	Well status information	EPB54530

(F - Reserves Data Information)

1) F0-1	Reserves information	EPB55100
2) F0-2	Reservoir parameter information	EPB55110
3) F1~F4	Remaining reserves	EPB55200
4) F5~F8	Initial hydrocarbon in place and recoverable hydrocarbon	EPB55210
5) F9~F14	Historical remaining reserves summary	EPB55220
6) F15	Reservoir parameter for oil zone	EPB55230
7) F16	Reservoir parameter for gas cap zone and gas reservoir	EPB55240

<u>Abbreviation</u>	<u>Common Name</u>	<u>Program Name</u>
(G - Production Operation Data Information)		
1) G0-1, G0-11 ~ G0-15	Well test and stimulation information	EPB56100
2) G0-2, G0-21 ~ G0-24	Field laboratory fluid analysis information	EPB56110
3) G1	Production test result	EPB56200
4) G2	Injection test result	EPB56205
5) G3	Bottomhole pressure survey record diagram	EPB56210
6) G4	Current bottomhole pressure survey record	EPB56215
7) G5	Current buildup and falloff pressure survey result	EPB56220
8) G6	List of production log survey	EPB56225
9) G7	Stimulation job activity record	EPB56230
10) G8, G9	Field laboratory fluid analysis data summary	EPB56235
11) G10, G11	Field laboratory gas analysis data summary	EPB56240
12) G12, G13	Field laboratory water analysis data summary	EPB56245

(H - Production Facilities Data Information)

1) H0-1, H0-11, H0-12	Station information	EPB57100
2) H0-2, H0-11, H0-12	Equipment information	EPB57110
3) H1	Summary of station	EPB57200

<u>Abbreviation</u>	<u>Common Name</u>	<u>Program Name</u>
4) H2	Station cost data by kind of station	EPB57205
5) H3	Station cost data by fiscal year	EPB57210
6) H4	Summary of equipment	EPB57215
7) H5	Equipment cost data by kind of equipment	EPB57220
8) H6	Equipment data by manufacturer	EPB57225
9) H7	Equipment cost data by fiscal year	EPB57230
10) H8	Summary of station modification	EPB57235
11) H9	Summary of equipment maintenance	EPB57240
12) H10	Equipment maintenance cost data by fiscal year	EPB57245
13) H11	System's equipment data	EPB57250

(I - Pipeline Information)

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

Table 6-2 Format of Assignment parameter for cover list
of Output Report method

(1/4)

Formats of "Row" and "Column"
are referred to note 11

ASSIGNMENT PARAMETER NAME	CODE or NAME	ARRANGEMENT	REMARKS
(COMMON)			
Province code	Name	Row	
Area code	Name	Row	
Field office code	Name	Row	
Field code	Name	Row	
Well code	Name	Column	
Station code	Name	Column	
Formation code	Name	Row	
Layer code	Name		See note 2
Reservoir unit code	Code		See note 3
Type of reservoir content	Name	Row	
Completion status	Name	Row	
Objective of well	Name	Row	
PERTAMINA or contractor	Name		
Kind of geophysical survey	Name	Row	
Kind of station	Name	Row	
Period			See note 6
Date			
(A-GEOLOGICAL DATA AND CONTRACT AREA INFORMATION)			
Kind of contract	Name	Row	
Contract code	Code	Column	
Contractor code	Name	Row	
Operator code	Name	Row	
Kind of geological survey	Name	Row	
Kind of geological analysis	Name	Row	
Geological survey code	Name	Column	
Point coordinate			See note 4
Scale			See note 5

ASSIGNMENT PARAMETER NAME	CODE or NAME	ARRANGEMENT	REMARKS
Sorting pattern	Name		
Type of trap	Name	Row	
Kind of map and figure	Name	Row	
Kind of report	Name	Row	
Map code	Code	Column	
Report code	Code	Column	
(B-GEOPHYSICAL DATA INFORMATION)			
Method of survey	Name	Row	
Geophysical survey code	Code	Column	
Company code	Name	Row	
Kind of geophysical survey and study	Name	Row	
Kind of map	Name	Row	
Kind of report	Name	Row	
Horizon code	Name	Row	
Scale			
(C-WELL DATA INFORMATION)			
Objective of workover	Name	Row	
Workover number	Name	Row	
String specification	Name	Row	
Type of subsurface pump	Name	Row	
Macaroni pipe	Name	Row	
Bit size			
Kind of trouble	Name	Row	
Kind of log	Name	Row	
(D-PETROPHYSICAL AND PVT ANALYSIS DATA INFORMATION)			
Kind of petrophysical and PVT analysis	Name	Row	

ASSIGNMENT PARAMETER NAME	CODE or NAME	ARRANGEMENT	REMARKS
Kind of analysis performed	Name	Row	
Petrophysical and PVT analysis code	Code	Column	
(E-PRODUCTION INFORMATION)			
String system code	Name	Row	
Kind of completed zone	Name	Row	
Well status	Code	Column	
Kind of pressure for gas	Name	Row	
Water cut			See note 6
Gas-oil ratio			See note 6
History of recompletion	Name	Row	
Kind of injection fluid	Name	Row	
(F-RESERVES DATA INFORMATION)			
Development status of reservoir unit	Name	Row	
Kind of reserves	Name	Row	
Kind of recovery method	Name	Row	
Abandone condition for gas cap zone and gas reservoir	Name	Row	
(G-PRODUCTION OPERATION DATA INFORMATION)			
Workover number	Name	Row	
Kind or type of well test and stimulation	Name	Row	
Well test and stimulation code	Code	Column	
Well or station	Name	Row	
Field laboratory fluid analysis code	Code	Column	

ASSIGNMENT PARAMETER NAME	CODE OR NAME	ARRANGEMENT	REMARKS
(H-PRODUCTION FACILITIES DATA INFORMATION)			
Result of inspection	Name	Row	
"Written off" or "Not" for equipment	Name	Row	
Kind of equipment	Name	Row	
Main specification			See note 6
Equipment code	Code	Column	
Manufacturer code	Name	Row	
(I-PIPELINE INFORMATION)			
Kind of linepipe	Name	Row	
Nominal size			See note 6
Result of inspection	Name	Row	
"Written off" or "Not" for pipeline	Name	Row	
Pipeline code	Code	Column	

Note 1

- Row:

Province code

PROVINCE: JAMBI
S.SUMATRA
RIAU
W.JAVA

- Column:

Well code

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

Note 2

LAYER NAME: [#1] - [#2], [#2], [#2]

#1: Abbreviation of field name
#2 Layer name

Note 3

RESERVOIR UNIT CODE: [#1] - [#2], [#2], [#2]

#1 Abbreviation of field name
#2 Reservoir unit code

Note 4

POINT COORDINATE

LATITUDE: +999.99.99 [S] or [N]
LONGITUDE: 999.99.99 [E]

Note 5

SCALE: 1:99,999

Note 6

[#1] : [#2] - [#3]

#1 Assignment parameter name
#2 From
#3 To

第 7 章 プログラム作成及びシステム導入計画

第 7 章 プログラム作成及びシステム導入計画

PERTAMINA Unit EP-IIにおける石油探鉱生産データバンクシステムの確立・運営に関しては、本報告書の詳細設計に引き続き今後の作業として、プログラム作成及びシステム導入並びにデータベースの確立及びデータバンクシステム運営が考えられる。

前述した第4章の出力方法及び第5章のデータベースの詳細設計結果に基づいて行なわれた第6章のプログラムの仕様書に従って今回作成される石油探鉱生産データバンクシステムのプログラム作成及びシステム導入計画を本章で記述する。

まず必要とされるプログラムのライン・ステートメント数が見積られ、必要とされる業務が分析され、これらをもとに同業務実施に必要な工数が見積られ、実施計画が立案された。

本詳細設計は、インドネシア側の要望を十二分に考慮したものとなっており出力方法も9情報群に亘って330個と複雑なものとなっている。本章ではこれらプログラムに必要なライン・ステートメント数は379,500と見積られている。

しかしながらシステムの運営効率及び実際のデータのアクセラビリティなどを考えると、実際には上記330個の出力方法のうち、7割前後の出力方法が適切な頻度で利用されるものと予想される。従って、379,500ライン・ステートメントの7割程度がプログラミングされるものとして工数の見積りが行なわれた。

本段階に於いては各出力方法のレイアウトが計算機から実際に出力される形で示されているためインドネシア側も具体的なイメージをもって上記330個の出力方法を検討し、優先順位を決めプログラミングの対象となる出力方法をしぼることが可能と考えられる。

(1) プログラムのライン・ステートメント数の見積り

第6章で記述したマスター・ファイル処理、データベース入力処理及びデータベース出力処理にとって必要なプログラムの仕様書はそれぞれAPPENDIX VI、VII及びVIIIに記載されている。これらプログラム仕様書に従って、データベース入出力処理及びマスター・ファイル処理に分類して、プログラムのライン・ステートメント数を見積ると下記の如く合計379,500となる。

1) データベース 入出力処理

	入力処理	出力処理	合 計
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	15,000	32,100
H - Production Facilities Data Information	17,300	15,000	32,300
I - Pipeline Data Information	4,100	4,000	8,100
小 計	157,500	218,000	375,500

2) マスター・ファイル処理

Field マスター, Well マスター, Zone マスター 及び Company マスター	2,000	2,000	4,000
総 計	159,000	220,000	379,500

(2) プログラム作成及びシステム導入に関する業務

プログラム作成及びシステム導入に関する業務は詳細設計結果に基づき下記の如く分類される。

I プログラム作成

- (1) プログラム作成準備
- (2) プログラムのコーディング
- (3) テスト・データ作成
- (4) プログラム・テスト
- (5) 入力データ・シートのドラフト作成

II システム導入

III マニアル作成

以下上記分類に従って各業務の詳細を順述する。

I プログラム作成

プログラム作成準備はプログラマーが実際にプログラムを作成するために必要となるプログラムを詳細に分析し、コーディング作業方法を確立することで、システム・アナリストを中心として行われる。この作業は詳細設計の結果を検討 (Review) しながら、後述するコーディング作業の効率をあげるためコーディングの標準化の確立、共通プログラムのモジュールの作成、モデル・プログラムの作成等を行なう。これと同時にデータベースのIMSへの適用性が、特別に作成されたテスト用のプログラムを使用して行われる。後述するプログラムのコーディング作業で、適切なコーディングの作業分担を決めるためこの段階で最終的なプログラムのライン・ステートメント数が見積られ、コーディング順位が決定され、コーディング作業の実施計画が作成される。

プログラムのコーディングは上記実施計画に従って行われるものとなるが、一般的な作業順序は以下の如くなる。

- コピー・ライブラリーの作成
- プログラムの分割
- 個々のプログラムの作成
- 机上デバッグ
- コンパイル

コンパイルされたプログラムに対しては、システム導入以前にテスト・ランを行い、ほぼ完全な形でTapeに蓄積される。出力方法がそれぞれ数個の指定項目をもっているため、テスト・ランも1出力方法に対して指定項目の組合わせを考慮して行うものとなる。テスト・ランのためのJCL (Job Control Language) が先ず作成され、テスト・ラン用のデータが準備され、テスト・ランが行われる。

上記テスト・ランの結果及び使用者側との打合わせに基づき、入力データ・シートのドラフトが作成される。上記ドラフトは、後述するシステム導入後、現場の状態が考慮され最終的に決定される。

II システムの導入

東京で作成されたテスト済のプログラムは、Tape に蓄積され PERTAMINA Unit II へ運搬される。Unit II のコンピュータ・システムに上記プログラムを導入するためには、インドネシア共和国側の協力の下で下記作業が実施される。

