

CHAPTER VII

Oil and Natural Gas Corporation Limited

Deep water exploration

Highlights

- The Company provided for less number of wells in the 10th Five Year Plan (FYP) than what it committed to the Government of India/Directorate General of Hydrocarbons which resulted in payment of Rs.124.15 crore of penalty and an expenditure of Rs.368.89 crore that was rendered unfruitful.
(Para 7.7.1.1(i))
- The Company drilled six of the 16 wells committed in the original grant period of four years in nine nomination blocks. Repeated extension of time was allowed by paying PEL fees of Rs.15.08 crore. Despite extensions, the Company could not drill the committed number of wells in two blocks. In March 2007, the Company surrendered one of the two blocks after incurring an expenditure of Rs.111.38 crore.
(Para 7.7.1.2)
- Scrutiny of 10 contracts awarded for seismic surveys revealed that due to lack of foresight in chartering and mobilising the vessels for seismic survey, the Company lost a significant portion of the field seasons leading to delays in acquisition, processing and interpretation (API) of seismic data in six contracts apart from paying remobilisation charges in one case. In addition, award of contract to a financially unsound party led to slippages in its minimum work programme (MWP) commitments.
(Para 7.7.2.1)
- Delay in finalisation of rig hiring contracts resulted in the Company not able to have required number of rigs. Consequently, it did not meet the commitment of drilling deep water wells leading to postponement of drilling of eight wells during 10th FYP. Not availing the option of hiring two additional rigs led to drilling backlog of 15 wells and an estimated extra expenditure of Rs.739.01 crore. Delay in finalisation of renewal contract in respect of one rig resulted in a committed liability of extra expenditure of Rs.311.42 crore from 2008 onwards.
(Para 7.7.3.1)
- The Company failed to monitor the actual cost of drilling activities against their estimates. Analysis of 35 wells by audit revealed that actual time and actual cost exceeded their respective estimates significantly in a number of cases. The actual cost of drilling the wells was Rs.3,286.57 crore against estimates of Rs.2,482.55 crore partly because the Company had not established norms and benchmarks for completion of activities involved in the drilling process. Though the Company was using hired rigs since November 2003, it had not taken any step till the year

2007 to utilise its experience for fixation of norms for better control on drilling related activities.

(Para 7.7.3.2(i))

- In the absence of a remedial provision in the contract for recovery of loss to the Company due to supply of defective equipment and services by the rig contractor, the Company's interest could not be safeguarded and it had to abandon a well after incurring an expenditure of Rs.48.01 crore.

(Para 7.7.3.2 (ii))

- The Company diverted its own rig meant for deep water drilling to shallow water locations and consequently had to forego a saving of Rs.27.75 crore.

(Para 7.7.3.2 (iii))

- As a result of failure to make standby well head available by a contractor as per contractual provisions, the Company had to pay extra charges of Rs.11.05 crore for rig and services.

(Para 7.7.3.3 (i))

- Lack of coordination among various Divisions of the Company to arrive at a final decision for abandonment or continuation of drilling of a well resulted in extra expenditure of Rs.11.06 crore in placing and removing of the abandonment plug.

(Para 7.7.3.3(ii))

- The Company failed to estimate a firm reserve accretion from deep water blocks for which it spent Rs.5,769.12 crore during 10th FYP period (2002-03 to 2006-07). The Company could accrete only 172.17 MMTOE till March 2007, of which 73.70 *per cent* was from a block acquired from another party in March 2005. The Company's accretion till March 2007 from the NELP blocks awarded to it directly by the Government of India was Nil and the balance accretion of 26.30 *per cent* was exclusively from the nomination blocks.

(Para 7.7.4.1)

- As a result of testing two hydrocarbon objects with conventional production testing method instead of Modular Dynamic Tester during the course of drilling a well, the Company had to incur an avoidable expenditure of Rs.9.13 crore.

(Para 7.7.4.3)

- In deep water drilling operations, several incidents of equipment damage, major and minor injuries and in subsequent years many 'near misses' were reported. One fatal accident was also reported in February 2006. These incidences indicated that the 'goal zero' of corporate environmental management which includes zero accidents, lost man days and facilities was not fulfilled.

(Para 7.7.5.1)

- Time taken for pre-drilling EIA studies ranged from 20 to 56 months from the date of signing respective PSC whereas the exploration activities in the NELP blocks were to be undertaken within six months of the award of the blocks as per provisions of the production sharing contracts.

