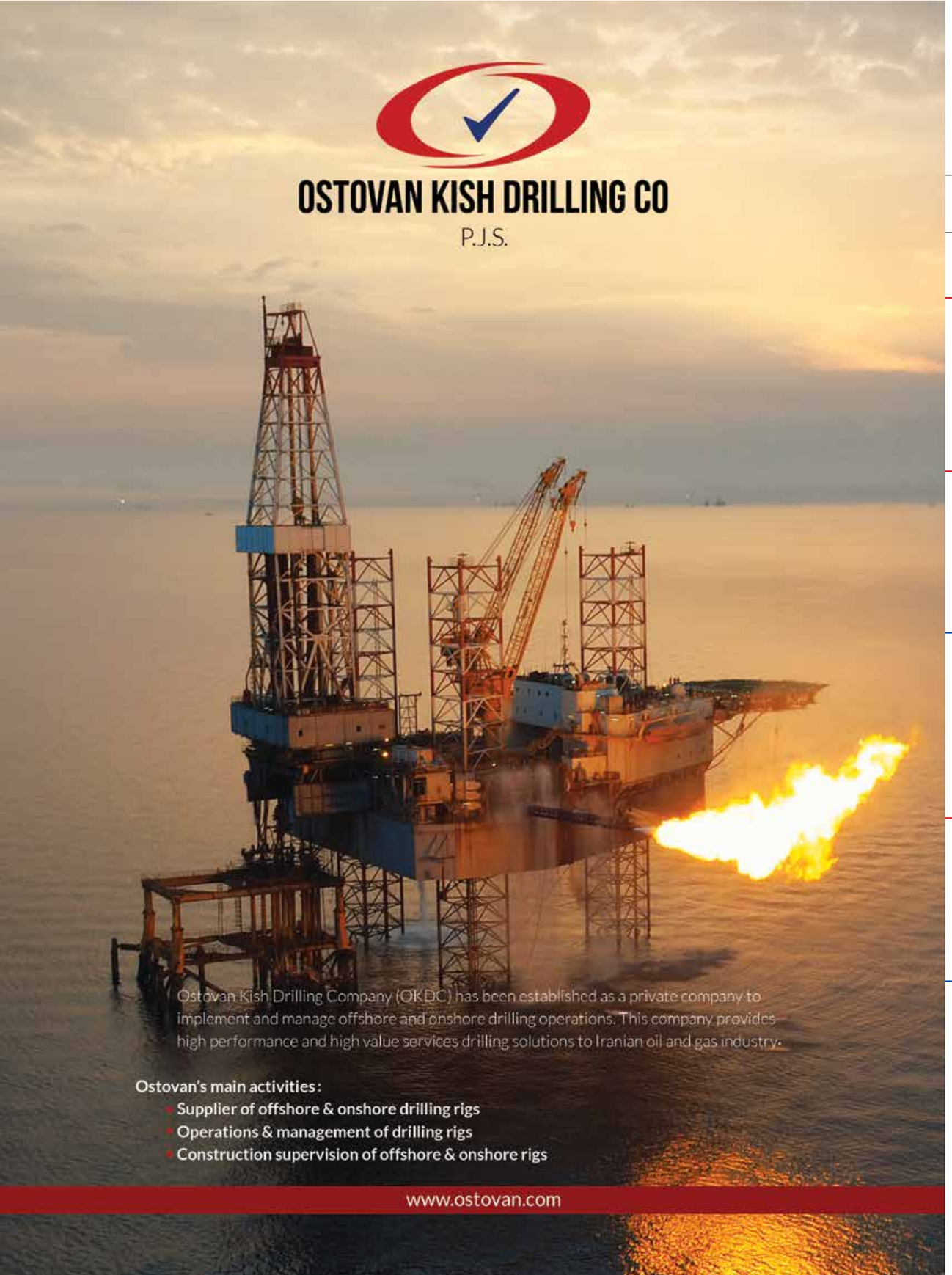
Vol. 2 May 2016

DRILLING MAGAZINE

$20 136 pages

LATENT OPPORTUNITY OF IRAN DRILLING

- Investment Opportunities in IRAN Upstream Oil& Gas Industry
- Legal Requirements of the international partnership in IRAN oil industry
- Iran's Onshore & offshore Rigs statistics (May 2016)



DRILLING MAGAZINE

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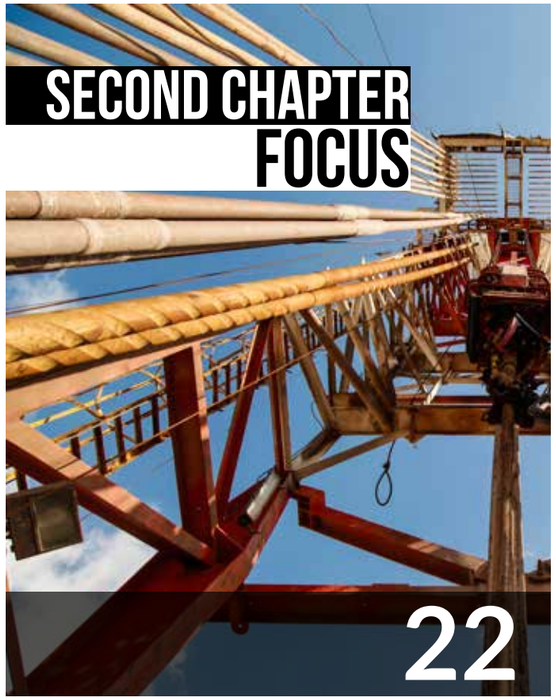
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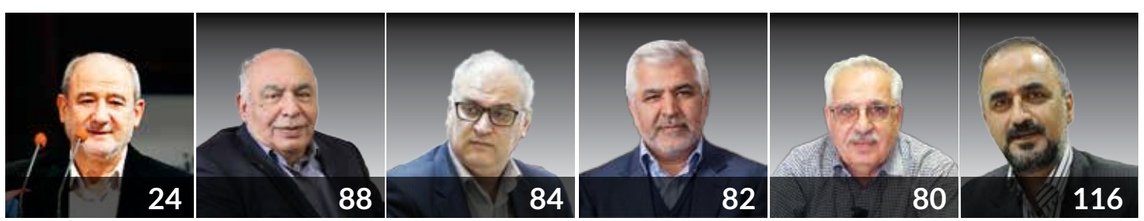
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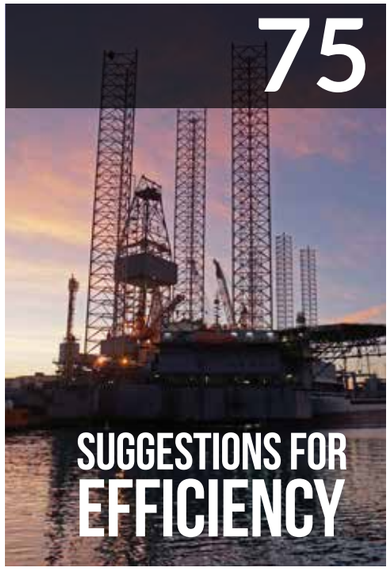
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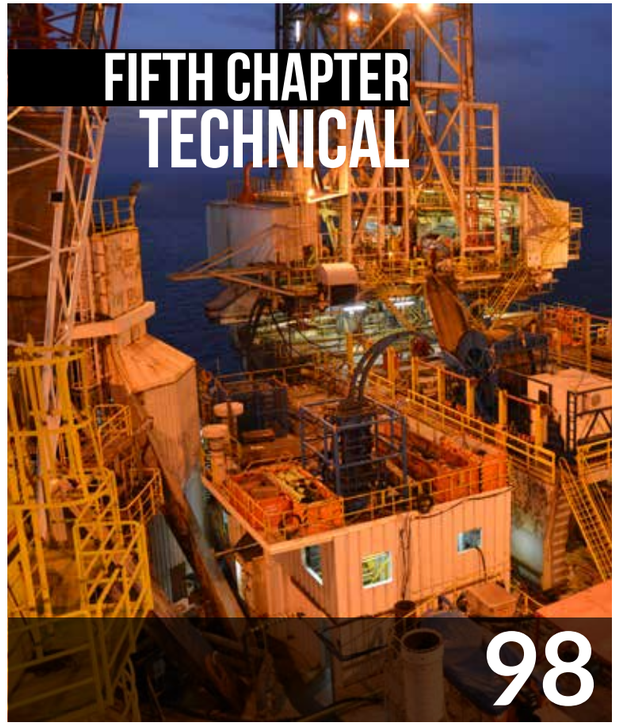
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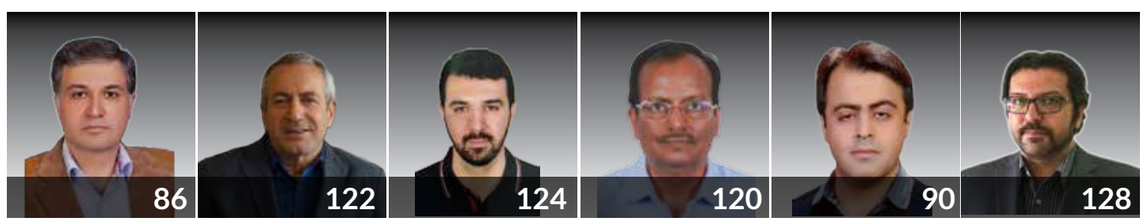
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THE VISION FOR THE FUTURE OF IRAN DRILLING INDUSTRY

Amir Abedpour
Administration Manager

- It has been about one century that OIL has been entered to the economical, industrial and political transactions. In the meantime Iran has been one of the pioneers of exploration, drilling and oil production pioneers in the strategic region of middle east and will its maintain privileged position in the future by exploring the rich and full resources which are ready to be operated now. So, there should be a special look to Iran's drilling industry and analyze it in a professional and expert view.

- Simultaneously on the rise of president Rouhani's government which has put the priority to raising the country's economic situation and restoration of diplomatic relationship with other countries, Iran's private section looked hopefully to the process of country's economic and political positive changes to take advantage of the opportunities to empowerment itself and making economic boom. In regard to this by removing the international sanctions and limitations against Iran, All oil industry activists including drilling industry by matching themselves with international standards, looked for trustable partners having science and technology so that they can cause growing and raising the efficiency in our country's oil industry by being equipped to the world's updated science and technology.

- Actually, Publishing the English monthly magazine as the only professional magazine in oil and gas upstream industry which exists beside the Persian monthly magazine with the same title, was the response to the Iran market's growing needs to "Measurements of Capacity" and codification of the plans for cooperating with international companies active in this field. We have focused on two related subjects in this magazine. First, drawing and analyzing the existing situation which studies and evaluates the abilities and capacities of the Iranian companies, second, the market analysis which identifies the necessities and attends to the methods of making permanent connections for transferring the technology and interaction between domestic and international companies. It seems that this approach can give us a clear and exact view of Iran's drilling industry situation as the most important section in upstream oil industry to the foreigners' side and also reflexes the international abilities and achievements for English language audiences.

- In the present situation which Iranian economy is ready for an impressive jump to gain a proper position between the developed countries, it has been expected that an effective connection between international and domestic companies is formed which results both profit and scientific and technical exchange and upgrading Iranian companies to international standards as trustable partners in doing the common projects. This issue can be also seen in new IPC oil contacts in which some duties has been identified for establishing Iranian E&P companies, and it is predicted that its process starts quickly and hastily.

- For systematic existence of international companies in Iran, also seizing the Iranian companies' maximized and optimized sanctions removal opportunity with the aim of oil industry development, an exact planning and evaluation are needed to make a favorable environment to reach to the goal. This planning are being done in two levels inside the country: the first level, is policy and legislation matching with international and Global Trade Organization's standards in governmental systems including Parliament and oil industry clear powerful international companies existing and acting in
in form of general pattern and plans which leads to transfer the new technical and engineering science and technology to the country. In this field a committee has been established two years ago under the supervision of oil minister which called: "Oil Contracts Review Committee" and the new Iranian oil contracts was unveiled two years ago. The second level is planning and operations which private companies has done to increase and upgrade their quality level and prepare themselves to receive and localize the technology.

- Drilling magazine also tries to step forward in this way. Certainly, the first step in this way is clarifying the information, and for this purpose the Persian magazine in this issue, previous issue and also in all the last issues has tried to show a realistic face of existing drilling industry situation by presenting and publishing statistics and analyzing of upstream oil and gas industry and identifies and presents the strength and weakness of the industry in the best way. The next step is to present a general, certain and real view of investment opportunities to the interested and active companies in this field so that the investors technology owners can have a proper targeting in Iran drilling market and have a smart and knowingly enter to the market. Third step is struggle by means of deepening the quality, analyze and statistic researches relying on existing substructures and equipping and empowering them, so that Drilling Monthly takes a valid reference place in Iran drilling industry.

- At the end, it is good to mention to the simultaneity of Drilling Monthly Vol.2 and its Volume for 21st Tehran Oil Exhibition. This simultaneity would be interesting in the way that the Monthly Magazine and this Exhibition are following the sane target indifferent forms. Both are the entrance and the introducing gates of the new technologies to the country. Participating about 900 foreign companies active in oil industry upstream and downstream in the 21st Tehran Oil, Gas, Refinement and Petrochemicals Exhibition talks about a fundamental change in this field that can be a strong basis for cooperation based on common profits.

FIRST CHAPTER NEWS

News

PETROLEUM NEWS OF IRAN

International tenders for new Iranian oil contracts, to be held in August.

International tenders to develop Iranian oil and gas fields will be held in two months. Chairman of Iranian oil contracts review committee, Seyyed Mehdi Hosseini, said this article at a conference in Paris, yesterday. And he added:
Bids to participate in the development of Iran's oil and gas fields, in the months of June or July 2016 will be held.
He said most of the fields which contracted out, are large fields or some of the shared fields with our neighboring countries.
Head of Iranian oil contracts review committee invited international companies to declare their willing to participate in the potential projects to Iranian officials.

75% progress in South Azadegan oil field

By 113000 meters drilling of 40 wells in South Azadegan oil field, there is 75% progress in this field.
Drilling of this wells assigned to National Iranian Drilling Company by PEDEC company and started in September.
150000 meters drilling and 40 wells have been predicted.
This project is still in progress and management, designing, goods and material supplying are part of National Iranian Drilling Company responsibilities. According to officials, these will be finished in the first half of 2017.
The development plan of South Azadegan oil field is been defined in two phases. Drilling 185 wells, 320000 bbl oil per day and 197 Million cubic feet gas per day are been planned for the first phase of development.

30% Rise in North Azadegan Oil Deposits

Engineering studies over North Azadegan oilfield indicate that the field holds 30% more crude oil in its despite than was previously estimated in the field's 2008 master development plan (MDP).
Mohammad Reza Asadi, director of engineering at Petroleum Engineering and Development Company (PEDEC), told Shana that finalization of the field's MDP is one of the company's agendas for development of the field.
Based on the master plan, North Azadegan field will be developed in 2 major phases, he said.
Drilling operations over 100 wells have started nearly a year ago and 60 of the wells are finalized with some being productive.
The field was first decided to be developed by a Chinese developer, CNPCI, but Iran expelled the contractor from North Azadegan for its failure to respect its obligations.

Iran Poised to Catch up With Qatar Gas Production by March 2017

Iran says its gas recovery from the supergiant South Pars gas field will catch up with that of Qatar before the end of the current Iranian calendar year which began on March 20.
Ali Akbar Shabanpour, managing director of Pars Oil and Gas Company (POGC), told a televised interview Wednesday night that once 5 new phase developments of the gas field become operational by the calendar yearend to March 20, Iran's gas recovery from the field will become tantamount to that of Qatar.
"Development of Sough Pars gas field is a perfect manifestation of practicing the Resistive Economy policies as it boosts the country's exports and production of value added items," said the official.
Iran supplies nearly 50% of its gas from the gas field located in Persian Gulf waters.
He said an investment of $50.5b has made for development of phases 12 to 24 of South Pars so far.
Shabanpour said 5 new phases of the gas field will come online by the end of the current calendar year.
Referring to phase 19 development, he said the phase includes 4 platforms each with 5 4,000-meter wells with 900 meters dug horizontally.

Phase 14 of South Pars

Drilling Rig Supplement of South Pars' Phase 14

COSL was to supply drilling rigs of South Pars' phase 14. COSL company won Iranian Offshore Engineering and Construction Companys' tender for supplying South Pars' phase 14 drilling rigs. COSL will use two drilling rigs including 400 feet superior rig and a 375 feet craft rig for this project. The superior Rig have been rent by Iranian Offshore Oil Company before. With the completion of this project, this rig was moved to Qatar in the beginning of 2015. It will be used in phase 14 of South Pars. Craft drilling rig is working for Dana Energy company at 17 & 18 phases of South Pars. This drilling project will be finished in few month.
An important point in this contract is the decrease of the daily rate under 80000 USD per day. According to the rig supplier company, for the first years. The Aban offshore Indian company, CPOE Chinese company JDC Japanese company participated in this tender.
The drilling of 22 wells in phase 14 south pars had been assigned to the Iranian Offshore Engineering and Construction Company before. Another 22 wells belong to National Iranian Oil Company, 14 of these 22 wells is completed. With the completion of these 44 wells, 2000 Million cubic feet gas will be produced from phase 14 of South Pars.

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Persian Gulf
Focusing on Salman Gaseous Section

After several month, focusing on repairing operation of Salman fields' oil section, Iranian offshore oil company's activities in the gaseous section have increased in recent month and a drilling rig is operating. Even though most of this activities are for repairing purposes, It is expected that in the coming month, there would be a tender for developing of Salman gaseous section.
It was planned to export Salman field gas to UAE, but this project didn't become operational because of contractual problems and there are some plans to transfer this gas to the land now.

South Pars
South Pars Project is About to End

"16 Rigs are active in South Pars now and according to the acceptable progress of projects it seems there will be no need to add new rigs" Mr. Shaban Poor, Pars Oil and Gas Company CEO, said. "on the condition of supplying money and solving Sadra company problems, south pars project will end in 2017". "Phase 24 & 22 ,13 refining section have %80 progress and phase 18 & 17 have %92 progress" he also mentioned.

Attempts to Revival Validation Rank at the Fitch Institute

Following a couple of National Drilling Industry Congresses and a Drilling Services Conference, the third Drilling Industry Congress will be held in February 2017 internationally.
The 3rd national drilling industry congress and the first international Iran's drilling industry congress are going to be held on February simultaneously.
As Drilling Industry monthly publication reported, this congress is going to be held with mutual collaboration of Oil Ministry and its subsidiary companies Association of Petroleum Industry Graduates Empowerment in form of 12 specialized workgroups. Workgroups include:
Engineering and drilling efficiency workgroup, operation and drilling problems, consolation workgroup, drilling fluids workgroup, well workout and completion workgroup, production chain and supply workgroup, financial and investment workgroup, human resources workgroup, HSE and environment workgroup, economy and market workgroup, legal and contracts workgroup
For making it more effective, the permanent secretariat of the congress is considering to organize some specialized meetings for some of the mentioned workgroups. In this regard, drilling services conference was held last winter and drilling fluids conference is going to be held in the next months.
According to the announcement of Petroleum Graduates Association, companies and experts are invited to become members of these specialized workgroups until the end of June. It is also worth mentioning that the deadline for paper submits is considered to be until the end of November.
Workgroups will present the outcomes and results of their investigations and researches to the secretariat of the drilling congress by forming weekly and regular meetings.

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Investment and financing deputy director of National Iranian Oil Company (NIOC) informed about attempts to revival validation rank at the Fitch institute. And said with the implementation of this action international bond will added to methods of financing oil industry.
He pointed out that the NIOC›s reliance on domestic resources such as central banks, monetary bonds, the National Development Fund and etc. peaked in the last government that is unprecedented in the history of the oil industry. He continued this trend has continued inevitable, but the NIOC has tried various methods to attract investment, as much as possible to reduce reliance on local resources.
This official said: the NIOC is faced with financial bottlenecks and to consider development projects in these conditions, we must have the art of attracting foreign investment and take advantage of innovative methods. He said getting a loan from foreign banks is one of the ways to attract funds from abroad.
He expressed: with the solutions that we have considered, the possibility of attracting foreign investment gradually be provided. And we hope with looking for solution which of course inevitably take time, since 96 using sources inside the country like the central bank facilities or National Development Fund is reduced to a minimum.

Even 70$ for a barrel oil is not responsive to development projects

Kardor said: Revenue of each field can be used to repay the money of investors or to continue project development activities in the same field or adjacent projects witch licensed in a single package from economic council.
Kardor stating that this method of financing, only for shared fields in west of Karun and south Pars gas field is used. He continued accordingly, in South Pars, use ability of 40% of proceeds from the sale of gas condensate and in West of Karoun 50% of the proceeds provided.
He emphasized Even 70$ for a barrel oil is not responsive to development projects therefore we should using a variety of methods to attract investment is inevitable.

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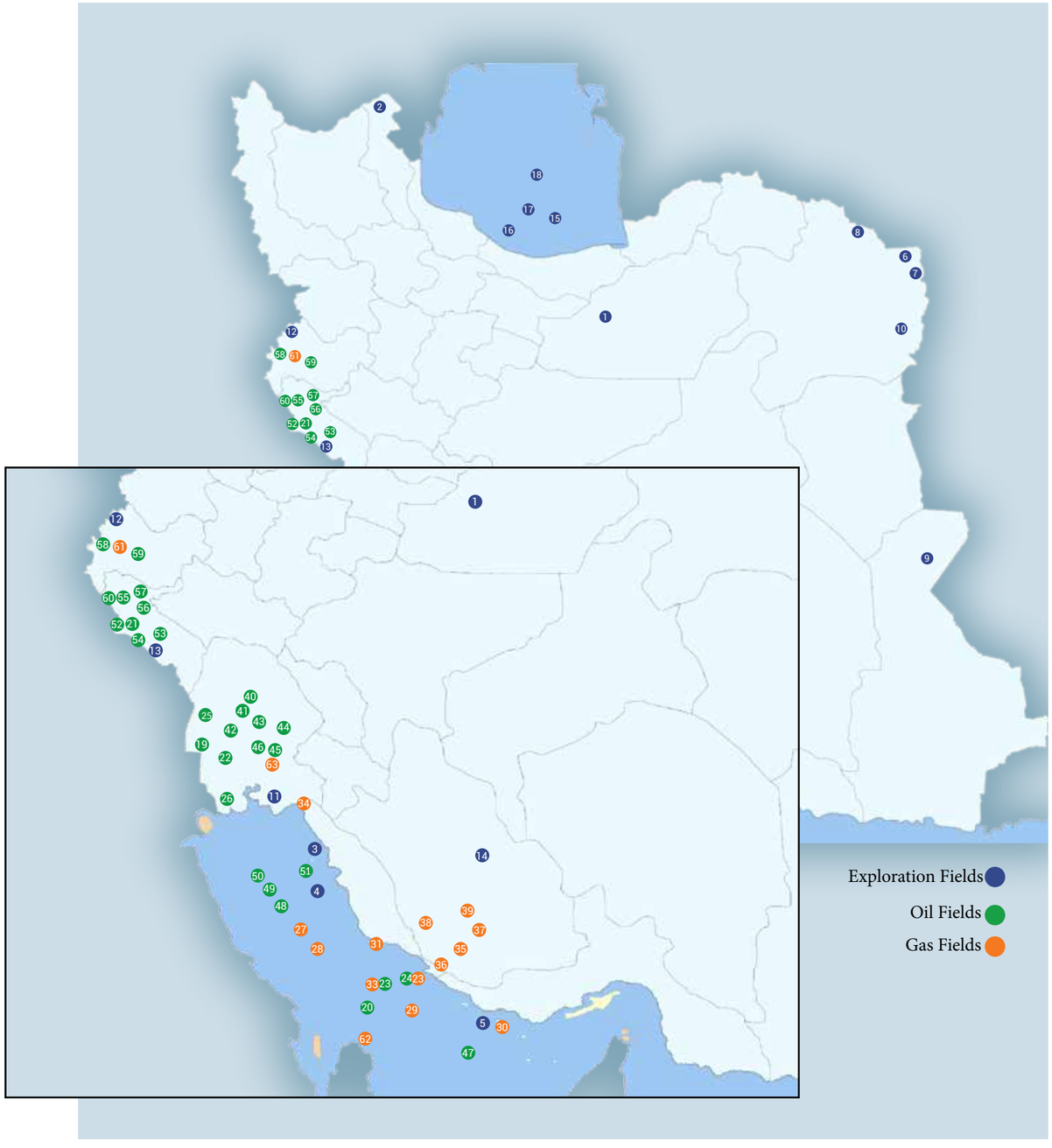
NEWS

Iran to Start Pre-qualification of IPC Bidders

Iranian Minister of Petroleum Bijan Zangeneh said the ministry is about to start «pre-qualification» procedures for the new petroleum contract model Iran unveiled late 2015.
Speaking with Shana, the official said no tenders will be held before the terms of Iran Petroleum Contract (IPC) are finalized.
Asked when the first version of IPC will be signed with a company, Zangeneh said a draft of the contract needs to be prepared before any contract can be signed and «I can give no specific time for that for the time being.»
He said the petroleum ministry will begin pre-qualification of IPC bidders› credentials in May.
«No tenders can be held before a draft IPC is finalized,» the minister added.
He further said IPC is in fact a buyback deal with some modifications, adding, «We are moving forward based on a consensus for finalizing these contracts and the parliament has authorized the administration to pursue finalization of the contract.»

IRAN OIL & GAS BLOCKS



1- Kavir (central Iran)
Kavir block is located in northern part of the central Iran basin. NIOC is offering 1 block in this area.

2- moghan block
The Moghan basin is situated in the northwest of Iran, along the border area between Iran and Azerbaijan whithin the south-eastern part of the intermountain Kura trough (northern part of the block) and the north- ern flank of the lesser Caucasus and Talysh anticlinori- um. NIOC is offering 1 block in this area.

3- Parsa, 4-mahan, 5-bamdad (Persian gulf blocks)
The Persian Gulf is a shallow epocontinental sae whith a tectonic origin (foreland Basin), which covers the Arabian shelf platform. NIOC is offering 3 blocks in this area.

6-Sarakhs, 7-dousti,8-raz (kopeh dagh blocks)
The Kopeh Dagh Rangers which extends along the bor- der area between Iran and Turkmenistan forms a linear mountain range separating the stable Turan Block in north and Central Iran in the south. NIOC is offering 3 blocks in this area???

9-Sistan, 10-taybad (frontier blocks)
In order to development of the exploration activity in all of the Iranian basins, NIOC Exploration is offering 2 blocks in frontier area.

11- Abadan (dezful block)
Dezful Embayment is the most prolific sub zone with- in the Zagros folds and thrus tbelt. NIOC is offering 1 block in this area.

12- Zahab,13-timab (lurestan blocks)
The lurestan area is located in northwestern part of the Zagros fold and thrust belt and is limited to southeast by the Balal Rud Fault Zone (which separats it from the Dezful Embayment). NIOc is offering 2 blocks in this area.

14-Tudej (fars block)
The Fars area is located in southern partofthe Zagros fold and thrust belt which is associated with super giant gas field in the Permp-Triassic Dehram Group. NIOC is offering 1 block in this area.

15-Block-24
Block-24 is situated at 130 Km to north of Bandar-e Noowshahr. Main structures: N9 (Rouyan), N10(Noor)& N14
N9 (6x19 Km) and N10 (4x21Km) are important. Low-moderate relief four-way structure. Maximum clo- sure in both prospected at the deeper levels is at least 400 meters

16-Block-26
Blocj-26 is situated at some 100 to 130 Km to North-East of Bandar-e-Anzali. Main Structures: N11, N12, N13, N14,N17, N55, N74 & N75. Combination of N11, N12 and N13 and individual prospects N14 and N17

17-Block-29
Block-29 is situated at 135 Km to North of Bandar-e-Nowshahr. Main Structures: N1, N72 & N73. N1 (8- 10x75 Km) is largest. Elogated WNW-ESE. Medium relief anticline. Vertical relief of 700m.

18- Sardar-e-jangal field
Sardar-E-Jangal field in block 6 is located about 250 Km of Caspian sea coastline, in 750 m water depth. It is ex- pected the main prospect is Cheleken. Although the first exploration well in2012 has discovered hydrocarbon in- layers above Dheken.

19- SOUTH AZADEGAN FIELD
Azadegan Oil field in south west of Iran located about 80 KM. west of AHWAZ and straddles the Iran-Iraq border.

20-SOUTH PARS OIL LAYER
South Pars Oil reservoir, in Parsian Gulf, is located about 130 Km. frome Asaluyeh coastline and positioned between Iran-Qatar marine border above gigantic gas field.

21-CHANGULEH OIL FIELD
Changuleh oil field is located 80 Km. northwest of De- hloran city and situated at northwest part of North Dez- ful basin Lorestan province.

22- DARQUIN FIELD 3 PHASE
Darquin field is located 30 Km. north of khorramshahr and 100 Km. southwest of Ahwaz field.

23- FERDOWSI HEAVY OIL FIELD
Ferdowsi oil field, in the middle of Parsian Gulf, is lo- cated about 190 Km. southeast of Bushehr, 90 Km. of Iran southern coastline, 30 Km. southwest of Golshan oil field and 5 Km. north of Iran maritime boundary.

24- GOLSHAN HEAVY OIL FIELD
Golshan oil field, in the middle of Parsian Gulf, is located about 180 Km. Southeast of Bushehr, 65 Km. of Iran southern coastline, 30 Km. northeast of Ferdowsi oil field.

25- SOHRAB FIELD
Sohrab oil field is located about 115 Km. northwest of Ahwaz, in Abadan plain, and north of Azadegan field along Iran-Iraq border.

26- ARVAND FIELD
Arvand oil field is located about 50 Km. south of Abadan near Arvand river.

27- Farzad-a gas field
Farzad-A gas field in farsi block is located about 100 Km. of Persian gulf coastline, 120 Km of Bushehr port and straddles the Iran-Saudi Arabia border.

28- Farzad-b gas field
Farzad-B gas field in farsi block is located about 100 Km of Persian gulf coastline and straddles the Iran-Saudi Arabia border.

29- Balal gas field
The Balal field lies approximately 90 K,to the SW of La- van island and 40 Km doutheast of south pars gas field inpersian gulf in a water depth of 60-75 meters along the iran-Qatar border.

30- Kish gas field
Kish gas field, in Kish island , is located about 30 Kmeasto- fLavan island 13wells were drilled in the field up to now, but they have not been completed dueto the lack of equipment, hence no production.

31- North pars gas field
North pars gas field, in Persian Gulf, is located about 120 Km southeastof Bushehr and nearthe coastline.

32- Golshan gas field
Golshan gas field, in the middle of Persian Gulf,is lo- cated about 180Km southeastofBushehr, AND 65 Km- southof Iranian coastline.

33- Ferdowsi gas field
Ferdowsi gas field, in the middle of Persian Gulf , is locatedabout 190 Km southeast of Bushehr, 90 Km south of Iranian coastline, 30km southwestof Golshan gas field and 5 Km north of Iran maritime boundary.

34- Khami fields
Khami reservoir of Maroon oil field, which located 60 kilometers southeast of Ahvaz, is one of The high-pressure gas reservoirs of Iran and also the world's deepest gas reservoirs.

35- Halegan gas field
Halegan gas field is located about 73 Km north of As- saluyeh seaport. It is surrounded by gas field of De- fied-Zakhour at northand Sefied-Baghoun at south.

36-Sefied-baghouns field
Sefied-Baghoun anticline islocatedin gaseous of shiraz, about 90 Km west of khenj, 35 Km north west of jam and 160 Km south of shiraz.

37- Sefied-zaakhour field
Sefied-Zakhour anticline is located in gaseous area of Fars and about 160 Km southeast of Shiraz.

38- Dey field
Dey field islocated in mountainous area of Fars province, about 140 Km and 60 Km of Shiraz and Firouzabad re- spectively.

39- Phase-2 of aghar field
Aghar field is located in Fars province, about 120 Km- southeast of Shiraz and 35 Km of Firouzabad nearby the Meymaneh and Surmeh anticlines.

40-BAND-E-KARKHEH FIELD
Band-e-karkheh oil field is located about 20 Km. frome Ahwaz in Khuzestan province. This field was discovered in 1961 by seismic surveys and the first well in the field was driiled in 1967. After re-investigation of the field in 2000s, in Mehr block exploration project by OMV Co. and after drilling of two new wells in the field, the exis- tence of oil in llam and sarvak was proved thereafter, the exploration of Band-e-karkheh oil field was announced in 2005.

41- JUFAIR FIELD
Jufair oil field is located in Khuzestan province and about 50 Km. west of Ahwaz near Azadegan, Yadavarn and Ab-Teymour oil fields.

42- SEPEHR FIELD
Sepehr oil field is located about 40 Km. southwest of Susangerd, 60 Km. of southwest of Ahwaz and in west of Karun river. It is thought that field is extended to Jufair oil filed.

43- SUSANGERD FIELD
Susangerd field is located about 45 Km. northwest of Ahwaz, in north Dezful region and south of Band-E- Karkheh field

44- AHWAZ-BANGESTAN FIELD
Ahwaz oil field is located in Ahwaz city and one of the giant Iranian oil fields.

45- MANSURI-BANGESTAN FIELD
This field is located 40 Km south of Ahwaz field.

46- AB-TEYMOUR FIELD
Ab-teymour field is located 25 Km from Ahwaz city and between Susangerd and Mansuri filed.

47- SALMAN OIL FIELD
Salman oil field is located about 142 kilometers south of Lavan Island in Persian gulf and straddles the Iran- UAE border.

48- FROOZAN OIL FILED
Froozan oil field, in Persian Gulf, is located about 100 Km south west of the Kharg Island.

49- SOROOSH FIELD
Soroosh oil field, in Persian Gulf, is located about 120 Km. Southwest of Bahregan area and 80 Km. frome Kharg Island positioned near Aboozar, Esfandiar, No- rooz fields. Field production was stopped during the Iran-Iraq war. The field has been redeveloped by Shell in 2000 under Buy-back contarct.

50- NOROOZ FIELD
Norooz oil field is located about 50 km. north of Soroosh oil filed in Persian Gulf near Abuzar field.

51- DOROOD FIELD
Dorood oil field is located in north of Persian Gulf be- neath the Kharg Island. The Field s maximum rate pro- duction was 205 MBbl/D in 1972

52- aban field
Aban oil field is shared with iraq. It is located in ilam province, about 38km southwest of Dehloran city to the west Paydar, east of
Dehluran and southwest to cheshmeh-khosh fields.

53- paydar field
The field is about 150 KM northwest of Ahwaz, and 35 Km south of Cheshmehkhosh Production Unit (CH- KH-P.U.). The Paydar field is a gentle, bent anticline.

54-west paydar field
The west Paydar oil field straddles between Iran and iraq, about 150 Km north-west of ahwaz, and 35 Km south-west of the Cheshmeh khosh Productionunit.

55-danan field
The danan oil field is located 80 Km northwest of Andimeshk and 30 Km. south of Dehloran cities on the border of dezful embayment.

56- cheshmeh-khosh field
The Cheshmeh-Khosh field islocated on thenorthern part ofdezfulembayment, near the southeast of lurestan border 180 Km nortwest of Ahwaz, between the Danan, Paydar, Shakheh, Dehloran andAban fields.

57- dalpari field
The Dalpari field is located inilam province, southwest of iran, far from Zagros Mountains, west margin of Dez- ful Embayment, 210 Km northwest of Ahwaz, nearDe- hluran to Abdanan road.

58- naft-shahr field
The Naft-Shahr oil field stranddles between Iran andIraqand located west of sumar field.
Sumarfield

59- Sumar field
Sumar oil field islocated30Km southwest of Gilan-Gharb city and situatedateast of Naftshahr field in jermanshah province.

60- Dehloran field
Dehloran oil field is located 22 Km southwest of Dehlo- ran city and situated at iran/Iraq Boundary in southwest of lorestan area

61- Tang-e-bijar gasfieldandilam refinery
Tang-e-bihar gas field, is located in ilam province about 50 Km west of ilam and about 50 Km southeast of Naft- Shahr oil field.

62- South pars gas field phase 11
South pars gas field is located about 130 Km of Asaluyeh coastline in Persian gulf and locates alongtheIran-Qatar border.