- プログラムの導入
- データベースの創成
- JCL の作成
- テスト・データによる総合テスト及びデモンストレーション
- 入出力手順の確立

III マニュアル作成

上記 II のシステム導入結果をもとづいて、最終的に下記のマニュアルが作成される。

- システム・マニュアル
- プログラム・マニュアル
- ラン・ブック
- 入出力手順のためのインストラクション・マニュアル

(3) 業務実施に必要な工数

(2) で記述した業務実施に必要な工数は、前述した如く、 $379,500 \times 0.7 = 265,650$ のライン・ステートメント数を想定して、下記の如く概算された。

I プログラム作成

1) プログラム作成準備

シニア・エンジニア

10(人・月)

エンジニア

5(人・月)

2) プログラムのコーディング

3) テスト・データ作成

4) プログラム・テスト

シニア・エンジニア	36(人・月)
プログラマー	215(人・月)
5) 入力データ・シートのドラフト作成	
シニア・エンジニア	3(人・月)
エンジニア	5(人・月)
合 計	274(人・月)
II システム導入	
シニア・エンジニア	20(人・月)
III マニュアル作成	
シニア・エンジニア	7(人・月)
エンジニア	5(人・月)
合 計	12(人・月)
総 計	306(人・月)

以上は、(2)記述の業務実施に必要な工数の概算である。I記述のプログラム作成に関しては、この他にプログラムのデバッグ及びテスト・ランのため計算機を使用する必要がある。IMSによるテスト・ランを考えると、IBMの機種370-168のCPUを約30時間、Channel Unitを約138時間使用する必要があるものと予想される。又IIのシステム導入に際しては、PERTAMINA Unit IIに設置されている計算機の使用が絶対条件となる。

(4) 実施計画

上述(2)の石油採鉱生産データバンクシステムのプログラム作成及びシステム導入に関する業務を、(3)で記載した工数で実施するものとして、その実施スケジュールの一案をTable 7-1に示す。

Table 7-1 Work Schedule for Programming, Introduction of
the System and Preparation of Manual

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	(month)
I. Programming																															
(1) Preparation for programming																															
(2) Coding, preparation of test data and program test																															
(3) Drafting input data sheet																															
II. Introduction of the system																															
III. Preparation of manual																															

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

1. SCOPE OF WORK FOR THE TECHNICAL COOPERATION OF THE
PETROLEUM EXPLORATION AND PRODUCTION DATA BANK SYSTEM
DEVELOPMENT PROJECT (CTA-71)

SCOPE OF WORK FOR
THE TECHNICAL COOPERATION OF THE
PETROLEUM EXPLORATION AND PRODUCTION DATA
BANK SYSTEM DEVELOPMENT PROJECT (CTA-71)

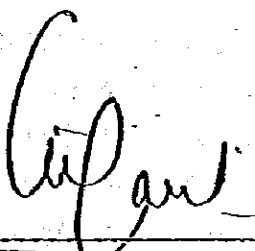
AGREED BETWEEN
THE DEPARTMENT OF MINES AND ENERGY
OF THE REPUBLIC OF INDONESIA

A N D

THE JAPANESE MISSION FOR THE PETROLEUM EXPLORATION
AND PRODUCTION DATA BANK DEVELOPMENT PROJECT IN
THE REPUBLIC OF INDONESIA

SEPTEMBER 30, 1980


DAISHIRO KASAHARA


Ir. WIJARSO

Leader of the Petroleum
Exploration and Production
Data Bank System Development
Project Team, Japan International
Cooperation Agency (JICA)

Director General of Oil and Gas
Department of Mines and Energy,
Republic of Indonesia

Bst

On this, "JICA" refers to the Japan International Cooperation Agency and "Indonesian Side" refers to the Department of Mines and Energy of the Republic of Indonesia.

1. Reference

Reference is made to the following reports, which are the outcome of the technical cooperation having been performed since 1978 by JICA.

- (1) Survey Report on the Petroleum and Production Data Bank System Development Project in the Republic of Indonesia, August, 1979 (hereinafter called "Report A").
- (2) 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 "Report B").

2. Objective

The objective is to conduct the technical cooperation described in 3, in establishing the Petroleum Exploration and Production Data Bank System in the Republic of Indonesia.

3. Scope and Program of the Technical Cooperation

- (1) The cooperation will be performed during the period from October 1, 1980 to the end of September, 1981, but the cooperation performed during the period from April 1 to September 30, 1981 can only be done subject to the official approval of the 1981's budget to be settled.
- (2) Scope of the technical cooperation during the period as described in 3-(1) will be limited to the extent of the detail design of the system which has been conceived in Report B and, as described in Report A, consist of :

- a. Preparation of a draft report of detail system design
- b. Presentation of the draft report to the Indonesian side
- c. Preparation of a final report of detail system design

As for "a. Preparation of a draft report of detail system design", a detail work procedure is itemized, together with a brief description of the work, in Exhibit 1.

- (3) Time schedule for the performance of the said technical cooperation is shown in Table 1.

4. Collaboration of JICA

- (1) JICA will perform the work within the scope described in 3-(2) according to the schedule described in 3-(3) at his control.
- (2) For the performance of the work of 3-(2)-b, JICA will send five experts to the Republic of Indonesia for about one month from the beginning of May, 1981.
- (3) JICA will submit to Indonesian Side the following reports :
 - a. Thirty (30) copies of draft text of report and ten (10) copies of draft appendix to the report of detail system design at the time of arrival of JICA mission described in 4-(2) in the Republic of Indonesia.
 - b. Thirty (30) copies of text of a final report and ten (10) copies of appendix to the report of detail system design within two months after the completion of presentation in 3-(2)-b.
- (4) JICA will receive participants as counterpart during the performance of the work within the scope of work described in 3-(2) of total thirteen (13) man-months in accordance with schedule described in Table 2 in order to transfer technical know-how to Indonesian Side related to the project concerned.

- (5) As for 13 man-months of participations described in 4-(4), JICA will provide the necessary living expenses for 3 man-months and international air flight fares for two complete tickets of Indonesia - Japan in accordance with JICA's rules and regulations.

5. Collaboration of Indonesian Side

- (1) Indonesian Side will nominate a counterpart group and a project coordinator who is in charge of the execution of the Indonesian Side's collaboration described hereunder.
- (2) Indonesian Side can dispatch Indonesian experts as counterpart during the performance of the work within the scope of work described in 3-(2) of thirteen (13) man-months to Japan under Indonesia's expenses except the case described in 4-(5) to get technology transfer in accordance with participation program described in Table 2.
- (3) Indonesian Side will collaborate with JICA mission for presentation of the draft report described in 3-(2)-b in their stay in the Republic of Indonesia :
- a. Assisting the JICA mission to obtain necessary formalities, if required.
 - b. Arranging the exemption for the members of JICA mission from import and export duties imposed on the member's personal effects.
 - c. Providing the JICA mission a suitable office and supporting facilities in locations of their stay.
 - d. Providing the JICA mission the available documents, data and information related to the project.
 - e. Providing the JICA mission a suitable local transportation to enable them to perform their work efficiently.

Table-1

TENTATIVE TIME SCHEDULE FOR TECHNICAL COOPERATION

1980		1981								
Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.
<u>Preparation of Draft Report</u> (1) Design of system function (2) Design of data base and files (3) Preparation of program specification (4) Planning of debugging and test run										
<u>Presentation of Draft Report</u> <u>Preparation of Final Report</u>										

* JICA mission, consisted of five experts, will visit to the various locations concerned in the Republic of Indonesia, for the purpose of explaining their findings to Indonesian Side.

DF

Table-2

PARTICIPATION PROGRAM FOR TECHNICAL COOPERATION

1980		1981			TOTAL MAN MONTHS	
Oct.	Nov.	Dec.	Jan.	Feb.		Mar.
3 1/2 (4) Expert		4 (1) Expert				4 m.m.
* confirmation of output format * investigation of source document for input data * preparation of test data example						
	1 (1) DBA		1 (1) DBA			2 m.m.
* investigation of data structure and process (including data base naming)						
			2 (1) DBA			2 m.m.
			2 (1) SA			2 m.m.
				2 (2) SA		2 m.m.
						1 m.m.
* investigation of program specification (including program naming)						
Ex 3 1/2 (4)						13 m.m.

Preparation of Draft Report

- (1) Design of system function
 - a) design of output format
 - b) design of data check list
 - c) design of input data layout
 - d) design of instruction parameter card
 - e) design of input/output and data base processing
- (2) Design of data base and files
 - a) design of data base structure
 - b) description of data
 - c) preparation of master/table file specification
 - d) design of back-up recovery and restart procedure
- (3) Preparation of program specification
 - a) preparation of program list
 - b) determination of function and constituent of program
 - c) description of processing in program
 - d) description of table and file
 - e) description of input/output
 - f) instruction for coding rule
- (4) Planning of debugging and test run

W.H.

Exhibit - 1

The work for Preparation of a Draft Report of Detail System Design

A detail work procedure for detail system design is itemized as follows.

1. Design of system function
 - (1) Design of output format
 - (2) Design of data check list
 - (3) Design of input data layout
 - (4) Design of instruction parameter card
 - (5) Design of input/output and data base processing

2. Design of data and file
 - (1) Design of data base structure
 - (2) Description of data
 - (3) Preparation of master/table file specification
 - (4) Design of back-up recovery and restart procedure

3. Preparation of program specification
 - (1) Preparation of program list
 - (2) Determination of function and constituent of program
 - (3) Description of processing in program
 - (4) Description of table and file
 - (5) Description of input/output
 - (6) Instruction for coding rule

4. Planning of debugging and test run

As regards output report of which kind is already determined in conceptual system design, their format will be designed in detail in the actual printed-out form and also their processing method will be determined in this step. The input layout will be designed for the input data item to be stored in the data base of the Data Bank System. At the same time, the data check method will be designed and the data entry system preventing an error data from storing will be established.

Data structure of the data base and master/table file will be designed for the purpose of making it efficient to store the input data into storage device and to retrieve these data from the data base and files. As a result, the program specification report for making the programs to be equipment for the Data Bank System will be prepared, and the report should include a planning of debugging and test method of programs.

The results of detail system designing work will be summarized in a draft report of detail system design.

D.H.

B.S.

2. MINUTES OF MEETING ON THE TECHNICAL COOPERATION FOR THE
DETAIL DESIGN OF THE PETROLEUM EXPLORATION AND PRODUCTION
DATA BANK SYSTEM DEVELOPMENT PROJECT IN THE REPUBLIC OF
INDONESIA

MINUTES OF MEETING

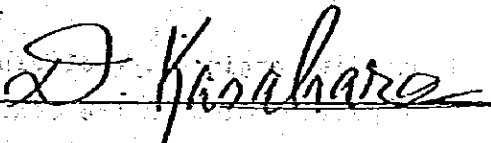
ON

THE TECHNICAL COOPERATION FOR THE DETAIL DESIGN OF THE
PETROLEUM EXPLORATION AND PRODUCTION DATA BANK
SYSTEM DEVELOPMENT PROJECT


IN

THE REPUBLIC OF INDONESIA

SEPTEMBER 30, 1980


DAISHIRO KASAHARA

Team Leader of the Japanese
Mission for the Petroleum Expl.
and Prod. Data Bank System
Development Project, Japan
International Cooperation Agency


B.S. SITOEMORANG

Coordinator
The Indonesian Counterpart
for the Petroleum Expl.
and Production Data Bank
System Development Project,
Department of Mines and Energy

MINUTES OF MEETING

Subject : The technical cooperation of the Petroleum Exploration and Production Data Bank System Development Project.

Date on : September 26 and 29, 1980.

Place in : Pertamina Head Office
Jl. Merdeka Timur 1A, Jakarta - Indonesia.

