Analyze the indonesia petro project essay

Countries

The block Delegate Said-Dart, located in southwestern of North Sumatra Basin, is the oldest oilfield in Indonesia, with total area of 82 km. It was firstly discovered in 1883, with the development history of fifty years. Oil and gas exploration and development mainly depends on surface geological surveys.

In the absence of any modern seismic exploration and logging techniques, oil and gas structural traps were found in the field and produced with outmoded drilling and oil extractiontechnology. The cumulative oil production of blocks Delegate Said and Dart reached 2335 million rarely before abandonment as the outbreak of war in 1937.

Alpha Until sass and sass, the Indonesian National Oil Company (hereinafter referred to as Pertain) and Mobil Oil Company Jointly drilled two deep exploration wells; from year 1977 to 1995, Pertain has carried out AD seismic exploration and research , drilled four deep exploration wells, through which they basically figured out sedimentary characteristics and stereographic features of the field, found out Bang formation and its underlying strata with favorable reservoirs, during which period no systematic re- exportation and development was conducted.

During 2002-2012, contractor made secondary development of Delegate Said Dart oilfield. 13 development wells were drilled, among which 9 were put into production as oil well, with a total oil production of nearly 40 thousand barrels, and re exploited 12 old wells abandoned in 1937 with 18 thousand barrels of crude oil production. There were totally over 58 thousand barrels of crude oil produced from newly drilled development wells and recovery wells. 30 years of oil and gas discoveries, more than 50 years

of early development, ever 60 years of intermittent exploration, and 10 years of secondary recovery, all show that people have great expectation of new breakthroughs and new discoveries in this field. Feasibility Study 1 . Study Basis All the information and data obtained during the process of the field exploration and development in last 130 years are the only basis to know this field and study it by modern technology, and what's more, it is the origin of confidence on re- understanding, re-evaluation and re-determination of secondary development on the field.

In the early period of Oil blocks selection and evaluation, three aspects of this lied have been noticed as follows: (1) Before being abandoned in 1937, relying on simple basic information as surface geological survey and hydrocarbon leakage, BPML companies conducted 50 years of drilling and production work, drilling 176 wells in Delegate Said oilfield, among which are oil wells, accounting for 83%; 247 wells were dilled in Dart oilfield, and 161 were oil wells, accounting for 65%.

From amount and success rate of BPML drilling wells, it can be seen that the drilling success rate was very high, indicating that the oil and gas reservoir-cap system is completely preserved. 2) Pertain and Mobil drilled two exploration deep wells, Delegate AAA and Delegate Bal 1970, and four exploration wells, TTS-I, DOUR-I, TTS-I and Path-8 were drilled by Pertain.

According to AD seismic data from 1973, 1974, 1975, 1978, there are only a small number of seismic lines, large quantities of AD digital seismic were intensively collected in year 1985 and 1990, which means that only Path-8 well is the exploration well drilled after mass of AD digital seismic; from

analysis of seismic collection and drilling time, it is thought that only Path-8 wells used the AD digital seismic data, which was one of only two oil wells ring this period (another well is Delegate 81). 3) During 2006-2009, 13 development wells were drilled in TTS, among which 9 were put into production as oil wells, with drilling success ratio of about 70%, while in the output of about 4 million barrels of crude oil, well DE-AAA was flowing in production and the yield accounted for 50% , indicating that the area remains high formation pressure and oil sources have been constantly supplemented.

From data analysis of TTS geological studies, drilling design and drilling engineering and other aspects, it is found that he comprehensive geological study does not concern the use of seismic data and construct, still clinging to the simple BPML period geological survey, and many factors including wrong selection of drilling technology resulting seriouspollutionof the target layer by mud eventually leaded to the consequences of low drilling success ratio and the low oil and gas production.

But from the analysis of adjacent wells within the drilling distance of mm, DE-181 A could reach substantial oil and gas production under the circumstance of simply improving drilling technology, which means a great potential for secondary development for an old oilfield located nil . Km anticline structure, and with 14. 98 million barrels of crude production before the year 1937. The above shows, although after 130 years of exploration and development, the main production period of Delegate Said Dart oilfield is still the 50 years before 1937, and the exploration and development technology is relatively lag behind.

With widely use of modern oil and gas exploration and development as well as drilling technology, the field will be able to make new discoveries and breakthroughs. In recent months, PIPE has setup a professional technical team of oil and gas exploration and development, through data collection, collation, post- processing analysis and research of the oilfield geological, seismic, logging and other aspects, combined with data analysis and preliminary study on drilling technology, well testing, and production performance, the main conclusions are as follows. 2.

Project Profile The Delegate said Dart Oilfield project a TACT (TECHNICAL ASSISTANCE CONTRACT) project established by Pertain and TTS with the purpose of oil recovery and improvement of recovery factor, the term of the contract is 20 years. Party A, Pertain, the national oil company of Indonesia; Part B, P. T. TTS, a company established under Indonesian law, with headquarters in Jakarta, who offers technical assistance for hydrocarbon exploration. During the term of the contract, TTS may recover 80% of its investments from the sales profit of oil production in the first 3 years, and up to 65% in the subsequent years.