63-Karun-bangestan gas field and NGL-1700
Karun-Bangestan gas reservoir islocatedabout 25km north of masjed-e-suleiman,near laliand Zilaei oil fields.

NATIONAL IRANIAN OIL COMPANY E&P PROJECTS

New Petroleum contract models in onshore, offshore and exploration has been launched at Tehran Summit on 28-29 November, 2015.
The Iran Petroleum Contracts (IPCs) covering about 52 Oil & Gas Projects have been offered for local and foreign investments and will be discussed as below:

Oil Fields

Among twenty-nine (29) selected oilfields to be offered to domestic and foreign investors, 21 fields are located in the onshore and 8 fields are in the offshore sector. In the onshore sector, 12 projects are related to developed fields, while nine are underdeveloped projects. Among the offshore projects, five include developed fields and three call for investment in green field projects.

Gas Fields

More than 20 onshore and offshore gas projects were unveiled for local and foreign investment which are mostly located on onshore sector. Among offshore projects, only eight underdeveloped fields are presented.

ONE FIELD AND 3 DISCOVERY BLOCKS IN CASPIAN SEA

Khazar Exploration and Production Company (KEPCO) has offered four projects in the Caspian Sea, blocks 24, 26 and 29, as well as the Sardar-e Jangal oil fields to foreigners for exploration and development. Applicant and all affiliated companies could use current facilities and substructure in north of Iran for the operations in these introduced projects. In this regard, Shomal oil terminal, Sadra, North Drilling and Khazar Exploration and Production Company have untapped potentials and capabilities. Block 24 and Block 29 are situated at 130 and 135 kilometers from north of Noshahr respectively, and Block 26 is located at 100-130 kilometers from north of Bandar-e Anzali.

12 OIL AND GAS RESERVOIRS OF NATIONAL IRANIAN SOUTH OIL COMPANY

Three (3) oil reservoirs and nine (9) gas reservoirs of National Iranian South Oil Company were introduced to domestic and foreign investors. Oil and gas reservoirs of this company including Bangestan-e Ahwaz, Bangestan-e Mansoori and Bangestan-e Abteimour were presented with the aim of attracting foreign investment. These reservoirs include Bangestan reservoir in Karoon field, Bibi Hakimeh Khami, Koranj Khami, Jurassic Asmari Mountain, Ghale-Nar-e Bangestan, Ahwaz-e Khami, Paznan Khami, Bink Khami and Sourmeh reservoir. Except Bangestan-e Karoon, these reservoirs are standing for some 13 trillion cubic gas-in-place. All these 8 reservoirs are underdeveloped and can have the capacity of generating 710 Mmcfd and 74 Mcfd of liquefied gas and al. According to the Technical manager of National Iranian South Oil Company, gas production of these reservoirs needs special instruments and equipment and they hope investors consider it as one of the main issues.

AZADEGAN, DARKHOVIN AND CHANGOOLEH, MAJOR ONSHORE FIELDS IN SOUTHERN IRAN

The executer of North Azadegan field development in the Petroleum Engineering and Development Company has offered the development plan of South Azadegan field, third phase of Darkhovin field, and Changooleh field to attract foreign investments. North Azadegan field development plan is targeted for 320 thousand barrels production in the first phase of South Azadegan field development. Furthermore, it is estimated that the output from this field will be increased up to 600 thousand barrels per day after its second phase. Considering the fact the production from the field has started in 2008, the oil-in-place of South Azadegan is estimated to be around 25.6 billion barrels, and making this field as one of the great opportunity for investments.

14 OIL AND GAS FIELDS IN CENTRAL IRAN

Nine oil fields (Aban, Paydar, West PAydar, Danan, Cheshmeh Khosh, Dalpari, Soomar, Naftshahr and Dehloran), five gas fields, a package of gas field in the west, and one downstream project of Ilam refinery have been introduced by Iran's Central Oil Fields Company in form of IPC to foreign investors. Among those nine oil fields, West Paydar, Naftshahr, Aban and Dehloran are joint fields with Iraq. While most of these fields are developed and the average daily production of these fields is around 100 thousand barrels, there is still extensive production potential to increase the output to 170-200 thousand barrels per day. The final proposed package is development of the second phase of Tang-e Bijar in the west of the country: considered to be one of special fields with current production of 250 million cubic feet, field›s capacity can be expandable to 350 million cubic feet in the future.

SIX DEVELOPMENTAL OIL AND GAS PROJECTS IN SOUTHWESTERN IRAN

Arvandan Oil and Gas Company has offered 6 fields including Soosangerd, Jeffir, Sepehr, Band-e Karkheh Arvand and Sohrab in new model of the petroleum contracts. It is predicted that the highest oil and gas production rate within next decade will be achieved by this company. Arvand and Sohrab oilfield are shared with neighbouring Iraq which make them more special than other fields of this company. Arvand's short distance from 165 thousand barrels plant would provide a great opportunity for its fast development. Additionally in Sohrab field, 1 and 2 wells have been drilled near Iraqi borders and it is estimated that oil production from this field reaches to 5 thousand barrels per day.

SEVEN OFFSHORE OIL AND GAS FIELDS IN IRAN

Two Gas fields and 5 oil fields were introduced from Iranian Offshore Oil Company. Belal gas field, Farzad A gas field, Salman oil field, Foroozan, Soroosh, Nowruz and Dorood are the company's selected fields to attract investments. Iranian Offshore Oil Company is the first company in Iran using water injection, ESP in wells and gas lift methods in its projects, IOOC is a leading company in EOR plans and expects that high recovery of the introduced fields can be seriously pursued.

FOUR OIL AND GAS FIELDS IN SOUTH PARS FIELD, THE GREATEST GAS FIELD IN THE WORLD

Pars Oil and Gas Company offered 4 fields (North Pars, Gholshan, Ferdows and oil layer of South Pars) to foreign investors. Oil layer of South Pars which is the first project of this company available to foreign investors is a joint oil field with Qatar, located at great South Pars field in the center of Persian Gulf and in it is 130 kilometers far from Iranian coasts.

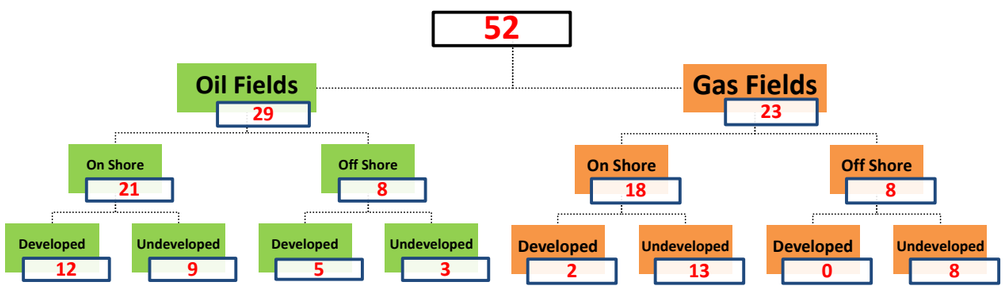
14 EXPLORATION AND DEVELOPMENTAL BLOCKS IN SEDIMENTARY AREAS

14 exploration and developmental blocks in sedimentary areas were introduced to foreign investors. During the past century some of the great exploration blocks like Ahwaz, Azadegan, Gachsaran, North Pars and Kish were discovered. All these successful exploration projects suggest the high capacity of hydrocarbon resources in Iran. So far up to 500 exploration wells have been drilled and led to the recognition of a number of petroleum fields. Over the past ten years 69 exploration wells have been drilled in Iran among which 50 wells were successful, moreover in the past three years, 16 wells have been drilled successfully out of 22 exploration projects. In all sedimentary areas there is a great need for more studies and use of new technologies. During 1998 to 2007, exploration and development tenders have been held four times out of which 15 of the exploration blocks were finalized by the investing from international companies; Anaran, Mehr and Farsi were declared to be commercial fields. After sanctions, operations in number of these blocks were suspended which is going to get start over after legal issues are solved.

News

NATIONAL IRANIAN OIL COMPANY E&P PROJECTS

HYDROCARBON FIELDS



OIL FIELDS

FIELD	OPERATOR	PRODUCT	DIMENSION	API	NO. WELL	CURRENT PRODUCTION	TOTAL ESTIMATED
			Km*Km	Degree		Mbbl /day	Mbbl /day
SOUTH AZADEGAN FIELD	AOGC	Medium	43*17	20/30/32/35	6 expl / 21 prod	50	600
SOUTH PARS OIL LAYER	POGC	Heavy	25*7	21	9 in A2 / 1in B / 2 in C	0	65
CHANGULEH OIL FIELD	ICOFC	Heavy	50*5	24	3 expl	0	50
DARQUIN FIELD 3RD PHASE	AOGC	Heavy	20*10	39/22-27	27 Prod / 4 Gas Inj / 2 App	150	220
FERDOWSI HEAVY OIL FIELD	IOOC	Ultra heavy	20*13	8_16	3 expl	0	70
GOLSHAN HEAVY OIL FIELD	IOOC	Ultra heavy	10*26	-	5 expl	0	25
SOHRAB FIELD	AOGC	Heavy	12*7	12/16/18/30	1 expl / 1 Appr	0	5
ARVAND FIELD	AOGC	light	43*8	44	1 expl / 2 Appr	0	10
BAND-E-KARKHEH FIELD	AOGC	Heavy	50*5	20/22	2 expl / 1 Appr	0	15
JUFAIR FIELD	AOGC	Heavy	14*7	18/20/23/34	Totally 6 (4 prod)	1.3	17
SEPEHR FIELD	AOGC	heavy / light	18*9	22-23/38/34-38	1 expl / 1 Appr	0	15
SUSANGERD FIELD	AOGC	Heavy	27*4	16/22/20	1 expl / 2 Appr	0	30
AHWAZ-BANGESTAN FIELD	NISOC	Heavy	75*10	20-23	Totally 371 (182 prod)	153	-
MANSURI- BANGESTAN FIELD	NISOC	Heavy	43*6	20-25	96 (71 Prod)	54	-
AB- TEYMOUR FIELD	NISOC	Heavy	23.5*6.5	22.5/20	36 (29 Prod) / 50 (22 Prod)	48	-
SALMAN OIL FIELD	IOOC	light	17*12	33-37/38/37	Totally 55 (12 injector)	47	-
FOROOZAN OIL FIELD	IOOC	light	25*4	36	Totally 65	37	-
SOROOSH FIELD	IOOC	Heavy	17*10	14-22	32 (11 Prod)	46	-
NOROOZ FIELD	IOOC	Heavy	20*5	20.5/18/20/30	35 (21 Prod)	28	-
DOROOD FIELD	IOOC	light	25*5	23/29.5/35/31	88 (47 Prod)	69	-
ABAN FIELD	ICOFC	Heavy	17*2.5	21.1	8	7	-
PAYDAR FIELD	ICOFC	Heavy	10*4	13	3	7	-
WEST PAYDAR FIELD	ICOFC	Heavy	8*3	20/18	19	26.5	50
DANAN FIELD	ICOFC	Heavy	10.5*4	28.2/27.6	4	8	-
CHESHMEH-KHOSH FIELD	ICOFC	Heavy	28.5*4.5	29/26	16	72	-
DALPARI FIELD	ICOFC	light	9.3*3	33.5	3	14	20
NAFT- SHAHR FIELD	ICFOC	light	6*4	40	17	5.5	-
SUMAR FIELD	ICFOC	light	3.5*18	44	1	0.5	4.5
DEHLORAN FIELD	ICFOC	light	7*60	29.8	16	24	40

EXPLORATION BLOCKS

FIELD	OPERATOR	PRODUCT	DIMENSION	API	NO. WELL	CURRENT PRODUCTION	TOTAL ESTIMATED
			Km*Km	Degree		Mbbl /day	Mbbl /day
SOUTH PARS GAS (PHASE 11)	POGC	sour	14*7	36	2 Appr	0	2000
FARZAD-A GAS	IOOC	sour	16*16	DRY GAS	3	0	1000
FARZAD-B GAS	IOOC	sour	10*7	5	2	0	1100
BALAL GAS	IOOC	sour	5*5.5	49.5	1 expl	0	500
KISH GAS	IOOC	sour	32*25	15.5	13	0	3000
NORTH PARS GAS	POGC	sour	20*25	3	17	0	3600
GOLSHAN GAS	POGC	sour	23*17	26.3	5 expl	0	2000
FERDOWSI GAS	POGC	sour	20*13	-	3 expl	0	500
HALEGAN GAS	ICOFC	sour	50*11	26.7	2 Expl	0	440
SEFIED- BAGHOUNS	ICOFC	sour	24*3.5	26.6	1 Expl	0	160
SEFIED- ZAKHOUR	ICOFC	sour	40*8	18.8	3	0	353
DEY	ICOFC	sweet	16*6	13.6	4	0	180
PHASE-2 OF AGHAR	ICOFC	sour	7.5*(5-8)	6	13	776	1600
KARUN- BANGESTAN GAS	NISOC	sour	26.5*4.5	88	3 Expl	0	120
TANG-E-BIJAR GAS	ICOFC	sour	45*10	30	12	247	353

GAS FIELDS

BASIN	block	source	AERA	2D SESMIC	3D SESMIC	NON SESMIC	reservoir	seal
			Km*Km	Km	Km*Km	Km*Km		
LURESTAN	Zahab	Garau / jurassic	2879.92	618	0	83	Garau / jurassic/triassic	Garau / jurassic
LURESTAN	Timab	Garau / jurassic	1031.19	357	436	104	bangestan/ asmari	gurpi gachsaran
DEZFUL	Abadan	Kazhdumi/ Garau / Sargalu	6618.64	4240	1074	5605	Asmari/ Bangestan/ Khami	Gachsaran/ Gurpi/Kazhdumi
FARS	Tudej	Silurian/ Jurassic/ Middle Dariyan	8618.01	2236	267	8564	Bangestan/ Khami / Dehram	Guripii/ Kazhdumi/ Dashtak
PERSIAN GULF	Parsa	Garau/ Sargalu	12510.2	-	-	-	Tertiary/ Cretaceous/ Jurassic	Guripii/ Kazhdumi/Garau / Jurassic
PERSIAN GULF	Mahan	Garau/ Sargalu	11010.2	-	-	-	Cretaceous/ Dehram	Guripii/ Kazhdumi/ Dashtak
PERSIAN GULF	Bamdad	Silurian	2696.94	-	-	-	Dehram	Dashtak
KOPEH DAGH	Sarakhs	Kashafrud	1916.62	692	-	478	Mozduran/ Shurijeh	Shurijeh/ Sarchesmeh
KOPEH DAGH	Dousti	Kashafrud	1978.08	678	-	983	Mozduran/ Shurijeh	Shurijeh/ Sarchesmeh
KOPEH DAGH	Raz	Shemshak	4770.96	-	-	-	Trigan/ Mozduran/ Shemshak	Sarchesmeh/ Zard/ Shemshak
MOGHAN	MOGHAN	SALM Aghaji/ Ojagh Gheshlagh	1126	1263	-	663	Zivar/ Ojagh Gheshlagh	Ojagh Gheshlagh/ Zivar/ Tortoinan
CHNTRAL IRAN	KAvir	Qom	4976	652	-	3380	Qom	Upper Red Formation
FRONTIER	Taybad	-	9001.65	-	-	3268		
FRONTIER	Sistan	-	8601.84	599	-	5267		
CASPIAN SEA	24	Maykop series Aghchagyl formation	200	200	-	-	Aghchaghyl sandstone Lower Productive series sandustone (balakhany equivalent)	Pliocene Evaporate of surakhani the fine clay of upper Aghchagyl Formation
CASPIAN SEA	26	Lower shale layers from maykop series & base of Aghchagyl Formation	347	347	-	-	Aghchaghyl sandstone Lower Productive series sandustone (balakhany equivalent)	Pliocene Evaporate of surakhani(upper productive series) the fine clay of upper Aghchagyl Formation
CASPIAN SEA	29	Lower shale layers from maykop series & base of Aghchagyl Formation	1028	1027	-	-	Aghchaghyl sandstone Lower Productive series sandustone (balakhany equivalent)	Pliocene Evaporate of surakhani(upper productive series) the fine clay of upper Aghchagyl Formation

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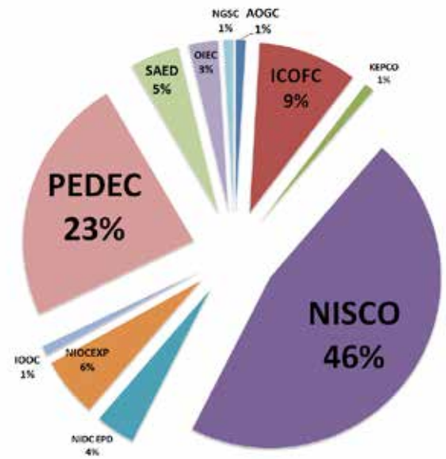
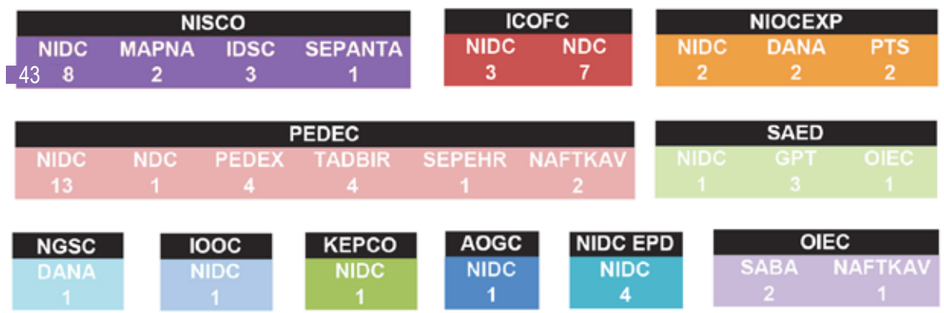
THE LAST REPORT OF IRAN ONSHORE RIG FLEET STATUS

#	Name	Contractor	Operator	Location	Situation
1	FATH20	NIDC	NISOC	Ahwaz	Active
2	FATH21	NIDC	NISOC	Maroon	Active
3	FATH22	NIDC	NISOC	Gachsaran	Active
4	FATH23	NIDC	NISOC	Ahwaz	Active
5	FATH24	NIDC	NISOC	Mansoori	Active
6	FATH25	NIDC	NIDC EPD	Parank	Active
7	FATH26	NIDC	PEDEC	Azadegan	Active
8	FATH27	NIDC	PEDEC	Azadegan	Active
9	FATH28	NIDC	PEDEC	Yaran	Active
10	FATH29	NIDC	NISOC	Maroon	Active
11	FATH31	NIDC	NISOC	Lali	Active
12	FATH32	NIDC	NIDC EPD	Azadegan	Active
13	FATH33	NIDC	PEDEC	Azadegan	Active
14	FATH34	NIDC	NISOC	Aghajari	Active
15	FATH35	NIDC	NIDC EPD	Azar	Active
16	FATH36	NIDC	NISOC	Maroon	Active
17	FATH37	NIDC	SAED	Azar	Active
18	FATH38	NIDC	NISOC	Maroon	Active
19	FATH39	NIDC	NISOC	Maroon	Active
20	FATH40	NIDC	NISOC	Parsi	Active
21	FATH41	NIDC	NISOC	Aghajari	Active
22	FATH42	NIDC	IOOC	Khark	Active
23	FATH43	NIDC	NISOC	Ghale Nar	Active
24	FATH44	NIDC	NISOC	Gachsaran	Active
25	FATH45	NIDC	NISOC	Maroon	Active
26	FATH46	NIDC	NISOC	Gachsaran	Active
27	FATH47	NIDC	NISOC	Ahwaz	Active
28	FATH48	NIDC	AOGC	Sohrab	Active
29	FATH49	NIDC	ICOFC	Paydar	Active
30	FATH50	NIDC	NISOC	Parsi	Active
31	FATH51	NIDC	NISOC	Parsi	Active
32	FATH52	NIDC	NISOC	Pazelan	Active
33	FATH53	NIDC	NISOC	Maroon	Active
34	FATH54	NIDC	NIDC EPD	Darkhooin	Active
35	FATH55	NIDC	NISOC	Mansoor Abad	Active
36	FATH56	NIDC	KEPCO	Soofikam	Active
37	FATH57	NIDC	NISOC	Dehloran	Active
38	FATH58	NIDC	NISOC	Maroon	Active
39	FATH59	NIDC	NISOC	Ahwaz	Active
40	FATH60	NIDC	PEDEC	Azar	Active
41	FATH61	NIDC	PEDEC	Kish	Active
42	FATH62	NIDC	NISOC	Shadegan	Active
43	FATH63	NIDC	NISOC	ZELOI	Active
44	FATH64	NIDC	NISOC	Koopal	Active
45	FATH65	NIDC	PEDEC	Azadegan	Active
46	FATH66	NIDC	ICOFC	Dehloran	Active
47	FATH67	NIDC	PEDEC	Azadegan	Active
48	FATH68	NIDC	NISOC	Maroon	Active
49	FATH69	NIDC	PEDEC	Kish	Active
50	FATH70	NIDC	NISOC	Maroon	Active
51	FATH71	NIDC	NISOC	Koopal	Active
52	FATH74	NIDC	NIOCEXP	Kenar Takhte	Active
53	FATH75	NIDC	NISOC	Gachsaran	Active
54	FATH78	NIDC	NISOC	Maroon	Active
55	FATH79	NIDC	NISOC	Bibi Hakimeh	Active
56	FATH80	NIDC	ICOFC	Sarvestan	Active
57	FATH81	NIDC	PEDEC	Azadegan	Active
58	FATH82	NIDC	NISOC	Dehloran	Active
59	FATH83	NIDC	NISOC	Ahwaz	Active
60	FATH84	NIDC	NISOC	Ahwaz	Active
61	FATH85	NIDC	NISOC	Ahwaz	Active
62	FATH86	NIDC	PEDEC	Azadegan	Active
63	FATH87	NIDC	NISOC	Ahwaz	Active
64	FATH88	NIDC	NISOC	Aghajari	Active
65	FATH89	NIDC	PEDEC	Azadegan	Active
66	FATH91	NIDC	NISOC	Maroon	Active
67	FATH92	NIDC	PEDEC	Azadegan	Active
68	FATH93	NIDC	NISOC	Mansoori	Active
69	FATH94	NIDC	NIOCEXP	Gachsaran	Active
70	FATH95	NIDC			Deactive
71	NDC110	NDCO	ICOFC	Sharhani	Active
72	NDC112	NDCO	ICOFC	Dehloran	Active
73	NDC113	NDCO	ICOFC	Khangiran	Active
74	NDC114	NDCO	ICOFC	Shiraz	Active
75	NDC115	NDCO	ICOFC	Saraje ghom	Active
76	NDC116	NDCO	ICOFC	Shiraz	Active
77	NDC119	NDCO	ICOFC	Paydar Gharb	Active
78	NDC111	NDCO	PEDEC	Azadegan	Active
79	NDC117	NDCO			Deactive
80	201	PEDEX	PEDEC	Azadegan	Active
81	202	PEDEX	PEDEC	Azadegan	Active
82	203	PEDEX	PEDEC	Azadegan	Active
83	204	PEDEX	PEDEC	Azadegan	Active
84	05- Workov	PEDEX			Deactive
85	O2	GPTKISh	SAED	Azar	Active
86	O3	GPTKISh	SAED	Azar	Active
87	O4	GPTKISh	SAED	Azar	Active
88	O1	GPTKISh			Deactive
89	301	Tadbir	PEDEC	North Yaran	Active
90	302	Tadbir	PEDEC	Azadegan	Active
91	303	Tadbir	PEDEC	Azadegan	Active
92	304	Tadbir	PEDEC	Azadegan	Active
93	Dana 1	DANA	NIOCEXP	Ahwaz	Active
94	Dana 2	DANA	NGSC	Nasr Abad	Active
95	Dana 3	DANA	NIOCEXP	Ahwaz	Active
96	noor 1	Mapna	NISOC	Mansoori	Active
97	Noor 2	Mapna	NISOC	Mansoori	Active
98	Vorkover10	IDSC	NISOC	Ahwaz	Active
99	Vorkover10	IDSC	NISOC	Mansoori	Active
100	Vorkover10	IDSC	NISOC	Naftshahr	Active
101	301	Sepanta	NISOC	Ahwaz	Active
102	302	Sepanta			Deactive
103	1	IOEC			Deactive
104	2	IOEC			Deactive
105	3	IOEC			Deactive
106	4	IOEC			Deactive
107	5	IOEC			Deactive
108	101	NAFTKAV	PEDEC	South Yaran	Active
109	103	NAFTKAV	PEDEC	South Yaran	Active
110	vorkover 10	NAFTKAV	OIEC	Azar	Active
111	Persia 1	Persia	SAED	Azar	Active
112	Saba 201	SABA	OIEC	Ahwaz	Active
113	Saba 202	SABA	OIEC	Ahwaz	Active
114	SEP.1	psked	PEDEC	Yaran	Active
115	PTS.16	PTS	NIOCEXP	Khoozestan	Active
116	PTS.18	PTS	NIOCEXP	Charak	Active
117	GWDC.16	CNPC			Deactive
118	GWDC.18	CNPC			Deactive



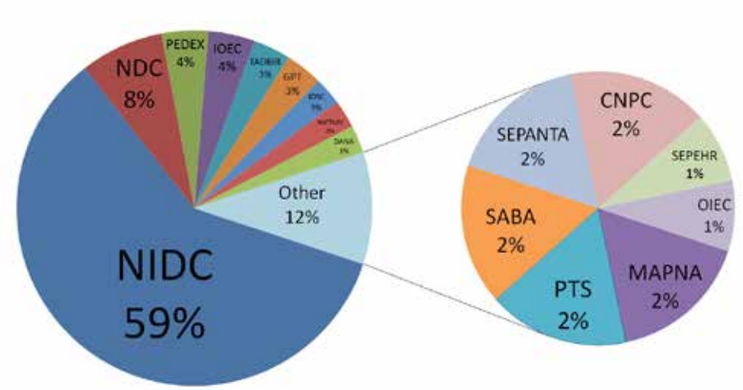


Comparing Operators in terms of onshore drilling operations to separate contractors

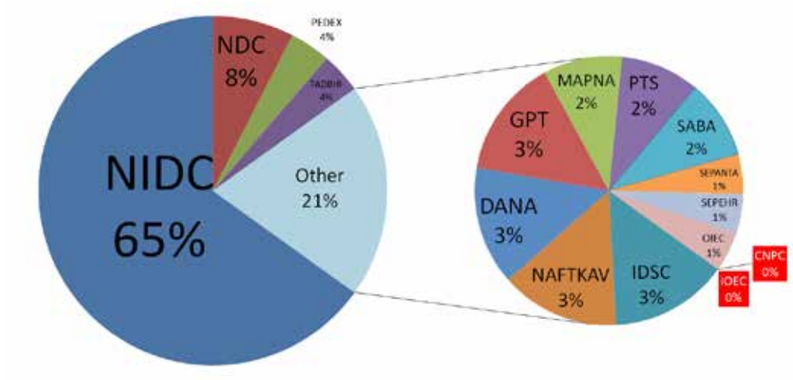
News

IRAN RIG FLEET (OFFSHORE)

#	Rig name	Owner	Client	Situation
1	Aban 6	Aban offshore	IOOC	Active
2	Forsight driller 5	Forsight drilling	IOOC	Active
3	Forsight driller 3	Forsight drilling	IOOC	Active
4	Alvand	NIOC	IOOC	Active
5	Deep driller4	Sinvest	IOOC	Active
6	Modarres	NIDC	IOOC	Active
7	Shengli10	Shengli offshore	IOOC	Active
8	Snubbin unit	Ocean Oilfields	IOOC	Active
9	MD-1	MAPNA	IOOC	Active
10	Iran amirkabir	NIOC/KEPKO	KEPCO	Active
11	COSL strike	COSL/GPT	POGC	Active
12	COSL force	COSL/DANA	POGC	Active
13	COSL craft	COSL/DANA	POGC	Active
14	Deep driller2	Sinvest/NIDC	POGC	Active
15	Deep driller 6	Sinvest/POSCO	POGC	Active
16	NOAH Arc	NIDC	POGC	Active
17	Rajaie	NIDC	POGC	Active
18	CPOE9	CNPC/PGFK	POGC	Active
19	CPOE10	CNPC/PGFK	POGC	Active
20	CPOE15	CNPC/PGFK	POGC	Active
21	Sahar1	NDC/PGFK	POGC	Active
22	Sahar2	NDC	POGC	Active
23	Pasargad100	PEDC	POGC	Active
24	Pardise1	PGFK	POGC	Active
25	Seaboss	PGFK	POGC	Active
26	Westenlarisa-barge	PGFK	POGC	Active
27	Sina1	PGFK	POGC	Active
28	Aban8	Aban offshore	POGC	Active
29	DCI1	DCI	POGC	Active
30	DCI2	DCI	Oil layer	Inactive
31	Oriental1	GPT		Inactive
32	Alborz	NIOC/NIDC		Inactive
33	Forsight driller 9	Forsight drilling		Inactive
34	Passargad200	PEDC	Under repair	Inactive
35	Sagadrill2	Japan drilling		Inactive
36	Slant	NIDC		Inactive
37	Karoon1	DANA	Under repair	Inactive



DRILLING COMPANIES IN TERM OF ONSHORE RIGS OWNERSHIP



DRILLING COMPANIES IN TERM OF ONSHORE MARKET SHARE

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SECOND CHAPTER
FOCUS

INDUSTRY LEGITIMACY DEPENDS ON TECHNOLOGY DEVELOPMENT

Dr. Mohammad Reza Moghadam
Deputy of Research and Technology and Engineering Deputy of Oil Ministry Administrator

Regarding to article 4 of new contract pattern known as IPC, Iranian authorized companies as international companies' partners will have a role in performing the contracts. To recognize these companies some committees have been established in oil ministry adjutancy engineering. On the other hand, the technology transfer is one of the most important issues of the new contracts which its general policy is being performed in this adjutancy. To be aware of actions taken in this section, we have done an interview with Dr. Moghadam, Supervisor of adjutancy engineering and VP of research of Oil Minister which comes in the following:

According to using the ability of domestic contractors in the new oil contracts, the responsibility of domestic companies' evaluation is by the adjutancy under your management. In this case how do you see domestic companies' potential for development and exploration?

If we have a look at the history of drilling industry and in fact exploration, production and development in Iran's oil industry, we will see 2 sections with different structure; before and after Revolution. Before revolution the world's well-known companies were active in Iran and they had access to updated and advanced technology. The best companies of the world worked here, but after revolution they all left Iran and operation section was all we had. Iranian employers could go on with the experience they gained by working beside foreigners. This was our only capacity and vulnerable and with this vulnerable we tried a lot and could make the industry alive.

While drilling industry and related equipment technologically is a very sensitive and complicated industry which needs training which raises efficiency and as a result we can go on with less expense and more speed. I you look the way of promotion learning and technology development, you will see that equipment, technics, processes and tools using these days are not comparable with 30 years ago. So after revolution have worked well in organizing and establishing operational section but we have not done any important thing in production of equipment, tools, technical science and technology development. So it is obvious that the costs go up and the efficiency to the cost goes down.

This does not mean to ignore all laudable efforts. But we have to move to the knowledge vase economy by looking at what we have gained inside and what is going on outside the country. Economic Strength on which there is very emphasized is this and it carries 2 keywords inside: "Knowledge-based economy" and "Endogenous and Introspective economy".

How do you generally see the situation of drilling industry by the evaluation you have had till now?

When we have a look at drilling industry, we see that it is a bit different with the world updated technology. From now on the work must be knowledge oriented. Industry should respect the university and give them motivation. University should go to the industry's body and its effect s must be seen in operational procedure's body. The costs of researches and investigations should be part of capital

costs which shows itself in the heart of activities. Costs reduction and more profit happen via development and technology. Universities and research centers should have a especial and effective role. Industry and university should be on the same network. Economic Strength says the same.

At the present time we have contracts for producing and developing 10 commodities and there are contracts for technology development with universities and research centers (52 reservoirs). Of course universities should have a basic commitment for the things we have done university improvement they have to do something and assure industry. If industry and university reach to a mutual trust and we found out this is the way to survive, something happens which has happens everywhere else.

The speed of product development toward 10 years ago is not comparable at all. Scientific development which is happening in the world and the technologies which are registered increases exponentially. From another angle we cannot always invent, so we have to use technology transfer. If we buy something, we'll have to have technology transfer beside it.

We have 2 kinds of Sciences. One, operational science which is usually given to us by foreigners for example they teach us how to rotate the rig or how to use the tools. Second is Fundamental science. This is the science of technology and technology development which is the basis of ability of production designing and optimization process and we have not done anything in this field.

Now it is time for contractors. The policy is completely clear and based on economy strength. Iranian contractors should be science oriented, compete and become international and in this way sanctions will not have any effect.

What was the pattern used for companies' evaluation and what was their index?

When discussing local content, 4 strategic discussions exists which all are showed off in operational level. The most important discussion is: What is our "Evaluation" about our situation? We have to do the Introspection and evaluate (audit) carefully and see where we are standing. We have to do the real audit. Otherwise, discussions will not have a firm base. All which is said is general. We have spent lots of time on this to have a proper audit.

The second subject is: We should have a "Plan". And the plan is if we have outer work capacity, continue audit and say now we expect you to go after technology transfer. When we say that we have to do this, this means that we should have "Policy". When we do not, we cannot command. Contractors say if you command, how can we answer the operators? Next subject is "monitoring". There should be a proper supervision on the performance.

If we do not study these 4 very important and fundamental subjects in local content properly, we will not reach the goal we want. Four subjects includes audit, planning, policy and monitoring which can lead us to our intended position by stepping forward this way and continue step by step.

How about the E & P companies?

In E & P section it is the same. Technology transfer is a part of local content but we have separated it. We have moved the technology transfer to E & P level and the second level refers to equipment production and contracting services discussions.

Iranian companies should be specified by audit to know in what part they are. E & P or service suppliers and producers. Then we have to plan for them. After that ask them adherence to guaranteed policy and finally monitor them. If this cycle goes properly, Proper "apply" and "achievement' will occur.

None of the contractors we have in Iran are not E & P and this is because they do not bring money and take risk but foreigner contractors bring money and take risk. They develop the reservoirs, use new technology and do over down withdraw.

LEGAL REQUIREMENT FOR INTERNATIONAL PARTICIPATION IN IRAN'S PETROLEUM INDUSTRY

Reza Pakdaman
International Contracts Expert

Focus

Being an international industry is one of the main characteristics of world's petroleum industry. Although other industries need to have international connections, but petroleum industry's nature is international cooperation at all levels. Even in developed country's petroleum industry with a robust science and financial support, there exist lots of companies from other countries.
For example in United State, besides 57 American company, foreign companies exist. In the previous edition of Drilling Magazine, I presented some examples of petroleum contracts signed in recent month in neighboring countries and I mentioned the importance of attending to this progress for our country.
Unfortunately, our country has not used the international cooperation cycle and its benefits for developing national petroleum industry in recent three-decade because of many parameters.
From the viewpoint of a company there exist three basic risks that could be investigated for participating in a project:

1. **Technical risk**
2. **Financial risk**
3. **Political and legal risk**

Comparing with fields that exist in deep waters and have high production costs, Iranian oil and gas fields have a very good situation and they have minimum technical and financial risk. From the legal point of view, simplifying rules is a general strategy in Iran for encouraging international companies to participate in projects.
In the beginning of the revolution based on Article 77 of the constitution, some groups believed that contracting between governmental and international companies must have parliamentary approval. This issue practically stopped all types of international trades, especially industrial projects. In 1981 and 1984 Guardian Council explicitly stated that international contracts don't need parliamentary approval.
In recent 25 years, Iran's government and parliament have tried to facilitate and encourage foreign investment in Iran by different legislation and regulations. Here we mention some of them:

- About foreign fundraising and governmental support, "Foreign investment encourage and support law " has been approved in 2002.
- The council of ministers approved its executive regulations in 2003 and different sectors of the economy that are under this facilities is determined.

In this regulation crude oil and natural gas (Exploration, drilling, and transmission) is under this facilities.