Attendants : As in appendix-1.

The meeting has been opened by Mr. B.S. Sitoemorang the project coordinator of the Indonesian side and attended by Mr. Daishiro Kasahara the Team Leader of the Project as well as by Mr. Isao Asai both of the JICA mission.

The objective of the meeting is to discuss and finalize the scope of work for technical cooperation of the detail design of the Petroleum Exploration and Production Data Bank System Development Project in the Republic of Indonesia.

After discussing both parties have agreed "the scope of work for the technical cooperation of the detail design of the Petroleum Exploration and Production Data Bank System Development Project". During the course of discussion followings have been noted,

1. JICA mission recommends that Indonesian engineer, geologist/geophysicist and computer specialist who have participated in the conceptual system design will also participate in the detail design work.
2. The Indonesian counterpart team should prepare coding system before the completion of the detail system design and will consult with their Japanese counterparts about its development.
3. Indonesian counterparts are recommended to bring examples of data to be used during their participation period.

4. Data Base Naming Convention Proposed by Indonesian counterparts will be discussed in Tokyo on the flexibility in case of Data Base Development and a future modification.
5. Indonesian Side will inform JICA/JOE of his schedule at each participation in advance one week before.
6. The performance of the work for the detail design of the Data Bank System Development Project which will be at the control of JICA should be done in accordance with the plans formulated for achieving its objectives.

ATTENDANT LIST IN INDONESIA

1. INDONESIA SIDE :

B.S. Sitoemorang	EP - Pertamina	Coordinator
Erwin Kasim	BPD - Pertamina	
Sudjana D.A.	BPD - Pertamina	
Soepraptono	EP - Migas	
Lili Harbali	BPD - Pertamina	
Agung Witono	BPD - Pertamina	
Sumantri	RES/ENG - Pertamina	
Djunero	RES/ENG - Pertamina	
Zainal Achmad	Exploration - UEP II	Pertamina
Rohali Sani	Migas	

2. JAPAN SIDE :

Daishiro Kasahara	JICA	Team Leader
Isao Asai	JICA	

August 19, 1964

REFERENCE II

INDONESIAN PARTICIPANTS' ACTIVITY REPORT

The Indonesian participants in the International Psychological Year Project, during the period June 21, 1963, to June 21, 1964, carried out work for the collection of data for the International Year of Psychology Project. The data consists of participants' activity records, interviews and other observations.

The Indonesian Activity Report

The primary responsibility of the Indonesian participants was to collect data for the International Year of Psychology Project. The data consists of activity records, interviews and other observations. The data is being used for the International Year of Psychology Project.

Activity Report

The work reports of the Indonesian participants for the International Year of Psychology Project are reported in Table I.

Tokyo, Nov. 18, 1980

To Mr. B.S. Sitoemorang

The Petroleum Exploration and Production
Data Bank System Development Project
PERTAMINA Team Leader.

Re; Memorandum No.1 on the Indonesian
Participants' Activity in the
Detailed Design Work for the
Petroleum Exploration and Produc-
tion Data Bank System Development
Project.

Dear Mr. B.S. Sitoemorang

Following is the memorandum No.1 on the Indonesian Participants' Activity during the period between Oct. 21 and Nov. 18, 1980 in the detailed design work for the Petroleum Exploration and Production Data Bank System Development Project. This memorandum consists of Participants' Activity Record, Work Progress and Record of Discussion.

1. Participants' Activity Record

The plenary meetings between participants and JOE were held 1 time during the period. The résumé of the said meetings was summarized in Table-1. Also reference is made to Table-2 on the respective participants' activity record.

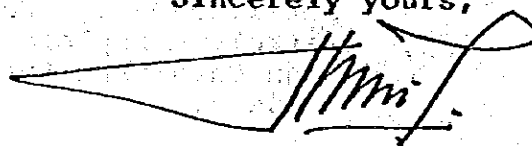
2. Work Progress

The work progress as to the detailed design work for the subject was reported by JOE as in Table-3.

3. Record of Discussion

Record of discussion conducting by subteam during the participation Period is presented to herewith as Attachment I.

Sincerely yours,



Suwito Rudyatmoko

- cc: - R. S. Robot
Head of Data Processing Bureau
- B. Malana
Ka. Din. Prod. Migas Dit. EP
- G. A. S. Najoran
Ka. Din. Eks. Migas Dit. EP
- A. K. Soejoso
PUEP II

Table-1

The résumé of the plenary meeting

Meeting dated on October 21, 1980

Place ; JOE conference room

Attendants ;

(Indonesian side)

Messrs.	B.S. Sitoemorang	Team Leader
	Suwito Rudyatmoko	Production Engineer
	Djumero Saindrodjojo	Reservoir Engineer
	Madjid Rachman	Production Engineer
	Zanial Ahmad	Geologist
	Agung Witono	Data Base Administrator

(JOE side)

Messrs.	D. Kasahara	Team Leader
	E. Ezoé	Mechanical Engineer
	H. Takizawa	Geologist
	H. Kusano	Drilling Engineer
	A. Shibuya	Geophysicist
	H. Isono	System Analyst
	T. Ichinokawa	System Analyst
	S. Tai	System Analyst
	K. Kobayashi	System Analyst

Main Agenda;

- Introduction of Attendants
- Discussion on Participation Schedule

Table-2 Participants' Activity Record

<u>Name</u>	<u>Working Period</u>	<u>Main Work Performed</u>	<u>Remarks</u>
A.M. RACHMAN (Production Eng.)	Oct. 21, 1980	- Courtesy call to Mr. D. Kasahara and staffs of JOE	Arriving in Tokyo on Oct. 21, 1980
	Oct. 22 - 31, 1980	- Discussion on participation schedule	Leaving Tokyo on Nov. 3, 1980
		- Checking the output format for Production Facilities and Pipeline Data Information	
		- Settlement of output format, selection and correction of wordings and units for Production Facilities and Pipeline Data Information	
		- Proposal of identification code of Countries' name for equipments supplier for Field Facilities and Pipeline	
	Oct. 23, 1980	- Courtesy call to Pertamina Representative in Tokyo	
Zanial Achmad (Geologist)	Oct. 21, 1980	- Arriving in Tokyo	Arriving in Tokyo on Oct. 21, 1980
	Oct. 23, 1980	- Courtesy call to Pertamina Representative	Leaving Tokyo on Nov. 19, 1980
	Oct. 21 - 24, 1980	- Discussion on Working Schedule	
		- Study on the coding system and output format designed by JOE	
	Nov. 27 - 31, 1980	- Discussion and correction of output data for Geological and Contract area information.	

<u>Name</u>	<u>Working Period</u>	<u>Main Work Performed</u>	<u>Remarks</u>
Suwito Rudyatmoko (Production Engineer)	Oct. 24 - Nov. 14	<ul style="list-style-type: none"> - Review the output format - Discussed with the counterpart if there is any modification or alteration of the format, wording or any other matters. - Prepared, discussed and established new format after modification and/or alteration. - Discussed and established the Coding method and abbreviation of the output data. 	
	Nov. 17 - 18, 1980	<ul style="list-style-type: none"> - Reporting. - Courtesy call to Pertamina Representative. 	
Sumantri (Reservoir Engineer)		<ul style="list-style-type: none"> - Joined Pertamina Team two days in a week, assisting Suwito and Djumero. 	
Djumero Saindrodjojo (Reservoir Engineer)	Oct. 21, 1980	<ul style="list-style-type: none"> - Arriving in Tokyo 	Arriving in Tokyo on Oct. 21, 1980
	Oct. 21, 1980	<ul style="list-style-type: none"> - Discussion on working schedule 	
	Oct. 23, 1980	<ul style="list-style-type: none"> - Courtesy call to Pertamina Representative in Tokyo. 	Leaving Tokyo on Nov. 19, 1980
	Oct. 21, 1980 - Nov. 18, 1980	<ul style="list-style-type: none"> - Discussion and correction of Output Format for D, E and F files. - Discussion Source document of D, E, F files. 	

<u>Name</u>	<u>Working Period</u>	<u>Main Work Performed</u>	<u>Remarks</u>
		<ul style="list-style-type: none"> - Special discussion for D file with Mr. D. Kasahara. - Discussion data input for E file of M.R.P.W., P.D.R., B-S. program at Pdaju. - Discussion for well master and Zone master of master file. - Courtesy call to Pertamina Representative. - Leaving for Jakarta. 	
	Nov. 17, 1980		
	Nov. 19, 1980		
Agung Witono (Data Base Administrator)	Oct. 21, 1980	- Courtesy call to Mr. D. Kasahara and staffs of JOB.	Arriving in Tokyo on Oct. 21, 1980
	Oct. 22, 1980	- Study of data base structure.	Leaving Tokyo on Nov. 19, 1980
	Oct. 23, 1980	- Discussion with Mr. Isono, Mr. Tai & Mr. Ichinokawa about: <ul style="list-style-type: none"> . Data base structure. . Scope of work DBA on detailed design. . Working schedule. 	
		- Courtesy call to Pertamina Representative.	
	Oct. 24 - Nov. 7, 1980	- Study detailed data base structure & application by preparing UCC-10 transaction.	
	Nov. 14, 1980	- Discussion with Mr. Isono, Mr. Tai & Mr. Kobayashi about data base specification.	
	Nov. 17, 1980	- Pertamina Representative.	

Table - 3

Work Progress of Detailed Design Work for Petroleum
Exploration and Production Data Bank System of
PERTAMINA UNIT EP-II

<u>Item Performed</u>	<u>Performance of Progress</u>
1. Design of system function	
(1) Design of output format	80%
(2) Design of data check list	30%
(3) Design of input data layout	20%
(4) Design of instruction parameter card	30%
(5) Design of input/output and data base processing	30%
2. Design of data and file	
(1) Design of data base structure	80%
(2) Description of data	70%
(3) Preparation of master/table file specification	80%
(4) Design of back-up recovery and restart procedure	30%
3. Preparation of program specification	
(1) Preparation of program list	20%
(2) Determination of function and constituent of Program	20%
(3) Description of processing in program	20%
(4) Description of table and file	50%
(5) Description of input/output	30%
(6) Instruction for coding rule	-
4. Planning of debugging and test run	-

Attachment I

Record of Discussion Conducted by Subteam (S)

During the Participation Period (S)

Sub-team I

A-Geological Data and Contract Area Information and
B-Geophysical Data Information Groups

Coding System

1. COMMON

(1) Province Code

- Addition of West Java Province (coded as 7) and West Kalimantan (coded as 8) to the proposed six provinces coding classification.

(2) Area Code

- Alteration of "Musi District" to "Musi Klingi"
- "Area names" are corrected as follows

code	area name	abbreviation
01	Kompleks Palembang Selatan	KPS
02	Kompleks Palembang Tengah	KPT
03	Musi Klingi	MSK
04	Jambi	JBI

(3) Prospect/Field Code

- Explanation of present prospect list and coding system will be given after discussion of field code grouped in F-Information group by PERTAMINA.

(4) Formation Code

- Correction of name and abbreviation of "Muara" (coded as 02) to "Muara Enim" and abbreviated as MEF.

(5) Map Code

- Length of reference code no. corrected to 7 digits.
- List of reference no. will be decided by PERTAMINA.

(6) Report Code

- Length of reference code no. corrected to 7 digits.
- List of report reference no. will be completed by PERTAMINA.

- (7) Flag Code of PERTAMINA or Foreign contractor
- Correction of wording of "foreign contractor" to "contractor".