Of the remaining crude oil after cost recovery deduction, Pertain has right to 73. 2143%, and TTS has right to 26. 7857%. Having passed all approval procedures required by Indonesian Ministry of Energy and Mineral Resources (SEEDS) and examines by authorities in charge of investment and law, PIPE was approved by relevant authorities of Indonesia to hold 100% shares of TTS and PIPE got certain licenses to conduct petroleum exploration and development activities in this country.

Geographical and Structural Location The Delegate Said-Dart Oilfield is located in Pangolin Brendan, North Sumatra Province, Indonesia, km northwest from Media, km south from Pangolin Brendan-Pertain Oil Refinery and km Pangolin Us Oil Port respectively. The local transportation is very convenient since North Sumatra Highway directly leads to the oilfield. (Fig. 1) Fig. L Location of Delegate Said Dart Oilfield The area under discussion is characterized by hilly topography with a maximum altitude of less than 100 meters. The valley where the oilfields were found has an altitude of mm and the average height of this area is mm.

Part of the area is covered by forests, while the other part has been converted into farms. The climate of this area is warm humid and rainy. The majority of the oil wells are located in open spaces of clumps of bushes. Right now in the oilfield, all trunk roads are in good conditions, while the bypaths connected with well sites are mostly destroyed. The oilfield is located in the southwestern part of North Sumatra Basin, which is bounded on the west by exposed pre-tertiary rocks of Barista Mountains, on the south by Asana Dome, on the east by continental shelf of Strait of Malice, and on the north by Madman Sea Basin (Fig.). The main structure of the basin is located in Besetting- Delegate Said-Dart thrust anticline belt, a structural belt with NW? SE trending axis and asymmetric flanks. Fig. Structural Location of Delegate Said Dart Geological Evaluation North Sumatra Basin is located in the northwestern tip of Sumatra Island, and extends northward to Madman Sea, with a total area of 13. 7x104km2. The onshore part of the basin, which occupies only 16% of the total area, extends from coastal lowlands to foot of Barista Mountains.

Being classified as convergent-arc basin (according to Clammy), North Sumatra Basin is one of the most important hydrocarbon areas in Indonesia with 3. 1 51st proven oil reserves in place and 6. 96x1011 mm proven gas reserves in place, totally 10. 1 laxest (oil equivalent), among which, the onshore oil reserves are 2. 31st and gas reserves are 6x1011 mm. The most valuable Arrant Oilfield and Run Gasified are located in the north of Delegate Said Dart Oilfield. 3. Reserve Analysis Geological Reserves Evaluation 1.

Calculation Basis (1) Seismic fine structural interpretation, test oil production data, fluid and rock high- pressure physical parameters of laboratory analysis; (2) The old well reservoir of oil and gas production data , reservoir depth and the thickness parameters; (3) New well drilling, logging, petrochemical, fluid properties, oil and gas shows and other ramset's; (4) Combined with reservoir geological knowledge, field development practices in early phase, and the reserve calculation parameters submit from other companies; 2.

Reserves Calculation Unit The main reservoir of Delegate Said Dart oilfields is Upper Tertiary MOBS strata. According to the different oil-producing conditions of reservoir, the reservoir of MOBS can be subdivided into 9 members (MOBS-O ? MOBS-8), in which the main producing formation is MOBS-2, stereographic thickness is about 50-80 meters and the net reservoir thickness is between 10-35 meters. For the other 8 reservoir formations, the highness is relatively small, scale of reserves is correspondingly small, which can be used as potential development reservoir.

Due to the emulation of old well information, the reserve calculation unit is limited to " Central Thrust Fold Belt" main development layer series: MOBS-I, MOBS-2, MOBS-3, the calculation unit is shown in Table 1: Oilfield Development Layer Series Reservoir Top Depth (m) Reservoir Thickness(m) Delegate Said MOBS-I MOBS-2 1 WWW. 5 MOBS-3 > 280 350 20 percent), major schedule delay (> 20 percent), or poor plant operability after startup is over 30 percent. The need to find and develop new fields is pushing the upstream sector to the extremes in terms of bothenvironmentand technology.

For the major western petroleum companies, there are few opportunities to extract oil and gas with minimal risk any longer. This is compounded by an industry-wide skilled labor shortage. This shortage of skilled labor appears to be having a particularly adverse impact on turnarounds (shutdowns) in the refinery sector. Plant turnarounds are the periodic and planned shutdown of facilities to perform maintenance and/or install new equipment. Figure 1 shows the performance of 36 cent high-complexity refinery turnarounds.