- The council of ministers approved "Foreign investment regulations, Civic participation, and buyback contracts general rules " in 2004
- Investment rules in Iran's free trade and industry areas were approved in 2005 based on management of Iran's free trade and industry areas law framework. In this law, more advantages are predicted for foreign companies. Since Kish and Gheshm free areas are near onshore and offshore petroleum operations, this area could have a proper support for petroleum related activities.
- Directive of State Tax Organization implementing regulations about taxes of foreign companies branches in Iran and determining the income coefficient of legal persons and foreign institutes made the tax status of foreign companies somewhat clear.
- Resolving disputes is an important part of a foreign investment. With the approval of the International Commercial Arbitration Law in 1997 and Iran's accession to recognition and execution of foreign arbitration convention Law in 2001, an appropriate legal framework is been established in our country. But beside this law, some professional branches in our courts should be created in order to investigate and execute arbitration decisions.
- By approving resistive economy policies in 2015 and articles 13, 14 and 15 which is in the energy sector, an important step for developing international activities in petroleum and energy industry was taken.

In paragraph 13 of resistive economy policies, seven enforcement measures have been predicted for resisting against being vulnerable to oil and gas export incomes. Most of this articles are general and for operationalizing these policies, the necessary regulations for our purposes should be approved and approving other contrary policies should be prevented :

- **First step:** Having strategic customers for our oil and gas products (By identifying reputable companies and having long term contracts with them).
- **Second step:** Making different methods for selling products (By choosing different methods consistent with the requirements on the market).
- **Third step:** Sharing private sector in sailing products (consisting sales of local and international oil, gas and petrochemical products by private sector companies).
- **Fourth to seventh steps:** Increasing oil, gas and petrochemical products export

14th article: Increasing the strategic oil and gas reserves for affecting the market and focusing on oil and gas capacities development, especially in shared fields.
15th article: Increasing Added value by completion of oil and gas industry chain, developing of efficient products (based on their energy consuming index), Increasing electricity, petrochemical, and oil products with an emphasis on preservative production from the reserves.

Summary
In the Iranian legal system, there are sufficient rules for international partnership in Iran' petroleum industry. According to the resistive economy policies and insisting on having "flexible" and "leading and extroverted " economic rules, it seems there isn't serious legal issue. In spite of Iran's petroleum industry capacities and international oil company's enthusiasm, in past decades, international cooperation in Iran's petroleum industry have reached to the worst situation.
Fortunately, Iran's government has succeeded to lift the sanctions against its economy and petroleum industry in the recent month. But for the effectiveness of post sanction situation, personal and partisan policies in employer companies should be amended immediately. This subject is challenging for the government like nuclear negotiations. For example using incentives provided for foreign investment support have a complex process, and it may cause some problems for attracting foreign investors.
Administrative procedures and governmental companies and organizations approach to industry activists and foreign companies are not consistent with international and even regional norms.
Many organizations related to petroleum industry like Employment of Foreigners Department, State Tax Organization, Municipalities and local organizations should avoid their boring bro cratic process and their domestic approach.
Decision-making progress should be aligned and in a reasonable timeframe.

1. After approving a plan in its relevant section, all other related organizations in different levels should participate in the plan implementation progress.
2. Time is a key parameter in the success of any plan. Considering slow progress for more than a decade, all the decisions should be made in a reasonable period of time.

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POST-SANCTIONS DIELMMA

Iran's Drilling Industry after Lifting the Sanctions and Introduction of IPC

Ramin Foroozandeh
Researcher

By unveiling the new generation of oil contracts with the name of IPC (although the draft version of this contract was not publicly published), a number of legal, financial and technical investigations were conducted. Obviously judging on this contract form is not possible until its publication in a complete detailed way. Meanwhile the approval of cabinet of ministers could be somewhat helpful. In this contract there will be cooperation between Iranian and foreign companies for investment in exploration, development, production and enhanced oil recovery phases that will last for at maximum 25-year period. Payments for the second side of a contract will be calculated according to each barrel of the produced oil. A number of consolidated figures in buy-back methods no longer could be seen in IPC and therefore IPC is more flexible than buy-back. Formation of E&P (Exploration and Production) companies is one of the inevitable necessities of IPC is one of the discussed topics of IPC. Currently NIOC is the only one available of this kind. This method of contracts will have some changes in Iran's drilling industry that some of them will be mentioned:

Development of Solution Maker Companies

In IPC, there's more consistency in field development process and contractors will be present during the whole stages of exploration, development, production and enhanced oil recovery. Up to now drilling service providers were present during the mentioned stages although their participations were concentrated highly in exploration and development stages and in higher levels like decision making and macro management. According to IPC we could expect the extension of their participation to production and enhanced oil recovery stages. In this situation not also the related the related operation, but also decision making and solution making would be dedicated to service provider companies. In this situation drilling service provider companies shouldn't rely on a specific service and its report. But they should present designed solution for each situation that may include using different services simultaneously. Simultaneous management of different services brings the need for consistent drilling services to the mind.

Need for Integrated Drilling Services

Experience of using Integrated Drilling Services Contracts, due to logistic and contract problems and high financial volume of offshore projects lead to the conclusion that it has been implemented mostly in Iranian Offshore Oil Company and Pars Oil and Gas Company areas of activity. Evaluations are showing that this contract method was a successful one although it has some problems and it's necessary to edit it. Considering the necessity for providing a solution that is suitable for the entire life-cycle of a reservoir and the number of necessary services, it seems that by using IPC in onshore areas we will have integrated drilling services contracts. Specifically if the risk and financial return of these contracts increase, main contractor companies would tend to its side.

Expanding the presence of Consultants

Despite the existence of a number of drilling service providers, equipment manufacturers and drilling management companies, there's still a considerable scarcity of upstream consultants in Iran petroleum industry. Part of this story is due to the structure of upstream projects that traditionally and unlike the downstream projects, it's not common to employ a consultant. Meanwhile we could name a number of upstream projects with presence of a consultant that were in different parts of MDP, various stages of studies, simulation and supervising drilling operation. E&P companies assign a major part of their activities to upstream consultants and even drilling companies could use different services of consultants. By presence of companies during the life of a reservoir and considering contract incentives for production preservation in new oil contracts, increased presence of upstream consultants in projects will be expected. Using upstream consultants does not necessarily mean greater number of consultancy companies. But this section will be developed among drilling service providers and they will not rely on specific services just like their foreign rivals.

Changing to E&P Companies

Formation and development of E&P companies is one of the main plans of Petroleum Ministry and it is expected that some of the major drilling companies will change and transform in order to become E&P companies. Actually the biggest current potential in Iran petroleum industry for formation of E&P companies are major drilling companies. These companies were managing body of drilling projects using different methods e.g. EPD during sanctions period. Obviously reducing the area of activity of an E&P company to drilling operation management is not possible. But experiences of drilling operation and its major role in upstream of oil industry projects could be considered an incentive for formation of an E&P company.

Increased Competitive Environment

IPC will definitely lead to competitiveness. Considering incentives in contracts for using modern technologies will lead to increased demands of high-tech drilling services that would have its effect in development of domestic supplies or using foreign technologies. In both situation competitions will be present as the main motive. Also expecting the presence of giant international developers in the country, would lead to the expectation that drilling contractors and equipment manufacturers will enter Iran and competitive environment will be much more than the past. The environment may not lead to the benefit of all drilling service providers.

Bankruptcy, Merging or Development

If we assume that service providing and giant drilling companies enter Iran, considering current performance and status we would have some solutions for Iranian companies. Some of them which have developed from both quality and quantity point of view during sanctions period, may lose some of their market share and still be present. But if the number of active projects increases, the story would be vice versa. But a lot of small companies which lack financial support and significant physical assets and have little market share during the economic sanctions period, may face a lot of problems in the competition and they're looking for some solutions. Merging with other companies would be a solution. Meanwhile for some of company's bankruptcy would be their only choice and they may want to sell their physical assets just from now.

IRAN HAS GREAT POTENTIALS FOR OIL AND GAS ACTIVITIES

Abdolsamad Rahmati
The National Iranian Oil Company

Oil and gas industry in any country is located in the center of the country's economy. Therefore, multiple capabilities of oil in industrial fields have led developed countries toward achieving vast oil resources around the world. Furthermore, countries having these resources have realized the financial aspect of this material and are after earning money by its sales and industrial production in the future.

The world's businesses, that were looking for profits based on the nature of their activities, have realized now that oil is a rich source of income.

In order to achieve an agreement between the main actors' interests, First, a unique frameworks had to be stablished. Oil contracts were those frameworks which, since the discovery of oil, were employed as a means of accomplishing the common interests of both sides and adjusting their relations with each other. In this regard, various contract models were developed and used, mainly including the concession agreements, production-sharing contracts, and service contracts.

Nowadays, two models of partnership and service contracts in most of oil- and gas-producing countries, including Norway, the UK, Canada, Iraq and Qatar are being performed. These contractes are of such interests that has led to huge investments in these countries' oil industry.

For example, presenting new oil and gas contracts in Iraq, which are service contracts, has attracted many foreign companies and has ultimately increased the production of oil for 2million bbl/day in Iraq's oil industry during the past five years.

In our country, in recent years for several reasons such as the international circumstances, foreign oil companies have been prevented from attending the contracts, thus the officials were urged to provide good situations for the participation of foreign companies in different segments of oil industry after nuclear agreements and their operations. Finally, in order to restore economic relations with industrial countries all over the world, the new oil contract model of IPC (Iran Petroleum contract) was designed.

The mission of oil industry in exerting Iran's ruling and possession rights in terms of its whole oil and gas resources and installations is as follows: improving long-term benefits of the country via maximizing the country's income from oil and gas resources and marginal activities and protecting this resources.

It is evident that efficient production with the maximum added value from the country's oil and gas industries and protecting them, creating and enhancing an effective relationship with national, regional, and global benefiting parties, and predicting the evolution trend of oil industry in the world are among the required actions to save the national benefits of the country from the strategic policies of oil industry.

According to 2015-BP, Iran ranks fourth and first in terms of oil and gas reserves in the world, respectively. Therefore, Iran has great potentials for oil and gas activities. We have about 158 billion barrels of recoverable oil reserves that comprise about 10% of global oil reserves, indicating the noticeable potential in the country. With around 34 trillion cubic meters of gas in recoverable gas reserves, our country has a prime role in the world gas reserves, and containing over 18 percent of world gas reserves points to Iran's great potential in this field. So far, less than 30% of recoverable resources have been exploited and produced, IPC contracts can be an opportunity for using the existing capacities. In the new contract, 18 exploration blocks, 29 oil fields (including 8 offshore and 21 onshore fields), and 21 gas fields (including 3 offshore and 18 onshore fields) have been considered. Among the onshore oil fields, the development of 9 new fields along with 12 oil fields available (re-evaluation in order to maintain or increase production to new methods of harvest) have been observed in the plan. The offshore oil fields are mostly the available fields, and three undeveloped fields have also been considered. In the onshore gas sector, 13 new fields along with the development of two available oil fields have been considered in the plan. All the offshore gas fields are undeveloped fields.

The officials have specified 50 oil and gas project with the value of 180 billion dollars in the new oil contracts which can have a key role in the future of Iran's oil industry. It is expected that with the new model the oil contracts can attract25-30 billion dollar investment in the oil sector.It is worth mentioning that at the present moment, second to Saudi Arabia ,Iran produces oil with 9 dollar and 8 cents per barrel , which is itself another investment attraction in Iran, since the country which has the least production cost can have the most income.

With regard to the processed programmings in the sixth development plan, gas production increases from 750 million m3 per day at the end of the fifth plan to 1,400 million m3. In addition, according to the plan the crude oil production capacity must rise to 4.7 million barrel per day.in other words, this capacity must increase approximately 700 thousand barrels compared to current capacity.

On this basis, if the new oil contracts enter the operation stage, almost 160 million m3 gas per day in the gas sector and in the oil sector, except for the 13 producing oilfields whose production is clarified by the contractor's research,almost 950 thousand barrel per day will be added to the country's oil and gas capacities.

In the so-called IPC contracts,it is supposed that the different parts of the oil industry (exploration, development and production) will be integratedly awarded to foreign companies so that they have an incentive to participate in the oil industry in Iran.

In this type of contract, the ownership of the vessel is not transferred and the preservation of reservoir production is one of the most important issues in these contracts.

The introduction of the new model of oil contracts, investment attraction, technology transfer, protected production of reservoirs, increasing the reservoir's recovery factor (now EOR reservoirs coefficient of the country is 24 percent and the target of the research is to increase the recovery from the current 24 percent to 35 percent. And if the EOR technology cannot be developed, these reservoirs will face production reduction in the second half of their life) . And more and more efficient use of local contractors is an important objective of the new model contract in the oil industry. Local contractors will play a key role in the of 20-25 year perspective of the oil industry. That's why the competency of contractors of oil company is crucial.

According to Article 4 of the oil industry's new model contract IPC, Iranian qualified companies, in the process of contract role as a partner with reputable foreign companies. For this purpose and to detect the competent Iranian companies able to attend in contracts to develop fields in the form of Exploration and Production (E & P), the oil minister send a Announcement for evaluating companies and promote them to the E & P companies, and now an expert team are examining the issue and provide solutions with which local companies can be assessed.

It worth to mention that in the international definition , companies who work exploration Activities, development and production of crude oil and gas,are called as exploration and production (E & P).

Also to evaluate companies which have been qualified for exploration and production, ability to risk and its management, Technical capability and skilled manpower, the upstream project management and the financial ability are of the indicators that need to be evaluated in companies in order to become E & P companies.

By the way, according to reconsideration of new oil contracts by the competents in country, it is essential to be reviewed in order to promote national goals.

Without a doubt, investment in the upstream sector in order to maintain and improve the share of OPEC production and maintain the position of Iran in the Middle East is inevitable. So The team success is which that provides development, and government and other organs in the country support them with guidelines to pave the way, and with the judiciary's help to protect the alignment of goals.

Having clear rules and regulations, legal precedents and practices of the oil industry in the use of all the features and capabilities of the country for the promotion and development of Iran's oil industry and promoting the status of contract law in the energy sector is completely necessary. In addition, use of maximum engineering power, as well as environmental considerations and regulations, are other important issues in foreign contracts in the upstream oil industry.

At last,in Psabrjam era ,we hope to be able to predict the essentials of working with international companies correctly to take full advantages, and saw the formation of powerful domestic companies in our region and the world in near future. And this is the only way which make our national resources to circulating and serve the security, growth and development of our country.

Pathology of Integrated Drilling Services (IDS) Contracts

Risk Allocation Regime through Liabilities and Indemnities Clauses is not Properly Reflected

Khashayar Zainali
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Abbreviations:
IDS: Integrated Drilling Services
NIOC: National Iranian Oil Company
IMHH: Industry Mutual Hold Harmless
KFK: Knock for Knock
LOGIC: Leading Oil and Gas Industry Competitive
AIPN: Association of International Petroleum Negotiators
IADC: International Association of Drilling Contractors

Introduction:

IDS Contractors are key players in petroleum exploration and development in the country, which is a high-risk activity. Major Operators and NIOC's affiliated companies depend on oilfield service and IDS contractors to provide specialized services and technology, which supports petroleum production both onshore and offshore, including but not limited to drilling and related services.

Having the risky nature of IDS operation another Piper Alpha, Montara or Maccondo disaster could happen in oil and gas industry but might not in North Sea, Timor Sea or Gulf of Mexico rather in the Persian Gulf or Caspian Sea. Given the high-risk nature and non-stop twenty-four hours operation in IDS contracts, risk allocation through liabilities and indemnities clauses has always been matter of negotiations obstacles, disputes and litigations between contracting parties to IDS contracts. Indemnity is complicated but a very effective concept on allocation of risk in upstream oil and gas operation. NIOC's affiliate companies, as state-owned companies are powerful enough to shift different types of risks through liability and indemnity clauses to service and IDS contractors unliterary. Operators have also significant risks, large investments and considerable amount of gain and profit, but service companies on the other hand, provide services for short or midterm periods with contracts values much more less than operators therefore, associated risks should be allocated properly an fair enough to make IDS contractors survive in the industry.1

This article intends to address major kinds of risk associates with a IDS operation and share of each contracting party in allocation of said risks. An in-depth analysis of said concern could result in generating a very clear picture to see the existing risk allocation regime governing IDS contracts between service companies ("IDS Contractor)" and Operators or NIOC's affiliate companies ("Company"). Having such a standard regime in IDS contracts will not only limits the risk to an acceptable level to the contracting parties, but also will be helpful to avoid obtaining multiple and overlapping layers of insurance and makes contracting parties to have proper risk mitigation plans in place through their HSE and insurance mechanisms. Outcomes of such analysis will help and guide contracting parties of IDS contracts to utilize a proper risk allocation regime in the time of negotiating and drafting service contracts and also developing efficient risk management and mitigation mechanisms during contract execution.

Background of the subject:

Indemnification is the right of one party who is legally responsible for a loss to shift that loss to another party. In adjustment of contractual risk allocation the indemnity concept is one of the key elements.2

Black's law dictionary defines indemnity as (i) a duty to make good any loss, damage or liability another has incurred (ii) The right of an injured party to claim reimbursement for its loss, damage, or liability from a person who has such a duty and (iii) reimbursement or compensation for loss, damage, or liability. 3

The scope of liability in IDS contracts usually drops under three main categories: (i) Knock for Knock (KFK) clauses for injury an death of Personnel and damage to Property, (ii) Third Party Liability (TPL), (iii) Exclusion of Liability for Consequential Damages, (iv) Liabilities for Catastrophic Damages, and (v) Total Accumulative Liability Cap. 4

Based on globally established regime and international practices, the allocation of IDS contractors respective shares of liability shall typically be carried out under standard industry contracts like LOGIC standard for Well Services, AIPN Well Services Contract, BP's Global Model Well Services Contract and IMHH.

Risk allocation in IDS contracts, through indemnity clauses, are not poorly negotiated, drafted and concluded between IDS contracting parties and in case of any possible incident this could results in expensive and protracted litigations, and disputes between parties to IDS contract. Another key issue that this article intends to highlight is current risk allocation regime through liabilities and indemnity clauses dominated IDS contracts in Iran, which is not in line with international standards in the industry. From a legal and contractual standpoint liability and indemnity clauses, as a tool to accommodate a risk allocation regime, are among the most important clauses in General Conditions of an IDS contract and this area has been rarely touched and addressed by respective professionals.

Main risks and concerns associated with IDS operation:

(i) What kinds of geological, technological, facilities, legal, contractual and commercial risks have been allocated to each of contracting parties to IDS contracts through liability and indemnity clauses?

(ii) In what extend the risk allocation regime of IDS contracts is consistent and adapted to industry standards such as LOGIC standard for Well Services, AIPN Well Services Contract, BP's Global Model Well Services Contract and IMHH?
(iii) How fair and reasonable should risks of IDS contract should be allocate and share between contracting parties?

Contracting parties to an IDS contract have to contend with a wide range of risks and the financial implications of such risks can be very costly and may result in significant financial setbacks to the business. To mitigate risks and minimize exposures, contracting parties shall undertake various measures and mechanisms to manage the risks. In a wide context, risk management includes prevention and mitigation of risks and loss remedy in the event of occurrence.5

The most common risks and liabilities that contracting parties to an IDS contract are facing can be categorized and allocated to each party through liability and indemnity clauses as set forth:

- Liability for people and property, which includes grouping definition. ⟶ each party shall, accepts liability for its own people and property.
- Third Party Liability («TPL»). ⟶ Parties shall indemnify each other for TPL.
- Fishing and Lost in Hole (LIH/DBR). ⟶ To be compensated by Company unless happened at Gross negligence or Willful Misconduct of the IDS Contractor.
- Consequential damages. ⟶ Shall be waived by both parties.
- Catastrophic damages i.e. blow out, subsurface damage, fire, loss of hole, loss of oil, loss of gas, etc. ⟶ Company shall indemnify Contractor against Catastrophic damages.
- Pollution ⟶ surface and subsurface pollution. Contractors can only accept surface pollution emanating from their equipments above the rotary table.
- Risks and indemnity provisions associated with Radioactive, Chemicals, Data Interpretation, Explosives, Intellectual Property and Product Liability. ⟶ Company shall indemnify Contractor against these kinds of risks.
- Total Accumulative Liability Cap. ⟶ Total accumulative liability of Contractor under IDS contract shall be limited and not exceeds from a certain and reasonable percentage of contract value agreed by parties.

THIRD CHAPTER
CONFERENCE

IRAN DRILLING SERVICES CONFERENCE

IRAN Drilling Services Conference 2016

Conductors >>

Iran drilling services conference

An Stage for Upstream Players

The very first discovered well in Iran, aged over 107 years old and today Iran's oil industry is on the inception of an mature evolution and development. Drilling technical services along side the two fundamental elements, commodity and rig, cover the triple drilling operation parameters. all act under the management planning and project engineering in drilling operation. Among them, the role of drilling technical services in terms of optimal utilization of equipment and technical knowledge of drilling experts, enhancing the drilling efficiency, decreasing the non-productive periods of drilling rigs, maintaining the well quality after a long term production phase and guarantee the maximum recovery planning from oil and gas reservoirs, is of ulmost importance. in addition, in terms of financial issues stands for over a half of drilling contracts expenses.

On the other hand, according to the spread and diversity of drilling services, development and rapid advancement of technologies followed by a multiplicity of drilling services companies, expose the necessity of stablishing an achievable plan in order to organize and finding an strategic point of view.

In order to achieve this goal, With the effort of association of graduated students in petroleum industry and Iran drilling study center, by the academic focus of Pars oil and gas company, more than 200 professional meetings were held in the format of 12 specialized committee for 18 months with participation of 400 experts and leaders from 150 active management and contracting companies both in public and private drilling technical services sections, producers, suppliers and drilling service provider companies.

The results of these professional meetings as a product of an overall 5700 person-hour work under supervision of permanent secretariat of the national congress of the drilling industry, was presented in the Iran drilling services conference held in 20th and 21th of January in the IRIB Int'l. Conference center(IICC).

The specialized drilling services conference is the first petroleum related event after the Post-Barjam which was held with 1200 attendees' participation representing 150 companies include public and private managers, drilling contractors, drilling technical services companies and investment institutions. Some features of this conference can be mentioned as: moving on from traditional methods to systematic ones, selecting the committee members according to their abilities and merits and awarding positions and responsibilities to technical committee managers, covering public and private companies, based on their performance appraisal.

Having an early career perspective on the current status of supply and demand of drilling services, seeking flaws and imperfections in the system and representing adequate solutions, measuring the Key Performance Indicators (KPI) relevant to each business and also benefit from the successful benchmarking processes in planning strategies and operation policies are the fundamental discussed material in the specialized workgroups and the final outcomes was discussed by the experts and specialists in the industry in the conference.

permanent secretariat of the national congress of the drilling industry considers organizing specialized workgroups in other sections of drilling industry like drilling engineering and efficiency, rig supplies, well control and blowout presentation and well completion as well as extending the targeted set workgroups. So we invite all the managers and experts in drilling industry to register and attend in these specialized workgroups.

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IRAN DRILLING SERVICES CONFERENCE

Defining the Play Rules and Determining the Players

Dr. Mohammad reza Moghaddam
Deputy of research and technology and engineering deputy of oil ministry administrator

When we want to explain what is the drilling services and where are we, there is a problem. We have no evaluation in drilling industry and we are incapable of estimating our situation. We need precise information of the current status of the industry and if anyone seeks communicating with us definitely requires an evaluation of our companies. At least we need to know what level are we in drilling and drilling services field. What is the place of the quality of our services with respect to the maturity of technology and representing services and how much is the expenses? The drilling services conference can form the fundamental structure of our evaluation which is a very considerable section.

Mohammad reza Moghaddam, deputy petroleum minister for research and technology affairs was the first speaker in the conference. During his speech with a review of the progress trend in the country said: early in the revolution all the drilling companies leave the country and we had nothing under the title of drilling industry. Many efforts were made and Iranian high-potential employees succeeded in achieving a proper position for our drilling industry. Increasing the sanction intensity enlarged the need for drilling services. Experiencing this severe condition proved that our young talents are capable of manage to fulfill our needs. Our attempt in the filed of manufacturing equipment was satisfactory and we succeeded in reaching from nothing to a considerable stage. although the sanctions were imposed against us following the revolution, but in recent years the sanctions and their target our petroleum industry at the first step. The west attempted to prevent export, investment and technology transfer in any shape of form. Under these condition the petroleum industry keep functioning properly. Many projects were active and the country energy security was stabilized.

This become an opportunity for serious players to commence their activity who are truly respectable. But one should not deny the significant damages of the sanction. Work-related expenses raised remarkably. Some abnormal event took place and we were deprived form different financial and technical resources. Although a gap created between Iran and other countries technology we proved that we are capable of managing our petroleum industry in tough situations. Still we fail to claim to be a serious rival for international companies.

How can we eliminate our weak spots? Eliminating our flows and lag time is not difficult. We have the experience of other countries. Many countries initiate their investment on petroleum industry after us and continue with clear perspective and diplomacy. We are about to enter a new scene.

We need precise information of the current status of the industry and if anyone seeks communicating with us definitely requires an evaluation of our companies. At least we need to know what level are we in drilling and drilling services field. What is the place of the quality of our services with respect to the maturity of technology and representing services and how much is the expenses.

With the unique role of our supreme leader, his guidance and supervision, the courage of our honorable president and the outstanding diplomatic team of the country, a magnificent event happened and we must protect this achievement properly.

What is our ahead direction? One approach is not to apply any kind of strategy. We don't define the play roles and don't determine the players. We don't specify each player's part and don't lead the audiences. That would be an inappropriate scene resulting in the waste of resources and talents.

Another approach is to set the roles base on the agreement of all players. We now have companies who function during 8 years of sanction. These players have rights. There are rules which must be changed base on a consensus of opinions. Oil and gas resources do not belong to a single generation but an intergenerational right. All the players must be familiar with their roles. It must be a win-win game and the role of each single player must be determined.

In order to achieve this goal, we start producing and establishing the play rules yet we still haven't entered a serious scene of play. We tried a year and a half and prepared a pamphlet titled as "leap technology via E&P and GC contractors" and we exhibited the success of applying resistance economy based on the world experiences. There are certain fields which can help us in determining the play rules. One is regarding technology management and a novel technology system. Unfortunately, our knowledge is so poor in this field.

By recognizing the differences in the knowledge we would be able to define a proper road map. Type of knowledges counts to be practical like project management and reservoir studies. Other types of knowledge are based on science and technology development and discusses the whys. Science and technology development, enhance the quality and decrease the expenses. International companies in drilling and drilling industry fields succeeded in both quality enhancement and expenses reduction. We must understand the differences between these two knowledges in technology transfer topics.

In accordance with the money spent on the projects considering technology development and transfer is of great importance. if the fund spent and no technology transfer took place no profit target would be achieved. Nowadays the role of technology in comparison to providing financial resources have increased in developing countries. They put market against technology. And express that if we are going to assign an oil field to an international company for 25 years we must consider what technical knowledge we would be attained.

We require to reach a consensus in petroleum industry inside the county as we did for Barjam. In Barjam when we reach a consensus, all the talents were employed properly and lead to an acceptable result. It is not our goal to have a national market, but it should be international indeed. We live in an oil producing region. Our power and influence must not be only diplomatic. The focus of our power must be based on all our capabilities including petroleum industry. So we ought to use the international talents to boost our productivity. We must have an highlighted role in the stage of exporting technical and engineering services. We need to exit from situations causing worry and obstacle for our talents and prove that we are able to use the Post-Barjam opportunities adequately.

Companies do not leave the stage to set the rules. They apply policy, planning and most important evaluation and monitoring. Functioning based on this framework for policy, planning, evaluation and monitoring, Norway become an important international player. We have problem in evaluation. When we want to explain what is the drilling services and where are we, there is a problem. We have no evaluation in drilling industry and we are incapable of estimating our situation. Where is the maturity of our technology? Where is the maturity of our service presentation? The level of these matters is defined in international terms and in case we don not specify these level we would fail in a methodical planning and monitoring.

We need precise information of the current status of the industry and if anyone seeks communicating with us definitely requires an evaluation of our companies. At least we need to know what level are we in drilling and drilling services field. What is the place of the quality of our services with respect to the maturity of technology and representing services and how much is the expenses? The drilling services conference can form the fundamental structure of our evaluation which is a very considerable section.

Oil and gas upstream section is dependent on drilling contractors and drilling services. The main and software-related sections are topics concerning E&P which is not comparable to any other business. No one is able to exactly determine the volume of a reservoir. Gaining information form, the reservoir would make it possible. Therefore, the production engineering has a noticeable impact in petroleum industry. This business in connected to technology development. Applying the available technology, 20 % of a reservoir would be recovered while by technology development and exerting "why" knowledge this production index can be raised to almost 50-60 % or even 70%.

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Macro and strategic management of drilling industry

Companies Use the Mutual Resources Optimally

Drilling services market is an attractive market. At the first sight, it is a low investment with high profit market. Nevertheless, we must have a more precise look at our belonging and national capabilities and evaluate the present demands properly. During the sanction, Iranian companies manage all the drilling operations and many projects are under production or soon will start to produce. A considerable amount of money was paid and time duration of well drilling increased leading to an increase in costs. But now the drilling time has declined since the Iranian contractors reach a mental maturity, they manage projects better and use well-trained teams. In case of foreign companies' entry, Iranian contractors must cooperate with them as it was in the past. National oil company also considers employing Iranian contractors along side the international companies. This approach leads to improving the scientific and management potential of national companies which resulted in enhancing the efficiency of work. We must not have the thought that we are incapable of competing with international companies. As we extend our capabilities to be active in all challenging topics and provide services, after sanctions we can maintain this situation and keep functioning.

8 % of field development expenses related to drilling services

Farokh Alikhali
Oil and gas engineering director of Pars Oil and Gas Company (conference director)

Investigating on the development activities in South pars, clarified that 25 % of each block development expenses are allocated to drilling section. Almost 30 % of this 25 % is related to "drilling services" which is generally 8 % of all field development expenses. Also in an performed analysis on the wasting times in each location of south pars it appeared that 50 % of the wasted times was because of drilling services.
One of the intended goals for Pars oil and gas company is decreasing the wasting time, increasing drilling efficiency and quality utilizing professional companies so we can deliver a normal well to the country. These wells are planned to be in service for 30 years so the quality of our performance is very important and one must not forget that on-shore repairment costs are huge. Powerful companies have been constantly recognized and supported.
Drilling services conference follow the same perspective. Based on this, 32 different services presented in the conference grouped intro 12 committees, which 7 committees discuss the technical services and the other 5 committees considers management topics like insurance, marketing, economy, human resources and contracts. Furthermore, a framework and road math was stablished for the committees. Based on this framework, in the first phase data collection was done and investigating on the causes and effects of flaws in the service system was performed on the second phase. Interesting facts was resulted from the second section and the hidden layers of work was displayed. Then based on the composition of the data and the results of the investigation an image of the present situation was gained. After that, the recognized flaws were prioritized and benchmarked and it followed by establishing a road map in three levels.

Oil Ministry Supports Drilling Contractors

Bahman Soroushi
Global Petro Tech Kish Co.
CEO

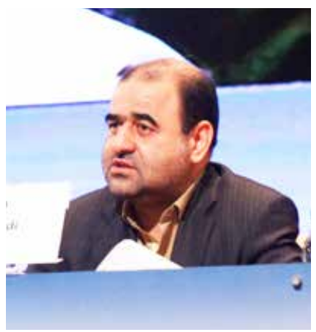
Iran drilling industry have been properly active in all stages and situations and constantly developing and making progress. So that despite all the pressures on the companies, as a consequences of the sanctions, and while the foreign contractors had left the country, the public contractors made their utmost effort and facilitate pursuing the road.
My first request is that oil ministry and national oil company supports domestics companies and Iranian contractors to work aboard. Unfortunately, little is done to support this group and contractors functioned under high levels of risk. While foreign companies have always been under the supervision of their government and had no financial concerns.
My second request is from managers to truly support the contractors. There is an inappropriate situation in contracting companies due to severe financial problems. Drilling companies are functioning with difficulties so that there would be no slightest flaw in drilling operations.
Suffice it to say that in case of foreign companies' entry, Iranian contractors must cooperate with them as it was in the past. National oil company also considers employing Iranian contractors along side the international companies. This approach leads to improving the scientific and management potential of national companies which resulted in enhancing the efficiency of work.

Cooperation of Small and Medium Companies is Important in Post-Barjam Era

Hamid Bovard
Oil Exploration Operations Co.
CEO

Drilling services market is an attractive market. At the first sight, it is a low investment with high profit market. Nevertheless, we must have a more precise look at our belonging and national capabilities and evaluate the present demands properly.
We have 120 offshore rigs which most of them are engaged in drilling operations. Since the drilling operations are connected to drilling services, we can conclude that there is a good market in drilling services. Also there is over 2000 wells in south which are alive and require drilling services. These wells as well as onshore of continental shelf and offshore wells located in central regions, offer a good estimation of drilling services market potential.
On the other side, an observation of the available equipment in drilling services field, shows that the current equipment and facilities are sufficient and we shouldn't cause a glut on the market by an irrational increase of equipment. For example, we have 30 coiled tubing in the country and an excess of supply available will cause a glut on market.
Also as the economical condition is unstable, cooperation of companies is essential. Small and medium companies must be incorporated and enter the market with a considerable potential specially in Post-sanction era.
According to the past 37 yeast of experience, failure is not acceptable. In order to compete with foreign companies, we must enhance our power and by working next to them benefit from their modern system and technologies. During the past years many experiences have been gained for our petroleum industry and the we have to keep progressing along side the foreigners.
Therefore. According to the market demands we must endeavour to invest money in drilling industry and drilling services while remembering the national empowerment. This policy benefit manager more, as hiring skilled and experienced Iranian contractors develop a more secure condition. We must get ourselves ready for Post-sanction opportunities. The majority of this era would be human resources and management knowledge which must take into consideration.

The lack of Financial Resources is the Missing link of Drilling Industry



Hossein Sharifabadi
Sepanir Co.
CEO

Today we reach a level where we are able to preform all the upstream section ourselves but the missing link and what damages us is the financial and credit issues. The international community suddenly decided to abandon us in this section. For almost 2 years we didn't perform any offshore drilling operation which wasn't suitable for a country needed oil and gas and now we have 20 offshore rigs actively engaged in drilling operations. There is shortage in specific parts. For a country which is the first owner of oil and gas resources, having a set of academic or engineering collection as a reliable reference to apply their proposed methods for well safety is essential.
I propose a set of suggestions generally:
1. Iran drilling national association set up which follows up specialized moves toward drilling industry technical knowledge drilling service upgrading and connecting with international organizations and authentic universities all around the globe.
2. Establishing drilling industry specialized majors in national universities.
3. Support manufacturers, contractors and service provider companies of drilling industry section for carrying out business in and outside of the country.
4. Use the facilities provided for knowledge based businesses.
Training and educating skilled manpower. Also as the economical condition is unstable, cooperation of companies is essential. Small and medium companies must be incorporated and enter the market with a considerable potential specially in Post-sanction era.
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We Must Now Compare Ourselves to the International level

Aliakbar Shabanpoor
Pars oil and gas company
CEO

Under a circumstance where the sanctions have target Iran petroleum industry, an outstanding duty was assigned to the society of engineering, directors, universities and operational privates. in this road, national companies and manufacturers attempted to support the national production and lead the companies toward infrastructure reinforcement and the toughest stuff performed offshore in pipelines, platforms building, installation and setting up section by the Iranian experts. In offshore drilling industry we cooperated with Iranian contractors for the first time and we reached a level where by the end of 1391, 20 rigs were functioning simultaneously in south pars.
On the peak of difficulty during the sanctions, we launched phase 12 of south pars. In the past all the required facilities and equipment for our drilling industry was imported from other countries. But now we are even able to manufacture the wellhead equipment, drilling bit, equipment restoration and maintenance in our country. The latest technology of this profession is the turbine which fortunately set up in Iran. In pipeline section of offshore drilling we succeeded to assemble all the parts alone.
When we were under pressure, we showed the Iranian invention and creativity and enhance the quality and efficiency of work. This is a proof of the power and excellence of Iranian nation, managers and private companies. Of course due the presented limitation and restrictions we have a time lag in technology and we must achieve the international quality and standards. This is an important duty and We now must compare ourselves to the international level.

Companies Should Svoid Ways Against Professional Ethics

Aliakbar vahidi Alagha
E&P Co.

Contractors and employers are correlative. The best thing to do is finding a solution together. We must discuss about clarity and safety of job relations. Avoid actions like dumping and other ways against professional ethics. The specialized communities can be active in stablishing the standards and professional ethics. Another outstanding topic is knowledge management. In the globe knowledge management is the inseparable part of every single system.