2. A-GEOLOGICAL DATA AND CONTRACT AREA INFORMATION GROUP

- (1) Kind of Contract
- Classification code of kind of contract was completed.
- (2) Contract Code
- List of contract since 1967 and coding system was completed.
- (3) Contractor Code
- Length of contractor code is decided as 3 digits.
 - List of contractor since 1967 and coding system was decided by PERTAMINA.
- (4) Operator Code
- This coding system is newly added to the A-Information Group.
 - Length of operator code is decided as 3 digits.
 - List of operator since 1967 and coding system was established by PERTAMINA.
- (5) Kind of Geological Survey
- Classification code of "kind of geological survey" was established.
- (6) Geological Survey Code
- Sequence no. for "geological survey code" is decided as 3 digits.
 - PERTAMINA will prepare the sequence no. considering to the actual usage.

(7) Type of Map, Figure and Report

- This classification code is re-classified as follows

code

- 1 Surveyed area map
- 2 Main map prepared by survey
- 3 Other map prepared by survey
- 4 Main figure prepared by survey
- 5 Other figure prepared by survey
- 6 Survey report

(8) Kind of geological analysis

- Three abbreviation names are changed as follows.

code	analysis name	old abbrev.	new abbrev.
31	carbonate rock analysis	CBR	to CBA
32	clastic rock analysis	CLR	to CRA
33	other lithological analysis	OLT	to OLA

(9) Geological Analysis Code

- Length of sequence number is decided as 3 digits.

- Sequence number will be decided after finishing the inventories of actual data in PERTAMINA UPP-II.

(10) Sample source for Analysis

- Item name of "sample source for analysis" is corrected to "analysis subject".

(11) Kind of sample

- Classification code of "kind of sample" is completed according to the manner of the proposal.

(12) Type of Trap

- This coding system is completed according the manner of the proposal.

(13) Type of Figure and Report

- This coding system is completed according to the manner of proposal

(14) Kind of Analysis Performed

- Correction of wording "shaving analysis" to "sieving analysis".

(15) Kind of Map and Figure

- Addition of "Areal photographic map" (coded as 17) to "General map classification".
- Introduced "Biostratigraphic cross-section" (coded as 53) and altered the code no. 53 for "other cross-section" to code no. 54.
- Correction of item name "chart" to chart/column (coded as 60)
- Correction of item name ; " Geological correlation chart" to "Stratigraphic column/well section" (coded as 61).

(16) Kind of Report

- "General report" added to kind of report classification and coded as 19.

Output Reporting Method

1. A- GEOLOGICAL DATA AND CONTRACT AREA INFORMATION GROUP

(1) A0-1, A0-11, A0-12

- Correction of wording
 - "Right holder's area" to "Contract area"
 - "Ratio of area size" to "Ratio to original size"
- "Point name" is newly selected as output item taking account of the actual numbering system of PERTAMINA UEP-II.
- Reference list between point name and point number should be established by PERTAMINA.
- "Operator name"-added as assignment parameter and output item.
- Addition "drawing no. as output item"

(2) A0-2

- Correction of data properties of exchange rate to 9(4)v(2)
- Addition of "drawing no." as output item after "Identification no." in the list of main map, figure and report.
- "Horizontal scale" should be placed in first priority before "vertical scale" in this output method.

(3) A0-3

- Correction of wording
 - "Sample source" to "subject of analysis"
 - "Unit cost" to "total cost"
- "Horizontal scale" should be placed in first priority before "vertical scale".

(4) A0-4

- Correction of wording
 - Hydrocarbons PI should be divided into "GIP" and "OIP"
- Net pay thickness should be sub-divided as "oil net pay" and "gas net pay".
- Corrections of data length are as followings.

-Areal closure	99.999	X1000	AC
-Reservoir rock volume	9,999.999	X1000	ACFT
-GIP	9,999.9		MCF/ACFT
-OIP	9,999.9		BBL/ACFT

- Hydrocarbon in place (oil&gas) 999,999.99
- HC in place (Risk reduced) 999,999.99
- HC in place (Recoverable) 999,999.99

- Addition of "drawing number" to the table of map reference

(5) A0-5

- Addition of items is as follows
 - Map and Figure code are added as assignment parameter

(6) A0-6

- Addition of "Drawing no. to map and figure information
- Correction of data properties are as follows.
 - "Identification" x(11)
 - "Drawing no." x(7)

(7) A-1

- "Operator name" should be added as assignment parameter and also output item in this method.
- Contractor name is placed just after contract code.

(8) A-2

- Correction of wording of "ratio" to "ratio to original area"
- Addition of "operator name" to this method
- Contractor name should be followed just after contract code.

(9) A-3 & A-4

- Correction of wording, "foreign contractor" to "contractor"
- Correction of data properties, "exchange rate" to 9(7)

(10) A-5

- Correction of wording
 - Name of organization to "company name"
- Correction of output item
 - Kind of geological survey to "locality name"

- Alteration
 - Full company name to abbreviated company name
- Addition of items
 - Area name, field/prospect name and well name to geophysical survey summary list
 - Area name and field/prospect name to geophysical data processing summary list
- Addition of "exchange rate" to cost item

(11) A-6

- Vertical scale and horizontal scale should be identified as V and H.
- Addition of out put items
 - "Identification number"
 - "Drawing number"

(12) A-7

- Addition of assignment parameter
 - Prospect/field name

(13) A-8

- Title of "Lithological formation information summary" should be corrected to "Lithological information summary"
- Addition of items
 - Layer name(abbreviation)
 - Top of layer(DF & SS)
 - Main lithology of each layer

(14) A-9

- Correction of wording
 - "Lithology" to "main lithology"
- Correction of data properties
 - "Hardness",,,,,,x(7)

(15) A-10

- Addition of item
 - Recovery (%) should be placed between the items of "sample no," and "sampling depth".
- Correction of wording
 - "Lithology" to "main lithology"
- Correction of data properties
 - "Hardness",,,,,, x(7)

(16) A-11

- Formation name should be abbreviated.
- "Solvent" should be placed between "fluorescence" and "gas chromatogram component".

(17) A-12

- Correction of wording
 - MUF to MEF

(18) A-13

- Data properties should be followed A0-4 output format

3. B-GEOPHYSICAL DATA INFORMATION

(1) Kind of Geophysical Survey

- Correction of wording "Kind of Geophysical Survey" to "Kind of Geophysical Survey and Study"

(2) Geophysical Survey Code

- Pertamina will prepare the reference number for geophysical survey code to complete the coding system.

(3) Method of Survey

Completed

(4) Recording System

Completed

(5) Shooting Pattern

- Correction of wording "Shooting Pattern" to "Spread Pattern"
- Alteration of the proposed coding system and established the sequence as follows.

1. Split spread
2. End-off spread
3. Double split spread
4. Double end-off spread
5. Slalom line spread
6. T spread
7. L spread
8. Offset spread
9. Other spread

(6) Airborne or Land

- Correction of wording "Airborne or Land" to "Land, Ship or Air".
- Addition of "Ship" to classification item of "Land, Ship or Air".

(7) Kind of Section

Completed

(8) Application of Deconvolution

Completed

(9) Migrated or unmigrated

Completed

(10) Kind of Map

- Pertamina requested to establish new classification of "Kind of Map" as follows,

10. Seismic map
11. Shot point map
12. Time contour map
13. Interval time contour map
14. Depth contour map
15. Isopach map
16. Other map
20. Magnetic map
21. Location map
22. Residual field intensity map
23. Interpretation map
24. Other map
30. Gravity map
31. Location map
32. Bouger anomaly map
33. Residual gravity map
34. Other map
40. Special study map

(11) Kind of report

- Pertamina requested to establish new classification of "Kind of Report" as follows,

10. Seismic survey
11. Seismic field operation report
12. Seismic data processing report
13. Seismic interpretation report
20. Magnetic survey
21. Magnetic field operation report
22. Magnetic data processing report
23. Magnetic interpretation report
30. Gravity survey

- 31. Gravity field operation report
- 32. Gravity data processing report
- 33. Gravity interpretation report
- 40. Well velocity survey report
- 50. Special study report

(12) Horizon Name

- Alteration of coding classification as follows,

- 01 H-1, Orange to Brown
- 03 H-3, Yellow to Orange
- 06 H-6, Brown to Yellow
- 07 H-7, Violet to L. Brown
- 08 H-8, Red to Violet/Red

(13) Horizon Name (Based on the standard formation name)

- Correction of wording "Horizon Name" to "Geological Identification Marker".

(14) Synthetic Seismogram

Completed

Others

- "Company Code" should be prepared by Pertamina according to the proposed format.

2. B-Geophysical Data Information

(1) B0-1, B0-2, B0-3, B0-4 and B0-5

1. Correction of Data Properties as follows,

- Survey name x(100)
- Objective x(200)
- Company name 9(2)
- Total length recorded 9(7)v9(3)
- Total stations recorded 9(8)
- Total line cutting 9(7)v9(3)
- Total land survey 9(7)v9(3)
- Total depth drilled 9(9)
- Sampling rate of B110. 16-4 9(2)
- Geophone interval 9(3)
- Hole's separation 9(2)
- Average charge depth 9(2)
- Spread pattern 9(2)
- Distance between stations of B110. 16-18 9(3)
- Description x(150)
- No. of stations per year of B113. 3 9(7)
- Date of B113. 1 and B123. 1 x(4)
- Exchange rate 9(4)v9(2)
- Identification for map x(11)
- Drawing number x(7)
- Storage number for map x(10)
- Identification number for report x(20)
- Sampling rate for processing 9(2)
- Total length interpreted 9(7)v9(3)

- Total stations interpreted 9(8)
- Total interpretation cost US\$ 9(6)v9(2)
- Total interpretation cost Rp. 9(9)v9(2)
- Scale 9(7)
- Total shot 9(3)
- Horizon name 9(2)*2

2. Addition of Data Item

- "Exchange Rate" to every cost information
- "Period for Field Operation" to B0-12, B0-22 and B0-32
- "Period for Field Operation" and "Period for Data Processing" to B0-13, B0-14, B0-23, B0-24, B0-33 and B0-34
- "Land, Ship or Air" to B0-11 and B0-31
- "Identification", "Drawing Number" and "Storage Number" to every map information in the output reporting method
- "Identification Number" to every report information in the output reporting method
- "Geological Identification Maker" in B0-14

3. Correction of Wording

- "Name of Organization" to "Company Name" in all output reporting methods
- "Contract" to "Order Document" in B0-13, B0-23 and B0-33
- "Location" to "Well Location" in B0-4
- "Identification of Map" to "Map Name" in all output reporting methods
- "Identification of Report" to "Report Name" in all output reporting methods

(2) B5 List of Geophysical Report by Field or Prospect Name

1. Correction of wording

- "List of Report" to "List of Geophysical Report by Field or Prospect Name",

2. Addition of Data Item

- Identification number
- Storage number

3. Addition of Assignment Parameter

- Kind of report
- Survey code

(3) B6 List of Geophysical Map by Field or Prospect Name

1. Correction of Wording

- "List of Map" to "List of Geophysical Map by Field or Prospect Name"

2. Addition of Data Item

- Identification
- Drawing number

3. Addition of Assignment Parameter

- Scale
- Survey code

(4) B7 List of Magnetic Tape for Geophysical Survey

1. Addition of Assignment Parameter

- Survey code

(5) B9 Survey Method for Seismic Survey

1. Addition of Data Item

- Distance between Stations

(6) Addition of Output Reporting Method

1. List of Geophysical Report by Kind of Report

- Report code
- Identification number
- Survey code
- Date
- Storage number
- Title
- Author
- Company name
- Area name

* Assignment parameter

- Kind of survey and study
- Method of survey
- Kind of report
- Period

2. List of Geophysical Map by Kind of Map

- Map code
- Survey code
- Identification
- Drawing number
- Date
- Scale

- Horizon name
- Title
- Author
- Company name
- Area name
- * Assignment parameter
 - Kind of survey and study
 - Method of survey
 - Kind of report
 - Period

Subteam II

C - Well Data Information

1. Addition of Data Item

- 1) "String depth" with 9999.9 after "Comp. String" at column heading in C3.