The average schedule delay is more than 35% and the average cost overrun is 25 percent. Perhaps more importantly, there is a large degree of variability in the performance as indicated by the bars which measure plus one and minus standard deviation. This means that the turnarounds are highly unpredictable. As these trends gather momentum, risks to project execution will only increase. The use and implementation of risk management systems varies widely across the oil and gas industry. Techniques range from simple spreadsheet based systems to more pesticides enterprise-wide software systems.

For the most part, project teams are identifying and tracking risks. However, effective quantification and implementation of response plans is lacking. Highest Rated Risks in Oil and Gas Sector Based on a database of risk registers we have identified what type of risks both project and turnaround teams are consistently rating as the most severe prior to the execution stage. In total, more than 25 risk registers of differing magnitude and granularity have been evaluated and sorted to reveal the dominant sources of perceived project risks in these sectors.

For the most part, these teams used similar methodologies and tools to categorize projects within a common Risk Breakdown Structure (ORBS) as well as an applicable Work Breakdown Structures (WEBS). Individual project teams tend to slightly differ on their interpretation of risk categories and to which element within the ORBS the risk should be allocated. To overcome such deficiency, several basic and overarching categories have been introduced to capture all risks in a comparable manner. Capital Projects This analysis is based on nine major oil and gas projects.

The combined number of kiss identified within the reviewed risk registers amounted to endured- eleven (1 1 1) after eliminating entries that are too high-level, unspecific, or may not qualify within the framework of this study. Subsequently, nine basic categories, such as Market/Commercial, Technology, and Organizational have been created to sort all qualified risks. Pursuant to the sorting, all categories have been counted to determine the rank-order, or priority of each category within the projects risk framework. Technology clearly topped the list, followed by Planning/Schedule and then Organizational.

Project teams are consistently focused on ensuring that technical definition and design issues are well-defined prior to the execution stage and tend to view these issues as the ones with the both highest probability of occurrence and highest impact. The primary concern of these teams is to ensure that there is sufficient time to in the project definition phases to minimize the chances of late design changes during detailed design or construction Table (1) - Project Risk Rating Rated in order of Risk Severity RISK CATEGORY SUB-CATEGORIES 1 .

Technology - Ensuring adequate technical definition ROR to detailed engineering - Use of new or unproven technology - Design flaws 2. Planning/Schedule - Permitting takes longer than anticipated - Long-lead times for major equipment 3. Organizational Adequate staffing, Effective team Integration and interface management - Partner alignment 4. Market/Commercial (Economic) Ensuring robust economic case (ROI) Cost escalation and budget constraints 5. Scope Definition Tie-ins with existing facilities (Brownfield modifications) - Adequate understanding of SOBS (Outside Battery Limits) interfaces 6.

Procurement & Materials Availability of staff and supporting equipment 7. Commissioning &Startup (Operational) Interference with on-going operations 8. Health, Safety, and Environment Safety Incident Turnarounds This analysis based on 15 large-scale refinery turnarounds. The combined number of risks form these registers total over 300. The highest rated risk categories deal with obtaining adequate resources in a timely manner. The top rated category is Technical Support followed closely by Contracting and Labor.

Both categories are a reflection of the challenges being faced by largesse refinery turnarounds in attracting enough skilled labor.

In addition, turnaround teams are having increasing difficulty obtaining adequate internal technical support from other disciplines during the turnaround to deal with problems and trouble-shoot issues, particularly during the critical startup period. Table (2) - Turnaround Risk Rating ORBS category 1. Technical Support -Insufficient training and lack of both in house and contractor resources for startup and trouble-shooting 2. Contracting and Labor -Limited availability of skilled craftsman and low quality labor 3. Planning, Scheduling, and Cost - Inadequate process/systems to engage discovery work 4.

Scope Definition - Late engineering packages 5. Procurement and Materials - On time arrival of materials and procedures to handle and distribute materials 6. Startup & Operations - Insufficient number of operators available for startup 7. Shutdown and Chemical Cleaning - Cleaning and handover of units takes longer than anticipated 8. Organization and Communications - Poor understanding andcommunicationof roles and responsibilities 9. Capital Projects & Integration - Late capital scope and/or incomplete, poorly defined engineering packages 10.

Field Execution & Logistics Congestion, traffic, and offside personnel 11. Health, Safety, & Changes in safety procedures, inadequate understanding of new regulations and inexperienced workforce Payback Period Initial Cost of the Project in 2014 is USED 14, 114, 036 & initial Cost of Capital is USED 33, 625, 752. The Project Value in the Present Value with the assumptions of 6%

inflation will be USED 25, 067, 150. Payback Period will be in the next 5 years Therefore based on the calculation of the payback plan, the company will be benefits in this project.

The project will be benefits for the company besides the positive payback plan that will be in the positive investments in the 7 years of the company's project. It is also will be good opportunities for the company in channeling their assistance with the project since the company is working together with biggest oil company in Indonesia which is Pertain. The company will be benefits on this projects when the project can be success it will give some advantage or favor for the the company since when they are offering another project contract to Pertain since the performance of the current project will be success.