Iranian Contractors Have Reached the Mental Maturity

Rahim Tabrizi
Deputy of Iranian Offshore Engineering and Construction Company

During the sanction, Iranian companies manage all the drilling operations and many projects are under production or soon will start to produce. A considerable amount of money was paid and time duration of well drilling increased leading to an increase in costs. But now the drilling time has declined since the Iranian contractors reach a mental maturity, they manage projects better and use well-trained teams. With the elimination of the sanctions these drilling corporations and service companies would play a significant role. A considerable amount of money was paid to reach where we are now. I mention a couple of points regarding drilling industry that is worth to be noted:
1. Increasing the drilling pace utilizing the adequate rig and equipment.
2. Enhancing the quality of drilling services using updated facilities.
3. Ianning for providing facilities and drilling services so that we expect least in the rig.
4. Controlling the prices properly.
5. Using international updated software.
6. Manpower training.
7. Using reservoir engineering.

IRAN DRILLING SERVICES CONFERENCE

Companies Use the Mutual Resources Optimally

Bijan Nami
Dana Energy Company Board of Directors' Member

In the environment of economical competition, we have the mutual interests. Mutual resources meaning an optimal use of these resources. It means that a company would be successful in case they use the mutual resources optimally. These resources include an optimal utilization of: manpower, proper organizational structure, using the modern tools for decision and planning based on risking.
Today we must help each other to enrich the foundation of mutual interests. Form this point of view proper moves has been done in domestic productions while by giving opportunities to national corporations the space for foreign companies has been declined. Another point in creating a proper space for the foundation of mutual interests is sharing the experiences between the employers and contractors that makes us ready for the Post-sanction era. If we could cooperate properly in the announced backgrounds, there would be a remarkable progress in the national targets of the country.

The Companies Have no Need to Worry About the Post-Sanction

Siamak Javid
Iran well services company
CEO

Some companies are worry about the entrance of big international corporations after the elimination of the sanctions. While we have to treasure this opportunity. Today we must try to get the modern technology and services from the big companies and enter the country. During the sanctions very strong companies formed in the country and remarkable progresses were observed in acidizing, well testing and logging sections so that we can claim the present service provider companies are of the best in their category in the world.

The one thing our companies are required to do is cooperation with their foreign partners to rectify the 20 % delay from the modern today technology.

IRAN Drilling Services Conference 2016

No Information is Available from the Condition of Directional Drilling Services

To perform an optimal operation, we ought to use the modern technology. Modern technology must be in favor of quality and efficiency. In the past this modern technology was merely used for improving the quality but now considering sharp reduction in oil prices, drilling efficiency is of ulmost significance. Hence, the new technology must be in service of quality and efficiency. We have to enhance our knowledge. Lack of authentic training institutes and manpower alongside the flaws in operational instructions and methods are the common challenges of drilling industry.

No information is available from the condition of directional drilling services

Hamidreza mirgalvi Bayat (Petro pars company): directional drilling services is one of the most important services applied in drilling operation. Directional drilling impact on the expenses and operation of the whole drilling system operation is non-negligible. We need to give this extremely vital and strategic system a second look.

Important damages in directional drilling can be categorized in different sections: drilling equipment and hardware, planning and designing, drilling operation, legal and contractual issues, financial issues and in the end human resources.

One of our problems is our lack of practise in recording events and incidents. Despite our precious experiences from different employers and contractors, there is no information recording system. At the moment, our biggest obstacle even more important than the equipment issues is the lack of a national comprehensive centralized scientific institute. Our effort to create a comprehensive technical institute may be tagged as the preliminary step toward drilling operation advancement in the country. Since we have no information center, we have no recordings of the software and hardware related capabilities of the directional drilling service provider companies. There is no exact history and background from the pervious performance of directional drilling services in the country. We have no Knowledge management, recording events, recording failures, achievements, learned lessons and stuff like that and because of the sanctions we didn't even have access to the regional and international information.

Next important topic is the supply chain. During the sanctions our access to the well-known and fundamental suppliers of the equipment and directional drilling instruments faced difficulty and calibration and adjustment of directional drilling equipment wasn't done by the employers occasionally. Without any shadows of doubt the cooperation of employers and contractors in achieving the directional drilling targets play a significance role. Also applying policy of encouragement and support to attract national and international investments is essential.

Suffice it to say that targeted regular and continuous education of human resources is necessary for both employers and contractors. We must enhance our knowledge. Technology and science is moving away from us fast and yet we fail to pass the traditional equipment

Utilization of similar bits in different multiple wells increase our expenses

Babak karimi Dehkordi (Iranian central oil fields company): the damages of drilling bit services are present in different sections like planning, designing and functioning. Our deficiency in recording the learning, lack of a rating system for drilling bit services companies, inconspicuous presence of contractors in designing and production chain, employer's insufficient support for localization and technology transfer and the problem of direct connection with the producers are amongst the critical challenges of this section.

Massive purchase of drilling bits for several project is one of the challenges causes a lot of expenses as they use similar bits for multiple wells without considering the well condition.

Also lack of authentic educational centers, lack of human resources and weakness in operating instructions are the general challenges regarding drilling bit services.

We must have long-term plans for drilling services

Mohammadreza vahhabnejad Amlashi (oil ministry): since the initiation of exploration until a reservoir reach production phase, the major activities performed in upstream is related to drilling which is the inseparable part of technical services. If we have a look at the production or production maintenance, we will realize how much this section is important. So that wouldn't be a waste of time if we have middle-term and long-term plans for this section.

Modern technology must be in favor of quality and efficiency

Shahrokh Soltani (Iran well services): To perform an optimal operation, we ought to use the modern technology. Modern technology must be in favor of quality and efficiency. In the past this modern technology was merely used for improving the quality but now considering sharp reduction in oil prices, drilling efficiency is of ulmost significance. Hence, the new technology must be in service of quality and efficiency. I find the weak spot of all the companies in this section and we have to focus resolving it.

Regulations of tender must be corrected

Saeed Rahmani (Khazar oil company): the major problem which require consideration, is the tender holding style. Based on the present style, high-level companies do not succeed and low-level companies with offering low costs win the tender. These companies would face problem later and eventually cause loss for the employers.

Domestic companies increase their quality level

Hassan Booyeri (Pars oil and gas company): in the new condition and after eliminating the sanctions the entrance of foreign companies to our upstream oil industry has been facilitated and based on the policy of the supreme authority of oil ministry for cooperation of foreign corporations with domestic companies, domestic companies' evaluation is performing. In a new competitive field, domestic companies must be level with foreign companies based on quality, time and cost criteria to get the passing mark from the oil ministry and participate in the competition.

Drilling mud logging is a neglected service

Mohammadjavad Noorani (Pars geo data company): despite all the positive, effective and yet cheap and easy services of drilling mud logging, this service is unfairly neglected. In fact, drilling mud logging services cover all the aspects of drilling by surface signs, appropriate sensors of each part and specialized software. this service output data, enable the users to have a precise control over the drilling operation and applying this service prevent costly and destructive accidents in multiple situations. Data recording and processing which is one of the fundamental flaws in the drilling equipment, must be added to the aforementioned problems. This is merely done by the mud logging services which restore data as a complete package.

The present services in drilling operation are mostly downhole equipment or material and play a significant role in drilling design and operation. But since this service use only surface signs does not effect drilling operation and design directly. Fortunately, in case of detecting an error there is no lag time and drilling operation would be continued. If the mud logging service does not function correctly, the rig operates based on the directly gained information and as we don't have mud logging services in majority of the cases, this is our ahead challenge.

Obstacles and damages of mud drilling services have been completely investigated in areas like equipment and machinery, operation and implementation, man power, management, instructions and methods and legal and contractual issues. In equipment and machinery section we can mention lack of support from domestic products alongside the lack of standard certification provider organizations in the domestic products issues.

The years of sanction was a precious opportunity to operate in severe condition. The oil industry didn't stop and fortunately continue functioning which led to a series of production. A couple of companies like Petropars allow the domestic products to be employed in the projects while sadly it wasn't valid for all the contractors.

Removing mud logging services from the project due to the lack of financial resources, hoping to save money, is one of the existent challenges. While if the projects revise completely and we observe the risky and costly segments; we would conclude that one should use the mud logging services appropriately.

Due the incomplete recognition of mud logging services abilities, we don't have a perfect practical look at this service. This service can optimally delete other costly services in case we are aware of the capabilities of this service and what expectation we can have.

Ultimately, in the instructions and methods section the lack of pro-

Drilling Fluids, Success Path of Drilling Industry

Drilling fluids engineering is a complicated task. Apart from its importance role, it may represent %5 to %10 of drilling cost. On the other hand, drilling fluids play sophisticated part in improving speed and volume of production. Studying the damages of this service and looking for solutions were a must before and now, after sanctions are lifted, concept of drilling fluids shall be examined again once more and careful studies shall be carried out by professionals in this field.

Drilling Mud, Reason behind any problem
"We are expecting 13 different functions from drilling fluids; passing the wellbore, lubricating the bit, clearing cutting from the bit, decrease the weight of drilling strings, release cutting and if there is a corrosion problem, it can be control by changing mud properties." Ahmadreza Bonyadi (Pars Oil & Gas Company) said. According to Bonyadi in directional drilling and except for those places where electrical detectors are installed, drilling is performed using drilling fluids and Mud motor. Although problems and information of well can be gained through monitoring fluid's pressure, drilling fluid is account for many problems by some people.
Not measuring equipment efficiency
Ali Sadrayi (MI), believes that studying the damages of the drilling fluids and looking for solutions were a must before and after sanctions are lifted it is a must. "We have no choice but to improve all drilling services and not only drilling fluids. The common problem lay in repair and maintenance issues and efficiency of equipment is not measured nor monitored properly." He continued. "Weakness in Knowledge Management (KM) is common in most organization and managerial levels. Another problem is lack of grading system, not only drilling services companies or drilling fluids' contractor shall mutually benefit by this grading system, but also this has to be practiced in the whole industry. Legal and contractual issues are another challenge, basically we sign contracts that are valid till operator wishes to keep. The concept of Drilling fluids engineering is not very clear in terms of contracts." Ali Sadrayi noted. According to him, Human Resource Management and Trainings have not been developed properly, and lack of new technology makes this structure vulnerable. "Generally we encounter resistance to change mostly because of following structures in governmental organizations in which risk taking is limited. Small contractors cannot take big risk; there has to be changes in this structure without which no progress can be made. Approaching HSE'S waste management and material quality assurance as a cost approach is another problem of this sector. Most of the manufacturers are not equipped with testing labs or the laboratories are not under good conditions. The final issues remains in supply chain and procurement and supplying of the materials cannot be made in time." Ali Sadrayi said.

Optimizing operational efficiency
"Drilling fluids engineering is a complicated task "Koroush Tahmasbi (Pars Drilling Fluids Company) noted. "Apart from its importance role, it represents 5% to 10% of drilling cost and on the other hand, it improves speed and volume of production. The idea of providing integrated drilling services from controlling solid particles to waste management was introduced 15 to 20 years ago. Nowadays, we have no choice but to optimize operational efficiency and as long as we postpone it we have to deal with it at some point. Operators shall change their approach towards engineering design processes and planning. Procurement is done by manufacturer, supplier or business man and the price plays the key role. So who is responsible for quality assurance? Contractors are in charge of procurement, training is offered by institutes or operators and I have heard that those who made waste management equipment also provides waste management services. I believe this is incorrect and designers of drilling fluids shall take part in this process. Operators need to keep database, Integrated Information System is an emerging concept in private companies especially in terms of financial management. Operators need to keep their supervisory role and do not enter into detailed operational activities. Operators and contractors have to become more collaborative and mutually beneficial to move forward and optimize operational efficiency." He continued.

Drilling industry's development passes via drilling fluid
Hassan abbasi (Iran's central zone oil): If drilling industry

wants to be developed in Iran, firstly it should have a special glance at drilling fluid and leave this to technicians and specialists. At the present we prepare the well according to its similarity to other wells without having exact information about that well. And without knowing what we want of drilling fluid, we continue the operation.
The first step to solve cement work problems is to define the standards
Soheil Saeidi (Mehran): The quality of pump tracks, units and generally cement work equipment can be effective in operation, so we have to pay attention to it.
Using different contractor in operation cycle, supplying cement material and equipment, engineering and operation designing will cause problems. In fact a mono contractor should be used.
The next point is well structure which can be affected either by well situation or by well fluid situation. In operation also there are 2 important cases. One is operating on schedule. The schedule which has been designed and confirmed before and all the parameters has been cleared and simulated before. The other is storage conditions in which cement working service extremely has challenges.
To design operation engineering Simulator software is being used. The software just take information from you and if the entered information is incomplete or incorrect, we will off course and has some unforeseen effect and can cause more problems so far. At the moment we are facing with data deficiency. The more complete the data which is transferring from operation to contract section are, the more complete designing we will have, and it will be designed due to well situation.
Next problem is lack of integrated index to evaluate the cement quality. Unfortunately we have a little information about cement evaluation and in fact we do not have KPI for this issue. Operationally, there are some brief primary points using for cement quality evaluation. We do not still have a proper method for cement evaluation. Domestic cements have good quality but unfortunately they are not integrated and we can see that shipment by shipment the cement quality differs and this leads us to an insoluble problem. Other problem we are facing strongly is evaluation of the quality of the drilling cement plugs which has no codified standard so that the operator can test all cement plugs.
The first step for offering the solution for existing problem is defining an integrated standard and check list for collecting the entered information in a way that we can have a common check list to know what information is needed for designing the cement to take this information from operator.
Technical points should be engineering and designing
Milad Tehrani (Well Services of Iran): Priority of technical points in giving services is operations in the event that engineering and designing is more important. Comparison the situation of cement working services in onshore and offshore shows lots of quality differences. Unfortunately in onshore section they do not care about cement work service and the views are financial.
Now, it is common the operator asks for guaranty the quality of cement work service. The quality of cement work service on different factors and no one can guaranty it.
About the chemical materials domestic productions' quality are not as good as foreign ones. This issue can be improved because foreign companies are interested to participate with Iranian companies. I propose to producers to take serious this issue because importing chemical materials to Iran needs 25% custom to be paid. If Chemical material are produced inside Iran, the production cost will be very low and when mud and cement companies see that the price of domestic and international materials are equal, they will be interested to use domestic materials.

Integrated Drilling Services, From Design to Exploitation

Faster operations and saving time are critical factors to be covered in design, planning and performing operations, however all these components will lead to exploitation and overall efficiency and reliability shall be provided. Capturing the right amount of information at the well site will assist in choosing the right type of drilling method and will facilitate well stimulation, perforation, well test and cleaning services. Complying with standards differ in onshore and offshore sectors and there is a need to reconsider our approach.

Integration of drilling services
Mohammad Talebi (Mehran Engineering & Well Services Company): "Faster operations and saving time are critical factors for setting goals in design, planning and performing operations. However, we should keep in mind that all these components will lead to exploitation. Overall efficiency and reliability shall be provided and that's why drilling services must be kept integrated from design to exploitation. Collaboration between drilling team, reservoir engineers and engaging contractors is necessary to make this integration happen.

Standards are not observed
Alireza Zanganeh (Mehran Engineering & Well Services Company): There is a remarkable gap between onshore and offshore in terms of improvements and standardizing processes. Criticizing standards is a common issue for onshore while offshore doesn't seem to have this problem. Another challenge is legal and contractual affairs: lack of suitable well test insurance, not covering repairs and maintenance provisions in contract terms, and hastening the process are the main issues. There is also controversy over schedules activities and what really happens while performing the project, one of the reason is that adequate time or budget are not allocated to the engineering and planning. To overcome this problem, I suggest that a team of professionals and service providers become engaged in project planning for well test and well design.

Certification for Flammable Liquids and Substances
Ali Irani (Petro Danial Kish Company):
In perforation, the safety measures are neglected and it's better to comply with international standards. Another challenge is the need for HSE training of personnel, all the employee working with flammable liquids and substances shall take required trainings. Further, generating a complete reservoir model is the key to create a proper perforation. The first step in evaluating perforation system is providing a reference laboratory for the safety tests.

Grading system for acidizing services
Alireza Zanganeh (Mehran Engineering & Well Services Company): One of the problems in well stimulation process is lack of grading system for acidizing services. It's important to define KPI and make them practiced by contractors, not to mention that reliable data shall be used for the stimulation process.

Azizollah Mousavizadeh (Petro Pars Drilling Company): Capturing the right amount of information at the well site will assist in choosing the right type of drilling method and will facilitate well stimulation, perforation, well test and cleaning services. Incurred damages to the well during the drilling would increase the time for cleaning services and have negative impact on the overall performance.

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Logging Data Quality Control Must Attend With Accountability

The thing which damaged the most the logging services in the recent years was the quality of data. The weakness of communication and structure of internet networking the country does not allow us to give logging information simultaneously with operations and online to the operators and contractors' analysts. The first solution for logging problems is controlling and supervising the performance of logging operations.

The quality of logging data is low

Mojtaba khadem (Well Services of Iran): By studying about logging damages, we concluded that the first damage is the shortage of experienced and professional staff. As we know in logging we have experienced staff but not the staff who are professional university educated. Most of us have learnt the job experimentally.

Second damage is the reduction we always have in our professional staff. Some of the experts we have paid for their education in our industry immigrate to other countries and by joining those to international companies, we lose our professional staff.

Also in this system there is the shortage of motivational system. Motivational system is not only from financial point of view. For professionals training is a part of motivation. We do not have this system integrated and standard in our companies. Everywhere there are professional training center and this is what we do not.

Shortage of experimental wells is one of the other problems of this area. As we know National Drilling Company has an experimental well system which is used for training. But generally we do not have experimental well in logging domain for the students who are joining the industry from university and normally gaining experience happens when working.

Weakness of teamwork, one way contracts by favor of employer and lack of commitment from contractor side are the other problems of logging service. In fact, the contractor company does not achieve the contract and commitment frankly.

Also paying attention just to the price instead of quality in tenders will cause many problems in projects.

The communication and internet structure weakness in the country does not allow us to deliver the logging data simultaneously with operation online to the operators and contractors analysis. It means when we log on the well, it takes a long time the operator and staff section get this log and this makes the expenses more. In the recent years the thing has damages the most das been the quality of data. We are looking for defining an internal reference for QC log in Iran. One of the problems is that we do not have an integrated system for registering, recording and archiving the logging data and operations. There is shortage of standards and existing standards are not being used completely. About the logging equipment, we did not have access to the updated technology and from this point we lost a lot. The next problem is we do not have any plan to use domestic logging industry.

Logging data quality control must attend with accountability

Gholamreza Azarakhsh(Petrodanial Kish): The first solution for logging problems is controlling and supervising the performance of logging operations. All the people working on logging should be familiar with all charts. This means that everyone who is present in the operations as operation supervisor engineer hired by operator and contractor, should be familiar with all charts.

Also the plan of logging should match the goals of operators' needs. This means that if the target is evaluation of reservoir, all necessity charts must be taken and they have to be chosen properly.

For better operation progress, the arrangement before the project should be done properly to get the best result.

Supervision on the work should be done properly, otherwise, the information given to the operator might not be favorable and sometimes it is possible not to have a chart.

The other damage studied are tools and equipment.

If the supervisor overcomes the job, we do not have complete equipment; again we cannot have good logging data. In this field there are good solutions. Buying the latest technologies which are technologies delivers by pioneer companies and manufacturer by Iranian companies.

Other point is relationship with pioneer companies in field of logging services. In Iran modern tools of logging is not being made. As a result the best thing to do is to connect to the pioneer companies. This connection makes pioneers companies to support us. The other advantage this has is that in addition to increase staffs' knowledge, technology will be transferred.

In choosing logging tools the cost sacrifices the quality. It is better to check the tools before they are used in logging and if they match pioneer companies' standards, use them.

Then the operator companies register the tools operations and the result without paying attention to the brands be analyzed.

Data quality control must be with Accountability and transparency. Which means contractor's agent and supervisor both should know the job, give proper information and supervise all work stages.

Next point is using the mechanized systems and world's updated hardware for saving information. A domestic standard must be created which all companies save their information accordingly and they all can use them. Other point is creating a backup of the information that should be kept for 5 years and if a project is a long term one, keep them during the project period.

Also a central training system should be created to do all theoretic and practical trainings about loggings. In logging committee we concluded to create a standard testing well. This has 2 advantages: First trainings are done practically, Second new coming tools in the market and repaired ones are tested in this well.

Planning and performing the logging courses

Ali Daghayeghi(Iran National drilling): Logging is a profession and it is taught as a university field of study. The necessity training courses should be planned and performed by interaction between industry and university. A union of massive drilling companies must be created to take license for each company to work in this field.

Create logging data bank

Malek mohammad giti(Khazar oil): One of the most important defects exists in our drilling industry is lack of data bank between operator and contractor which can be created in 4 sections: Tools, Archive, Software and trends. Lately an upstream system has been designed which if it is used correctly, it can be useful in operation executive. In tenders section work explanation from beginning to end is proposed. In present this discussion is not clear. Tenders system can be complete and flawless in the case that it is mechanized.

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Operation Confirmed Methods Must be Gathered in Direction Format

Employers have a low general recognition of coil tubing and they do not have enough knowledge about the capabilities and limitations of this service. The employer's domain of expectation from the company serviced is the same as it was in the recent years and is according to the contracts determined in the past.
Lack of achievement direction is also one of the other reasons for defeating the mission. It is necessary to collect the confirmed methods about all operations by means of stopping to use personal opinion in operations.

Employers awareness of coil tubing is very low.
Ebrahim Rabbani(Mehran): Applying sanctions against oil industry limited the access to in international training companies which we hope by elimination of the sanctions, the training issue would be followed up seriously. Also training during the work and using simulators in training for training the professional human resources is a necessity.
In addition, the employers have a low general knowledge of coil tubing and they do not have enough knowledge about the capabilities and limitations of this service in the way that the employers' expectations domain from the company's service is the same as recent years and based on the contracts determined times ago. In these contracts the domain of new issues has not been mentioned and they have just forecasted some routine operations. According to work domain changes and need of new equipment, the employers have to determine separate expenses to supply new services. The employers due to changes of the market by elimination of the sanctions have no other way than update themselves and meet the updated world standards.

Some other services can be replaced by Slickline
Danial Mansouri(Mehran): Pathology of Slickline service in means of accessing to strategic targets will lead to progressing the operations, decreasing operational risks and finally financial control. The damages of the Slickline services which statistically are recognized as operational failures, are depends to each other and to reach to a better system operation and to offer the right solution in the event of reinforcement service output, it is recommended all associated damages should be analyzed and studied simultaneously. Technical defects of equipment when working is one of the operational defeats reasons. The main reason of it is lack of correct plan for Precautionary repair and maintenance which should be done and detected periodically according to defined direction for each equipment.
The staff weak knowledge, not obeying the work directions and Distractions are the other reasons for operation failure. By teaching professional skills in theoretic sections and achieving training operations on the wells, the staff would be ready to meet the special experience and unexpected situations during the operation. Lack of work direction is also one of the other reasons for operation failure. To stop interfering personal tastes in operations, it is necessary to collect confirmed methods about all Slickline operations, establishment and removal of pressure control equipment, the stages of opening and closing pinning the equipment in form of directions.
The first step in forecasting the capability of doing the job is analyzing the present equipment in quality and quantity view. The more analyzing the present equipment and their correspondence with related standards are accurate, the more realistic the forecasting about doing it future will be. Also relation with the world's present technology and deployment of existing potentials in operations causes the growth the different capabilities of this service and in occasions it can be replaced to other services in means of saving operation time and costs.

According to work domain changes and need of new equipment, the employers have to determine separate expenses to supply new services. The employers due to changes of the market by elimination of the sanctions have no other way than update themselves and meet the updated world standards.
The first step in forecasting the capability of doing the job is analyzing the present equipment in quality and quantity view. The more analyzing the present equipment and their correspondence with related standards are accurate, the more realistic the forecasting about doing it future will be.

Safety in Words not in Operation

We deal with high risky and dangerous situations in oil and gas industry .there is a lack of upstream related knowledge of HSE. Regarding drilling contracts there is no obvious and well defined budget assigned to HSE issues and it is due to not addressing failure scenarios .so it is needed to fortifying 'engineering' better than before as well as considering 'safe design' issue. Unfortunately regarding waste management, lots of dangerous materials are produced that return to environment without a cycle through proper refining processes that we do not have.

Scientific Improvement to HSEQ is Forming

Bijan Nami(DANA energy):work and avocation environment contains business and atmosphere we live in .this atmosphere is a set of industrial culture of our country that has its own concept at personal, organizational ,general and public levels. Fortunately due to enhancement of public awareness concerning safety, hygiene and environmental issues and also importance of quality in our business environment, especially drilling services, some scientific improvement at personal and organizational level is going on.

Ignoring Quality Price Results in non-Productive Time

Pouriya rastegar najmi(Mehran):HSEQ causes and effects investigation regarding some sections such as equipment ,human resource management ,standards, instructions and procedures ,contractors ,contract affairs, financial resources and knowledge management ,discussed at HSEQ committee at Drilling services conference
Standards governing HSEQ field have not engineered well enough so organizations rely on person rather than its own engineered systems and standards. Engineering in the field of HSEQ includes all processes .first of all, considering purchasing process.at the moment, purchased equipment s don't have desired quality. Firstly it is needed to define standards. If something is written down officially it is likely to be performed otherwise it defiantly would be violated.
Cost of quality is the other one issue at this section. Low cost of quality at purchasing finally will result in non-productive time.

> "One of the most prevailing traumas is lack of a certain bench mark for qualification of human resources considering experience, skill, education and instruction that we have to define a specific benchmark and also have to establish multi specialist groups for the sake of all of the mentioned parts."

Safety in words not in operation

Mehdi Babae rostami(Iran well services):we deal with different risks and dangers in oil and gas industry; like common risks, different kinds of fire accidents and blowouts happening in both upstream and low stream industry. Regarding drilling industry, incidents causing drown of jackets and also sea pollutions are considered as the most important debates. Facing dangerous gases and impact of boats together or a boat to platform caused us to find an appropriate solution for these issues.
One of the main strains in this subject is related to culture of safety. Usually, in speak we pinpoint that safety is our number one priority but we are not successful in action. Another strain is little commitment to HSE by management society .furthermore we do not have proper relations between HSE divisions and don't share our experience. We don't have reporting system and despite of having standards in some companies lack of reporting system causes an inappropriate data base for further gathering and management of these data.
Another issue is the absence of comprehensive educational systems. Without educational system information is not transferred to a person fast and complete enough.an absence of comprehensive supervisor system is debatable. Diversity of system in different companies will result in low quality inspections. Qualification requirements are not defined for companies, services and persons. There is no specified ranking system for contractor and no clear qualification of person is at hand.
Our knowledge in upstream and massive scale is low. We are going to abdicate 52 of our fields in the form of new contracts. Have they been investigated in the scale of upstream studies? Have there any environmental studies been took place in order to investigate the environmental consequences? Without upstream studies no risk is addressed so no proper equipment can be used against them.

> "in drilling contracts, no exclusive budget assigned to HSE issues because costs of work failure don't specified. Engineering has to be fortified more than before and safe design should be stressed."

In drilling contracts, no exclusive budget assigned to HSE issues because costs of work failure don't specified. Engineering has to be fortified more than before and safe design should be stressed. Also commercial and purchasing divisions should not be worried just about the cost otherwise purchased equipment may not have desired standards required for usage in oil and gas industry. Insurance and contract related issues have to be improved. Considering HSEQ responsibilities of both contractor and operator have to be clarified. Unfortunately regarding waste management, lots of dangerous materials are produced that return to environment without a cycle through proper refining processes that we do not have.

Overall View of logistics Problems in Drilling Industry

The collection and storage of all operation information including drilling tools performance and all other related services together with other parameters provided by this service can make a great and effective contribution to the field studies, along with current and future planning.

Syncing working time of governmental body with projects is necessary.

Massoud ziyari(Pero gohar farasahel):logistics has a general meaning in executive affairs and a special one in oil and gas upstream industry that has a special degree. Logistics is about providing on time, wise maintenance and accumulation, distribution and transportation of what we need.in successful companies, CEOs have special considerations for logistics. Up-to-date logistics is defined as minimum accumulation and simultaneous production and demand in a manner that synchronize our demand with production. Also consider that we have to minimize our transportation course and if these conditions are met logistics costs will decrease.

Considering logistics in upstream industries, what is important and has to be paid attention to is to notice the essence of upstream industry duty. Unfortunately working time of governmental body does not match with logistics work team and this will cause additional costs and frictions.one of the issues that deteriorates projects improvement is a cost that is generated due to unsynchronized working time of compartments of logistics with each other. Those departments that upstream projects deal with more are like customs and administrative rules governing this governmental division. If we want to manage projects economically one of the priorities is revising procedures. So considering port affairs, customs and governmental logistics affairs and synchronizing with upstream projects should be at the top of the pyramid.

Providing projects with fuel they need is another crucial matter in upstream logistics. Providing projects with fuel is very different considering offshore or onshore type. Regarding offshore, we have 30-35 ton daily fuel consumption per rig contains three floating vessels that have to be standby near a rig. Besides of providing fuel itself, its cost is another challenge for contractors. If you consider 35 ton of fuel it would cost 35 thousand dollars monthly. For those companies having 3 to 4 active drilling rig this cost is even much higher. so if we do not provide it, ourselves from our own resources, costs rise.

If you consider 35 ton of fuel it would cost 35 thousand dollars monthly. For those companies having 3 to 4 active drilling rig this cost is even much higher.

Providing onshore projects with water is another logistics problems that its purchasing and pumping it to location is another crucial challenge. Issues addressing road construction and environmental concerns, especially absence of synchronization between environment related organizations is also a troublemaker.

In offshore section, concerns like absence of insurance for transporting rigs and preparing site where is assigned to rig establishment leave a lot of risk on the shoulders of logistics and we hope that in the light of recent political events mentioned problems can be solved.

Low capacity of Kish port is also a big logistics problem for offshore operations. Restrictions regarding environmental issues will cause problems for offshore operations .another one is refueling floating vessels. Synchronizing of various parts with each other like police department and customs is a complex one and result in increase in consumed time.

Also Kish sea traffic harm administrative affairs of offshore drilling operations and at critical conditions in Kish port no needed Infrastructure is evident.

Floating fleet that give services to offshore projects is old and causes increase in cost and environmental pollution, decrease of performance and low speed of cargo transportation.

Also if it is supposed to set floating vessels properties to defined standard according to their performance there is no well-defined and comprehensive standard. Investigation of floating vessel performance that is an operator's duty is not done appropriately in many companies.

Refueling should be done at Aftab port

Massoud esmaeelian(international Drilling):fuel station of domestic floating vessels , temporary ones (just passing by) and those for drilling projects are all the same. There are no well-planned thoughts on providing offshore fuel for drilling industry, whereas just like cars fuel station we can assign ones to just drilling projects which have high grade fuels which is qualified by the standards of motors used in drilling industry.

Kish is a tourism destination island which industrial attractions emerged over time. We should shave demands from NIORDC to establish some facilities in this island.Aftab island is somehow in the middle of Persian Gulf and it is reachable from Hengam and Bahregan oilfield.refueling can be done at this island so we can speed things up.

Administrative process was revised according to speed of projects

Eng. Sadegh Jalali(Kish island Customs):in Kish island we tried to simplify administrative processes and solve some problems.one of the advantages of kish island over other customs that you have to fill out a declaration then pay the taxes so you can get your cargo ,here by writing a letter ,cargo handover will be taken care of and after three days administrative processes will be completed.

Providing Fuel is the main reason of logistics divisions delay

Farhad Arab Amini(Pars oil and gas):drilling projects delays is on the shoulder of logistics division.one of the main reasons is providing fuel. Best solution is to have some reservoirs in Aftab Island for providing required fuel. However the faster way is to bring a floating vessel with the capacity of 4-5 thousand tons of fuel by NIORDC to South Pars and let floating vessels to refuel there instead.

Establishing synchronizing system of logistics

Seyed Asghar Fatehi(Petro Gohar Farasahel Kish):around 30-40 percent of drilling operations in offshore is related to logistics division so it's needed to provide this division with enough budget and facilities. Synchronization of drilling operation section with logistics division is crucial for on time accomplishment of rig requirements. Conventional system doesn't work anymore and it has to be done with a comprehensive software system .so we need to establish a novel system.

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Increasing Efficiency by Improving Quality of Workforce is Reachable

The collection and storage of all operation information including drilling tools performance and all other related services together with other parameters provided by this service can make a great and effective contribution to the field studies, along with current and future planning.

Improving efficiency by improving quality of workforce is reachable

Mehdi Rahbar(Petro pars drilling):organizations that play a major role in business and work continually observe incidents going on. Improving efficiency cannot be reached by increasing and enhancing asset and materials however we can do so much faster by improving quality of workforce and organization. Knowledge management is a process that let organizations to identify, choose, organize and publish those information and important skills that are counted as organization memory and also are not usually organized. Mentioned job will able organizations managements to solve studying issues, planning and active decision in more applicable and effective manner.

Employee satisfaction key to loyalty to customer

Amirhosein Akbari(Pars drilling fluid):nowadays, what is believed to have a paramount importance to a country and society is its human workforce. This field has to improve its level of importance among organizations and business institutes and establish a proportion and synchronization as a process that has the duty of hiring, maintaining, training, efficiency booster and also as an incentive of its employees.
Ignoring the importance of human resources in an organization is due to three factors. First of all, position of human resources is not well defined in the structure of companies that are active in oil and gas drilling field. Also we are witnessing different policies toward human resources management at different departments of an organization and still many organizations don't have a clear vision on human resource management functions.in this field there has to be a common language between
Regarding the fact that the majority of companies acting in the field of oil and gas drilling are project oriented, management and strategic thoughts based on project oriented organizations have a strong impact on human resource management. Problems to reaching strategic thoughts can be investigated at multiple angels. Diversity of processes and strategic levels, complexity of strategic design and absence of clarified strategies in an organization are some of challenges that an organization has to face with.
According to investigations, there is no union policy towards paying salaries and wages and service compensation in this industry .what is precious at this section is the debate of policies toward service compensation and rewards and benefits of active companies in oil and gas drilling field that many differences exist among them. Continuity of this problem may cause forming of salary and benefit bubble.
According to value chain, satisfaction, and the profit that firms are gaining is in direct relation with domestic and foreign customer's level of satisfaction. Satisfaction and loyalty of domestic customers that are organizations employees, is a guarantee of loyalty of every single component of an organization to its customers. Considering this field, path of improvement of employee's career has to be paved.
Life cycle of many of the firms in oil industry is changing and reaching maturity and senescence. Those companies which focused on management of succession and apply their employee's talents along the path of accomplishing their organizational purposes have a great chance of survival. So regarding the essence of Oil Company and absence of suitable alternates for former trained talents will cause a devastation regarding human resource in future of this company.at this section cooperation of organization is very effective
Studies on the relation between industry and university in Iran shows that firstly, this relation haven't been defined well furthermore, it has not been well managed over time .as well as deference in educational programs in universities, supports is also different .the main reason why developed countries have success is the presence of good economy in industry's field of operation.So supporting the relation between university and industry is of paramount importance and an improve in economy leads to development of a country and this further results in improvement of economy ,it is a reciprocal relation.

Forethoughtful organizations do not always cut the lable force for the sake of lowering the costs

Atefeh Sarmehri(Mehran):human resources have a special position in those companies which are forethoughtful. From the perspective of the managers of such organizations is counted as a crucial asset of organization and those companies that have a correct understanding of human resources don't always make redundancy for the sake of decreasing the costs.
Organizational justice is also an important debate. Sometimes organizations especially those are contractors pay an irrational wage to an experienced specialist person just to make progress in their work. This manner may help contractor to reach its goal but in the long run it would harm both contractor and the specialist.
Paying attention to the difference in employees welfare needs is also one the important parts of rewardable.in the case of an absence of specific definitions and understands the work just as a project with certain people will cause additional problems at the long run.