2. Alteration of Data Item

- 1) "Footage Drilled" to "Meter Drilled" at column heading in C0-13.
- 2) "Cement Bulk Vol." to "Cement Bulk Amount" in C0-13.
- 3) "Drilling Depth [M]" to "Depth [MBDF]" and "SS Depth [M]" to "Depth [MSS]" in C0-14.
- 4) "Access-Marine" to "Access Water" in C0-16.
- 5) "BRT" to "BDF" in C20.
- 6) "Total Footage" to "Total Meter Drilled" and "Footage Drilled" to "Meter Drilled" in C28.

3. Alternation of Data Length

- 1) Two decimal for Derick Floor Elevation and Derick Floor Height from Bottom Flange.

4. Deletion of Assignment Parameter

- 1) Workover Number from C3
- 2) Formation Name and Layer Name from C10, C11, and C12

5. Confirmation are made on following items

- 1) The all output format "date" and "period" should be written in Indonesia style as follows: DD/MM/YY or DD/MM/YYYY.
- 2) In case of Mercator Coordinate [N], [S]; [E] or [W], you should be used indicating the latitude and longitude.
- 3) Mechanical status - mainly inform the date of tubing, gas lift valves, (s) and other down hole equipment - which changes due to well pulling job as acidizing, gas lift redesign, etc., will be input as new data in data base. Consequently the old data from latest workover will be deleted and replaced by those new one. The old data of preceeding workover are still in data base as long as there is no new data from well pulling job.
- 4) Information data of other artificial lift method, such as Hydraulic pump, is possible to be added at "Completion String" Segment in the future.
- 5) Well status code proposed by JOE seem to be more complete and can be accepted.
- 6) The input format lay out are still prepared by JOE. Discussion of this matter will be held when JOE team visit Indonesia in the next trip.

Subteam III

E-Production Data Information

(1) Addition of data item

- 1) "String code" to E3, E6, E7, E8, E15, E16, E26, E37, E46, E49, E50, E52, E55, E56, E59, E64 and E85
- 2) "Monthly production for Unit EP-II by area" to E1, E9, E13, E19, E45, E51 and E67
- 3) "Well status information for Unit EP-II by area" to E75, E77, E79, E81 and E83

(2) Alteration of data item

- 1) "Workover number" to "Recompletion sequence notation" in E3, E6, E7, E8, E15, E16, E26, E37, E46, E49, E50, E52, E55, E56, E59, E64 and E85.
Recompletion sequence notation is used to indicate that a well is already recompleted to other zone or layer.
This notation is used to distinguish recompletion from the other workover job.

(3) Addition of coding

1) "String code"

In case of dual or multiple completions well, to distinguish each completion, string code combine with the string name (L, M, S, A) will be used. Each completion should be treated as a different well which will also be indicated in recompletion sequence notation. Thus the string name does not indicate the completed reservoir.

(4) Addition of output reporting method

- 1) "Historical monthly oil & total condensate and total gas production for Unit EP-II"

as for this methods, following items are included:

- Year, month
- Average daily production
- Oil & total condensate
- Total gas

- Gas oil ratio
- Water cut
- Average daily injection gas by gas lift
- Monthly production
 - Oil & total condensate
 - Total gas
 - Water
- Cumulative production
 - Oil & total condensate
 - Total gas
 - Water
- Number of producers

Assignment parameters to be applied to this method are to follows:

- Period
- String name
- Kind of completed zone
- Well status
- Range of water cut
- Range of gas-oil ratio
- Kind of reservoir

2) "Historical monthly oil gas cap condensate and nonassociated condensate production for Unit EP-II"

as for this method, following items are included:

- Year, month
- Average daily production
 - Oil
 - Gas cap condensate
 - Nonassociated condensate

- Monthly production
 - Oil
 - Gas cap condensate
 - Nonassociated condensate
- Cumulative production
 - Oil
 - Gas cap condensate
 - Nonassociated condensate

Assignment parameters to be applied to this method are as follows:

- Period
 - String name
 - Well status
 - Range of water cut
 - Range of gas-oil ratio
 - Kind of reservoir
- 3) "Historical monthly high pressure gas, medium pressure gas and low pressure gas production for Unit EP-II"

as for this method following items are included:

- Year, month
- Average daily production
 - High pressure gas
 - Medium pressure gas
 - Low pressure gas
- Monthly production
 - High pressure gas
 - Medium pressure gas
 - Low pressure gas

- Cumulative production
 - High pressure gas
 - Medium pressure gas
 - Low pressure gas
- Definition of high, medium and low pressure gas

Assignment parameters to be applied to this method are as follows:

- Period
- String name
- Kind of completed zone
- Well status
- Range of water cut
- Range of gas oil ratio
- Kind of reservoir

4) "Historical monthly solution gas, gas cap gas and nonassociated gas production for Unit EP-II"

as this method, following items are included:

- Year, month
- Average daily production
 - Solution gas
 - Gas cap gas
 - Nonassociated gas
- Monthly production
 - Solution gas
 - Gas cap gas
 - Nonassociated gas
- Cumulative production
 - Solution gas

- Gas cap gas

- Nonassociated gas

Assignment parameters to be applied to this method are as follows:

- Period

- String name

- Well status

- Range of water cut

- Range of gas-oil ratio

- Kind of pressure for gas

- Kind of reservoir

5) "Historical monthly water injection for Unit EP-II"

6) "Historical monthly gas injection for Unit EP-II"

as these methods, following items are included:

- Year, month

- Kind of injection fluid

- Average daily injection

- Monthly injection

- Cumulative injection

- Number of injectors

Assignment parameters to be applied to these methods, are as follows:

- Period

- String name

- Kind of completed zone

- Well status

- Kind of injection fluid

- Kind of reservoir

- 7) "Summary of monthly gas production and consumption by area"
- 8) "Summary of monthly gas production and consumption by field"
- 9) "Summary of historical monthly gas production and consumption for Unit EP-II"
- 10) "Summary of historical monthly gas production and consumption for area"
- 11) "Summary of historical monthly gas production and consumption for field"

as these methods, following items are included:

- Gas production
- Gas consumption
 - Own use
 - Process
 - Sales
 - City gas
 - Public utility
- Flare and losses gas
 - Flare gas
 - Losses

Assignment parameters to be applied to these methods as follows:

- Area name (for 7), 8), 10))
- Field name (for 8), 11))
- Kind of pressure for gas (for 7), 8), 9), 10), 11))
- Kind of reserves (for 7), 8), 9), 10), 11))
- Period (for 7), 8), 9), 10), 11))
- 12) "Summary of monthly own use gas by area"
- 13) "Summary of monthly own use gas by field"
- 14) "Summary of historical monthly own use gas for Unit EP-II"

15) "Summary of historical monthly own use gas for area"

16) "Summary of historical monthly own use gas for field"

as these methods, following items are included

- Fuel
- Injection gas
- Gas lift gas
- Compressor
- Utilities
- Total

Assignment parameters to be applied to these methods are as follows:

- Area name (for 12), 13), 15))
- Field name (for 13), 16))
- Kind of pressure for gas (for 12), 13), 14), 15), 16))
- Kind of reserves (for 12), 13), 14), 15), 16))
- Period (for 12), 13), 14), 15), 16))

17) "Summary of monthly process gas by area"

18) "Summary of monthly process gas by field"

19) "Summary of historical monthly process gas for Unit BP-II"

20) "Summary of historical monthly process gas for area"

21) "Summary of historical monthly process gas for field"

as these methods, following items are included:

- LPG plant
- LNG plant
- Fertilizer-plant
 - Pusri II
 - Pusri III
 - Pusri IV

- Refinery (Plaju & Sungai Gerong)
- Polypropylen
- Aromatic
- Total

Assignment parameters to be applied to these methods are as follows;

- Area name (for 17), 18), 20))
 - Field name (for 18), 21))
 - Kind of pressure for gas (for 17), 18), 19), 20), 21))
 - Kind of reserves (for 17), 18), 19), 20), 21))
 - Period (for 17), 18), 19), 20), 21))
- 22) "Shut-in wells information by wells"
- 23) "Waiting wells information by wells"

As these methods, following items are included:

- Year, month
- Area name
- Field name
- Well name
- String code
- Recompletion sequence notation
- String name
- Block station name
- Kind of completed zone
- Well status (well status code and it's explanation)
- Layer name
- Tubing shut-in pressure
- Casing shut-in pressure

- Cumulative production

- Oil (condensate)

- Gas

- Water

- Producing months

Assignment parameters to be applied to these methods are as follows:

- Area name

- Field name

- String name

- Kind of completed zone

24) "Abandoned wells information by wells"

25) "Suspended wells information by wells"

as these methods, following items are included:

- Area name

- Field name

- Well name

- String name

- Recompletion sequence notation

- Cumulative production

- Oil (condensate)

- Gas

- Water

- Abandoned date (Suspended date)

Assignment parameter to be applied to these methods are as follows:

- Area name

- Field name

(5) Addition of assignment parameter

- 1) "History of well" to E3, E6, E7, E8, E15, E16, E26, E37, E46, E49, E50, E52, E55, E56, E59, E64, and E85

(6) Data source

It is fully understood that the recent E file input will use the existing MRPW or PDR. Those data source actually are the output of a computerized process which used in Unit EP-II. Pertamina participants proposed not to use those data and recommended to use directly the raw data (individual well test data) which are the data source of MRPW and PDR.

This matter suppose can be done by combining the existing program into the data bank system. JOE side agree to study the possibility of such combination. An information of program flow chart and input format which is now used in Unit EP-II will be a great help for that study.

F-Reserves Information

(1) Addition of assignment parameters

1) "Formation name" to F3

(2) Correction of wording

1) "Proved" to Proven"

Subteam IV

H - Production Facilities Data Information

I - Pipeline Data Information

After checking and discussion with our counterpart about Diagram Index of Output Reporting Method, conceptual specification of Output Reporting Method, Output Data Format and Segment Diagram Index of Data Structure of The Data Bank System, some conclusions can be made as:

1. Data Items

Data items for steam turbine is added as follows to "Data Items in Segment H200 (Root Segment of Facilities Information) in page AII-203.

17- Specification in case of steam turbine

1	Type of steam turbine	X(1)	To be coded as in Appendix II (Page AIII-79)
2	Model name	X(20)	
3	Objective of service	X(30)	
4	Power	9(6)	(kw)
5	Speed	9(5)	(rpm)
6	Steam pressure	X(30)	
7	Dimension (width x length x height)	X(40)	

2. Assignment Parameters

- none

3. Correction of Wordings

- 1) Note 1 Function and Capacity of Station in page AII-189 is corrected from oil to liquid as follows.

Function		Capacity (Design)		
Code	Name	(1)	(2)	(3)
02	Storage	Liquid m ³		
		9 (6)		
03	Pumping	Liquid Production m ³ /d		
		9 (5)		

4. Output Reporting Method

- none

5. Item for Coding and Coding System

- 1) The followings is added to Table 3-1 "Specification Items For Assignment" in page 169.

Kind of Equipment		Main Specification (Design)		
Code	Name	(1)	(2)	(3)
55	Steam Turbine	Power kw	Speed rpm	
		9 (6)	9 (5)	

- 2) Coding system for station code in page 199 and AIII-16 is altered as follows.

#1 - **#2** - **#3**
 (2) (2) (2)

() shows number of characters

#1; Facilities field code

#2; Code of "kind of station"

#3; Sequence number

- 3) Coding system for pipeline code in page 208 and AIII-80 is altered as follows.