(Para 7.7.5.2(i))

- Production Sharing Contracts signed for the deep water blocks prescribed time period for completion of MWP of each phase. Audit observed that the Company had not prescribed policy guidelines for completion of each activity in order to achieve the MWP targets. The Company also did not prepare separate budget for deep water exploration in their annual corporate plans so as to monitor the physical and financial progress of the project.

(Para 7.7.6.1)

- Though the Company had decided in June 2005 to engage a technical auditor for conducting technical audit of exploration process within a period of 12 days, the work was assigned to a party only in July 2007 to commence the work from 20 August 2007 to be completed by 4 September 2007. Thus, the advantage of taking corrective actions to avoid cost and time overruns during the two year period was lost.

(Para 7.7.6.2)

Summary of recommendations

The Company should:

1. *Prepare its FYPs taking into account its MWP commitments, backlogs and future acreages to avoid payment of penalty and surrender of blocks.*
2. *Ensure that Letters of Award for seismic survey are issued prior to the onset of the field season and specify a firm date for vessel mobilisation for seismic survey. Procedures should be established to ensure that the financial capability of the contractor is evaluated/assessed before award of contract.*
3. *Finalise the tenders for hiring rigs within the period prescribed in its Materials Management Manual and consider the prevailing market rate/trends while finalising/extending the contracts for hiring rigs so as to establish the reasonability of the rates offered. It should fix norms for time required to execute various activities of drilling while hiring rigs on integrated well completion basis so as to have an effective control on the performance of the contractors. The Company should incorporate clauses in the contract to protect its interest in the event of idling of services due to breakdown in one or more equipment supplied by a contractor under an integrated well completion contract.*
4. *Expedite acquisition, processing and interpretation of seismic data, plan drilling of sufficient number of wells and test the wells as per procedures prescribed by the DGH. It should fix norms for testing of wells in terms of number of days per object by giving due weightage to the subsurface conditions of various Basins.*
5. *Initiate environment impact assessment studies in time so as to avoid delays in the MWP and consequential penalties. It should strengthen the mechanism of*

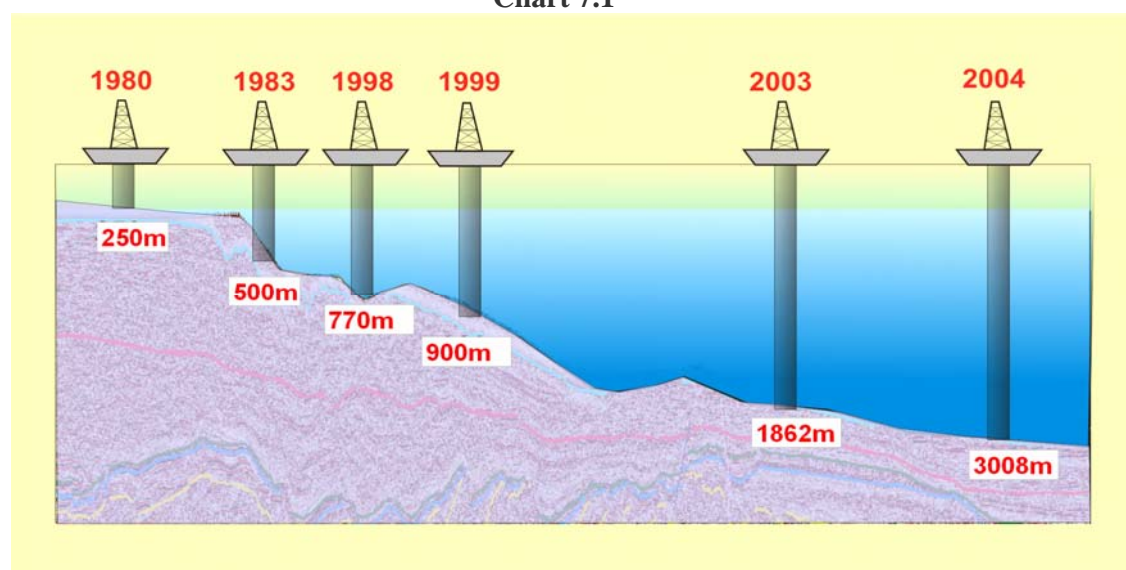
monitoring by HSE as stipulated in environmental clearances and establish systems and strengthen procedures to ensure incident free operations for its Total Productivity Management Programme.