Current human workforce can satisfy drilling industry needs in our country

Mahmom Javadian(Petropars drilling):according to statics this year, universities have gone in a way of training drilling workforce probably we can claim that it is a little indulgence. if we take a look at statics for different years,in drilling section in 1390, 850 person;in 91, 1000perosn;in92, near 1000 person;in 93 . 1100 person and in 94 ,4400 person was the capacity of state universities in bachelor of drilling engineering .if we add Azad universities this numbers would be even higher.so one of the advantages of drilling industry is that its workforce is going to get trained. Nowadays we have plenty of drilling industry workforce that can satisfy its needs.

Knowledge management is establishing knowledge in organization

Abbas Ghaffari(Keysson):knowledge management have a huge impact on human resource management. Generally 20 % of knowledge in organization is explicit knowledge and 80% of it is tacit knowledge. Two approaches for knowledge management are advised. First, trained techniques means that we are able to convert anything we gain by experience to an organizational knowledge. Second, procedures technique means that after accomplishment of a job we have to convert it procedure without any haste and convert tacit knowledge into explicit knowledge.

Every single of organization members should be brand

Azar Saemyan(shahid beheshti university):situation after sanctions is tougher than previous due to the fact that we have to face people who are more experienced and have more knowledge than us.multi-functional competences are a necessity for entering worldwide market. Development at an individual level results in organizational development .every each of organization member should be brand it's in this way that we have organizational brand.

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Iranian Upstream Industry Needs Iranian LOGIC

Unilateral contracts in favor of operator in long term does not satisfy operators interests .operator should know that by assigning difficult conditions and qualifications for contractor cannot make profit. Unilateral contracts cause a frustration of a qualified contractor and inhibit them from accepting the contract and ignore the tender or high unintentional conditions result in overall cost and hamper operators opportunity from making profit. Regarding integrated drilling services contracts besides of cost saving, level of cooperation of operator with contractor is much higher and financial management is one of main concerns of contractors, by establishing constant format. Payment methods would be simplified. Also in this kind of contract; operator is able to make use of Contractors Company's financial leverage.

Regarding integrated drilling services contracts, decrease the cost

Mehdi nekonam (Iranian offshore oil company): integrated drilling services contracts first used in IOOC and it supported around 21 rigs .before that drilling services done by different operators in a spread manner. Main point considering integrated drilling services contracts is that it decreases cost. Cost of drilling services for a well is around 30 percent of total cost of the well. If we consider an average of 35 million dollars for drilling a well, 11.6 million dollars of it is contributed to its services. Importance of this debate is clarified by considering total number of wells under drilling process in the oil complex. Purpose of integrated drilling services contracts is concentration of drilling services by application of main contractor's company service that needs to be done by time and financial management.

Besides of cost saving application of integrated drilling services contracts level of cooperation of operator with contractor is better compared to individual drilling services contracts and also financial management that is considered as a crucial contractor's concerns Payment methods would be simplified by establishing constant format. Also in this kind of contract; operator is able to make use of Contractors Company's financial power.

No benefit for operator by strict contracts

Rosbeh mirchakhchiyan(MAPCO): Unilateral contracts in favor of operator in long term does not satisfy operators interests. Operator should know that by assigning difficult conditions and qualifications for contractor cannot make profit. Unilateral contracts cause a frustration of a qualified contractor and inhibit them from accepting the contract and ignore the tender or high unintentional conditions result in overall cost and hamper operators opportunity from making profit.

In the field of providing tender documents although work was done precisely, some parts of it does not fit in the contract. Operators just pay attention to non-productive time of drilling operation and don't care that how much time was spent forsake of the amount of the work done.

Iranian upstream industry needs Iranian LOGIC.

Khashayar zeynali(Iran well services):components of integrated drilling services contract are agreement, special conditions, general conditions ,treaty attachments. Conditions considering mutual responsibilities of operator and contractor (knock for knock) for employees, equipment and third party in integrated drilling services contract was under investigation.

In liability and immunity section, conditions considering catastrophic domes like blowout, well failure, incidents by chemical and radioactive materials, subsurface pollution and damage to reservoir either it is suspended or unclear that in the case of the mentioned incidents which side of contract is responsible for or these risks all contributed contractor unilaterally. Also in this section, responsibilities for surface pollution, fishing, data alteration, intellectual property and also the extent of contractor responsibilities is either suspended or not contributed clearly to neither of the contractor sides.

Regarding conditions of insurance, considering the fact that insurance is a function of Risk-sharing system between sides of the contract with reference to liability and immunity section, so insurance conditions are not clarified and well explained in the investigated contacts, which according to international standards regarding integrated drilling services contract, insurances of such contracts is as follows:

Responsibility of insuring employees, equipment of either side of the contact is attributed to themselves.

-if contractor and operator are well defined, either side should keep the other one immune to third parties claim and proceeding for a proper insurance.

-preparation of insurances like all risk, CRM or CGL for completing projects is contributed to contractor.

-insurances related to well, reservoir and catastrophic domes are on operators behalf.

Recommended solution for optimization of integrated drilling services contracts and other drilling services contracts is that like countries pioneer in oil and gas industry an organization, government or private company takes the responsibility of production, revision, improvement and updating samples of required contracts in oil and gas industry because developing a standard and good contract needs a specialist in business, financial ,hygiene, insurance, technical and legal matters and it is not possible for government operator companies to individually establish such a team for every specific contract including integrated drilling services contracts and individual contracts.so it is recommended to establish a division in national Iranian oil company comprised of the mentioned specialists dedicated to production, revision, improvement and updating samples of required contracts in all upstream fields including integrated drilling services and individual services .one of the applications of a LOGIC organization in united kingdom is producing sample contracts in all fields. Iranian upstream industry requires Iranian LOGIC.

Risk and Insurance Assessment Divisions to be Established in Drilling Companies

Insurance is one of the most crucial debates in drilling industry and has a major role of supporting financial activities of a country and considered as a development progress indicator of a country. Oil industry - major contributor to country's economics- has to consider insurance industry. Unfortunately there is no common understanding between insurer and insured. Insurers do not have enough knowledge about oil industry especially drilling section; on the other hand, drilling section is not much acknowledged about insurance contracts. Drilling companies have to form units under supervision of Financial or legal affairs that their responsibility has to be Risk and insurance assessment.

Insurance sanctions, impacted on oil industry installations

Bahman soroushi(Kish global petrotech):insurance is of paramount importance in drilling industry that unfortunately has been hampered after sanctions. Insurance sanction has impacted on oil and gas industry installations and coinsurance that used to be between domestic and foreign insurers has faded. Domestic insurance companies are not able to insure oil and gas companies due to economic conditions and absence of support from the banks. Hopefully by sanction lift and by the capability of money transferring with foreigner insurers, insurance conditions would be established.

Insurance liabilities not proportional to projects cost

Leyla Karimian(Parsian insurance):insurance has a major role of supporting financial activities of a country and is considered as a development progress indicator of a country .Oil industry as a major contributor of country's economics has to consider insurance industry.

regarding pathology of insurance and drilling industry, it can be discussed in three sections of operator, contractor and insurance company.as a first drawback, it can be pointed out as a disproportionality of insurance liability to projects high cost, main reason of this drawback is absence of clarifying of the extent of insurance that contractor expect from the operator, weakness in presentation of treaty documents form the insurer point of view, individual revision in contract clauses and absence of any contract standards.

One of the insurers complains about industry is, lack of enough time assigned for risk estimation. Insurers don't have enough time for risk estimation and because of that insurers enter an unhealthy competition. Also there is no integrated and comprehensive overlook regarding insurance coverage and every division wants to buy its own policy and maybe none of them is able to support any of the damages.

Absence of a comprehensive and specified database of risks in this division and attributed damages is another drawback. Insurance companies have no information on this subject and insurers can't get any information from central insurance.

One of the main drawbacks that is attributed to three mentioned groups is absence of any meetings between operator, contractor and insurance companies prior to insurance.

Cultural drawback is evident regarding insurance. All companies are trying to accept low insurance cost and sometimes take insurance as just a must-have piece of document.

Absence of risk assessment is another one. Sometimes insurer assesses a risk that has limited information and sometimes insured assesses the risk itself that different understanding exists between these two.

Unfortunately there is no common understanding between insurer and insured Insurers do not have enough knowledge about oil industry especially drilling section; on the other hand, drilling section is not much acknowledged about insurance contracts. Maybe reciprocal training can solve this problem, to the extent that required training is provided for both groups for the sake of assessing risks correctly.

Another drawback is absence of insured's knowledge about insurance products that insurer is supposed to represent them. Probably not all of the insurance companies in country have the policy and conditions of insuring oil and gas projects today.

Risk and insurance assessment division to be established in drilling companies

Ehsan ziyaeeyan(Kish global petrotech): Drilling companies have to form units under supervision of Financial or legal affairs that their responsibility has to be Risk and insurance assessment. This division can be active in different fields and designate which risk is insurable and which is not.

Regarding insurance contracts, clarifying the extent of responsibility is a necessity for both sides (operator and contractor).it should be clarified that by accepting this oath, how much risk is attributed to contractor or both of the contractor and operator. Sometimes it may happen that an insurance company takes all the risk itself.

Another debate is accumulation of risk. Oil industry's assets value is 120 times of the insurance industry's and these assets is accumulated at south of the country. We are located on an earthquake zone and by a disaster plenty of policies are impressed so accumulation of all risks in one place isn't rational from the insurance point of view.

As operators consider all dimensions of a contract all the time also they should consider purchasing an insurance coverage and make sure that does a contractor buy policy or paid the premium to fit because in the last case no compensation will be paid and this will make trouble for both contractor and operator .also operator and contractor should be aware of the attachment addition or removal to a policy.

Companies be Synergists by Resource Integration

Contract is an opportunity for meeting a commitment and it's easier to meet if this subject is more clarified so overall cost would be lower.in drilling industry cost and spent time is in relation with which operation is taking care of. First important matter is cost estimation that comprised of overall financial costs of the project. This industry is a driving force of upstream industry. Improvement in drilling industry has great impact on Oil Company and has a major role on investment. We have to abandon exclusive system and apply integrated drilling section management for drilling projects design. Post-embargo era different companies will enter Iran's market and will result in a challenging competition among companies.one can win this competition that has something to say and meet operator's needs.

Aliakbar Vahidi Alagha(Gostaresh –e- energy pasargad):we had some discussion at financial committee of Drilling services conference and we had an agreement on three things that increase performance of our work .these three subjects were: relations between operator and contractor, proper factors for financial assessment and post-embargo .

Contractor and operator relation enhancement results in cost reduction

Hesam nedaee hoor(DANA energy):Important question is that what is the solution of cost reduction. Talking about cost reduction we mean operator and contractor profit. Operator and contractor have are in direct contact with each other at different levels from treaty settlement, agreement and to the end of the project.

Contract is an opportunity for meeting a commitment and it's easier to meet if this subject is more clarified so overall cost would be lower. Treaty should be held with no doubt .we offer that operators hold meetings with contractors periodically and revise the structural drawbacks of a contract. Also operator companies should be careful not to accept costs lowered than usual estimations. This manner is not profitable for operator companies.

When talking of operator and contractor teams we mean a chain of services and investigation on their relation causes is very important. Operator faces a challenge of operation prolongation and also its true for contractor but contractor is also faces damage to equipment and loss of human workforce. Main point is that risk should be taken at a point that management is better.

One of the solutions is to meet the settled commitment so finally Contractor Company can have better long term and midterm planning. Another concern is establishing a think tank comprised of contractor and operator .especially when it's needed to think fast and also make use of brainstorming.

Drilling company multiplicity has great impact on costs

Melika mohammadpoor(international drilling):in drilling industry knowing which operation is going on and which well is being drilled has impact on cost of non-productive time. First important subject is cost estimation that includes project financial costs. Another thing is the discount rate exchange; if there exists a competition between Iranian and a foreign company discount rate has an impact on decisions and accomplishment of project.

Risks have different kinds and can be investigated at different angles. Those risks that we focus on them in drilling, risk is that operator is able to take the service and contractor is able to give services.

Multiplicity of active companies in drilling market can have great impact on costs. Differentiation of products is at medium level and entering in this market is a bit different.

Reaching a pioneer technology; First expectation from post-embargo

Mojtaba khani(petrogohar farasahel kish):first expectation that we have from the post-embargo financial condition is to have pioneer technology(up-to-date),new market would

be formed and those companies which either can transfer technology to market or those with technology, enter this market. Second expectation is foreign investment. When a capital enters in our country we have to pay attention to some points that are guaranteed profit and investment security.

Everyone believes that equipment quality will improve after sanctions lift with that being said, cost of the projects would be lower accordingly. After sanction lift we are hopeful to reach markets easier and quality improvement would happen. After sanctions lift drilling companies can show their performance by having good planning and strategy.

In recent years operators complain about that contractors do not perform as universal standard and it's cause was absence of new technologies and have to rely on their domestic workforces. After sanctions lift we hope to move toward increasing the required standards.

Companies be synergists by resource integration

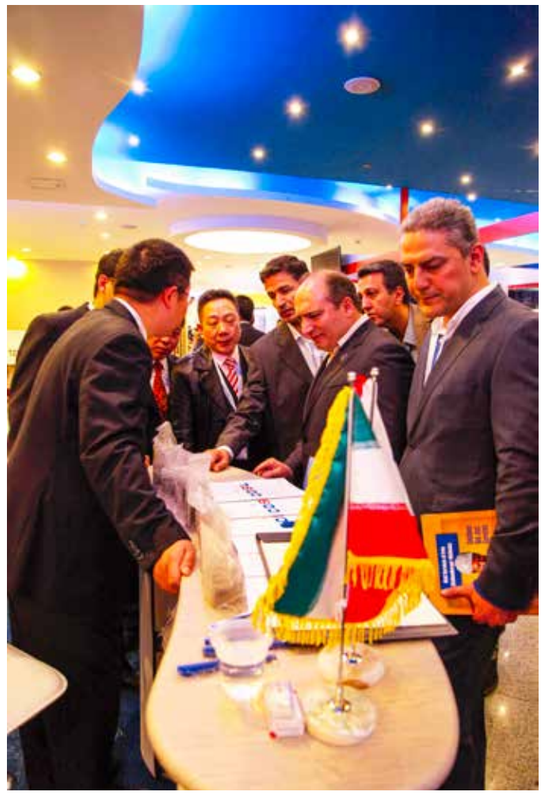
Moshtagh gohari(oil ministry):drilling industry is a propulsion to oil industry at upstream level. Improvement of drilling industry helps oil industry a lot and has a major role in investment. We have to abandon exclusive system and apply integrated drilling section management for drilling projects design. We are looking forward to integrated drilling services in drilling sections for a long time.

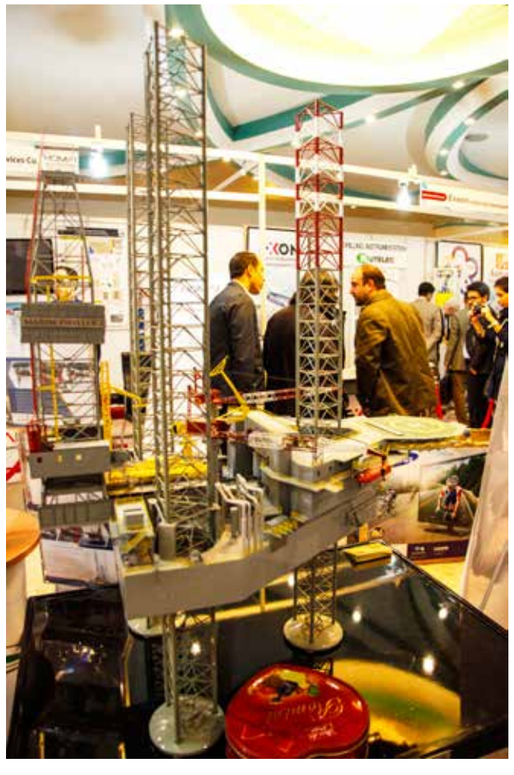
Drilling services companies and contractors have to come up with a ranking and qualification system themselves and put resources, financial facilities and human resources in direction of optimization. There is always exist some restrictive conditions and it is obvious that never conditions are unlimited and we have to have a collection of optimized resources for projects and be able to apply them.

We have had problems with team work through the history while nowadays teamwork, cooperation, common investments and synergy of industries is very important. If a blend of skills and resources is formed, it will help us a lot with accomplishment of affairs.

IRAN DRILLING SERVICES CONFERENCE

IRAN Drilling Services Conference 2016





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FOURTH CHAPTER

E&P AND DEVELOPER

SUGGESTIONS FOR EFFICIENCY

Abdolkarim Alimohammadi
Head of Drilling Engineering of National Iranian South Oil Company

There is a package of parameters that could improve the efficiency if they are employed continuously. There exist about 50 effective parameters that using them in a proper way could cause a better performance. These parameters could be divided into 5 subjects: Engineering programming, operation supervision, suitable drilling rig, technical services and downhole facilities.

In order to have the best performance. All of the effective drilling parameters should be considered. None of the drilling problems are happening accidently, but they all have backgrounds. According to the received feedbacks and well condition, these problems could be prevented. If we could monitor and supervise data continuously, we could have more efficiency and less wasted time.

By using experts and experienced employees, compiling efficient drilling program and a proper leadership and management, drilling costs and time could be more efficient. By standard vocational training, we will have efficient human resources in drilling engineering & supervision and favorable drilling operation. If we could increase efficiency by 10 percent, several million dollars per year could be saved. For example, a wrong decision or reaction could waste lots of money and cause damages, conversely proper decisions and programming will decrease the cost of operations. According to the high costs of drilling operations, a small mistake could be a big issue. With little investment on hu,a resource training, total performance could be changed significantly.

Another section of rig supplying is technical services equipment, this is obvious that if we have an efficient and suitable rig with fewer needs of repairment, this will affect on lowering the time of operation. If technical services of drilling rig have not an acceptable performance, these would affect all of the operation and would cause lots of problems, even may stop drilling operation. For choosing downhole equipment such as drilling bit, casing, collars, ... we should consider defined standards carefully because a lack of attention would increase costs drastically. For example, if the cementing operation doesn›t perform correctly,production from the well will encounter possible problems. Because of this problems, a well with a lot of spent costs will face challenges and improper production.

Drilling engineering science is a professional-technical knowledge that could be used for drilling and cost efficiency. Considering the trend of technical and technological progress in drilling industry, the importance of this industry is twice nowadays. We have good drilling operations if we have a proper engineering science. According to the current trend, drilling engineering is finding its path, combining this with experience could maximize the quality of work. One of the problems in this field is that highly experienced persons leave the system without sharing their experiences with their organization and there isn't an integrated system for documentation this experiences.

Education is another important topic that should be considered. Training before starting work and during the job, theoretical and practical courses is an opportunity for fresh employees to learn from experienced persons and have direct communication with them.

Another effective subject for optimization is to create a competitive environment. In foreign countries, a drilling rig is being chosen as exemplary rig every month.this method should be applied for local companies, considering drilling rate, HSE, and other effective parameters.

It seems that we should change our view of tender holding. Currently, technical points don't considerable points in tenders and this is the price issue that is effective in tenders. For example, drilling bit cost is about one or two percents of total costs if we choose an expensive bit with higher efficiency, total drilling efficiency could increase by %10.

Using new technologies and tools is another important parameter. Although the cost of some drilling equipment is high, with consideration of their effects on drilling progress, they could affect on economization.

THE MOST BENEFITIAL GAME IN THE COUNTRY'S HYDROCARBOR FIELDS

Abdolsamad Rahmati
Manager of NIOC's combined planning

Drilling industry has a strategic position in oil industry. If any country with Hydro carbonic sources in its upstream oil industry does not have enough operational capabilities, it will lose its developing targets and strategic points of its own industry after a while. This is the place where the importance of this industry on economic growth and development will be revealed.

Drilling has always been raised as one of the main challenges in Iran's oil industry. Hence, the drilling rigs issue is so important and vital which is combined with development of oil and gas fields and finally with Iran's national development. Herein national profits in common fields are proposed more than everything.

Global depression in recent years and also global devaluation of oil price had a very big effect on successful development and also permanent occupation and made lots of problems for financial foundations. Through these years, because of financial advantage destroying, the cost of production and reduction the number of drilling rigs, although the global rate for renting drilling instruments was reduced, unfortunately because of international limitations and other reasons the rate of renting drilling instruments stayed high and rig game in country's hydro carbonic fields specially in offshore section for foreign companies has become a very beneficial game.

Country's drilling fleet of oil industry equipped with about 135 onshore and offshore rigs. Nowadays daily rental rate for an onshore rig in average is about 26,000 USD and in offshore section is about 120,000 USD and with a simple calculation 1 year function of drilling instrument onshore is estimated about 9 million USD and offshore about 44 million USD. However unfortunately in the recent years the price for onshore drilling instrument has been about 13 million USD and for offshore it has been about 56 million USD because the renting rate of drilling instruments stayed high. In fact according to mentioned numbers, on one hand the high rate of drilling and on the other hand temptation of rig game in hydro carbonic fields of the country will be obvious.

According to chart no.1 active rig owners inside the country due to the participation of domestic market, they have to consider flexible strategy in means of creation and development long time and useful relationship with employers and this can be accountable for the differences made in employers' needs. This issue can help Iranian rig Owners Company in identification new markets and protecting the participation of existing market and make them possible to reach to the massive targets.

In recent years Iranian rig owner companies, besides attempting to stay in domestic market and supplying the needs of country oil industry; they have used some of their potential to gain a percentage of region market. Along with the progress of nuclear negotiations and beginning of post sanction era, it seems a very good opportunity will be provided for the drilling industry new mutation. Certainly, Iranian mighty drilling companies will have the capability to access the region market in case of tension reduction in Iraq and Afghanistan and establishment of peace in these countries. Also Oman and Pakistan will be 2 other accessible countries for Iranian drilling companies because of good political relations and religious and ethnic commonalities. Financing in country's oil industry projects is not an easy issue. Hence, due to vital role of oil industry in country's economy and necessity of oil and gas production increasing, it is necessary to create a viewpoint for investing in oil industry by private sectors. Due to country's developing goals in post sanction years, necessity of drilling industry services, also applying more modern instruments in this field to dig new wells and finally have more production will be very important. Moreover in this field only decent game and correct competition is alignment of country's protection and development massive goals.

TIME TO BUY DRILLING RIG

Mohammad Reza Takayedi
Deputy CEO of National Iranian Drilling Company

For exploration, research and other purposes, there is no real data until having a drilling rig and start drilling to reservoir pay zone. Actually even with a rig itself, we can not drill a well. Beside a rig, there are lots of services that affect drilling process based on their job and helps to complete the drilling. The presence of the drilling rig is the main part of the process, and all activities depend on it. Besides the drilling rig, about 20 different services are essential.

Current drilling rigs' sufficiency
When we want to use a facility, it should be proper, not just having the highest technology, we should consider economic aspects too. According to the statistics, there are about 120 rigs in Iran. About 1/3 of National Iranian Drilling Company's rig is purchased in the recent decade. The others belong to the previous generation (construction aspects not technological) have been manufactured in US and Europe. If employers decide to use extended reach technology, we need to have more powerful rigs with more features. In addition to rigs, we need side services like horizontal drilling for implementation of this projects. Generally speaking, current drilling rigs are suitable for developing, exploring and repairing purposes.

Drilling rig challenges
Human resources and facility maintenance are two big issues in the drilling industry. The main resource of every company is its personnel because the employees of every country could do activities like programming, maintaining drilling facilities, well programming, monitoring and supervision.
Drilling facilities like every other equipment needs maintenance and when they reach to the basic repairment level, surely need expert employees and proper companies for this works. The main subject of human resources is education and drilling facilities maintenance. If we have a robust system to prepare good spare parts, drilling rigs could be always up to date and ready to work.
Another challenge of this field is HSE. Until the recent decade, we don't have HSE instructions for all drilling facilities. Fortunately, there exist an HSE officer for every rig all the time who instruct HSE rules in drilling rigs. In order to apply the rules and instructions that exist in National Iranian Oil Company and international rules, some good activities are done. But because of sanctions we faced some problems and we tried to use all of our possibilities to stand against these problems and that was partly successful. In spite of shortcomings, we try to be better in the future projects. But it should be noted that HSE situation is improved. There are some limited problems and we try to reach required standards of a drilling rig by the continuous improvement.
Continuous improvement means that we should never satisfy about a current situation, when we don't, we think about the future and try to have continuous improvement in the organization. Parts of this efforts is about HSE problems and we should try more about that. Safety compliance is one of the parameters that could affect the total cost. With safety compliance of employees, human resources could be retained.

Time to buy drilling rig
At the moment, buying a drilling rig may be not economical. In the next year for National Iranian Oil Company purposes, we need about 120 to 130 drilling rigs. National Iranian Drilling Company doesn't have a plan to develop its onshore drilling fleet. Because it should be considered that by adding a new rig could it return the capital cost and does it have added value. If not, renting or buying a rig is not economical. At the moment, Iran does not have a good situation about offshore masts and most of the companies rent masts. It would be better to invest on offshore drilling. By decreasing of the oil price drilling rig that had been rented 170000 USD per day in a few month ago, is now decreased to 110000 USD per day.

Contracts for Iranian equipment's quality improvement
In past year, about 200 pieces of drilling rigs have been manufactured by Iranian part makers. Supervision improvement and technical science development are important for manufacturing. Industrialists need support and help from the employer for improvement. We have used this method for years, but we tried to make it more integrated this year. For local manufacturers, we have used termed contracts to manufacture our needs in a specific time. Using termed contracts cause the manufacturer work on that specific topic and research about it and tries to improve it. In order to control unnecessary costs, our coworker monitors the production line continuously. This type of contracts will be started in the next four months and we can use and develop local potentials efficiently. On of the problems, is the lower quality of local products with high price. It causes less competitive ability compared with international companies. By quality improvement, Iranian manufacturers and employers both benefit.

Suitable rigs for directional drilling
All of our rigs could do horizontal drilling. When we want to start drilling a well, there are many items that should be involved, after selecting the rig, appropriate directional drilling service should be chosen. Other facilities such as elevator, top drive, ... should be considered. Having the horizontal drilling service is still the main part.

Reducing costs by integrated services
Having integrated services help up to work more efficient and reduce total costs. Nowadays it is tried to perform projects integrated or by the consortium. But many local companies have limited facilities. More drilling rigs and more side services definitely will reduce the total cost. By combining drilling companies they could work more efficient. But if not, the small companies lose their opportunities in competition with large companies.

Human resources preservation, the ongoing challenges
With the change of today›s lifestyle because of changing technologies, peoples willing to work in drilling industry reduced in recent 10 years. We have some challenges about the requirement that is not limited to Iran. First of all, we should choose relevant persons. Because of our governmental situation, most of the employees leave the job and work for private sector companies. In partnership with National Iranian Oil Company, we are working on changing strategies and policies for finding relevant persons, preserve and educate them. We are working on salary and benefits too. Considering the governmental situation of National Iranian Drilling Company, existing methods for motivation system is different with private sector companies and we have more problems. But it's expected that more relevant persons be employed and maintaining and education systems got better and more efficient.

PEDEX; Founder of New Innovations

Mohammad Monjezi
Pars Energy Gostar Drilling and Exploration Company (PEDEX)
Drilling Operation Director

“Mohammad Monjezi; one of the experienced drilling managers, still continuing his career as a specialist in private companies after his retirement from national Iranian south oil company. He is now the operation manager of Energy Gostar-e-Pars (PEDEX) company. PEDEX Company has a bright record of having good performance in drilling 20 wells in south Azadegan field under his supervision and also cooperation of all the Company units together. New innovations in drilling industry and applying scientific approaches for drilling performance optimization are characteristics of PEDEX Company that is pinpointed in the Drilling industry journal interview with this experienced manager.”

How is the existing drilling fleet’s condition in the country?

Onshore drilling rigs existing in our country are considered as main assets of drilling industry so we should have suitable and comprehensive definition for these assets and accept that any deviation from maintenance principles and absence of any organizational indexes for upgrading these assets is equal to current capital deterioration, in either private or government section, with that being said if we see it generally and as a public domain, we have to demolish opposition dimensions in this industry and regard national interest. Also take note of the fact that if the wheels of drilling industry does not spin-either regarding private or governmental-we can’t spin neither so for work to be done is related to these rigs improvement .speaking at the moment ,there exist no considerations and integrated thoughts regarding this huge fleet. We should define an orientation for the mentioned debate to get rid of this situation and consider their enhancement.

Do active rigs in Iran synchronized with new technologies

Pyramidal like structure of a drilling rig is also what we almost have in Iran but we should improve those parameters that contributes to speed of work accomplishment although it can be helpful but results in human workforce redundancy on the other hand that is not compatible with the current unemployment rate. For example using iron roughneck can improve safety and agility however it results in lower human workforce on drilling floor. This matter needs to be planned out. But there exists some contradictions for example before Islamic revolution drilling rigs personnel on board(POB) was 65 persons but now regarding no change in technology POB is around 45 persons in some companies.it is better to discuss it in a more technical group like manner .

Speaking at the moment, what has your company’s research and development division done for importing and improving technology?

We are looking forward to use new technologies and we have taken effective steps in this way ,we have no other chances except this but this matter does not contradicts previous question and PEDEX company is looking forward to it in research field in order to be the founder of new innovations. For example we have done some effective works and in recent year we are going to use remote control and intelligent blowout preventers using wireless system or regarding drift or passing a rabbit through drill pipes we are going to use laser and it has gone through its genesis process. Also we came up with solution of fire pit ignition (sparking problem) .related equipment is a product of PEDEX research and development division that is the result of academic talents works and it’s for the first time in Iran. This equipment is built in a mass production scale and also it is used by some companies active in Azadegan field. This equipment is capable of igniting fire pit for the purpose of flowing the well from a distance of 300 meters with the help of wireless system and is considered as a bright point in PEDEX Company. We are looking forward to decrease the amount of time required for running casing and drill pipes to one third by using Hydraulic machineries without human workforce.

Does any proportionality exist between costs of running a rig with new prices offering by some companies in recent treaties?

This question has two answers; firstly, if just the rig owner is the only one contracting with operator, I have to say no, because in this case some hard penalties would be considered in contract that are usually unilateral for the benefit of operator .this is due to the fact that operators don’t pay enough attention to costs in details such as equipment maintenance, depreciation, fuel consumption, human workforce dangers and cost increase as the contractors do and this results in some cost imposition at the end of a year. Some differences exist in EPDS contracts that enhance the situation.

How do you see this industry’s market in future?

If planned out and systematic competitions exist and not trying to dump private companies, I expect a bright future.

What is your company’s strategy toward international cooperation for enhancement and development of engineering services?

We are looking forward to guide company to E & P as what Mr.Eydi –CEO of the company pin pointed in the previous journal.

Is the company ready to attract foreign investment?

Absolutely yes, we are looking forward to use this opportunity and develop this industry.

What is your company’s main advantage as one of the rig owners of Iran?

The main advantage is absence of any margins and we hire specialized and well-known personnel in this industry this enabled us to perform drilling operations with more than %98 productive time in Azadegan field that is a great and novel achievement. With 6 years of depreciation and this oldness of the rigs we are in the first place regarding rig ownership.

What is your midterm and long-term development plan?

We are planning to enhance company’s condition by applying scientific and advance solutions in the scale of within the organization.

Are you planning to have more drilling fleet in your company?

Yes, we are planning to act in offshore field and also expand our onshore fleet also we want to use new technology along with increasing quantity.

How well do you assess your fleet’s condition according to optimized performance index?

Very well and having bright future, it’s pretty obvious in our action.

If you have any records or novel performance in drilling operation, please declare it

Best records regarding the field of rig ownership in Azadegan field was transporting rigs in a cellar to cellar movement that we were able to change its location in 6 days although the operator predicted 7 days for this purpose and in the scale of location to location we did that in 11 days regardless of 14 days prediction. Also we had %98 of equipment’s performance .In drilling the last well with rig number 3 we could accomplish running in a completion string and also completion of wellhead in 90 days regarding NPTs also.

What have you done for solving the problems facing drilling industry and quality improvement of this industry in Iran?

We are keen to establish some communities comprised of drilling companies to share ideas and brainstorming

Pedex Company proposed the ignition problem of fire pit. Related equipment can ignite fire pit for well flow by designed wireless equipment. Production of this equipment is considered as PEDEX company’s honors

AS A TOP PRIORITY DANA LOOKS TO IMPROVE EFFICIENCY OF ITS DRILLING OPERATIONS

Mohsen Daneshkhah
Dana Energy Co.
President of Upstream Services

"Having recently organized into an E&P Company, Dana Energy is one of the top privately owned professional Companies in drilling industry.
Its upstream section has provided services such as EPD, Rig lease, drilling, Acidizing & Stimulation, cementing, drill bits, as well as related services for geophysical projects (Seismic, Processing, and Interpretation)."

What are Dana's strategic plans to bring new technologies into the country?

As a principle in fulfilling our needs, we must plan to equip ourselves with the most up to date technologies, out of the many now available in the world market.
Initially priorities should be established, and then plan to secure pertinent technologies in fulfilling our needs.
Towards this we must fulfil the followings:
1. Hiring of experienced and top Iranian Professionals both residing within and outside of Iran, and if needed expert expatriates.
2. Cooperation with companies with the pertinent technologies.
3. Connect with international scientific communities, trade organization.
4. When possible, procure technical software packages.
5. Development of software packages related with local technological knowledge
6. Acquisition of small companies with technologies, especially during oil market depression when they must sell.

Dana Energy plans to establish a joint steering committee to both strengthen its engineering division, and to establish a directed and close ties with its drilling operations
It is of outmost importance for the benefit of all drilling companies, and oil companies, to communicate all of their experiences gained, and problems learned in working with each of the oil & gas fields,.

What is Dana's competitive edge over others?

We consider our personnel as our principle strength, and investment.
Next points in this regard are improved operations, cost reduction, and positive interaction with all who have a vested interest in the projects.
Of course to keep this competitive edge we must actively plan for and keep abreast of operational and technological changes in the Drilling Industry.

How does your company plan to hold onto and to expand its business post agreement on Joint Comprehensive Plan of Action?

Fortunately we expect that cooperation with international companies, and procurement of latest equipment and technologies, shall be eased, and more available, upon dismissal of the sanctions.
It is hoped that ceiling on Iran's oil production, and its price shall rise, and thusly provide the needed funds to restart delayed projects in the oil industry.
Furthermore, involvement of foreign oil companies on IPC contracts would increase upstream business activities, and thusly provide good opportunities for involvement of Iranian Companies.
Of course after dismissal of sanction, we would face some competition imposed by international companies as well.
We must therefore advance our moves in reducing our costs, and improve efficiency of our operations.
Despite higher cost of their personnel, international companies, due to their improved and efficient operations, availability of new equipment, can complete the same work faster with better profit margin, and therefore bid and win tendered works at lower prices.
Another challenge from improved market, would come from international competitor's need to hire personnel with local experience having worked for Iranian companies, we therefore must move with plans and actions to retain our personnel.
In regards with cooperating with international companies who due to slow market and low oil prices are eager to participate in Iranian Market; we shall without rushing to join them, we must initially assess their capabilities against our needs and then make an appropriate choice.

**How could Iranian technical companies make a move on international markets?
What is your company's plan in this regards especially for those of our neighboring countries'?
Has anything been done in this regards?**

We must have firsthand knowledge of the international market and the competition.
We must have established and presented our company at the approval level of such oil companies, and clientele.
Industry Standards, and model of excellence must have been established and visible throughout the Company's operations, and activities.
HSE has become an important and major issue of the day, in which its history of implementation and its conduct is closely watched and assessed.
Also hiring of experienced and fully developed personnel and improvement in technical and quality of operations, and use of latest equipment is of key elements for entering international markets.
In order to reduce costs and improve our completive edge, hiring local experts, and provision of proper training becomes a must.
Fortunately Dana Energy, has succeeded in exporting its technical and engineering services on for several projects in Pakistan and is currently working on two projects therein.
It must be said here that these projects have been won through international tenders, and in tight competition with well know companies.
Additionally, Dana Energy has been evaluated and approved for several other international tenders by well know oil companies.
At current time Dana Energy is actively building its capabilities to move into international markets for provision of its upstream services.

What are your short and long term development plans?

For its development, Dana Energy has realized the need for evaluation and a move to make changes to its organizational structure.
Upon studding several and varied international upstream and E&P organizational models, we have moved to establish a new business structure.
In this new business structure, company is composed of upstream, E&P, and Trade Service business segments.
The new organization concentrates on operations, developed systems, and coordination between all sections. Under this structure, Dana Energy has full control over its Management, Finances, and company strategies.
Dana constantly evaluates all market changes, and strives to make available new and expanding services within its upstream services business segment.