#1 - **#2** - **#3** - **#4**
 (2) (2) (2) (2)

station code

() shows number of characters

#1; Facilities field code

#2; Code of "kind of station"

#3; Sequence number of station

#4; Sequence number of pipeline

} Station code
 at the end of
 pipeline

6. Coding Classification

- 1) Facilities field code and abbreviation is proposed as on Table 1 in next page.

Table - 1

FACILITIES FIELD CODE

Code	Name	ABB.	Code	Name	ABB.
01	PRABUMULIH PUSAT	PPP	50	BAJUBANG	B
02	PRABUMULIH BARAT	PB	51	TEMPINO	T
03	LEMBAK	LBK	52	KENALI ASAM	KA
04	PAYA KABUNG	PK	53	SUNGAI GELAM	SG
05	TALANG JIMAR	TJ	54	SUNGAI LILIN	SL
06	TANJUNG TIGA BARAT	TTB	55	SETITI	ST
07	TANJUNG TIGA TIMUR	TTT	56	SANGETI	SNT
08	TANJUNG MIRING BARAT	TMB			
09	TANJUNG MIRING TIMUR	TMT			
10	GUNUNG KEMALA	GK			
11	BENUANG	BN			
12	BENAKAT TIMUR	EB			
13	LIMAU TIMUR	LT			
14	LIMAU BARAT	LB			
15	BELIMBING	BL			
16	TANJUNG LONTAR	TL			
17	SUBAN JERIGI	SJ			
18	BATU KERAS	BK			
19	SUNGAI TAHAM	ST			
20	KUANG	KG			
21	TASIM KUANG	TKG			
22	PAGAR DEWA	PD			
23	PRABUMENANG	PM			
24	MERAKSA	MR			
25	KIKIM	KK			
26	OGAN	OG			
27	RUKAM	LB			
28	KARANGAN	KR			
29	SIGOYANG	SIG			
30	BETUNG	BT			
31	SIMPANG	SPG			
32	MUSI	MS			

2) Code for manufacturer's country is proposed as follows.

Code	Countries Name
01	Australia
02	Austria
07	Canada
14	E. Germany
16	France
22	Holland
25	Italy
28	Japan
55	Spain
56	Sweden
61	U. S. A.
62	U. Kingdom
67	W. Germany

7. Others

Units in output data format are altered as follows:

KL/D to M3/D

CU.M/D to M3/D

KG/SQ.CM.G to KG/CM2G

1000 RP to RP1000

YYYY.MM.DD to DD.MM.YYYY

Subteam V

Data Base Administrator's Record

I. Scope of Work for Data Base Administration

1. As a result of discussion the scope of work for Data Base Administration during Detailed Designing Plan includes a final informations about:
 - Physical Data Base Structure
 - Physical Data Base Definition for:
 - . Segments, and
 - . Field elements only.
 - . Data Dictionary Source (non UCC-1Ø transaction format which is required for UCC-1Ø transaction preparation).

Note: Detailed coding and generations for

- DBD (pointers, access method)
- PSB
- SSA
- I/O area
- etc. will be done in the beginning of the next phase (programming phase).

II. Design and Naming Convention:

1. Data base hierarchical structure figure used for E/P data base will be made in the format as used in Pertamina.
2. Naming conventions for all data bases and all segments already established as a result of a discussion between DBA and JOE system analyst.

III. Job Performed

1. Restructure all data bases using IMS/VS standard hierarchical structure.
2. Establishment of naming for all data bases.
3. Establishment of naming for all segments.
4. Coding and preparation of "Data base data" UCC-1Ø transaction.
5. Coding and preparation of "Data set/segment connection" UCC-1Ø transaction.
6. Coding all "Data base text" UCC-1Ø transactions.
7. Coding all "Segment text" UCC-1Ø transactions.

Note: The completed job above is around 5% from the total job must be performed by DBA from Pertamina which will be includes:

- Preparation of "Field text UCC-10" transaction images (+2000 transaction).
- Preparation of "Segment/Field connection" UCC-10 transaction images (+2000 transaction).
- Establishment Field short names.

Tokyo, Dec. 18, 1980

To Mr. B. S. Sitoemorang

The Petroleum Exploration and Production
Data Bank System Development Project
PERTAMINA Team Leader.

Re; Memorandum No. 2 on the Indonesian
Participants' Activity in the
Detailed Design Work for the
Petroleum Exploration and Production
Data Bank System Development
Project.

Dear Mr. B. S. Sitoemorang

Following is the memorandum No. 2 on the Indonesian Participants' Activity during the period between Nov. 17 and Dec. 17, 1980 in the detailed design work for the Petroleum Exploration and Production Data Bank System Development Project. This memorandum consists of Participants' Schedule, Participant's Activity-Record, Work Progress and Record of Discussion.

1. Participant's Schedule.

The schedule was made for two kind of activity:

- 1) System Analyst Schedule
- 2) Data Base Administrator Schedule

Both of them is shown in Table-1.

2. Participant's Activity Records.

The activity record by Participant divide into two activity (System Analyst Activity, and D/B Administrator Activity) as in Table-2.

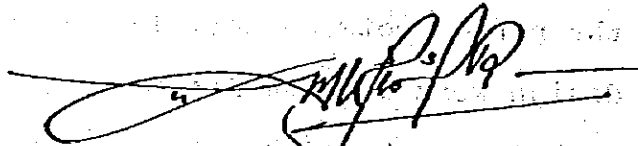
3. **Work Progress**

The work progress as to the detailed design work for the subject was reported by JOE as in Table-3.

4. **Record of Discussion**

Record of discussion conducting by group during the participation period is presented herewith as Attachment I.

Sincerely yours,



(M. Nur Ruslan)

- cc: - R. S. Robot
Head of Data Processing Bureau
- A. Karim Hasim
Head of Data Processing Dept. Area II

Table-1

Participation Work

A. System Analyst Group

1. Naming Convention related Application Program
2. Reading the Report of Conceptual Design
3. Study of
 - 1) Output Reporting Method
 - 2) Output Format
 - 3) Code System
 - 4) Master File
 - 5) Input/Output Process
4. Preparation of Program Specification
 - 1) Settlement of Program Specification Format
 - 2) Preparation of Program Specification

B. Data Base Administrator Group

1. Reading the Report of Conceptual Design
2. Reading the document prepared by Mr. Witono
3. Learning the field element by
 - 1) Preparation of field text from
 - the Report
 - data base structure
 - system analysts

2) Preparation of "Segment/field connection" UCC-10 transaction from

- the Document
- data base structure
- output format
- field name
- COBOL name

Remarks

Main Work Performed

Working Period

Group/Name

Emil Silvan and A. Albani	Dec. 3 - Dec. 17	<ul style="list-style-type: none">- Establishing Field Short Name for every field in A, B and H Information Groups- Coding all 'Field Text' UCC-10 Transactions for A, B and H Information Groups- Cross checking between all fields in A and B Information Groups, and the Corresponding output reporting methods, in order to examine the usefulness of each field.- Some additions of the segment name to the existing D/B structures:<ul style="list-style-type: none">a. Monthly Consumption Segment, namely 'P', PECO2MCO, in Gas Consumption D/B of 'B' Information Groupb. Station Reference Segment and Well Reference Segment, namely PHA04REF and PHA05WEL, respectively, in station D/B of 'H' Information Group- Finalization of the existing Data Base Names and Segment Names	A. Albani leaving Tokyo on Dec. 20, 1980
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Table-2 Participants' Activity Record

<u>Group/Name</u>	<u>Working Period</u>	<u>Main Work Performed</u>	<u>Remarks</u>
System Analyst Group (Nur Ruslan and Lili Hambali)	November 17	- Courtesy call to Mr. D. Kasahara and JOE Staff	Arriving in Tokyo on Nov. 16, 1980
	November 18 - 21	- Discussion on participation schedule	
		- Study of Naming Convention	
		- Study on the Report of Conceptual design	
	November 25 - December 5	- Study on: Output reporting method Input/Output format Code System Master File Input-output Process	
	December 8 - December 17	- Study on: Preparation of Program Spec. Settlement of Program Spec.	Nur Ruslan Leaving Tokyo on Dec. 19, 1980
Data Base Administra- tor (Emil Silvan and A. Albani)	Nov. 18	- Discussion on participation schedule	Emil Silvan Arriving in Tokyo on Nov. 16, 1980
	Nov. 19 - Dec. 2	- Learning the overall system concepts from the report of Conceptual design	A. Albani Arriving in Tokyo on Nov. 25, 1980
		- Learning the D/B Design from D/B Structure document	

Table - 3

Work Progress of Detailed Design Work for Petroleum
Exploration and Production Data Bank System of
PERTAMINA UNIT EP-II

<u>Item Performed</u>	<u>Performance of Progress</u>
1. Design of system function	
(1) Design of output format	80%
(2) Design of data check list	80%
(3) Design of input data layout	50%
(4) Design of instruction parameter card	80%
(5) Design of input/output and data base processing	80%
2. Design of data and file	
(1) Design of data base structure	80%
(2) Description of data	70%
(3) Preparation of master/table file specification	80%
(4) Design of back-up recovery and restart procedure	50%
3. Preparation of program specification	
(1) Preparation of program list	20%
(2) Determination of function and constituent of Program	20%
(3) Description of processing in program	20%
(4) Description of table and file	50%
(5) Description of input/output	30%
(6) Instruction for coding rule	-
4. Planning of debugging and test run	-

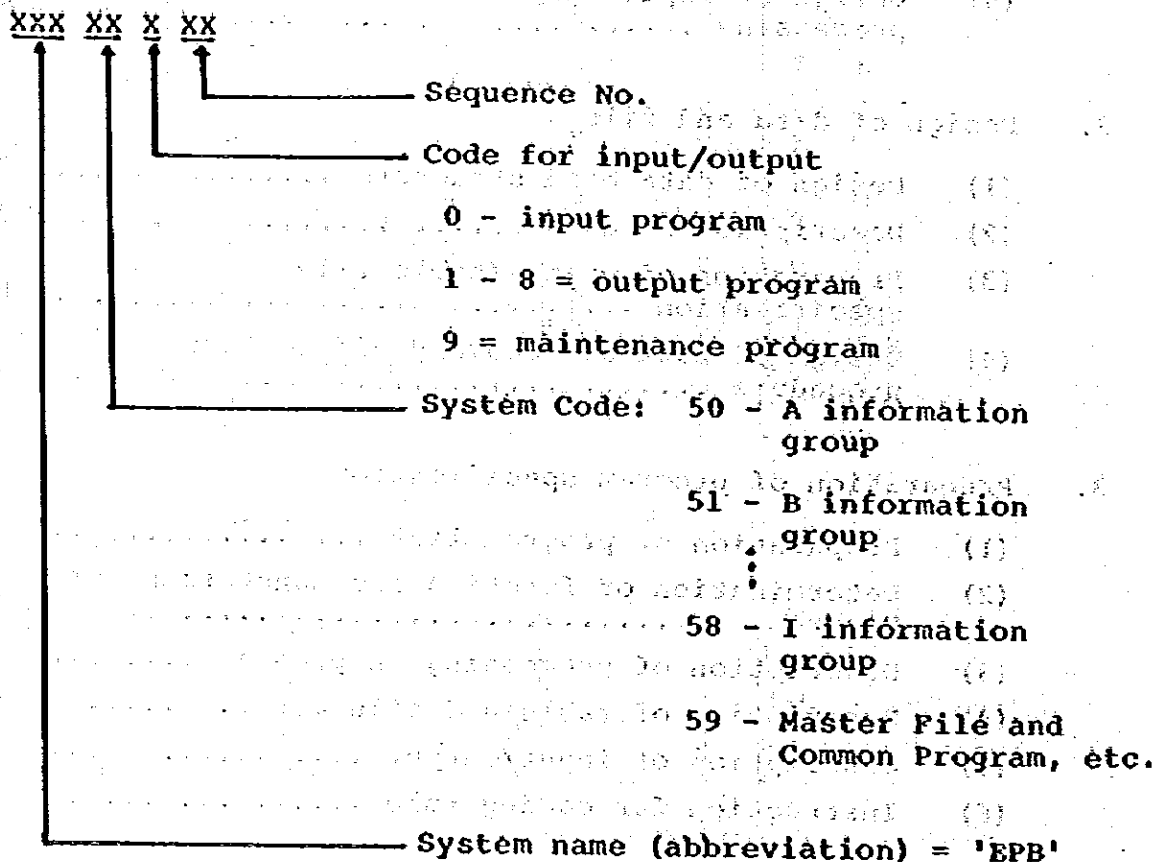
ATTACHMENT I

Record of Discussion Conducting by Group
During the Participation Period

A. System Analyst Group

1. Program Name Convention

According to Standard programming already established in Pertamina, program name described as follows:

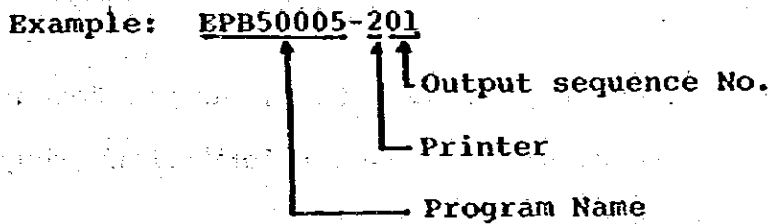
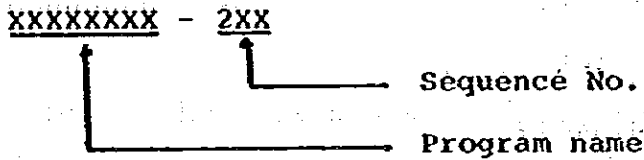


2. Program name is also used in COBOL program as Program-ID, module name and SOURCE Library name.

3. Output Format

Addition of report No. at each report correspond with program name itself and printed out on the top of the page at the left of header.

This report No. was described as follows:



4. Master file

- Correction of Item name in all master file
'Replace Date' to 'updating date'
- Correction of position in well master
layer code: position 504 to position 485
updating date: position 573 to position 493

5. Input Processing

- It is not necessary to use utility sort (external sort).
We can use the facility of COBOL-sort (internal sort).
- In this case we can simplified the input flow/processing with detete/cancel one program step (external sort).

6. Updating-ID

Only three kinds of updating ID are allowed

These are: I for Insert

D for Delete

R for Replace

7. Program Spec.

Still studying output reporting method, output format and referring to data structures of each information group, to make preparation of program spec.

B. Data Base Administrator Group

1. Corrections for Segment Key-fields:

a. Each segment type can have only one key-field.

As a result, the following segment types must be corrected in order to have just one key-field:

- | | |
|------------|------------|
| - PAB02MAP | - PBA03LOC |
| - PAC04FIG | - PBA07REP |
| - PAD03MAP | - PBA11MR |
| - PAE03FOL | - PBA14REP |

b. Date, when defined as a key-field, must be in the format of YYYYMMDD.

Correction should be made against the following segment:

- PAA02HIS

JOE System Analysts will make corrections for these key-fields.

2. Transaction Layout for Input Processing has not come to the conclusion yet, because the usage of some fields (i.e. sequence number fields), has not clearly understood by Indonesian counter part. Further discussion to this matter should be conducted.

Tokyo, January 19, 1981

To Mr. B. S. Sitoemorang

The Petroleum Exploration and Production
Data Bank System Development Project
Pertamina Team Leader.

Re; Memorandum No. 3 on the Indonesian
Participants' Activity in the
Detailed Design Work for the
Petroleum Exploration and Production
Data Bank System Development
Project.

Dear Mr. B. S. Sitoemorang

Following is the memorandum No. 3 on the Indonesian Participants' Activity during the period between Dec. 18, 1980 and Jan. 18, 1981 in the detailed design work for the Petroleum Exploration and Production Data Bank System Development Project. This memorandum consists of Participants' Activity Record, Work Progress and Record of Discussion.

1. Participants' Activity Record

The meeting between participants and JOE side were held one time during the period. The resume of said meetings was summarized in Table - 1. Also reference is made to Table - 2 on the respective participants' Activity Record.

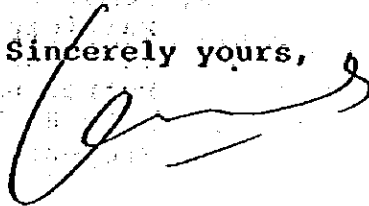
2. Work Progress

The work progress as to detailed design work for the subject was reported by JOE as in Table - 3.

3. Record of Discussion

Record of discussion conducting by participant during the participation period is presented herewith as Attachment I.

Sincerely yours,



(Emil Silvan)

cc: - R. S. Robot
Head of Data Processing Bureau

- A. Karim Hasim
Head of Data Processing Dept. Area II

Table - 1

The resume of the meeting

Meeting dated on Dec. 18, 1980

Place: JOE

Attendants:

(Indonesia Side)

Messrs. Emil Silvan	(Data Base Administrator)
A. Albani	(Data Base Administrator)
M. Nur Ruslan	(System Analyst)
Lili Hambali	(System Analyst)

(JOE Side)

Messrs. Mr. H. Isono	(System Analyst)
Mr. S. Tai	(System Analyst)
Mr. K. Kobayashi	(System Analyst)

Main Agenda:

- . Discussion on format of transaction layout for input processing.
- . Data base back-up and recovery/restart procedure.

Table-2 Participants' Activity Record

<u>Name</u>	<u>Working Period</u>	<u>Main Work Performed</u>	<u>Remarks</u>
Lili Hambali	November 17	- Courtesy call to Mr. D. Kasahara and JOE Staff	Arriving in Tokyo on Nov. 16, 1980
	November 18 - 21	- Discussion on participation schedule	Leaving Tokyo on Jan. 10, 1981
		- Settlement the naming convention related application program	
		- Study on the report of conceptual design	
	November 25 - December 5	- Study on	
		. Output reporting method . Input/output format . Code system . Master file . Input and output process	
	December 18, 1980	- Discussion of the transaction layout for input processing.	
	December 8, 1980 - January 8, 1981	- Preparation of program specification	
		. Settlement of program specification format . Preparation of program specification	
	Emil Silvan	Nov. 18	- Discussion on participation schedule
Nov. 19 - Dec. 2		- Learning the overall system concepts from the report of conceptual design	Leaving Tokyo on Jan. 20, 1980
		- Learning the D/B Design from D/B structure document	

Remarks

Main Work Performed

Working Period

Name

- Establishing field short names for field elements in A and H information groups
- Coding 'Field Text' UCC-10 Transactions for A and H information groups
- Cross checking between field elements in A information group and the corresponding output reporting methods, in order to examine the usefulness of each field
- Some additions of the segment name to the existing D/B structures:
 - a. Monthly consumption segment, namely PECØ2MCO, in gas consumption D/B of 'E' information group.
 - b. Station reference segment and well reference segment, namely PHAØ4REF and PHAØ5WEL, respectively, in station D/B of 'H' information group
- Finalization of the existing data base names and segment names.
- Discussion on Data Base Backup & recovery/ restart procedures and transaction layout for input processing
- Establishing field short names for field elements in C, H and I information groups
- Coding 'Field Text' UCC-10 transactions for C, H and I information groups

Dec. 3 - Dec. 17

Emil Silvan

Dec. 18, 1980

Dec. 19, 1980 -
Jan. 16, 1981

<u>Name</u>	<u>Working Period</u>	<u>Main Work Performed</u>	<u>Remarks</u>
Emil Silvan	Jan. 9, 1981	<ul style="list-style-type: none"> - Cross checking between field elements in C, H and I information groups and the Corresponding output reporting methods - Courtesy call to Pertamina Representatives. 	

Table - 3

Work Progress of Detailed Design Work for Petroleum
Exploration and Production Data Bank System of
PERTAMINA UNIT EP-II

<u>Item Performed</u>	<u>Performance of Progress</u>
1. Design of system function	
(1) Design of output format	90%
(2) Design of data check list	90%
(3) Design of input data layout	80%
(4) Design of instruction parameter card	90%
(5) Design of input/output and data base processing	85%
2. Design of data and file	
(1) Design of data base structure	90%
(2) Description of data	90%
(3) Preparation of master/table file specification	90%
(4) Design of back-up recovery and restart procedure	50%
3. Preparation of program specification	
(1) Preparation of program list	50%
(2) Determination of function and constituent of Program	50%
(3) Description of processing in program	50%
(4) Description of table and file	50%
(5) Description of input/output	50%
(6) Instruction for coding rule	-
4. Planning of debugging and test run	-

ATTACHMENT I

Record of Discussion Conducting by Participants
During the Participation Period

I. System Analyst

1. Coding System

- a. Code using in the system was classified into two kinds, one is class-A (for master file, etc.) and the other is class-B (for copy library).

Master file

. Field master

. Well master

. Zone master

. Company master

Copy Library

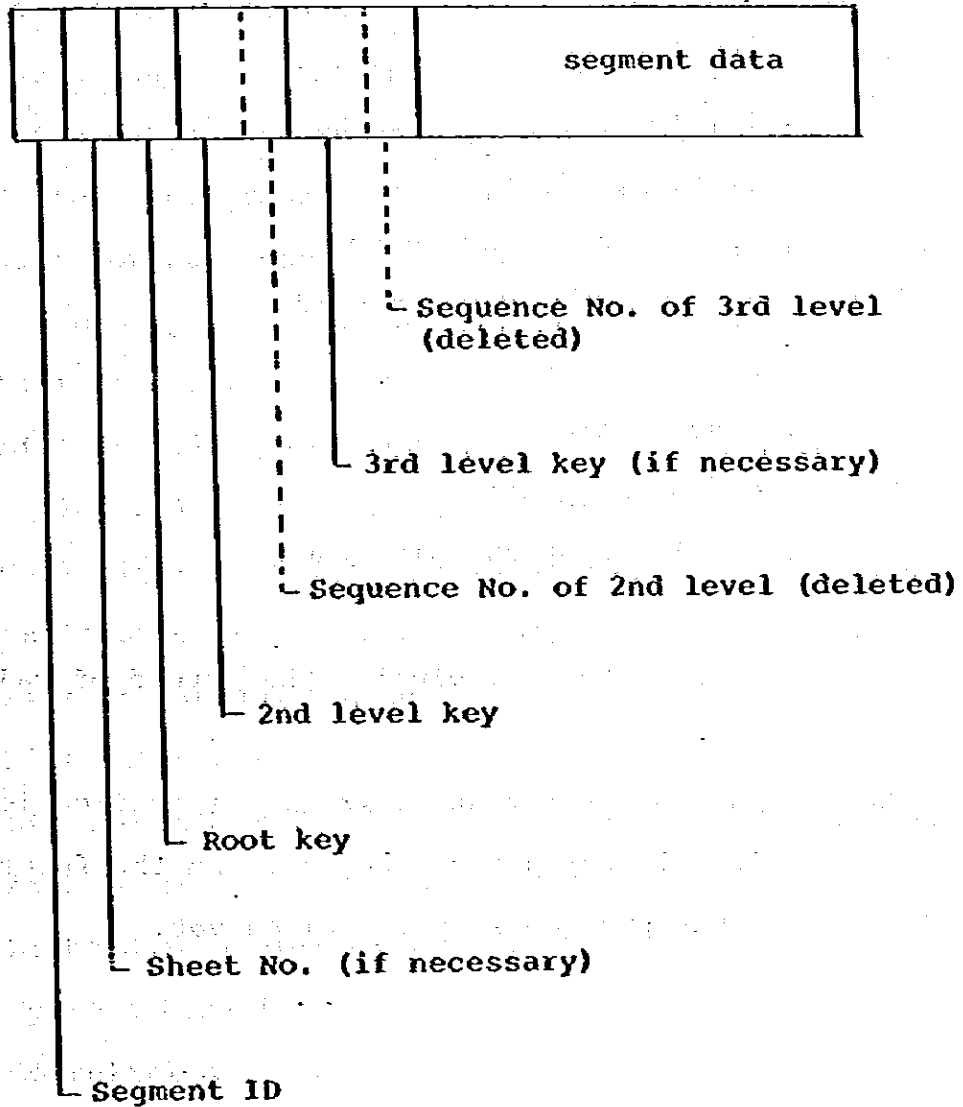
. The name of copy library is not decided yet.

