Scientific Research Outcome Report

Building E&P Database in PDPU

1. Faculty Name: Dr. B. K. Bahera

2. Branch / Department: School of Petroleum Technology (SPT)

3. Researcher's Name along with designation:

   Dr. B. K. Bahera, Professor, SPT, PDPU

4. Research Title: Building E&P Database in PDPU

5. Major Goal of this Scientific Research Project: To established a secure corporate data management system (CDMS) and provide excellent learning and imparting training to B.Tech/M.Tech/Ph.D Petroleum students of the university

6. Major Activities

- Data asset consolidation and protection-safe –guard million dollar investment in E&P data acquisition and seismic studies.
- Quality control and validation process-ensured highest quality of data in corporate database.
- Workflow cycle time reduction-provided faster and easier access to validated data and information.
- Efficiency improvement-delivered all requirement data to desktop on demand, saving 50% of time previously required to find information.
- Better and faster information with improved quality data.
- E&P workflow optimization –consolidated disparate data stores into a master database, accessible through a common web.
- Investment reduction in proprietary solutions-used proven, commercial technology and services that incorporate industry standards
- Interpretation storage for future reference, along with relevant context details.

7. Specific Objectives & Research Hypothesis

The creation of an E&P corporate database will allow management and end users to access, review, compare and manipulate their data. This will assist them in taking timely decisions and prioritizing their exploration effort and allocate resources in the most effective way.

- Consolidating and standardizing (where possible) existing legacy data sets from various sources
- Ensuring future data acquisition by PDPU is handled and stored in a standard manner consistent with all other existing data
- Ensuring the data that is used to populate interpretation projects is of the highest quality by validating all the data in the corporate database
- Ensuring that the results of interpretations and studies are handled and stored in a professional fashion
- Ensuring that the data in the corporate database can be located and accessed efficiently from all users' desktop using standard procedures
- Ensuring PDPU data is managed in a secure environment by providing appropriate authentication and access entitlement mechanisms
- Low density seismic tape media would be transcribed to the high density 3592 tapes (and two copies produced and appropriately labeled).
- Integration of end user applications, Petrel, Techlog, GeoFrame and OpenWorks/Seisworks, with the CDMS system.

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8. Material and Methods along with necessary diagrams

CDMS software

9. List of equipment, technical facilities/resources used from PDPU for the above mentioned research activity

- ProSource: Data delivery and well visualization
- PSFO map server and builder
- Seabed Oracle RTE
- Seabed Spatial Server-Server License

- CDMS software system

10. Significant Results/key outcomes/achievements/<u>Benefits</u> along with necessary pictures / diagrams / images

- This can be useful for the Government of Gujarat as well as PDPU for educational purpose. All seismic, well and cultural data will be stored on hard disks. Well data is available in the form of reports, Excel sheets and text files. Seismic data is available as SEGY or as SEGD. The prestack SEGD data is sent to external processors for processing and the processed SEGY is received and archived. Whenever the data is required for interpretation, it is loaded to the relevant existing interpretation applications.

- The high E&P activity has also resulted in an increase in the number of E & P software application and expert personnel involved in the utilization of the applications. This has given rise to an increased number of processes to share and exchange data, store results, achieve projects and qualify the incoming data and results based on the analysis and interpretation of the data. This can also be shared with the government agencies like 'Department of Petroleum, Gujarat General of Hydrocarbon (DGH)'.

11. Impact of the research outcomes or findings that address the intellectual merit and broader impacts of the research work

Oil and Gas industry can be benefitted with the prepared database. All data related to seismic survey, well data and other studies can be accessed by E&P professionals. Even the research community can use the database to prepare analytical case studies where past history of any well data is a prerequisite.

12. How the results have been shared/ disseminated, you can list any of following, please specify.

The database has been created into state of the art software. The results of the same have been compiled in form of a detailed report, which can be shared with academicians, researchers as well as E&P professionals.

13. Give also name of other PDPU individuals involved in the research.

Mr. Satish Kumar, Research Assistant

14. Which organizations have been involved as partners?

- DoP

15. Have other collaborators been involved?

- Nil

16. Mention if any infrastructure got added out of research outcome to PDPU institutional resources.

SOFTWARE		
SR. No	**Description**	**Quantity**
1	ProSource: Data delivery and well visualization	01
2	PSFO map server and builder (up to 4 cores)	01
3	Seabed Oracle RTE	06
4	Seabed Spatial Server-Server License (up to 4 cores)	01
HARDWARE		
SR. No	**Description**	**Quantity**
1	Fujitsu storage DX 60 S2 Base 3.5 Contr.X1 SAS 3G	01
2	Fujitsu Storage DX60 Drive enclosure	01
3	Fujitsu workstation celsius M720- 2 nos 20" LED monitor	02
4	Fujitsu Server RX200574x2.5 MS windows	01
5	Fujitsu Server RX200574X2.5	01
6	Fujitsu SAS Cable 64 b 1xsff 8088-1xSff 8088 2m	02
Data Management Services		
Sr. No	**Description**	**Days**
1	Training for 8 PDPU nominees at PDPU premises	08
2	Work association to be concluded in PDPU	15
3	Onsite training in PDPU premises for power users	02
4	Onsite support by Data Management Expert at PDPU premises	10

17. Includes up to six images (images are optional)