What has your research and development section done to date in procuring and developing new technologies?

Dana Energy has and must always perform its services with an eye on the leading edge technologies and fundamental sciences.
One could not remain and compete in this industry without acquiring and using new technologies.
Research and Development section must watch the market of new technologies, and provide information to engineering and operations departments.
Dana Energy R&D section holds an office in Tehran University's Science and Technology Park.
It has, for the past several years, through working with local and international university bodies, presence in international scientific conferences, and presentation of articles by its personnel, has elevated its organizational knowledge and knowhow.
R&D section currently is working on several projects to develop software programs in addressing Dana Energy's internal technical needs.

Future of Iranian Drilling Industry market is brilliant

Mohammad Reza Takaydy
National Iranian Drilling Co.
Vise president

“Mohammad Reza Takaydy, vice president of National Iranian Drilling Company has described the national company›s drilling fleet of drilling; the position of this company in terms of technical drilling services, and the company›s current and future programs. He has informed about the plans of national drilling company to expand the fleet and onshore and reconstruction program of drilling machines.”

How do you evaluate drilling fleet of the country in terms of quantitative and qualitative?

According to available statistics, about 120 drilling machines are present in Iran and most of them are working. Except rigs that already were purchased from American and European companies, the rest of the rigs have been purchased from China since 7 to 8 years ago. The rigs that are built by domestic companies are just rig body (substructure) and the main parts of the rigs such as pumps and other machineries are made in China or purchased as second class from America. Of course these rigs are suitable for current work and if we compare them with foreign rigs, they may be equal to the European rigs in case of function. There exist some other rigs with very advanced technology, but perhaps there is no need for advanced technology in the beginning of the work. For example, if you want to dig a 2000 meters well, you do not need to use the Rig of 2000 HP, first a 1000 HP rig is used and according to the conditions and requirements the options will be chosen.

It may not be cost effective for us to use a highly advanced rig which every parts of it electronical and mechanical. Because these rigs may need 4 to 5 operators instead of the 20, so it may not be advisable to use them due to the community working conditions and unemployment in our society. In Iran there exist usual rigs used in the world that are accountable for our work.

A number of national drilling company’s rigs are belong to the period before the revolution that some of them need to be repaired, but the 25 rigs bought since year 86, do not need to rebuild. Therefor the reconstruction of the rigs is one of our basic needs. Machineries like Draw works, rotary table, mud pumps and top drive need repair. Caterpillar engines of machines mainly need to reconstruction and overhaul.

The work of reconstruction has begun since last year and about 4 to 5 devices have been restored. We plan to reconstruct of 6 to 8 devices with finance support this year.

Does National Drilling Company plan to buy rigs?

Yes, we have planned to do this since some years ago and due to embargo there exist some problems but now by the end of embargo negotiating starts again. We planned to buy 5 offshore drilling devices that have not been funded yet. We are working on rig granting of some companies. Tender documents to get 2 to 4 masts are achieved and if conditions were favorable, the next year masts will be available to use.

How do you see the future market outlook of the drilling industry in two years?

Future of the market of Iranian Drilling Industry is in excellent condition. In the world, work is judged based on the economic value. In U.S 940 rigs are out of work because production costs are high relative to the price of oil and drilling is not economically justified. But in Iran, the situation is different. We must raise production rate to extend drilling market. Any company which enhances the quality of their work can maintain its market.

By a proper investment, a larger number of rigs in Iran can be enabled. We have to increase production to reach our previous production level and amount of oil exported. This increase can be achieved through work over with coil Tubing or rig in suspended wells. Due to reservoir pressure drops, some wells need ESP or electric pumps below or above the well to recover oil.

Drilling industry of our country will prosper. At the same time, the quality issue has already been considered. If a company enhances the quality of its work, it certainly expects very good capital markets.

What international program does National Iranian Drilling Company have?

There are ongoing negotiations with large companies. Debates with foreign companies are mainly in several key areas:

First, if they can cooperate with us, they participate in tenders and also collaborate in the execution of the work. Agreement to restructure our drilling fleet is an example. Second, technology and advanced technical knowledge transfer between the contracting companies and us.

One of our improvement plans is to train our human resources, have more interaction with main companies and do our work faster especially in turnkey projects. Good results are achieved but they still have not been implemented. Most negotiating partners are European although we had a contract with the Chinese, but now many agreements have been signed with the Europeans. Third is use of new technology in hardware and software engineering especially in turnkey projects.

What do you know as competitive advantages of national drilling company compared to other companies?

First we have a large number of human resources who are skilled, high educated and experienced. We are still trying to increase this capability. Second, we have the acceptable number of masts and equipment that reduces our costs. The early life of our fleet is finished and the book value of our drilling rigs is almost zero. These are advantages that will reduce costs. The number of mast, mast life, human resources and the invested capital that National Iranian Drilling Company has, are the competitive advantages for this company.

What is the position of National drilling company in the fields of Technical Services?

We have all global technical services. Our auxiliary services are in at an acceptable level in quantitative terms and cover all services. In terms of quality there is a good condition, although some devices need reconstruction. We try to maintain our current market and plan to satisfy our clients and employers.

Our next leap is to become a International Oil company

“Petrogohar Kish offshore company as the largest marine rig owner of Iran is one of the active companies in the upstream oil and gas industry in recent years. The company has planned a brilliant future by setting up a research and development unit. So that it not only tries to earn profit as a business but also indicates the improve of the drilling industry and promote indigenous knowledge and technologies in this industry as its goals.
Here is the interview with Dariysh Hasanvand, Engineering and Technical Director of Petrogohar offshore Kish:”

Dariush Hasanvand
Petrogohar Farasahele Kish
Engineering and Technical Director

How is the importance of technical knowledge and managerial General contractors in Iranian companies especially in your company, in accordance with international standards?

It should be noted that research and development is a key and principle of the survival of a company in a competitive world. In today›s world, new and updated technologies are very important in the profitability of a company. Perhaps in the past the capital of a company was in proportion to the amount of profit but now this equation is completely changed and innovative companies with little capital gain huge profits. In this regard, and according to the company›s management approach, Petrogohar is also specialized in the field of research and development unit and established links with universities.

What are the main advantages and your abilities as a general contractor in the upstream oil industry of Iran?

Perhaps at first sight capital and extent of Petrogohar's projects seems to attract everyone's attention and to know it its main feature but In fact, the most important asset and the foundation of the company is, experts and promiser human resource who proved they can pass embargo and now are equal to the foreign counterparts technically and scientifically. When everyone was disappointed and thought that petroleum projects can go on only by presence of foreign companies, Petrogohar proved that Iranian engineer's ability is not only less than foreign ones but also is much more than their. Iranian engineers could keep the drilling industry of our country fresh. Actually, our main advantage is our skilled manpower.

Please declare your long-term and midterm development plans?

If we want to divided Petrogohar general policy into two parts of short-term and long-term, finishing current projects and raising Iranian human resources specialist is known as a midterm target. A completely successful example is Sina rig which is a totally Iranian and all persons who work on it are Iranian.
But Petrogohar's long-term target is «increase in engineering ability especially in new technologies», «making natively all the necessary parts in the sea drilling industry «, «increase the capital of company « and «export of engineering power,» he said.

What have you done to solve the problems facing the upstream industry and improve the quality of this industry in Iran?

Without doubt one of the most important problems of the upstream industry is its excessive dependence on the supply of parts from abroad when its importance was evident especially during the embargo. In this regard, Petrogohar tries to produce some key components of the oil industry domestically which some of them have been produced and the other are in progress.lly in turnkey projects.

How do you see the status of drilling fleet in the country?How entering of high-tech drilling rigs can affect drilling efficiency?

In total drilling fleet›s situation is neither perfect nor bad, but it must improve because the efficiency of some Iranian rigs is not acceptable. No one can ignore the effect of new and updated rigs at the speed and efficiency of projects, but a more important case is their maintenance and repair because most of equipment are supplied by foreign companies therefore it should be considered that there are having new and updated rigs alone without proper maintenance not only does not increase the projects speed but also makes a lot of cost for company and reduces the efficiency.

What strategy do you determine to maintain and develop your market in afterward agreement period?

If you mean the time of afterward agreement period when foreign companies entered the Iran market, it›s just that the competition is tougher now. But Petrogohar confirms according to its skilled and native manpower, it can offer more competitive rates against its foreign competitors offer but this is not the only approach of Petrogohar to gain the market. The company›s investment in research and development on new technologies and naturalization of them which reduce the company›s costs is more important. Certainly, we all agree that presence in the petroleum industry market of other countries, needs government support and it is also affected by the power of the country in global and regional political changes.
Our company only as a rig owner company is not only looking for opportunities in the upstream market, but beside a strong rig owning management and having best-equipped super rigs in the region, has a strong logistics and accountability and also a uniform engineering and operations According to the company Ptrogohar EPD is one of the qualified companies for projects.

This success comes from having a strong team of engineering and drilling, geological studies and operations and most importantly have a very strong team in petroleum engineering and reservoir. In practice we have proven to be in conflict with any natural phenomenon relying on the knowledge and experience of our troops and won with the help of God. And while the safety and quality of our work is always a priority. Therefore Petrogohar Company is one of the qualified companies for EPD projects.
With administrative and planning capacity that is done, our next-rich is presence among the International oil companies that in the case of its realization as cooperation with competent companies we have a more successful and effective presence in natural and foreign markets. As previously mentioned one of the advantages of engineering and operational management of our company is coherence and integration. The first principle for us is Safety and high quality work. Sometimes a lot of time and money has been spent for it. For example secure the well SPD13A05 or get to the exact point in the program set by previous drilling and placement of the heel casing and liner in designated areas, and so forth maintain reservoir health during drilling. This success comes from having a strong team of engineering and drilling, geological studies and operations and most importantly have a very strong team in petroleum engineering and reservoir. Petrogohar's engineering team is always trying to have the highest level of cooperation and interaction with the employer engineering (Pars Oil and Gas Engineering). By the interaction Petrogohar's engineering gains the most profit from experience and guidance of employer engineering team. The greatest advantage of the Petrogohar Company's operations and engineering is R & D department that besides using previous learnings solve its practical problems and drilling services problems scientifically and is always looking for new and innovative solutions.

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Increasing the Efficiency of Drilling

Bahman Sorooshi
Global Petro Tech Kish
CEO

Are you planning to expand Global Petro Tech's activities? What are the new services that expected to be offered by your company?
In view of new circumstances, GPTK plans to expand its activities not only in Iran but also in the other countries. In this regards, we have started extensive negotiations with Oil and Gas companies in Oman, Kazakhstan, Turkmenistan, Kyrgyzstan, and Iraq. We are hopeful to get t access to the market of these countries for execution and operation of Oil & Gas drilling projects. GPTK is a one of the well-known EPD contractors and we can provide required drilling services in accordance to the receiving drilling plans. We believe that more value would be added through mutual collaboration between foreign companies and Iranian EPC contractors.

Please elaborate on your company and its activity scope. What are your current instrumental projects in your country or the region?
Currently, Global Petro Tech Kish is involved in drilling of 10 wells in Azar Oilfield on EPD basis and operates three land rigs in this project at the same time. Meanwhile, drilling of three wells is completed, the remaining operations continue according to defined schedule. Azar Oilfield is one of the Iran-Iraq joint oilfields and GPTK has been awarded an EPD contract for this project.

Are these projects progressing as expected and according to schedule?
This project is being implemented according to the plan, however different interest of stakeholders and outside imposed restraints on the country hinder the progress.

In your own fleet how are you looking to incorporate technology and best practice into your operations?
After sanctions are being lifted, we intend to expand our presence outside Iran. To enhance efficiency and speed in operations and offering incentives to foreign investors, we have to refurbish our rigs and equip them with new systems and modern drilling tools.

Who would be supplier of your rigs? What do you look for in a partner for this venture?
On one hand, with drastic drop in oil prices, we encounter cost reduction of purchasing and leasing jack-up rigs, and on the other hand, considering Iran's new international scenarios, the acquisition of drilling rigs from foreign countries is possible. We are looking forward to the new opportunities and hoping to deploy more efficient and high-tech units. Same scenario can be envisaged for onshore sector.

Who are you working with?
Currently we are working with POGC, IOOC and ICOFC in Iran. In the last few months, we held different meetings with representative from U.K, Netherland, Russia, Oman, U.A.E, Iraq, Kazakhstan, Turkmenistan, and Kyrgyzstan oil companies and eventually we have signed Memorandum of Understandings (MOUs) with some of them.

Are there any particular countries that Iranian drilling companies and Global Petro Tech Kish are looking to operate once the sanctions have been lifted?
As I have already mentioned, we are looking forward to establish joint-venture with foreign companies and also we are trying to expand our activities in local market and secondly, we want to develop our operations to neighboring countries through negotiations.

Can you explain the strategic importance of Iran in the region drilling industry? What is the highest priority of Iran's drilling industry?
Most of Iranians oil fields have considerable recoverable liquid hydrocarbon reserves, and comparing in the other countries the average cost of extraction per barrel is relatively low, additionally Iran still has significant potential in local expertise and performing drilling operations.
Because of lower cost of operations and the fact that many of the requirements can be sourced locally, most of the foreign companies are attracted to Iranian contractors. As you are aware many of oil and gas projects in Iran have been accomplished by Iranian contractors and without presence of foreign companies. However, Iran needs to enhance updated technologies for oil recovery and conspicuous in its absence, operating and development costs have risen considerably.
New market conditions, will facilitate the participation of international businesses and investors whose advanced technology can help us add value to our operations and also transfer technology that makes in-country economy more viable.

What are the main challenges facing the drilling companies in Iran?
All companies are challenged with the access to modern drilling units and advanced technology. The transfer of know-how is not happening easily, for instance while drilling an onshore well using new technology will take a month, it will take two months longer with existing equipment in Iran, not to mention that other complicated projects such as Azar Oilfield require more time.

Multinational companies have been present in our projects before, what was the effect of their being for Iran drilling industry?
There were two types of foreign company in Iran; drilling companies and service companies. I believe their presence contributed to a competitive corporate climate and industry dynamics. Competition between drilling companies caused incentives for improvements of rig management, drilling technology and also efficient workforce training. We didn't take leverage from service companies. After these companies left Iran, operations were continued, and in the onshore sector we do all drilling operations and services by our own while age of the rigs fleets is relatively old. There is no debating that the speed of drilling operations and well completion has changed due to numerous development in drilling technology and innovative methods. Development of more sophisticated tools has enabled drillers to probe greater depth in less time and cost; the output from 10 wells can be achieved from two by deploying new tools and machinery.

What would happen if major multinational companies get back to Iran? What would be effect of their being to Iranian drilling companies?
I believe this will lead to a competitive corporate climate, this demand that national companies chase development and improve quality in products and services. For instance, in 1992, a contract of drilling 57 wells was awarded to a Canadian firm, they finished the operation within two years while having limited numbers of rigs. This highly affected conduct of business in NIOC, as the only drilling executer in southern Iran and they made major modification in their rigs and reach to the competitive position and brought practical results.

How has Iran drilling market adapted and evolved since the implementation of key economic sanctions in 2011?
Just as the tightening of sanctions in 2012, financial limits and transactions restrictions, led to a sharp increase in cost of operations and impeded some activities such as procurement and access to the latest trends in drilling methods.
During this time we have managed to pursue projects by retaining qualified local workers as well as deployment of Chinese technologies. Iran oil industry has never ceased production activity, nevertheless some of wells have to be worked over and we are planning for wells rehabilitation.

Do you think that Iran will be able to meet its target output of 5.7 million bopd by 2020 and why?
After sanctions are lifted, Iran can increase its production capacity to 1 million barrel per day with carrying out minor adjustment of workover, within the next three months. Furthermore, with respect to new development plan and new contractual scheme which were introduced in Tehran Summit, incentives for foreign investment can be provided and this enables the oil fields to be developed.
I believe that achieving to the target output of 5.7 million bopd by 2020 is not out of reach. Despite the oil price slump, there is economic justification for oil production and Iran is determined to regain its market share.

What is your long-term forecast for evolution of Iran's onshore and offshore drilling sector?
Overall, we believe that Iran assets will yield production growth both in onshore and offshore drilling sectors, we are expecting that 20 to 30 onshore drilling units as well as 10 jack-up rigs will be added to the current Iranian drilling fleets.

Smart Technology, Solution for Investment Management in the Standard Fields

Dr. Mohammad Ahmadi
Parsian Omid Smart Development and Engineering Company
CEO

In the maze problems the drilling industry activists are involved; it may look a bit weird to talk about the smart field technology and artificial intelligence technology in upstream industry. But the solution of most of these problems may be using these technologies. In this situation in which this seems no one is ready to these discussions in the body of traditional oil industry, naturally it takes a very long time to get prepared to use these kinds of technologies. However "in case of predisposing primary limited investment in one of the old fields which has production different challenges, we can find out its advantages and define possible operational limits and find solution for them by applying the smart integrated management pilot".
A group of university professors and elites graduated from Sharif, Amirkabir and Oil universities and senior experts with operational experiments in Parsian Omid Smart Development and Engineering Company have gathered together and are thinking about artificial solutions. In the following you read the interview with "Dr. Mohammad Ahmadi" directing manager of this company about value added technology of smart field in upstream technology:

At the moment how do you evaluate the situation of smart field technology? What "Have to's" these technology include?

It seems we do not have any successful implementation of smart field management technologies. Its main reason is firstly the absence of the sense of this technology and secondly the massive volume of operational complexities and problems which does not allow the management body to think about it. While lots of decision making challenges, operational and developmental solutions of the fields and reduction of uncertainty for lower risk investments and by higher return of investment and lots of field routine challenges by production integrated management technology can be solved. Certainly equipment (include permanent measuring machines, adjustable valve, and so on) is the first and the most costly necessity item for implementation of smart field management technology. But deep and improvable science for analyzing the huge volume of data relies on oil engineering framework, artificial intelligence technology and data analysis and finally uncertain quantity making and undefined decision making is the secondary and maybe the most important necessity. Finally, this technology by mixing reservoir and well models can find more accurately the production problem causes and find short term and long term solutions for them.

What will be the most important value added which smart field technology can bring for co-operative companies?

Making proper investment decisions depends on our knowledge about an oil field and its future achievement. In this decision making process the main goal is improving the value of a project, a property or one oil reservoir. There are modern and complicated equipment which help reservoir engineering-management in their decision making. All these tools are common in one thing which is need for knowing the underground reservoir and the ability of predicting its future operation. Also necessity increasing production from operating reservoir reminds the importance of modern field studies and upgraded decision making processes. A huge volume of oil has been remained in old fields while they have been producing for decades. Statistics shows that number of redevelopment projects is increasing. The key factor for having a successful redevelopment operation is a deep field study which mixes all the last information of reservoir static and dynamic properties with new collected data and uses them for making better decision by analyzing them. The hydro carbonic smart and integrated management is a solution for invests management in standard fields also for supplying production potential for the fields which was considered uneconomical before. At the present, there are so many challenges such as high volume of information and data, very big uncertainty in multi-billion dollars investments, shortage of professional and skilled staff for the field beneficiary or developer companies. Smart field's technology has been designed by means of integrating all management activities in scale model or field in form of a single framework along with automatic and standard works. Management patterns will be updated by new data and engineers can focus on production developing as a basic value added. This technology is performing realistic predictions also performing "WHAT IF" decision making scenarios under different circumstances for analyzing field development, operational planning and uncertainty analyzing. This technology allows personalized workflows to analyze for different properties by means of supervising and solution-oriented for developing and asset allocation. So this solution after implementation has the self-supporting ability and it causes delays and extra expenses which are because of referring to consulting companies be avoided. Updating this integrated and smart pattern is easily possible. In addition, sharing collective knowledge in companies compensates inappropriate and old activities experience transferring. And it supplies training Organizational morale and necessity clearness to reach to a comprehensive management and technical decision making.

Is smart field technology according to existing mentality which needs expensive and accurate tools and due to present oil industry situation economical?

In case of primary investment ability in one of the old fields which has different production challenges, we can find out the advantages of it by a smart integrated management pilot implementation and determine the possible operational limitations and find solution for them.

As an Iranian pioneer company in smart fields' projects in what fields have you had activities?

In this event, we just took steps in completing some parts of general framework of smart management including industrial-research project of "Improvement development and production strategy in one of the important country's gas fields".

What actions have been taken by your company to complete the cycle of science and technology about smart field?

We have developed smart, powerful and automatic general framework which is able to make elegant, intelligent and best decision in different phases of developing an oil field. This smart efficient framework is able to determine the field's improved development or better situation of product operations, quick readjusting of reservoir's pattern by observed production data or seismic data finally changing the unpredictable old uncertain reservoir pattern to a Probabilistic predict of the reservoir future operation. The main goal in reservoir general studying is giving a valid and reliable prediction and what we are going to make happen is a change of interdisciplinary in management-engineering strategic patterns which causes transition from certain or spot prediction to Probabilistic or distributive prediction. By this mean what would be considered is gaining calibrated predictive distributions from the future of the desirable values which every kind of necessity functions such as provable events of each realization each scenario and the most possible patterns along with proper risk factors and credit period is extracted. Reaching this goal is possible by performing integrated closed-loop reservoir management which mixes history matching processes, lack of certainty quantity making and production improvement with well modeling processes and on ground installations systematically. In this way, uncertainty of reduced pattern and economic interest for reservoir's expected age will be increased. This important process guaranties protecting production with maximum economic interest. So the main issue is management-strategic distance between "updating and analyzing compatibility of the reservoir pattern" and "production's predictive improving based on lack of decreased certainty". What we offer to solve this problem includes a general, powerful and automatic framework which is implemented by means of giving assisted and reliable decisions for succession of reservoir management-engineering functions.

What approach has your planning and policy in international cooperation?

We by having extensive international connections with famous companies experienced in running component of field smart management technology, or with valid known universities in expanding strategies and processes of hydro carbonic field integrated management are looking for transferring technology and completing the necessity infrastructure sciences to perform pilots of such projects.

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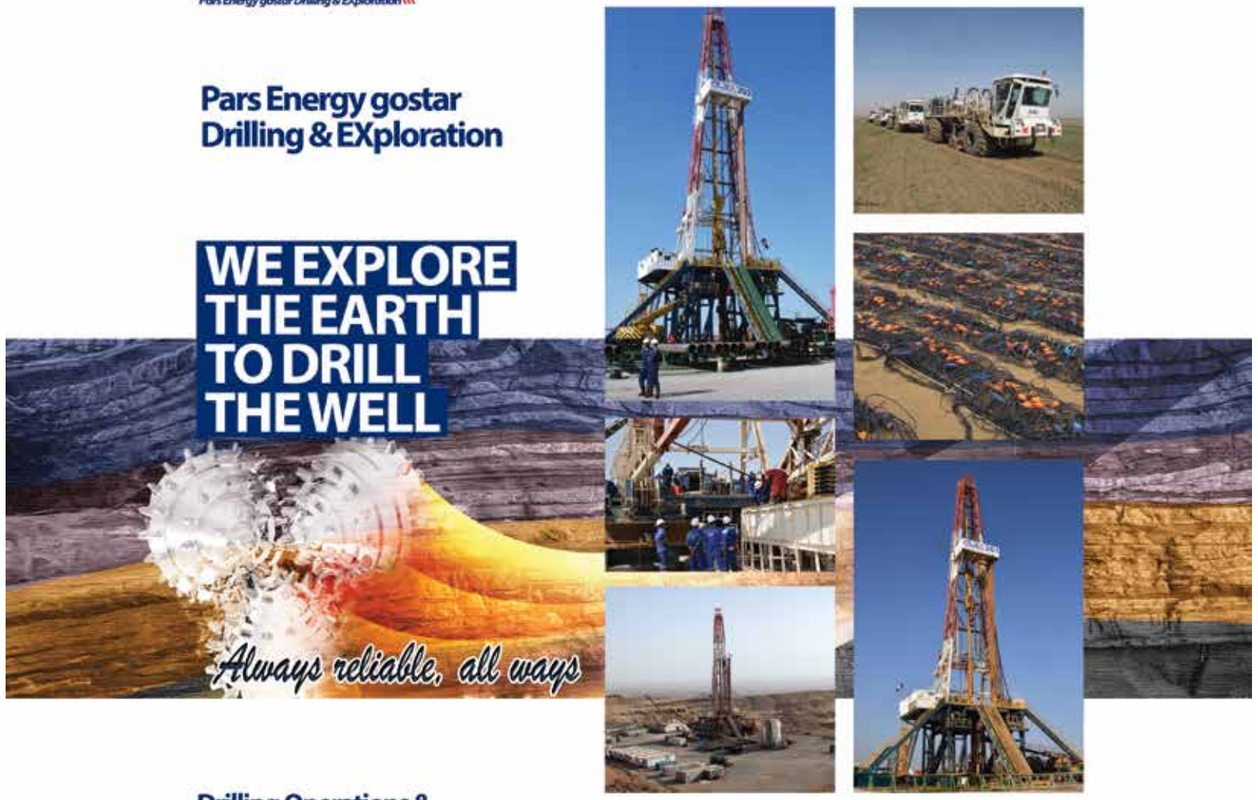

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FIFTH CHAPTER
TECHNICAL

Forgotten Technology

Alirza Azedi
Pars Oil & Gas Co.
Head of Petrophysics & Reserviors

No one can deny the expanded role of oil in Iran and world's economy. Exploration or development hydro carbonic reservoir and studying their situation is very important. This issue can be done by the help of Iranian professional's knowledge and skills and reliance on more than 100 years Iran's oil industry experience and different equipment and methods.

Well-Logging is a series of methods which gives continuous information of different characteristics of reservoir. In logging operation by help of different updated methods and equipment, some information of physical nature of reservoir rock such as porosity, permeability, rock type and also way of fluid saturation inside it will be gained. Information gained from this operation is called log or reservoir evaluation charts which lead reservoir engineers and operation on correct and better production from oil and gas reservoirs. Well logging has a very important role in oil industry and because of valuable information it gives, is named as the eye of the industry. The information in result of logging will be the basis of massive investment and planning in improvement and maintenance of oil and gas fields. According to this growing importance, different tools and methods in this field has been created and improved. Specially by improving the human sciences, using the electronic and communicative technologies in the fields of Well-Logging das been improved.

Logging industry in Iran despite its importance and position in exploration and development of hydro carbonic has been ignored till now because of lack of proper investment in this industry. In the following we mention to some of challenges logging industry faces.

Localization of logging industry, opportunity or threat?

Logging in oil industry has begun in 1927 and till now because of political situation of the country has suffered lots of ups and downs. Since 1927 that schlumberger presented the first logging services, according to that time's science simple tools were used to give us primary results. Nowadays this system's technology in the world has gained new tools which give us valuable information from unknown angels of reservoirs. In the sanction period lack of updated equipment had the most strokes to the country logging field. Because not only there was no access to updated equipment, but also by using copied and non-standard equipment, the very low quality information gained from oil and gas reservoirs, which in some cases suffered lots of damages and expenses in field development procedures to oil industry.

Over more than 110 years of country oil industry in spite multiple threats, no proper opportunity has been made. One of the proper methods of solving this problem is localization of logging equipment by reliance on updated science of Iranian committed specialists. Unfortunately Despite the existence of this potential, the share of manufacturing logging equipment in comparison with other branches of oil industry is still very low. (Less than 10 %). This issue is because of lack of attention of authorities, not having a special trustee, lack of assigning proper budget and invests no connection between industry and university,

not supporting private companies, and using courage and punishes special methods and other factors. Honorable authorities have to pay attention to the point that the valuable information of country reservoir should have a high degree of importance and security and should not be the test area for foreigners 'equipment because of lack of attention. According to existing enough science in the country and commitment and expertise of the country's industrialists and due to its special importance, it is necessary for the authorities to localize the logging equipment of oil industry. On the contrary of logging section, Lattice work section has been improved %90 by efforts of specialists and experts of defense industry and private section in constructing Lattice work balls with higher quality in comparison with foreign products. And we have to appreciate all localizers in this section.

Absence of comprehensive information bank of logging companies

At the present regarding to absence of local technology in logging field, every governmental or private companies by buying or renting a special technology from logging equipment suppliers (European/ Chinese) are giving logging services. Whereas the operation of these equipment has not been evaluated in the operating situation of rigged wells in Iran's oil and gas fields, so this issue caused these wells become their TEST WELLS and in addition to imposition operational risks, it has hard damages to fields' necessity information. On the other hand, every operator company by not having a comprehensive record of these tools' operation in turn according to existing received documents of logging companies applies the evaluation/reception or not reception of logging companies in its tenders. And this is in the way that logging companies apply themselves exaggeration of their positive activities and hiding their inappropriate activities. In this situation the absence of a comprehensive information bank which registers the history of logging companies' activities in level of National Oil Company will be appeared.

Existing of this information bank can be responsive to the vague activity points of these companies and causes necessity clearness in history of logging companies and makes the operator to have the best choice. In case of existing a logging contractors' evaluation center in the level of National Oil Company as "Approved Contractor List" and announcing their operation history in an comprehensive information bank (until completion of equipment localizing) it can be very helpful.

Logging industry in Iran despite its importance and position in exploration and development of hydro carbonic has been ignored till now because of lack of proper investment in this industry. In the following we mention to some of challenges logging industry faces.

The Road to Improvement

A view of the assets and deficiencies drilling fluid services

Jasem Dasht Bozorgi
National Iranian South Oil Company
Head of the Drilling Fluids section

Although drilling fluids services in Iran Drilling industry have weaknesses as compared with international level, but it is better than other sections in drilling industry. Dependence on foreign equipment, additives and materials is less in this section and all the additives are produced in Iran except for one or two drilling fluid additives that their domestic production is not cost-effective and not only the dependence is completely eliminated, but with effort of domestic companies in this field Iran becomes an important exporter in this matter.

Drilling fluid services include three main parts: Drilling fluids, Solid Control and Waste Management. The first part, Drilling Fluids, fortunately problems and Challenges are relatively low. In the second part, Solid Control, the main aim and approach is to separate Useless solid particles in such a way that useful particles remain in the drilling fluid. In this context, there are special equipment but unfortunately, in our drilling industry the issue is not valued as it should be and this important and effective section in Drilling fluids doesn't have a good condition. Existing solid control equipment in the country are all imported and have poor quality. The third part, waste management and the environment must also be mentioned that despite strict environmental laws and enforcement of this laws over several years in drilling industry Still we have not reached the desired and acceptable level.

Drilling Mud Additives

Chemicals used in drilling fluids can be divided in two groups: minerals that are extracted from country's mines like Barite, Limestone, Iron and Bentonite. There is no problem in providing of this group because of their mines in the country that even makes export possible. The second group are Chemicals that must undergo chemical reactions in the plant to reach production. Technical knowledge obtained in this section are and this group of materials are produced in the country for several years. Many manufacturing companies in this field have been created. One of the latest additives that is expensive and requires special manufacturing technology is Xanthan that fortunately, produced by a company in Tabriz in recent years and foreign purchase of this material is stopped. Chemicals that are imported now are Potassium chloride and Calcium Bromide, because their consumption rate are very low so the manufacturing of these materials is not cost-effective. Due to the high cost of oil based mud and environmental pollution resulting from its use, replacement of water-based mud from previous years is being pending and running. All of the drilling fluids that has been suggested as an alternative have restrictions and only cover small part of oil-based mud consumptions. Still there is no water-based mud to cover all the consumption of oil-based mud. One of the proposals in the field of drilling Fluid is «glycol mud», which fortunately there is no problem to produce and use it domestically and mud engineers have been quite dominant in this type of fluid. Due to difficult drilling conditions in Iran, New Fluid replacement rate compared to other places is very low and usually are pre-experienced mud are still used to minimize the risk of accidents so To contribute to the implementation of new mud in the fields by contractors, Employer Can have an effective role by sharing the risk.

Waste management

Waste management can be divided into two groups. The first one is Contamination that exist in wells that drilled in the past. We are identifying contractors that are eligible for cleaning this group. The second group are the wells that are going to be drilled in the future. This group should be classified based on geographical location. It is obvious that all the drilling positions does not have the same conditions in terms of the environment. For sensitive situations such as residential areas, pit less system is suggested. In this system there is no Pit around the well. In situations that are less sensitive, we can recycle drilling fluid easier and lower costs to reduce pollution as much as possible. Oil based fluids collected and transported by tankers to the factory and re-used since few years ago. Oil based mud is reused and not discarded as it is possible, But for the separation and recycling of drilling fluids that are contaminated, we do not have an effective method, however methods have been introduced in the world But our country is still not equipped in this way and drilling fluids soaked in oily mud are thrown away.

Strategies to increase quality

Quality control laboratories can be very effective in improving the quality of drilling fluids. Fortunately, there is no problem in this area. The laboratory of NISOC has been active since very long time ago. NISOC obliged manufacturers to have laboratory facilities on products they produce. NISOC by making test method identical and transporting indexes and also calibration of Laboratories made conditions to perform quality control at source of the products. We also have laboratories in the country that can be chosen as a reference like Research Institute of Petroleum Industry of Iran that have perfect drilling fluids. There is also Companies in the country that have international certificates and have conditions to be introduced as a reference laboratory. NIDC has launched its Drilling Fluids lab in the past years. Therefore, there is no problem in drilling fluids laboratory. But the most important current issues in the field, is the laboratory calibration and standardization of consumables by a company.

To reduce drilling fluids sector weaknesses, we need long term contracts as far as possible to identify the weaknesses of the companies gradually in order to strengthen and fix the weaknesses which is not possible in short-term contracts. The first step is to sign long-term contracts is to identify number of needed drilling rigs according to the needs of the country and considering the number of months should be spend on drilling in a year. Then depending on the number of drilling fluid contractor needed for the estimated drilling rigs, we should identify some contractors and sign long term contracts with them. In this case, we can gradually fix their bugs and equip them to operate in a way that could lead to international standards.

The second step is that, along with drilling operations and drilling services, we put research and development into serious consideration. Research centers and universities should get familiar with drilling operations and drilling fluids, and the problems that arise in our industry should be defined in form of projects and proposals for researchers, university professors in a way that they can study these problems and suggest solutions that by practice in the industry we can convert the ideas to real products.

The last step is training of human resources. Sometimes it takes a lot of time for graduates to start their job, because of long time they spend for graduation that is just followed by practical training. This method is wrong. We can use young human forces at various points during their study, in all areas, whether drilling fluid services and what other issues to acquaint them with the issues and make them ready to start their job as soon as possible. Young human forces should choose their jib before graduation and familiarize themselves with the real working environment during their studying years. In this way, certainly human forces are well trained and their work experience will increase. At current situation we just only pay attention engineering forces in oil industry but we do not spend enough time on training technical workers and skilled technician forces. They should also be trained to be able to properly interact with engineers. Fortunately, due to the presence of young talented human forces at all levels we can become an exporter of qualified and experienced human resources.

To contribute to the implementation of new mud in the fields by contractors, Employer Can have an effective role by sharing the risk.

Directional Drilling, Undeniable Necessity

Babak Karimi Dehkordi
Iranian Central Oil Fields Company
Drilling Expert

First directional well

Directional drilling became noticeable in 1929 with the built of accurate inclination measurement instrument for the first time. Early in 1930s, the first directional well was drilled in Huntington bay of California. By passing time developments of technology and the importance of reaching the target point, proved that directional drilling is a solution to reach inaccessible reservoirs.

Nowadays due to the high cost of oil and gas production, directional drilling gets more attention than before. The most important characteristic of this method is that it can justify production of some reservoirs which their production are uneconomic in any other method. Developments and Improvements of downhole motors, steering tools and M-D tools are some of the main reasons for success of directional drilling. Moreover, invention of locating tools with high accuracy, which send the data to the surface and process them by computers, had a great role in improvement of this industry. It is obvious that these services are very high-tech.

Directional drilling in Iran

Our country regarding the giant amounts of natural oil and gas, requisiteness of keeping its stock in international market on one side and supplying the internal consume on the other side, is forced to concentrate a lot on developing-field issues. Furthermore, selling oil is the main supply of Iran's budget. If we consider oil consumption of the world is steady, we can understand why countries with oil reserves are trying hard to increase their stock and share in energy market. Oil experts know that Hydrocarbon reservoirs will gradually lose their pressure due to production which this issue explains the need of developing the fields and drilling new wells to maximize the recovery from the field. Indeed reducing time, risk and cost of drilling and increasing the income of production are the key roles and having the knowledge and new technologies like directional drilling is the priority of major oil companies. Although our country is producing oil over a century, but unfortunately we are depended on other countries for instruments of directional drilling and in recent years because of restrictions of political sanctions, we could not use newest technologies; even some Asian countries have gotten negative response in some fields due to using poor-tech tools.