- b. Code for copy library, used in application programs was classified into two groups, one is the assignment code for common use of more than two data information groups, and other is the assignment code used only for a specific data information group.

2. Format of Transaction Layout for Input Processing

Pertamina and JOE side both agree to delete sequence number fields from proposed transaction format.

The transaction layout for input processing has described as follows.



3. Settlement of Program Specification Format

In this stage, only make preparation for general program specification, and program will be made at programming stage by using HIPO Chart model.

Items of program specification are included in the following format layout.

- . Program name
- . (Purpose of program)
- . Output reporting method
- . Assignment parameter card
- . Segment name
- . Master file
- . Output Sequence
- . Condition of changing page
- . (File name)
- . Output items (including the method of calculations)

Note: The format layout of program specification above, is only for output program, and the format for input program is not decided yet.

4. Preparation of Program Specification

According to the format layout of program specification as stated above, Pertamina system analyst (Lili Hambali) has tried to prepare some output program specifications, related to A information group as follows.

- . Basic output report for contract area
- . Basic output report for geological survey
- . Basic output report for geological analysis
- . Basic output report for prospect information
- . Basic output report for map and figure information
- . Basic output report for report information
- . List of concession area
- . List of relinquished area
- . Geological survey list by year
- . Geological analysis list by year
- . Exploration activities summary by year
- . List of map and figure
- . List of report
- . Lithological formation information summary by well
- . Lithological core description summary
- . Lithological side wall core description summary
- . Hydrocarbons indication summary
- . Correlation of formation tops
- . Estimated hydrocarbons in place and recoverable reserves
- . Estimated hydrocarbons in place by formation
- . Estimated hydrocarbons in place for prospect by type of trap

II. Data Base Administrator

1. Data Base Backup and Recovery/Restart procedure will be carried out by using IMS Utilities. Operation method of this procedure will be established in further stage.
2. For Geological Data and Contract Area Information Group, there are many kinds of geological survey reports and geological analysis reports. The main report code is recorded in the root segment and the rest report codes are inserted as dependent segments.
3. Data dictionary for this Data Bank System has been completed approximately by 25%, which include:
 - Coding all 'Data Base Text' UCC-10 transactions
 - Coding all 'Segment Text' UCC-10 transactions
 - Coding all 'Data Set/Segment Connection' UCC-10 transactions
 - Coding +1000 'Field Text' UCC-10 transactions and establishing field short names from the existing +2000 fields.

Tokyo, Feb. 24, 1981

To Mr. B. S. Sitoemorang

The Petroleum Exploration and Production
Data Bank System Development Project
PERTAMINA Team Leader.

Re; Memorandum No. 4 on the Indonesian
Participants' Activity in the
Detailed Design Work for the
Petroleum Exploration and Production
Data Bank System Development
Project.

Dear Mr. B. S. Sitoemorang

Following is the memorandum No. 4 on the Indonesian Participants' Activity during the period between Jan. 26 and Feb. 24, 1981 in the detailed design work for the Petroleum Exploration and Production Data Bank System Development Project. This memorandum consists of Participants' Schedule, Participant's Activity-Record, Work Progress and Record of Discussion.

1. Participant's Schedule.

The schedule was made as shown in Table-1.

2. Participant's Activity Records.

The activity record by Participant as shown in Table-2.

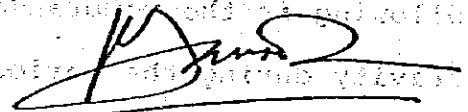
3. Work Progress

The work progress as to the detail designing work for the subject was reported by JOE as in Table-3.

4. **Record of Discussion**

Record of discussion conducting during the participation period is presented herewith as Attachment I.

Sincerely yours,



(Sudjana D.A.)



(S. Ali Gayo)

cc: - R. S. Robot
Head of Data Processing Bureau

Table-1

Participation Work (Jan. 26 - Feb. 25, 1981)

1. Discussion of Naming Convention and Coding Rule, etc.
2. Review the Report of Conceptual Design
3. General explanation of Detailed System Designing Work
4. Review of results of Detailed System Designing Work;
 - (1) Output Reporting Method
 - 1) Output Report Layout
 - 2) Assignment Parameter
 - (2) Data Base Structure
 - (3) Code System
 - (4) Master File
 - (5) Input/Output Processing
5. Preparation of program Specification
 - (1) Settlement of Program Specification Format
 - (2) Preparation of program Specification
6. Discussion of the next phase work

Table-2 Participant's Activity Record

<u>Group/Name</u>	<u>Working Period</u>	<u>Main Work Performed</u>	<u>Remarks</u>
Sudjana D.A./ S. Ali Gayo	Jan. 26	- Courtesy Call to Mr. D. Kasahara and JOE staff	Arriving in Tokyo on Jan. 24, 1981
	Jan. 27-Feb. 24	- Discussion on Participation schedule - Discussion of Naming Convention and Coding Rule <ul style="list-style-type: none"> . Data Base Naming Convention . System Application Naming Convention . Application Coding Rule 	Leaving Tokyo on Feb. 25, 1981
		- General explanation of Detail System Designing Work by JOE Team <ul style="list-style-type: none"> . Table of content of Detail System Designing Report . Work Program of Detail Design Work . Time Schedule . bottle neck 	
		- Review of result of Detail System Designing Work Discuss and Request for Correction <ul style="list-style-type: none"> . Output Reporting Method <ul style="list-style-type: none"> Report Layout, Assignment parameter (Ref. Attachment-I) . Output Report Layout . Input Data format . Data Base Structure . Master file . Input processing . Output processing 	
		- Settlement of Program Specification Format <ul style="list-style-type: none"> . Output processing method . Data input processing method 	

Table - 3

Work Progress of Detailed Design Work for Petroleum
Exploration and Production Data Bank System of
PERTAMINA UNIT EP-II

<u>Item Performed</u>	<u>Performance of Progress</u>
1. Design of System function	
(1) Design of output format	100%
(2) Design of data check list	90%
(3) Design of input data layout	100%
(4) Design of instruction parameter card	90%
(5) Design of input/output and data base processing	90%
2. Design of data and file	
(1) Design of data base structure	100%
(2) Description of data	100%
(3) Preparation of master/table file specification	90%
(4) Design of back-up recovery and restart procedure	100%
3. Preparation of program specification	
(1) Preparation of program list	90%
(2) Determination of function and constituent of Program	90%
(3) Description of processing in program	90%
(4) Description of table and file	90%
(5) Description of input/output	100%
(6) Instruction for coding rule	90%
4. Planning of debugging and test run	90%

ATTACHMENT - I

RECORD OF DISCUSSION CONDUCTED BY PARTICIPANTS
DURING THE PARTICIPATION PERIOD

1. OUTPUT REPORT LAYOUT:

- a. To be consistent with other Computer Output Reports produced by Pertamina Data Processing Bureau, it is requested to print-out on every page one additional header line to the Report title formatted as follow:

Filler : x(3)
Report-Name : 'EPBxxxxx2xx'
Filler : x(46)
Organization : 'PERTAMINA UNIT EP II'
Filler : x(44)
Processing Date : DD-MM-YY
Filler : x(2)
Filler : 'Page :'
Page-Sequence-No : 9999

- b. To avoid confusion for the users due to its complexity of the E & P Data Bank System's Information, it is recommended to print out additional line on every end of Report such statement as follow:

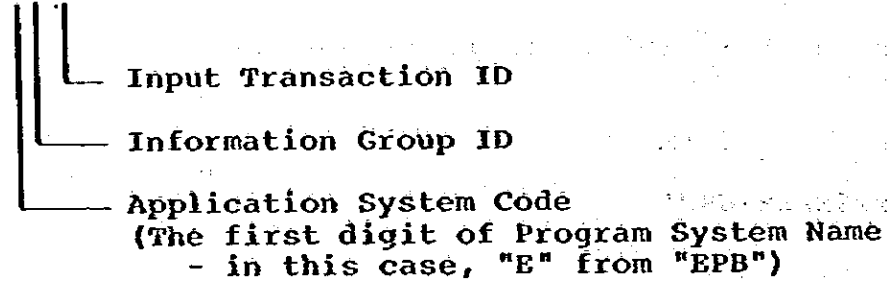
"THIS IS END OF REPORT NAME XXXXXXXX-XXX."

As the result of detailed system design, they will be explained in the introductory remarks of APPENDIX-I of the draft report of detailed system design, but they will be not written on each of report layout until the execution of the next phase.

2. NAMING CONVENTION:

- a. It is requested by Pertamina side that the input Data Transaction Name follow the following input Transaction Naming Convention;

EXXX



Input Transaction Code

Code	Description
EAAx	Input processing method for Contract Area
EABx	" " " " Geological Survey
EACx	" " " " Geological Analysis
EADx	" " " " Resource Prospect
EAEx	" " " " Geological Map & Figure
EAFx	" " " " Geological Report
EBxx	" " " " Geophysical Survey
(01~05)	
EB2x	" " " " Geophysical Map
EB3x	" " " " Geophysical Report
ECxx	" " " " Well Data
EDAx	" " " " Petrophysical & PVT Analysis Data
EEAx	" " " " Production & Injection
EEBx	" " " " Oil Consumption
EECx	" " " " Gas Consumption
EFAx	" " " " Reservoir Data
EGAx	" " " " Well test in Stimulation
EHAx	" " " " Field Laboratory Fluid Analysis
ENAx	" " " " Station
EHBx	" " " " Equipment
EIAx	" " " " Pipeline

3. SETTLEMENT OF PROGRAM SPECIFICATION FORMAT:

As it has already mention in memorandum No. 3 by previous participant that the program specification in this stage only broad program specification not in detail, but it is recommended by Pertamina participant to include estimated line statement for each program in order to get closer estimate by information groups. Rough estimate by JOE that to carry out program coding to satisfied latest users requirement will require 350 to 400 man-months.

a - Program specification for output reporting method remain the same as it is mentioned in memorandum No.3.

b - Program specification for input data processing will include the following format layout:

- Program name
- Program function
- Input data involve
- Data base/files involve
- Output data base involve
- Processing involve

This program specification is settled by Pertamina side and JOE side as standard program specification format layout throughout the Petroleum E & P Data Bank System.

4. DISCUSSION OF THE NEXT PHASE WORK:

There are some pending items to be settled before the execution of next phase (phase-II) included following items:

- 1 - Settlement of field name convention of Data Base Structure
- 2 -- Input Data procedure
- 3 - Due to the heavy work of next phase, it is recommended to put priority on the information groups in the E & P Data Bank System.

Planning of the next phase work will be described in the draft report of detailed system design.

JICA