Distance to International standards

Although at first sight, directional drilling may seem costly and more expensive than vertical drilling, but by using high-tech tools, the speed of drilling and recovery of the reservoir is increased and not only the cost difference is compensated, but also we can have more income. All in all, with assuming accurate study of the geology and reservoir properties, it comes back to drilling methods and directional tools. Unfortunately, internal import companies were only the dealers of these tools so far, so they acted in a profit and loss manner instead of trying to import best and newest technologies, thus a great distance has been developed between Iran and other oil-producing countries in Persian Gulf. However, field owner companies and other masters have not supported and acted well too.

By assessment of different aspects of this field, it becomes clear that the lack of new technologies, lack of enough expertise and instruction are the main problems. In upcoming part some of drilling damages are studied and on the next number of this magazine we will be trying to evaluate directional drilling in Iran in details and do some computation about incomes of this method in one of Iran's oil fields.

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24 Hour Industry Needs

24 Hour Support

Armin Sohrabian
Excutive Director of Iranian Oilefield Services Co.

We should follow these basic rules in order to prevent from possible damaging in logistic and support: careful planning, on time data transfer, efficient demands prediction and discipline in performance.
Logistic as considered one of the most important part of supply chain management in drilling industry, has a great role, but unfortunately the way we look to this topic makes it seem less important. Continuous carelessness toward this topic may follow inconsistencies and delays in drilling operation and irreparable damages may take place. For example we could organize some meetings before the start of a drilling operation with the participation of drilling, HSE, reservoir production, installation directors, financial analyzers, governmental representatives from custom, ports, special and free zones organizations, and evaluate economic problems and feasibility for logistic operation in primary steps and avoid possible damages.
Practical experience shows that communication and confidence between contractor (logistic section) and employer (drilling section) is the inseparable essence for a successful logistic operation and it should be a bilateral one. On time planning and notices by drilling team in a systematic way could minimize the delays in support and logistic operation. In order to prevent from possible logistic damages we should follow basic regulations that include: careful planning, on time data transfer, efficient demands prediction and discipline in performance.
Nowadays, one of the most prominent damages of the logistic in the country's drilling industry is the lack of training centers and the lack of training program of experienced human resources that obtained their skills practically in this field.
As well as the things that we mentioned above, some oof the damages that concern to logistic topic in drilling industry are as follow:
- Use of insecure and non-standard equipment that have direct effect on performance of logistic team.
- Lack of coordination with governmental representatives and regular meetings for providing the necessary facilities for logistic operation. For example unfamiliarity of customs officials with the nature of oil and gas logistic and its relevant costs could be followed by delays in operation. While meetings and notices with high ranking officials of the organization could be very useful to prevent from possible delays of operation.

In some ports we have time restrictions that working hours are not more than 8-10 hours. Considering huge costs of drilling operation, it is a 24-hour operation. Therefore a 24-hour support could avoid from a number of damages.

- Impossibility for providing water and fuel in some ports that leads to a number of dilemmas. Mobilizing ports with water purification instruments could be considered a solution for this water crisis.
- Non-use of consistent software systems that could give complete information of stores and current status directly to drilling team and with an on-time planning, facilitate the logistic and drilling operation.
- Lack of a sufficient monitoring for loading and unloading operation and proper timing for providing support services in ports. For example considering the huge operation in some ports, there is a possibility for comprehensive investigation and overcoming the delays problems. Sample solutions could be as follow:
• Use of a number of work shift during a day and a night
• Increase in the capacity of wharfs specified for drilling section
• Use of professional and skilled manpower
• Providing modern loading and unloading instruments compatible with the standard in the world
- Unfortunately in some ports we have time restrictions that working hours are not more than 8-10 hours. Considering huge costs of drilling operation, it is a 24-hour operation. Therefore a 24-hour support could avoid from a number of damages.
- Absence of customs officials in 24 hours a day and a night in some ports and inaccessibility to the responsible person after working hours of an organization
- Sometimes using inappropriate supply vessel in terms of capacity and also insecure passenger vessel for personnel transfer. Rent of vessels in off-shore drilling industry is one of the main logistic costs. Therefore it should be selected with careful attention considering some factors like: speed of the vessel, reservoir capacity, throne capacity, passenger transfer capacity, security facilities, etc.
- Lack of suitable instructions or disobedience from the written instructions. The written instructions are not enough and regulatory authorities should have careful attention on the execution of written instructions. It is also worth mentioning that HSE is one of the most important pillars of drilling industry and in logistic operation, learning and following the regulations could easily prevent from major damages of logistic operation. Sending money on HSE matters could prevent from damages, incidents, human and financial losses.

An Explanation of Iranian Drilling and Drilling Services Market

Melika Mohammad Poor
Economics & Market Expert

All economic industries are markets with different nature. But marketing principals are partly the same in all of them. Marketing could connect a company with its environment and because of this it could be an important tool to provide beneficiaries demands. The structure of the market is the nature and amount of competition between similar firms in an industry. One of the main tools for marketing in an industry is to be familiar with its market structure. Economists divide the market structure into four types: perfect competition market, monopolistic competition market, oligopoly market and monopoly market. If we divide the drilling industry into two main section of Drilling services and drilling rig, in every section we should determine marketing strategies and economical methods.
"Every market has two primary task: Innovation and marketing " the father of modern management Pitter Draker says. If we consider best international brands in industrial and retail or production and services sections,the meaning of his words could be understood much better.
The purpose of marketing is recognizing customer's needs and trying to provide them in a profitable manner for both customers and suppliers. Generally, peoples think that marketing is equivalent with advertising and attracting customers, but this is just one branch of marketing. Marketing is a progress that starts with market needs recognition and finally repeated with after-sale services and preparing customers for resale.
What that could differ is the method of implementation. For example informing and pursuing customers for sale products and services is a key parameter in every industry. For generally used products, public media such as television is the best for advertising. In the petroleum industry, this purpose exists but its method is different and is based on long-term relations between employers and service companies. Therefore, the purpose is the same but methods are different. Because of connecting a company with its environment, marketing is an important method for providing beneficiaries need. The most important company›s beneficiary is local personnel in different technical, operational and managerial level. By continuous monitoring of market, uptaking relevant projects and using all company's potentials, marketing could help the company for financial profitability and market share. It could provide a better and progressive atmosphere for employees in different states. The customer is another beneficiary who is seeking for fast and continuous services with reasonable price. By having the knowledge about customers need and projects, marketing could do programming for providing technical knowledge and physical infrastructure. It could provide a continuous connection with a customer who have different needs that are mentioned. The service provider should always have more technical information about products and services than a customer to present some important advice and guidance to him. Providing suggestions about reducing costs, increasing speed and quality of a project is parts of customers insensible needs.
According to the petroleum industry's role in Iran's economy, there is another important unmentioned need. Performing the project more exact, fast and with fewer costs could help our national economy. On the other hand, exploration, development and production projects should be performed with least environmental issues. Local people›s concerns should also be considered. Some activities like asphalting roads, reconstruction of a clinic, school and mosque, ... should be performed for local persons it helps to promote brand and improve their trust to the industry.

Market structure

Market structure is the nature and amount of competition among similar companies in an industry. The main parameter for determining functional tools in marketing is to know the market structure. For example, this is the market structure that shows this principle : distribution and pervasive advertising is the key parameters in generally used products but in upstream petroleum industry this parameter may even have a negative effect. "Market structure" term is more common in the economy because marketing has born out of economics. This subject will be more obvious if we review the marketing background history.

Types of market structure

Economists divide the market structure into four types: perfect competition market, monopolistic competition market, oligopoly market and monopoly market.

- **Perfect competition market:** This is a type of market that many independent customers and sellers who have sufficient knowledge about different conditions (price ,...) present the same product. Perfect competition market is idealistic and doesn›t happen in real markets completely. Perfect competition market has some conditions: many customers and manufacturer, perfect knowledge of both of them, market's entering and exit freedom, standard and same products, customers and seller's independence. In this market, sellers change the prices flexibly and no one forces them.
- **Monopolistic competition market:** In this market all of the conditions presented in competition market is exist except standard product condition. In other work presented products could differ from each other. Other's company products may be really different or market may realize it as a different product. Nonprice competition is a common thing in this market. Transferring information into the market, convincing customers to product differentiation and encouraging customers to buy from this market is some key parameters. Therefore quality, propounding and advertisement are important parameters.
- **Oligopoly market:** In this case, customers and sellers are limited. If we have some limited sellers, there will be selling oligopoly and if we have limited customers there will be buying oligopoly. If both cases happen simultaneously, double oligopoly happens. Iarnian upstream petroleum industry is double oligopoly in this cases: long distance horizontal drilling, special measurement, LWD, etc. In the case of oligopoly for selling products, firms compete based on products and services and not price. Because if barriers to exit the industry was high, price war may happen and the entire industry server the damages. In this type of market, collusion may happen by sellers for controlling the market and prices. Having an export window for selling products in case of market saturation is essential. Customers connection management in order to predict and supply their demands and even providing unexpected services could help maintaining connection.
- **Monopoly market:** This will happen when there exist just one supplier in the market. In this case, there is a complete power for controlling market and price. It could happen because of this three cases: geography, technology, natural of a product

Comparing different markets

	Number of providers	Firms effect on prices	Product differentiation	Advertisement effect	Importing to the industry	Example
Perfect Competition	High	No	No	No	Simple	Bulk cereals
Monopolistic Competition	Almost high	Little	Medium to high	Almost high	Simple	Ceramic, Tile, Tire making, food
Oligopoly	Few	Almost high	Medium	A little	Hard	Automobile, geophysical services , drilling services
Monopoly	One	High	No	No	Not possible	Helicopter manufacturing in Iran

Demand	Supply	Service type	
Oligopoly	Oligopoly	Long distance drilling, special measurement, LWD	Drilling services
	Monopolistic Competition	Other drilling services	
	Monopolistic Competition	Onshore	Drilling rig
	Oligopoly	Offshore	

As you could see especial service market and offshore facilities are double oligopolies. common drilling services and onshore drilling rigs are monopolistic Competition for contractors and there is oligopoly on the demand section according to the national and governmental nature of Iranian petroleum industry.

Technical

The Index of a Good Cement Work

Mahmoud Mousaei
National Iranian South Oil Co.

The cement work is expletive of each hole in a well. The problem we are facing these days in the results of cement work operations is the bad quality of some of cements and drilling cement addictive produced inside the country. Regarding to not having access to the updated addictive production technology during the sanctions, South Oil-bearing region announced its needed materials for construction and production and gave its laboratories to the companies to do their tests by try and error. And this issue had a very important role in leading the producers to improve the quality of cement addictive.

In a general view, one successful cement work operation is a result of 3 stages: pre-operation, during operation and post-operation. For having a successful cement work operation all these 3 stages should be done properly. By pre-operation we mean improving the Parietal drive shafts. Because one well improving and one static well can make the possibility of success in cement operation by loss or flow point of view. If the well's situation is not good in improving, it will cause loss in cement work and this leads to lack of proper cement packing behind the parietal.

When parietal drive shafts also proper use of centralizers and correct way of parietal is very important. For example, one of the things that centralizers do in addition to keep the parietals in center and have a good dialysis for passing the cement grout, is to remove drilling muds from the walls and this causes that this mud does not destroy the cement grout. So a proper and exact supervising in this section can be so effective.

Supervising on cement grout making and using qualified materials is one of the other factors which can raise efficiency and cement work success. Always, existing a supervisor from drilling cement addictive producer or supplier Company is a necessity.

Drilling cement engineering is also one of the most effective factors in having a good cement work operation. Unfortunately in our country it has been paid less attention to this part of the drilling industry in the whilst the world's big oil companies consider drilling cement engineering as one of the most important and sensitive part of engineering. If there is a good cement work in different operations, it can be so effective in side costs reduction. This issue may not look very important at the first sight, but in long term and periodical expense account will show its importance.

Drilling cement formulation like other sections of drill engineering depends on two factors: science and experience, and experience can have a very significant share in supplying a drilling cement plan.

Surely, after cement work operation, drawing thickening charts and drilling cement quality and study and analyze them also special test for each operation like dried pressure test, pressure test and so on can have a very significant share in future cement work situation.

South Oil-bearing region by means of localizing drilling addictive has defined research project in constructing and producing the drilling cement addictive including 5 types of drilling cement addictive in form of Reverse Engineering which has leaded to producing 4 types of them.

In addition, the policy of South Oil-bearing region was in a way that qualified foreign material existed in storage are used for the wells with more sensitivity like Maroon field which is complicated, its Asmari reservoir is layered, layers have different pressures and producing zone and aquifers are close. About consuming drilling cement produced by four drilling cement producers which can be used in Iran for wells with regular situation and in deep wells G type cement produced inside Iran cannot be used.

But the goal is the cement production factories can find a way to make their products favorable and to the extent of international standard.

Cement operation in all over the world is being done by one company integrated and coherently. For example; supplying and maintenance of cement and drilling cement addictive, cutting and mixing, transportation to wellhead, formulation designing, making the soluble on wellhead and finally pumping the cement inside the well are all done in form of a coherent operation, and after cement working operation by hydraulic tests and running cement thickening quality log, successes will be defined.

One of the other problems of cement work operation in South Oil-bearing region is that cement work operation is not done by one company and continuously.

Next subject is about drilling cement addictive in which nowadays profitability is more important than quality, and at present and by elimination of the sanctions and possibility of entering foreign companies' products and emerging the competitions, it can be a flip to domestic producers to have more effort on their quality improvement.

When talking about cement work operation, immediately all attentions will be paid to the cement itself and its addictive, But other factors which can be participant in cement work operation's lack of success would be: cement work equipment such as centralizers, plugs, hoofs, and cement rings tools for installation of lining pendants. And we do not have to ignore them simply. So cement and drilling cement addictive and tools and equipment using in cement work operation must be used according to standards defined index of big cement work companies and due to the well situation.

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Necessities of Improving the Quality of Drilling Operations

Mohammad Salehi
Senior Drilling Expert

Technical

There are three basic subjects that should be considered to improve the drilling services, which are: human resources, equipment, systems and methods.

1- Human resources:

The first issue of this subject is "selection". Training human resources in universities has increased the access to petroleum engineering graduates and consequently the issue of "selection" has promoted in the country. There are sufficient engineers having academic education. The point is that we should increase the quality and improve the relation between universities and industry. Next point of "selection" is the compliance of the selected person with the intended specialization (the area that an individual is selected to work at). The next important step of human resources topic is training the person before and during the work. All leading companies in the world have primitive training for all employees, even if the employed person is graduated in the requested professional. These trainings are practical and they are dependent on the position of employment. Trainings based on the progress and position of the individual are continuous. The implementation of these training courses requires specific tools. Although some companies may have a training unit, but a professional and functional training requires vocational, diversified and valid training centers. Unfortunately, these centers are missed in personnel training system of our country and are not followed the other educational centers of the world.

Existing or establishing centers must link themselves to the international organizations and centers and should be able to offer international certifications. The second issue is "needs assessment". For example, trainings that are offered by the oil company are mostly general education. Although these trainings are necessary, but along with these programs, specialized training should get attention and change from this limited condition to a comprehensive and integrated condition. All drilling services require special training. Accordingly, we need diverse educational centers which have the standards and qualities of the famous educational centers of the world and assess market requirements. However, needs assessment should be done through a syndication which integrate and document requirements and shortages of the market to provide it for these centers.

Reputable companies of the world in a joint action, have defined an educational passport which records every course that an individual has ever passed as his or her educational and professional background.

Competence personnel are a result of conversion of education, training and skill to Experience and expertise.

The next important point in "human resources" subject, is personnel roadmap in the organization. The growth path of all individuals from the hiring point (depending on their performance) should be specified. Unfortunately, this approach does not exist in Iranian companies. Although this is the basics of a dynamic organization, but People are not familiar with companies› strategies and they don›t get any training about this subject, so they don't have any vision of their future at the company. People knowing the company›s strategies and the duty of each member, lead the entire organization to achieve its goals.

2- Equipment

The next subject of improving the quality of services is "equipment". First of all, standard and high quality equipment should be used, so they must have a reliable manufacturer. Using an appropriate brand and providing professional equipment, increases the quality of services as well as reducing the maintenance costs.

Another point here, is appropriate and on time inspections. Inspections should be more professional in the industry. Professionalism in inspection centers is as important as in training centers. Ensuring the proper operation of equipment and supporting it by certification of related defined centers will make the quality of services continuous.

In addition, automation is also a very important point. Equipment is becoming more automated and using this equipment has made operations more accurate. Instrumentation and Data Acquisition system allow us to monitor the operation. This precise monitoring of operations makes the employer and the operator able to identify strengths and weaknesses of operations by controlling personnel, equipment and operations process. In fact, we can use the recorded data to increase the efficiency and improve the quality of services during or after the operation. Currently, most of the equipment in the country doesn't have a data acquisition system and for those equipped with this technology, the desired results are not achieved .These modern facilities are common in the oil industry and all of them are built having full monitoring systems. The ultimate goal of this system is to complete the continuous cycle of measuring, modifying and improving. In Iran's oil industry, with the arrival of educated people who have educational potential, this subject should be culturize and its importance must be explained. Binding of these processes by employers, professional associations and unions will help to create this culture and increase the quality of services.

3- Systems and Methods

The third subject is "systems and methods". Since most of the active companies in the services area, already have ISO certification and having operational instructions, processes monitoring and the checklists are essential to get this certification, we consider that at least they have the basic level of these instructions and disciplines for processes. But the important point is to operate and improve them. So they should professionally develop and update over time and adapt to the international standards. Firstly, these instructions should be complete, then they should adapt to international standards and the most important, they should have both technical and safety aspects. There is no need to reinvent a system because there are lots of international valid programs and standards in drilling services area such as API Quality Program or API Recommended Practice to use. These three subjects (manpower, equipment and methods) can lead to a better quality of services. In fact the combination of qualified and trained personnel with tested, certified and appropriate equipment, and implementation plan in accordance with the standards can ensure the quality of services.

HSEQ Application in Iran's Oil & Gas

Need for a new QHSE strategy in Post-Sanction Epoch

Mehdi Babaei Rostami
Senior HSE Expert

Introduction

Iran is a country possessing one of the greatest oil and gas reserves in the world. Oil & gas is the major industry in Iran and many individuals are involved in this field.

Underestimation of HSEQ principles in this sector, might come up with intolerable risks and negative consequences against people, assets, environment and reputation of companies.

Aiming to reserve preservation; exploration till optimized drilling and production; safe transportation and final refinement, require up-to-date technology as well as reliable management system which ensures practical commitment to apply the highest level of safety & quality.

Repetitive incidents with similar root causes during the past years, represent the significant demand to find effective solutions to minimize risks of events.

Since the political negotiations between Iran and six world powers reached to an agreement, there is extensive opportunities to establish long term cooperation with interested international parties. To extend mutual relations in oil and gas field, all context, including QHSE subject, must be considered fully.

Indeed, a clear strategic policy along with a comprehensive road map, is highly demanded, focusing on improvement of QHSE principles from the conceptual design phase up to end of projects' life cycle.

This policy must formulate an integrated top down approach which can better govern, monitor and support all active organizations within the market.

QHSE vs Global challenges

Investment in the Country described as "the last gold mine on earth" is favorable for many big players. Although, coming back into this market, will lead to direct effect on extension of HSE principles in a harmonized global manner to face with global challenges;

The world has been in challenge with some critical environmental crises such as climate change & global warming which are threatening earth & people's health. Fossil fuels are playing significant role through this destructive trend. Crude oil components and gas emission result in adverse condition against human life.

On the other hand, oil & gas industry is harshly influenced by the huge drop in prices.

Unfortunately, corporates' cost cutting during these low oil price events have contributed to safety programs. Containing overhead and operating costs have led some to take shortcuts which have avoided proper investment in QHSE.

To face global & domestic challenges in terms of QHSE issues, planning at national level, should be carry out in a way to overcome the current industry risks as well as the new ones will be appeared through the entrance of new players.

In addition, serious steps to be taken toward global citizenship responsibilities in protecting the environment.

QHSE vs Domestic challenges

Oil & gas projects have always been associated with uncertainties & various risks affecting quality, safety, cost & time of each single project in.

During the past years, upstream industry in Iran was suffering from the sanctions which had been avoiding new technologies to come into the ground.

Lack of access to reliable technologies and absence of known certified bodies, imposed additional problems in terms of safe inherent processes from design till installation phases, then at operation and asset integrity levels.

Due to force majeure situation caused by the sanctions, the concentration of local policies aimed to the operation, thus the safety of projects affected in some aspects.

Short and long term remedial strategies must be established as a driver to get HSE back to the first priority in the CAPEX and also in the OPEX stage.

How to overcome challenges?

As a directive plan, the oil ministry needs to implement an agile but efficient system to embed safety & quality through the whole active companies.

QHSE is believed as a mutual responsibility among involved parties. All organizations must allocate sufficient resources for improving QHSE principles and have to make sure their management systems are capable to maintain the whole operation within acceptable boundaries.

It is crucial to strengthen the QHSE atmosphere in the post sanction plans as this will fortify protection of people, country capitals & environment etc.

With the help of integration, the operation and value chain can be optimized.

Establishment of an efficient & effective integrated mechanism enables the Country to empower its own workforce technically and to develop a strong atmosphere to amplify contractors.

Notably, applying this mechanism requires introduction of a National Integrated Management System (NIMS) which covers all companies & organizations within upstream sector;

NIMS would be included with Integrated documentation;

Integrated operation management system which interacts to support functions; integrated training system; and integrated risk management and auditing system.

Furthermore, the new system has to comply international models such as IOGP's operating management system (OMS).

As the result of implementing this dynamic ground, all operations & support functions will feed each other permanently and continuous improvement goals will be traced on a more reliable pace.

This mechanism would be a supportive umbrella which to be defined by the highest executive body in Iran's oil & gas sector.

Once all soft features and elements described above, are prepared or revised based upon fit to purpose materials, the leading part of the plan, which is a smart tool to make the whole system, executed, could be applied;

Enterprise Resource planning platform, is a tool ensures all elements of the management system are linked together and are being followed properly.

Online data gathering & processing, will provide a powerful utility for knowledge management and is a way to merge quality, safety & environmental considerations in all technical & operational affairs.

Hence, the quality of services and safety of operations will increase significantly and this will save sufficient time and cost for the national projects.

Way forward

Many of National Oil Companies (NOCs) tend to outsource their services to a range of competent operators and contractors.

Hesitating to deal with large amount of unnecessary bureaucratic processes, NOCs are attempting to outsource many of services to their subcontractors but this delegation, requires precise supervision in return.

That is where contractor and supplier management would be a critical consideration for all NOCs because of its direct effect on the quality and safety of each single project.

So how is this plan could be applied in Iran?

As stated earlier, the summary of necessary measures must be included with:

1- Generation of new integrated management system based upon up-to-date international models including below fundamentals;

- National governing policies
- Integrated macro H&S and environmental studies; standards, procedures & approved codes for upstream, mid & downstream
- Integrated training system; competency & career path requirements; incentive plans
- Contractor management elements; Contractual responsibilities; Insurance conditions
- Uniform risk management feature
- National petroleum data bank of HSE and operational failures & accidents for the knowledge management purposes; anomaly reporting, formal investigation & communication system
- Establishment of approved inspection & official audit system

2- transmission of above steps into an electronics platform which is accessible selectively by all concerned organizations from the ministry down to the subcontractors and even service companies.

Conclusively, the national petroleum network will be fed up by all contributors and this real time system will assist the decision makers towards anticipating and reacting to the radical changes on the local and global events.

Truly, for oil and gas industry to make headways defined in IPC model, information technology should be used as a strong backbone to the industry.

Moreover, this comprehensive normative and regulatory framework, will foster leadership and results in obtaining higher level of safety; sustainable development; and commitment to social responsibilities in oil industry.

Finally, this solution will result in organizational maturity in Iran oil & gas sector & will lead the industry towards continuous improvement mainly regarding QHSE principles, in post sanction epoch.

Strategic Fit

How HR can enhance organizational efficiency?

Amirhosein Akbari
Human Resource Expert

Studies show that organizations that use their human resources properly and efficiently, the results show a good performance. Changing attitudes to human resources can produce good results for managers. Look to human resources as human capital is component of the success of the organization.
Human resources management focused on policy, procedures and systems that influence the behavior, thoughts and performance of employees.
In the current situation in many countries of the third world pattern of utilization of human resources in the organizational structures of the place and its real value is taken away and it is observed that due to minor disagreement, utilizing of all the staff including managers and experts may not be desirable. In difficult circumstances, they are forced to leave the organization, while enormous cost has been spent for each human element of organization in order to utilizing of its optimal efficiency, in due time. This process, leaves a lot of hidden damage so the results of which are obvious in the long term. While this issue in developed countries and even some developing countries or in transition, the situation is much better.
Human resource management in local drilling services companies, according to the observations and documentation is affected by the following:
• improper position of human resource management in the organizational structure of companies active in the drilling industry;
• HR policies are different in different units of the organization;
• inconsistency of organizational strategies and human resource management.
Knowledge management in most organizations are still in their infancy. However, the researches on data and information management has been considerable in the field of information systems. Knowledge management is increasingly an indivisible business activity for most organizations. Managers› awareness of the value of intellectual capital, focused their minds on ways to release this powerful potential and capabilities in a way that «Nonaka» and others have acknowledged that organizational knowledge is the main source of sustainable competitive advantage. «Peter Drucker», the first person who more than 25 years ago drew attention to this issue and since then other thinkers of administrative Affairs and leading transcendental companies in this field have taken steps.
The necessity of implementing knowledge management in the oil industry can be studied from the perspective of the following: The government tends to PRIVATIZATION- Employees Retirement Risk- Avoid waste of resources in the research fields and Improve employee learning through practical knowledge sharing.
Given that most companies active in oil and gas drilling, are project-oriented companies need strategic thinking and strategic management based on project-based organizations are implemented. Problems in achieving strategic thinking in these organizations include: diversity of processes and strategic levels-Strategic design complexity and lack of clear strategy in the organization.
In need of organizations to specific human resources strategy can be pointed out that Human resource strategies, strengthens the company›s competitive strategy, sustainable competitive advantage can be created and Coordination and horizontal integration among different disciplines of project-based company has created. These strategies should be adjusted so that project-based organizations and project managers and senior staff kept away from the adoption of strategies and approaches chaotic, contradictory and vain (worthless).
Five features that make different the strategies of these organizations will include; performance appraisal, determine appropriate salaries and bonuses, training, people development and planning.
Strategic human resource management, is considered as a one of the most influential sectors in improving the efficiency and effectiveness of the organization. In this regard, the establishment of strategic fit - in the sense of coordination and consistency among corporate strategy with HR strategy – is one of the main tasks of organization that Based on it, human resources strategy of the organization, must be conducted in accordance with overall company strategy. Of course, achieving this balance is certainly faced with some problems. The need for a common alignment and orientation in human performance (as the main capital of organization) with overall company strategy, necessary of human resources officials› attempt to establish a comprehensive link between an organization›s strategy with strategy, human resources departments and the various subsystems (such as hiring practices, evaluation and promotion, etc.) will be extended. HR strategy Defines, where we are? Where we want to go? In what way and how? There are a causal relationship between HR strategy, organizational performance and employee relationships that will have a definite impact on organizational productivity.
Given that the life cycle of many companies is changing and maturing or aging, those organizations that focus on succession management and talents of its employees to achieve organizational goals are to serve, will have a good chance of survival. Considering the nature of Iran›s oil industry, lack of suitable alternatives on the talents of trained manpower, has made this challenge more than ever before the next crisis is the lack of access to key personnel. Therefore, with increasing in the age pyramid and experienced managers and key personnel, the need for repair and reconstruction is more and more evident. The following factors reveals need to study the issue of succession planning:
• Exit key or experienced people as a result of retirement, transfer, resignation, etc.
• Presence of traditional approach to management and the need to shift from the traditional approach to new perspectives
Review that the oil industry was already at what point and to achieve optimal situation, what components are needed, in particular should be considered and investigated. The lack of attention to the development and education of employees on merit, including factors that should be investigated and the scientific approach to solve this problem have been benefited.
In view of the foregoing, succession planning tools include the following items: Assessment Center (cognition) - course (for breeding) - his term development (sustainable means in education) - training (for breeding) - Coaching or mentoring (means sustainability in farming) - Development Association (for breeding).
In terms of compensation and salaries and benefits of personnel working in the drilling industry Unfortunately, it seems that in this regard there is no procedural unity. In the basic salary, although recently some private institutions collected, preliminary data at a comprehensive level and published, but these are raw data that is not possible to use it in the oil industry. In the variable salary, in the implementation of policies, compensation, rewards and benefits there are such a significant difference that justify it, is sometimes very difficult. This lack of harmony and balance to the employer and employee always leads to confusion and ultimately creating a bubble in drilling industry is salaries and benefits.
When companies have no harmonized definition of jobs and duties in operational and administrative lines, this makes the work efficiency examined individually and fanatically, that this case will have a significant impact on the motivation of individuals and the performance nature of the work. Because there is no a framework for self-assessment of the work done than defined standard. As well as correct encouraging and supportive systems on execution of work could affect the efficiency, so that, Lack of or delay in demonstration of the system as efficient tools, have severe impact on the performance of individuals and units. This can create Loyal and stable workforce or Indifferent workforce who seeking employment opportunities for the use of his operational experience.
One of the issues in the oil industry has always been important and its worth can be found in the desirability of personnel and organizational performance, is education. In terms of education and training system four significant themes be explored: First, the goals of the education system, second, the structure of the educational system, third, different training courses that will be considered and finally there are training centers and instructors that need to further deepen the above four parts according to business conditions occur.
The last issue that is important in the field of human resource of drilling industry is the relationship between drilling industry and university. The main reason for collaboration between universities and industries in developed countries, is sound economic situation in the sphere of their activity. For example, by exploiting the MIT and other universities, Massachusetts industry promote industry, and ultimately the economic growth of Massachusetts state. But in Iran, there are limitations and problems for industrial activities and accordingly industry, trying to solve problems for their survival. On the other hand, universities are faced with severe financial difficulties and appropriate financial support of universities and research institutes in the country›s strategic policies, not seen. Therefore, one of the reasons for university entrance into the arena of collaboration with industry, is attracting financial resources for handling its affairs. In addition, it is believed that if universities are not under pressure financially, for relationships with industry and Attracting financial resources do not go through this.
This policy is true when economic conditions and activities in the industry have a good situation. Industry growth and profitability of its will bring economic growth and this leads to further collaboration with the University and will take advantage of their experiences. Economic growth leads to dynamic of universities and vice versa and these two institutions will reinforce each other.

The ideal relationship between industry and universities as an efficient concept for the future success of a society is inevitable. Four popular plans in the world famous Universities which used to communicate with the industry include: Internship plan- externship plan- Apprenticeship plan and CO-OP plan. A glance at history of relationship between the universities and the drilling industry in Iran shows that Firstly, the formation of this relationship is not founded substantially over time and basic infrastructure for it has not been established, yet. Secondly, the content and direction of this relationship is not managed properly and has not been targeted.

We are ready to cooperate with foreign companies

Hamidreza Gholpayegani
Sarvak Kish Drilling Services Co.
CEO

Hamidreza Golpayegani was born in 1344 in Mashhad city. He is graduated as B.Sc. of chemistry refinery from Petroleum University of Technology and M.Sc. of Executive Management with trend on production. He has started his carrier on petroleum industry with National Iranian South Oil Company (NISOC). His positions on this company was supervisor drilling operation, planning development wells engineer, Head of drilling chemistry, Head of wells maintenance department. In 1382, Golpayegani was transferred to National Iranian Drilling Company (NIDC) and continued his carrier as Head of department of well cementing and stimulation, head of offshore drilling 2 operation, head of technical services and assistant on technical and engineering affairs. Golpayegani has been selected as manager of National Iranian Drilling Company (NIDC) on Bahman of 1391 and for one and half year remained on this position. After Retirement, he continued his carrier with Private sector and now he is Managing Director of Sarvak Kish Drilling Services Company that is a subsidiary of Global Petro Tech and he is using his waste range of experiences on drilling industry for developing the private sectors. Following is Interview with Hamidreza Golpayegani that has seen ups and downs of drilling industry from Islamic revolution up to now, here he stated Considerable points about this industry:

What is your perspective on drilling services market in Iran?

To answer this question, we need to look at the history of drilling industry in Iran and its development. Before Islamic revolution in 1979, Iran's drilling industry was in control of foreign entities. After revolution, there was a big gap in the Iranian drilling industry which was intensified by imposed war against Iran. Gradually we could pass through these difficult times and with efforts and hardworking of officials and workers we have managed to pursue operations and Iran oil industry never ceased oil producing. Now national companies are practicing the lessons they learnt they know where they are standing and they can map the future.

In 1357, we didn't have enough knowledge about drilling industry or drilling equipment. For the past 37 years, especially over the last two decades and when sanctions were put in place, many local companies could gain operational experience and made major development.

We are hoping to reach to a mutual understanding with foreign companies, we are more capable of the past Iran has significant potential in local expertise and performing operations.

In view of new circumstances and considering the fact that in new contractual terms of IPC, %51 of share belongs to local companies, more emphasis should be put on collaboration between national companies, this kind of collaboration would encourage the creation of Joint-Venture which could provide low cost operations to cater Iran's drilling needs. With consortium agreements, Union of private companies, and support from government we could gain more recognition and work along with foreign companies.

We need to take appropriate steps to make transfer of know-how and technology institutionalized and localized but we need to have continuous dialogue that brings practical results. By empowering private companies and collaboration, we can access to international market and also by in house manufacturing of drilling equipment we could take our own international market.

Since Iranian companies covers a great part of drilling technical services, in your idea; in which context new contracts could make opportunities for Technology absorption?

Best result from the Iranian new petroleum contracts (IPC) could be access to the up-to-date drilling knowledge, Joint Venture with international companies is the best way to reach to this goal. For instance, we don't have access to Horizontal Drilling and Under Balance Drilling technology.

How do you evaluate the equipment manufacturers of drilling industries?

I'm concerning about local manufacturers after embargo. We have seen in last years had good development in this sector recently, as it has also been considered in IPC terms, solutions should be in favor of supporting local manufacturer so that they can keep their position in the market without getting adverse effect by imported products.

What will be your plan to expand Sarvak activities?

We have decided to establish a new operational base in Ahvaz for cementing and drill stem testing, starting by importing 8 pump tracks, 2 nitrogen pump and a layer test equipment. Backed by experienced workforce, I see a bright future ahead; we are glad to bring RSS Technology to optimize directional drilling to Sarvak. Along with this, we are planning to add coiled tubing, modern H_2 S equipment, well casing, mud logging, waste management, well test and fishing services to our field of activities.

Currently Sarvak Kish is looking to enter Iraqi market, in this regard we have made some negotiations with representative of Iraq's oil ministries. Sarvak Kish is also planning to upgrade the scientific, technical and experimental level of employees to participate in international projects and we have signed some agreements for technical drilling services with Canadian and European companies.

CYRUS DRILLING SERVICES AND ENGINEERING COMPANY

services into 4 segments:

- Directional Drilling Services
- Drilling Fluid Services (Vira Co)
- Waste Management Services (Cyron Co)
- Mud Logging Services

Cyrus Drilling Services and Engineering Holding has established in 1388 and within these years had developed its services into 4 segments:

Directional Drilling Services:

Directional drilling is one of major and key issues in well drilling services. As reason of this matter we can point to directional drilling services major role in promotion of well drilling in terms of costs and duration. Hence we can see growing of demands for this services through different companies which are active in field of oil well drilling.

Cyrus Drilling Services and Engineering Kish Co has entered into this field by heavy investment for purchase of American and Canadian equipment and also gathering a professional teams including skilled engineers and experienced experts.

It should be mentioned that during last months Cyrus Kish Co has succeed to register some records regarding length ,reducing time and duration needed for drilling operation in fields of ICOFC and PEDEC.

By considering the inevitable needs to this service in drilling industry, Cyrus Kish Co is pleased to announce readiness for designing, manufacturing and localizing all equipment of DD services with cooperation of our joint venture who start negotiating after comprehensive program of joint action. We hope that in near future we could see possibility of manufacturing and localizing DD equipment in Iran.

Drilling Fluid Services (Vira Co):

VIRA is a drilling fluid Company providing a comprehensive array of products, system and engineering service to enhance technical performance, preserve the reservoir properties and reduce economical impact of drilling operation.

Our company main goal is to delivery customer expectation.

Waste Management Services (Cyron Co):

Environmental protection is a practice of protecting the environment for the benefit of both the humans and nature, therefore Drilling Waste Management (DWM) plays significant role in oil & gas drilling. CYRON Environmental Engineering Services & Development Company is innovatively specialized in drilling waste management services, manufacturing, and maintenance as well as providing the related equipment and services for waste management systems.

To deliver totally customized waste management solutions, we leverage a broad portfolio of modular or mobile technologies to deploy unique configurations tailored to client's operating needs. From centrifuges to cuttings dryers, we have the right products to tackle any challenge, and the expertly trained personnel to implement the ideal solution.

We also provide waste management solutions designed to meet or exceed the environmental regulations for our projects with different clients including NISOC, ICOFC, Persia Tadbir, Persia Oil & Gas Industry Development Company, NIDC, NDCO, IOOC, Petro Iran, DCI, Tadbir Drilling Development Co. and Petro Gohar Farasahel Kish. Waste reductions, fluids reuse, and advanced cuttings treatments all help limit the amount of waste transportation and reduce your risk for environmental protection and reduces operator risk against protecting environment.

Since Feb 2016 Cyron has started cooperation with Centrisys in order to manufacture centrifuges in its workshop in Ahwaz, Iran. Centrisys is a provider of separation equipment, parts, repair and service with reach spanning the globe – USA, Canada, Mexico, Puerto Rico, Brazil, Chile, Columbia,

Germany, Austria, Hungary, France, Switzerland, Poland, Italy, Greece, Spain, Saudi Arabia, United Arab Emirates, Kuwait, Romania, Russia, China, Hong Kong, Japan, Singapore, By attacking key challenges with new thinking, Centrisys continues to advance decanter centrifuge technology to improve efficiency, safety, performance and return on investment for customers in a variety of industries around the world.

Mud Logging Services:

one of the main purpose of establishing Cyrus drilling services and engineering co. Kish is to develop using and localizing of advanced technology of mud logging services.

Mud logging services is one of the most important technical services in well drilling operation which by submitting exact, precise and on-time detailed data of drilling operation through increasing safety index bring out valued results. Interpretation and evaluating of data gathered from mudlogging's sensors regarding recognizing the layers, geology studies and reservoir engineering, drilling parameters will be also so effective and efficiency.

We are pleased to provide mudlogging services for esteemed companies during last years as below:

1- Providing mud logging services for 8 land rigs of north drilling company (NDCO) for all the field of ICOFC included: khangiran, dalan, shanul, tabnak, dehloran, aban ,...

2- providing mud logging services for Persia Oil Gas Drilling Company Qeshm in Azar Field

3- providing mud logging services for Persia Oil and Gas Industry Development Company in North Yaran Field

4- providing mud logging services for Tadbir Drilling Development Company (TDDC) in sought Azadegan Field

We hope that by using Iranian skilled engineers and high international technology play a role in developing our oil and gas industry.

Parveen is looking for improving its market in Iran

"Parveen company is one of the successful Indian companies which could expand its market from USA and Canada in North America to Mexico in South America, From Germany in Europe to Iraq, Oman and China in Asia by producing drilling industry equipment with high quality and competitive prices. This company which is well known by its wellhead and downhole equipment in drilling industry plans to expand its market in Iran and by cooperation with Iranian companies, produce and market its products in Iran. In the following you will read the interview with Directing Manager of the company."

Prakash Kumar
Parveen Co.
CEO

As a starting point, please tell us about your evaluation from instrument and equipment market of Iran's upstream of oil and gas industry?

Iran being one of the biggest sources of energy for the world needs equipment which are efficient, high quality & available at affordable price. The equipment of the oil wells in Iran needs upgradation & replacement so as to efficiently extract oil & gas from the wells. Although Iran oil companies have been able to maintain its instrumentation & equipment, in upstream oil & gas. Industry, in today' s competitive world every effort is required to become efficient & cost effective for which upgradation & modernization of Iranian oil & gas industry is required.

Which countries did Parveen Company (considered as a great reputable international company in manufacturing drilling equipment) take part? Please also tell us about the method and duration of the company's activities in Iran?

Parveen is a Global Company having manufacturing facilities & offices in major oil & gas producing countries viz India, USA, Canada, Germany, Dubai, China, Iran, Iraq, Venezuela & Mexico. Parveen has vast range of products & will work in Iran through direct manufacturing or through joint ventures with local companies.

After lifting of the economic sanctions great international companies will take part in Iran's industry. What are the strategy and competitive advantages of Parveen Company for a strong participation in Iran?

Parveen being innovative is committed to quality function which starts at the corporate level of management & is maintained throughout the company with our closed loop system for quality & as such each equipment is appraised , tested, monitored or audited that from conceptual stage of development to final testing .This assures product excellence that meets the specific needs of the customer .Over quality programmed works within the overall quality management system to give a better quality product at a competitive price.

Considering the variety and quality of Parveen Company's products, what is the most notable equipment of the company that could be helpful and effective in Iran's market?

Parveen manufactures variety of Oil & Gas equipment for High Pressure High Temperature. Notably among these are Downhole Tools & Surface Pressure safety Valves which are needed in each oil well along with Downhole accessories. Parveen can help develop these tools in Iran. The Surface Valve system is designed to be fail safe, so that the wellbore is isolated in the event of any system failure or damage to the surface production control facilities.

Parveen model safety valve is self equalizing, wire line retrievable surface controlled & flapper type.

In which areas of Iran's petroleum industry do you plan to enter the advanced technologies?

Parveen will like to help Iranian Oil & Gas Industry in High Pressure & High Temperature (HPHT) oil wells with advanced technology, high quality at a competitive price.

What are your policies and plans for cooperating with Iranian companies?

We want to start manufacturing of oil field equipment in Iran & also have joint venture with local companies so as to enhance their technical capabilities. Iran being our neighbor it is advantageous to import crude from you at lower cost than other countries; our importance to Iran will be of utmost priority.

What are the most important advantage and ability of Parveen considered as an international company in manufacturing equipment in Iran's market?

Parveen has 8 manufacturing plant across India. Our manufacturing plant re covering 400 thousand sq feet area with over 100 latest CNC machines for precision machining of oil field equipment. Equipment manufactured by Parveen owes its high quality to manufacturing procedures, which are constantly upgraded to suite the precision requirements of the items. The most important advantage & ability of Parveen as an international manufacturing oil field equipment in Iran shall be high quality at most competitive prices backed by 30 years of manufacturing experience in oil field equipment. We pledge our continuing strength of a quality programmed that assures a product properly manufactured to all specifications for optimum performance & that assures excellence.

What measures have Parveen taken for solving the problems of drilling industry and also upgrading and improving the industry in the country?

Parveen has a trusting relationship with the drilling industry in Iran & delivers to them a high quality service. We have delivered high quality cost effective oil field equipment to the drilling industry as we work to high HSE standards & continually improved quality management system. Parveen intends to supply high quality cost effective oil field equipment so as to upgrade & improve the drilling industry.

Considering the cooperation of the two countries in petroleum industry, which areas could Indian companies have better role in Iran's drilling industry?

Iran being our neighbor it is advantageous to import crude from Iran which will be at a lower cost than other countries. India is considerably dependent on imported petroleum & Iran can fulfill the requirement of petrol in India. Indian companies including Parveen are in a position to provide a total solution to the oil & gas drilling industry in Iran by way of supplying high quality services & high quality equipment.

As an active foreign company in Iran's market, what kind of activities did you have considering the social responsibilities of the organization?

Parveen shall be willing to create a training and manufacturing infrastructure so as manufacture oil field equipment in Tehran thereby providing skilled education & employment to the local people.

New technologies for directional drilling

“Although Petro Kariz Omid Company is Start-ups Company it is a leader in drilling services and engineering providers. The company is focused on directional drilling service and plans to develop their abilities to provide this service by purchasing new technologies. Petro Kariz Omid benefits from experienced troops, headed by CEO experienced in directional drilling thoroughly. Hossein Moshtagh with 35 years’ experience in various structures of drilling such as rigs chief and head of the excavation area, has been one of the founders of drilling Bureau of Special Operations of National Iranian Drilling Company. Here is an interview with Hossein Moshtagh:”

Hossein Moshtagh
Petro Kariz Omid Kish Co.
CEO

For beginning tell us about your assessment of the market situation for directional drilling services ahead in Iran? How do you evaluate these services in the country in qualitative and quantitative aspect now?

Directional drilling service is in category of high and new technology services in Iran. Due to the nature of these services in the drilling industry, it has great importance. With the development of this service in the country in recent years, low quality companies have been appeared in this area unfortunately. Low quality companies had increased at competitive market of Iran owing to the problems of sanctions. Also because of lower prices of oil in global markets Iranian employers have reduced the cost specified in each service to reduce the final price of the project. And this issue has affected the quality drilling services. Finally we can say that due to special circumstances of this period, intermediation activities grew strongly and led the quality of directional drilling away in the country compared to other countries. To improve this situation, supporting and planning of employers and ministry of oil is required till a good organization in the evaluation of directional drilling companies can be achieved.

In terms of market volume for directional drilling service, this service will be important in drilling industry with regard to its main role in increasing the speed and efficiency of drilling, by solving the limitations. In addition, the best way to achieve the tanks which are in special locations, including in the southern region, is applying directional drilling. Due to the existence of such reservoirs in Iran, new potential will be created in market. Applying new methods of directional drilling can increase oil recovery from these reservoirs. So, the use of directional drilling is inevitable in order to reduce the cost and increase the efficiency of drilling services.

What are Petro Kariz Omid strategies in entering new technologies to our country? What has research and technology department of your company done in order to enter and upgrade the technologies used in your company?

Since Petro Kariz Omid is a subset company of Gostaresh Energy Pasargad, the strategy of Petro Kariz Omid company for use of new technologies, is entering into modern drilling in directional drilling service. We considered applying modern technology for directional drilling. In this regard achieving the technological level of the world for directional and horizontal drilling, needs to change the traditional approach of drilling operations and in this way, employers should plan and have a policy according to the needs of drilling industry of the country to prepare a plan for midterm and long term development of drilling industry.

Petro Kariz Omid has been able to play a significant role in directional drilling operations by taking advantage of American and Canadian high-quality tools and equipment. Now Petro Kariz Omid, as the first directional drilling service provider in Iran, conducts negotiation and cooperation with the companies supplying directional drilling equipment. This company buys RSS (Rotary Steerable System) equipment with all calibration and maintenance package and can support five drilling operations simultaneously. The company is one of the leading companies in the country in the use and expansion of directional and horizontal drilling services by possession of 60 downhole motors, 14 MWD/LWD (Resistivity) system with a workshop and operational space of over 6000 square meters in Kish and 2300 square meters in Ahwaz.
According to the thickness of South Pars oil layer, Petro Kariz Omid plans to increase the quality and efficiency of drilling in this field by means of equipping RSS tool to determining resistance devices in order to determine the thickness of oil layers. Due to the high amount of drilling in Qatar in the mutual fields with Iran, this strategy plans to increase the amount of horizontal drilling in this area to compete in oil production.
The company›s strategy for using new technologies is to import LWD equipment. These services can help Petro Kariz Omid in providing directional drilling services thoroughly. Petro Kariz Omid is proud of spending $ 50 million in the past two years to import technology in directional drilling field and has played a significant role in improving the quality of directional drilling. This company plans to increase investment in this area.

What does your company do to solve problems affecting the drilling industry and improve the quality of the industry in Iran? What areas are you planning in particular?

Due to problems in the drilling industry, Petro Kariz Omid has been trying to improve directional drilling services and increase drilling recovery by using high quality equipment, expert engineers, and experienced managers as well as employing young graduates.
Training motivated young native human resources besides experienced personnel in drilling industry and training courses of drilling principles for technical experts are some examples of what we done in this field.
Petro Kariz Omid follows international standards and the implements safety issues for use and maintenance of equipment to provide high quality services for reducing drilling time and increasing drilling speed. Nowadays, most companies have financial problems. But Petro Kariz Omid always encourages its employees in various sectors over the past years and motivates them in different ways for cooperation and consultation.

What factors has been subject to your company›s success in directional drilling and horizontal drilling industry in Iran?

Undoubtedly, honesty of our technical and managerial team with employers and trust between employers’ company and ours is one of the main factors in work progress and success of projects. The staff of our company do projects by honesty and trustworthy in order to increase productivity with modern and high quality equipment and high technical knowledge. Fortunately, we have had brilliant records in comparison to other native and foreign employers in our country. This is a perfect aspect of our company in spite of our little established record.

What are your company strategies in order to maintain and develop market in Iran after sanction elimination? Have any actions been done for that?

Due to developments in oil contracts and entering international known companies to Iran in the near future, Petro Kariz Omid the Plans to improve the quality of services offered in directional drilling and develop directional drilling services. The company also plans to provide optimal drilling service as well as international competitors by using of principles, standards and international standards thoroughly. In this regard, the Ministry of Oil and the employers are expected to count on domestic companies in the situation of equal quality in drilling services.
In the case of presence in global drilling markets, especially the neighboring countries and the Persian Gulf useful plans are considered. During the negotiations and strategy of the company and regarding to the fact that our company is supported by Gostaresh Energy Pasargad, Certainly near future, due to the policies of Gostaresh Energy Pasargad in creating Exploration and production companies and integrated presence in the development of oil fields, presence and activity of Petro Kariz will be very broad.

Attracting new technologies

"Oil Exploration Operation Company is known as one of the private companies working in Iran's oil and gas upstream activities. Since 1385 after assigning 100 % of its stocks to the pension fund investment company of oil industry, Delivering specialized and technical services in three main fields of exploration operations, drilling and drilling integrated side services begun in a more effective and different nature. To know more about this company's activities and plans we have done an interview with Mr. Mohammad Salehi, the head of technical services department of this company which has come in the following."

Mohammad Salehi
Oil Exploration Operation
Head of Technical Services

- **For beginning the discussion tell us a bit about Exploration Operation Company's activities.**

Exploration Operation Company started its activity about 15 years ago and emerged from Exploration management in line with the privatization. In that time the company's activities included "Seismic survey" and "Limited presentation of four drilling services". Seismic survey included Geology, Civil engineering and Seismic survey interpretation and drilling services included Surface testing, down hole testing, Slick line and wellhead. The brand of Exploration operation was known as testing and in that time downhole testing service was given only by our company and Schlumbeger Company. Lots of Azadegan field wells were tested by Schlumbeger and by written Acknowledging of operators, our operation was better than schlumberger because our equipment were new and we had done the technology transfer very well.
Then the company decided to enter the drilling and buying rigs section, so they decided to buy four rigs which two of them were delivered to Oil Exploration Operation Company and two other were delivered to South Drilling company which one of them got on fire In Naftshahr Two rigs we bought were employed in Darkhoin and Arvand.
From all E & P companies' activities, we just did not have oil engineering and integrated drilling services. What we were looking for, was: create a block A to Z (includes mapping, geology and seismic) also determine the road, digging Soler, engineering and the well's position, have a drilling rig and giving services by creating oil engineering department and integrating drilling services. Unfortunately because of wrong policies and lack of necessity support the scenario did not materialize. After that Seismic section had been given to Exploration Operation Company and this company became the Seismic Pole and the rigs had been given to Saba rig supplying company.
At the present, Exploration Operation Company is in the second position after national drilling company by giving 10 services onshore and has different projects with governmental and non-governmental companies. We are also active in offshore and we are going to expand our activities in offshore.

- **What is your evaluation of drilling services' market in Iran? At the moment how do you evaluate the quality and quantity of drilling technical services in the country?**

The main problem of the drilling services market is lack of macro policy by the operator. The operator should define its needs certainly so that private or governmental sections find out in what part they have to invest. Now, because there is no macro policy and it is not announced and on the other hand there is no Syndicate, Inconsistency will occur. This Inconsistency causes a huge number of companies go to a special service such as logging and portable tubing and Saturation occurs. For not reducing the quality level, some standards should be defined and standard machines enter the market.

- **What does your company do to solve problems affecting the drilling industry and improve the quality of the industry in Iran? What areas are you planning in particular?**

Due to problems in the drilling industry, Petro Kariz Omid has been trying to improve directional drilling services and increase drilling recovery by using high quality equipment, expert engineers, and experienced managers as well as employing young graduates.
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Petro Kariz Omid follows international standards and the implements safety issues for use and maintenance of equipment to provide high quality services for reducing drilling time and increasing drilling speed. Nowadays, most companies have financial problems. But Petro Kariz Omid always encourages its employees in various sectors over the past years and motivates them in different ways for cooperation and consultation.

- **What is the exploring operation company's strategy in the field of entering the new technologies to the country?**

The exploring operation company's plan is entering the new technologies and updates and expands the circle of decuple drilling services. One of the discussions we want to do is drilling optimization. We have joint an Austrian company, of course this company is not just a commercial company. It has a very strong academic background and relies on Austrian Leoan University. We also have similar samples of drilling development software and we are going to use it in south oil regions. This service will be presented as drilling improvement and by using that we can calculate the exact time and cost. Transferring science and technology also can be done in this way and we will localize this service by training the staff.

- **In your opinion what the problems of drilling industry are and what have you done to solve them?**

Existing drilling associations and following up its problems professionally can be helpful for governmental section as work applicant and contractors' section as work executives. The association of drilling companies like syndicates in developed countries should have a intermediate role to solve two sides' problem.

- **What is the Competitive advantage of exploring Operation Company?**

Our Competitive advantages are the number of the services, high work experience and integrated services, although the number of services is not complete. Our other advantage is the experience reserved in this company and according to it we have credit in the market.

- **In the post-barjam sphere what are your strategies for saving and developing the company's market in Iran?**

The first point is presenting integrated services and we can reach to this goal by equipment we have, by new partners and investments we create. Second point is Reinforcement of the company's engineering. Third point is negotiations with foreign companies to act in the form of E & P. We are acting the same old scenario I talked about before, more comprehensive, with post-barjam capabilities and IPC and by more sanctions, and this time we will be successful if god wills.

- **What are your plans for developing international cooperation for developing and upgrading technical-engineering presentation? Is there the necessity preparation for foreign investments?**

Firstly, Exploring Operation Company is the first and the only Iranian company which has exported services in upstream section. We have done different Seismic section projects in Uzbekistan and Kyrgyzstan, and we have worked for operators like Petronas and Look oil. We have tried a lot for developing drilling section. We have had negotiations with Australian Santos and companies mentioned before and participated so many tenders but unfortunately, it coincided with sanctions and we could not add drilling services to our export. In the present situation there is this possibility but unfortunately the oil price and the downswing of oil market has overshadowed it.

- **According to your company's approach in drilling projects management, what are the advantages of your company's management structure in engineering and operating sections?**

Exploring Operation Company after a period of wane changed its structure generally and For building agile presented one chart and new structure which was approved by the convention. This structure changing was on the event of assigning a series of decisions to the organization's body, so that by proper devolution the decision making's rate goes up and the project time goes down. This job has been done and we are performing it.

IRANIAN OILFIELD SERVICES COMPANY (IOSC)

Activities:

- Logestic Base Services / Manegment
- Stevedoring
- Shipping Agency
- Customs Clearance Services

IOSC Overview

Iranian Private Joint Stock Company
Iranian Oilfield Services Company (IOSC) was established on June 1999 and registered at Kish Island under the law of the Islamic Republic of Iran. The Shareholders of the company are Tehran Berkeley International (an Iranian company) holding %60 of the shares and Oilfield Supply Centre Ltd. OSC) of Dubai holding %40 of the shares.

IOSC Experiences:

IOSC is staffed exclusively by Iranians most of whom have received on the job training through either expatriate colleagues or the expertise of mother companies.
IOSC personnel are trained and fully competent in the use of various mechanical handling equipment to operate our Logistics Bases continuously on a 7/24 basis.
In a 17 year period, we now have an extensive list of satisfied clients that includes but is not limited to, Shell, Total, Hydro Zagros, Statoil, OMV, Agip, Edison, Petrobras, Repsol, ONGC, NIDC, Petropars, DANA, KAPMDCO, SINOPEC, and POGC

Major Projects:

- Soroosh/ Nowrouz Integrated Development Project, Providing Supply Base Services to Shell
- Dorood Development Project at Kharg Island Onshore and Offshore Providing Logistics Services to Elf Petroleum Iran (EPI) / TOTAL form our Bushehr and Kharg Bases
- Anaran Exploration Project at Mehran – Ilam province, Providing Supply Base Services to HZ (NORSK HYDRO) from our BIK Base
- Farsi Exploration Project at Farsi Block – Persian Gulf, Providing Logistics Services to ONGC from Kish Island & Bushehr
- Providing Logistics Services to South Pars Phases 8 & 7 ,6, with Statoil, Phases 18 & 17 ,14 ,10 & 9 and Kish 3 Gas Field with NIDC, Phase 12 with PetroPars
- Kish Port Stevedoring Contract From 2011 - 2003 , stevedoring services to all Oil & Gas Companies Operating out of Kish Island were Exclusively provided by IOSC on Behalf of Kish Port and Airport Management Development Company, which is a subsidiary of Kish Free Zone and in charge of Kish Port. During 2005 we handled over 225,000 tones on almost 1,000 supply vessels.
- YADAVARAN Development Project Phase one at Jofeyr south west of Ahwaz, providing Logistics Services to SINIPEC

ISO – Accreditation

The Company operates a structured Management System that incorporates all areas of our business and we have received accreditation for ISO 2008 -9001 series and Quality Warranty.

Health, Safety and Environment (HS&E)

The Company has its own robust HS&E Management System with policies and procedures integrated into all our daily routines, involving all personnel, to ensure HSE is treated in the highest regard. These policies and procedures are disseminated to all personnel and are regularly reviewed and updated to accommodate any changes to our complex activities and varying modes of operation. Our Supervisors and Managers lead by example to ensure that HSE is part of the job and not a separate function.

Technical

A New Approach To Expert Solutions

> Tahamtan Upstream Training and Solutions has been recently established by qualified and experienced directors with both academic and field experiences. Thahamtan offers high level and custom made training courses for upstream engineers and managers and also provides specific solutions for oil and gas industry.

Amir Hosein Naraghi
Tahamtan Upstream Trainings and Solutions
Educational Counselor

As a starting point, please tell us about your evaluation about Iran upstream educational and training courses?

Iranian experts need efficient, high quality & up-to-date knowledge with affordable price. There is a gap between the level of knowledge of Iranian experts and leading countries'. The main reason is the lake of high level and efficient technical courses in Iran.

After lifting of the economic sanctions great international companies will take part in Iran's industry. What are the strategy and competitive advantages of Tahamtan Company for a strong participation in Iran?

Tahamtan strategies are based on quality function which starts from corporate level of managers to our instructors and employees. We created quality control systems to monitor and audit our performance in a daily basis. This assures excellence of our courses that meets the specific needs of the customer. We have learned global standards during our extensive back ground in North American market and now we are going to establish the same structure here in Iran.

What are your policies and plans for cooperating with Iranian and International companies?

We would like to be a trustful buddy of local companies to help them to enhance their technical capabilities. Also we can train the high level man power with latest knowledge and modern techniques based on International companies' inquiry.

In which areas of Iran's petroleum industry do you plan to enter the advanced technologies?

We would like to offer our courses in all upstream industry including Drilling and Well Completion, Reservoir, Petro Physics and Geo Physics

Parveen model safety valve is self equalizing, wire line retrievable surface controlled & flapper type.

What measures have Tahamtan taken for solving the problems of drilling industry and also upgrading and improving the industry in the country?

Tahamtan has a trusting relationship with the drilling industry in Iran & delivers to them a high quality service. We have delivered high quality cost effective oil field training to this industry as we work to high standards & continually improved quality management system. Tahamtan intends to offer high quality and cost effective oil field training and solutions to be the leader of upstream training providers market in the Middle East.

Considering the variety of the courses that Tahamtan offer, what is the most notable field that can be presented effectively in Iran's market?

We have already teamed up with the best instructors in every single discipline of the upstream industry. These teams are being led by super expert engineers with an extensive knowledge both with field and academic experiences. This strategy will help us to offer contingence courses with maximum efficiency to the client.

Irandrillinfo www.irandrillinfo.com

SDSC®

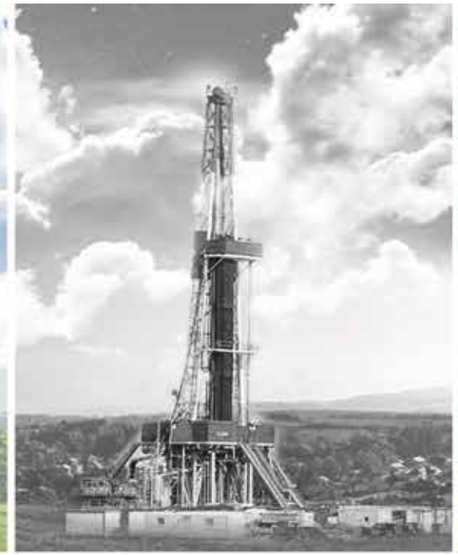
Sepidan Drilling Services Company

we strive hard to serve you better

SEPIDAN DRILLING SERVICES COMPANY has been providing a wide range of goods and services in drilling industry to realize sustainable development according to the environment concerns. To achieve the above-mentioned objectives, we are determined to apply diverse innovative solutions in oil & gas drilling operations, from supplying drilling fluids to solid control, waste management services and specialized fluid materials.

www.sepidan-co.com

5th Floor, No. 147, East Sarve St., Saadatabad, Tehran - Iran
Tel :(+98) 21 - 22 06 61 57 | Fax: (+98) 21 - 22 37 92 29



M-I Services Ltd. (Kish)

WHO WE ARE?

"From Start to Finish M-I Services has the Solutions to Protect our Environment"

With over 16 years of experience in Iran and logistic facilities strategically placed to provide optimum support, M-I Services offers a range of solutions that are applicable from the day you choose your drilling location until the day you return the site to nature.

These include:

- Drilling Fluid Solutions Systems,Engineering and Products
- Solids Control and Cuttings Management
- Environmental Waste Management
- Remediation of the drill site back to nature

With our highly experienced and educated personnel,the technical expertise, local and international knowledge and synergistic services **(Integrated Fluid Engineering)** of our team, we are confident that M-I Service is able to provide optimum services, technical and logistics support for all wells being drilled onshore and offshore in Iran.

ON GOING PROJECTS

NISOC - Ahwaz Various Fields
PETROPARS - South Pars - Phases 12 & 19 & Farzad Field
Kepco Khazar - Caspian Sea - Deep Water Project
Dana - South Pars - Phases 15 & 16
Dana – Nasr Abad Project
IOOC/DCI - Persian Gulf - Various Fields
NIDC – Azar Field
POGDC – Azar Field – Environmental Waste Management
NIDC - Environmental Waste Management - Ahwaz
NAFTKAV - Drilling Fluid & Environmental Waste Management

COMPELTED PROJECTS

TOTAL - South Pars - Phases 1 & 2
Shell - Soroush and Nowrooz
Agip – Darquain Project
TOTAL - Dorood Project
Oriental - West Paydar Project
Petroiran - Oil Layer Project
Edison – Monir Oil Block
Statoil - South Pars - Phases 6 & 7 & 8
ONGC – Farsi Field
IOOC - Persian Gulf - Various Fields
NIDC Appraisal - Persian Gulf - Various Fields
OMV - BAND - E – KARKHE Project
Repsol – Mehr Field
Petrobras - Taftan, Siri Oil Fields
NIDC - South Pars - Phases 9 & 10
NISOC/Aharan - Ahwaz Field
NIDC - 2 Package - Environmental Waste Management
Kando Kav Energy - Kish Gas Well
CNPC - North Azadegan - Environmental Waste Management
NIDC - 5 Package - Environmental Waste Management
Schlumberger (WSI) - Caspian Sea - Deep Water Project
IOOC/Mehran - Persian Gulf - Various Fields
IOOC/DCI - Persian Gulf - Various Fields
NIOC Central - Various Fields
PGFK - South Pars - Phase 13

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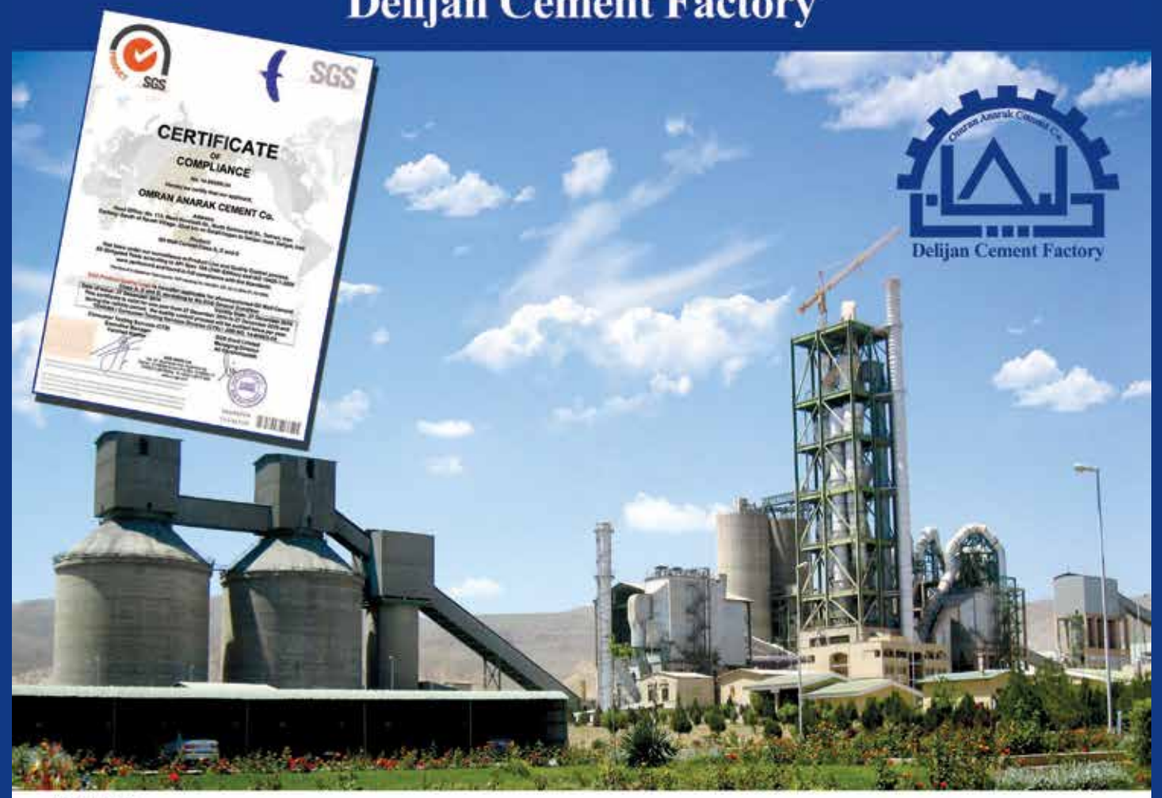
Omran Anarak Cement Company (Private Sector)

Delijan Cement Factory



About us

In order to supply local cement demands in the central parts of Iran, Omran Anarak Cement Co. (Delijan Cement Factory) established in 2003 and started to work in 2008 with the nominal capacity of one million tons cement per year. Today due to high quality and efficient services, we are rendering services not only in the central parts but also in all Iranian provinces and even in the foreign markets.

Products

Portland Cement, Type 1-425	**Oil Well Cement, Class A**
Portland Cement, Type 2	**Oil Well Cement, Class D**
Portland Cement, Type 5	**Oil Well Cement, Class E**
	Oil Well Cement, Class G

Standard Certificates

Iranian Standard Certificate

IMS Certificates for Quality, ISO9001; ISO14001; ISO18001

Community Certificate (CE)

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Factory : Delijan Cement Factory. 22 km Salafchegan-Delijan Road. Delijan-Iran

Tel : (+98) 86 44233111-5 **Fax : (+98) 86 44233120**

www. delijancement.com **info@delijancement.com**

Oil Exploration Operations Co.

DRILLING SERVICES

- Coring Services
- Nitrogen Services
- Cementing & Acidizing services
- Tubular Running Services
- Coiled Tubing Unit (CTU)
- Surface well testing
- Slick line Services
- Down hole Well Testing Services
- Drill Stem Testing (DST)
- Well Head Services.

Oil and Gas Exploration Services :

- Survey and GIS Services
- 2D & 3D Seismic Acquisition (Land - TZ - OBC - Marine)
- Sea-bed Studies
- Vertical Seismic Profiling & Borhole Seismic
- Seismic Data Processing and Transcription
- Seismic Data Interpretation
- Reservior Geophysics modeling
- Reservior Monitoring & Engineering
- None Seismic Operation (Gravimetry & Magnetometry etc.)
- Geological Studies

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KEEPCO

Kish Energy Explorer Profession Company

SEDCO GROUP

Kish Energy Explorer Profession Company

Kish Energy Explorer Company one of the subsidiary company of SEDCO group was founded in 2015 in Kish in order to establish its engineering services in the field of drilling oil and gas wells. Kish Energy Explorer Company perform drilling services either as a distinct service or integrated services at offshore and onshore fields.

Fields of Activity:

ENGINEERING SERVICES
- Providing engineering drilling services
- Providing Material and equipment
- Quality control
- Planning
- Supervision of execution

TRADING OF MATERIAL AND EQUIPMENT
- Drilling cement
- Cement additive
- Drilling fluid material (organic/inorganic)
- Drilling equipment

MAINTENANCE AND REPAIR
- Providing specialized repair services
- Providing services in the location
- Providing health certificate

PROJECT MANAGEMENT
- Management, leadership and supervision of the execution
- Providing integrated management services in drilling field

TENDERS AND CONTRACTS
- Providing tenders document and holding tenders
- Providing drilling services contracts
- Claim management in contracts

TRAINING COURSES
- Holding professional drilling services training
- courses in primary, retraining and advanced levels
- Providing authentic internal and international certification

Our Associate Companies:

MEM Union

KEEPCO Kish Endeavor Energy Trading Co.

Petro Marine Group

کاوشگران ژرفای ایرانیان

NEFTEMASH Factory

IPS OIL IPS Co.

OGI OIL & GAS INTERNATIONAL FZE

BLACK LAKE PROACTIVE NOT REACTIVE

Oxin Group Ltd

FINANCING
- Financing the initial investment and equipment
- Arranging drilling services
- Providing justification plan
- Feasibility study and market survey in order to finance the investment, take loan and finance working capital

Tehran Office: #12, 3rd Floor, No 30, Nima Bld., 1st Sahel Corner, Pakneghad and Darya Int., Sadat Abad, Tehran 1998875753 Iran Tel: +9821 8869 7134 Fax:+9821 8869 8724
Kish Office: Unit 2,6thFloor, Mona Tower, Banks Complex, Sanaie Blvrd, Kish island- Iran

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Deadline for papers:
20 JUN 2016

Oil Industry Alumni Empowerment Association

Drilling IRAN DRILLING INDUSTRY STUDIES CENTER

Phone: +9821 26414501 +9821 26414485

P.G.F.K

PETRO GOHAR FARASAHEL KISH

Paradise

Registered records as below:

-Registering the most drilling depth in South Pars 35 month projects.
-Drilling 480 meter during one day in 16-inch hole in 24A-04 well.
-Completing 16-inch hole section (skid to skid) in only 4/5 days
-Drilling of the 32-inch hole section to the depth of 196 meters, running conductor pipes, cementing and moving on new well of platform 24B in only 9 hours
-Drilling 575 meters in 12 ¼-inch hole section of well No. 24A-09 in just one day
-Drilling of 100897 meters in South Pars (37735 meters in first six months and 63162 meters in seconds half of the last year)
-Designing and implementing offshore material control system (O.M.C.S) as Scimaps software as the firs general smart control material system in offshore and onshore section
-Overhaul and maintaining our own Rig Sina1 for the first time in the country

www.pgfkco.com
info@pgfkco.com