6. *Prescribe policy guidelines for planning activities in deep water exploration to ensure completion of each activity as per MWP targets. It should prepare activity-wise separate budget for deep water exploration project in their annual corporate plans for monitoring the physical and financial progress of the project.*
7. *Ensure that technical audit of exploration process of each block under deep water is conducted timely.*

7.1 Introduction

7.1.1 With the discovery of Bombay High field during 1974, Oil and Natural Gas Corporation Limited (Company) focused more on exploration in offshore areas on the western coast of the country. Exploratory drilling activities were limited to shallow water areas till 1979 and were extended to deep waters¹ from 1980 onwards as depicted below:

Chart 7.1



7.1.2 Deep waters of Indian offshore, divided into eight² sedimentary Basins³, are seaward extension of the continental shelf.

7.1.3 Between 1994 to 1998, National Oil Companies (NOCs) were offered exploratory blocks with a water depth of more than 400 meters on 'nomination basis' and were allowed to apply to the Government of India (GOI) for grant of Petroleum Exploration License (PEL) for these blocks. The Company acquired ten such deep water nomination

¹ Deep water refers to a water depth of 400 meters and more at present.

² Andaman, Cauvery, Kerala-Konkan, Krishna-Godavari, Kutch, Mahanadi, Mumbai offshore and Saurashtra.

³ Sedimentary Basins are depressions in the earth's crust where organic matter are deposited.

blocks during the period 1994 to 1998, of which one block was surrendered in December 2003. The details of the nine nomination blocks are given in the *Annexure XXI*.

7.1.4 From 1980 onwards till the introduction of New Exploration Licensing Policy (NELP) in 1999, other than the blocks allotted under nomination basis, the GOI offered blocks to private as well as joint venture companies under Production Sharing Contracts (PSC). Such blocks were called 'Pre-NELP blocks'. The Company was not offered any such deep water blocks under Pre-NELP scheme.

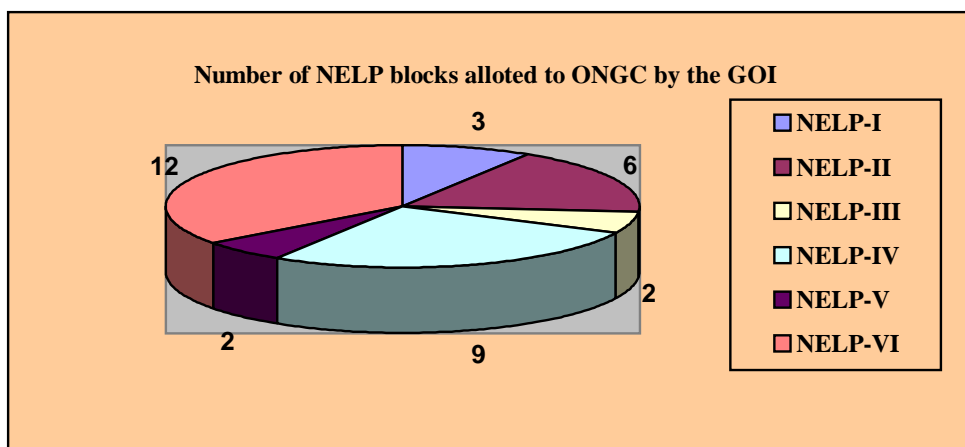
7.1.5 The Directorate General of Hydrocarbon (DGH) formulated and implemented the Government of India's NELP, 1999. The procedure for bidding in NELP is given in *Annexure XXII*. Under the NELP, between 1999 to 2006 the GOI offered exploration of deep water blocks through six rounds. The Company acquired 34 deep water blocks in these rounds as indicated in Table-7.1:

Table-7.1: Blocks awarded to the Company (ONGC) under NELP

NELP Round	Date of inviting bids	Date of award	Deep water blocks offered	Deep water blocks bid by ONGC	Deep water blocks awarded by the GOI	Deep water blocks awarded to ONGC	No. of wells drilled by the ONGC	ONGC's wells with hydrocarbon discoveries (As of August 2007)*	Other parties' wells with hydrocarbon discoveries (As of March 2007)*
I	08.01.99	12.04.00	12	6	7	3	3	1	21
II	15.12.00	17.07.01	8	6	8	6	4	-	-
III	27.03.02	04.02.03	9	9	9	2	-	-	-
IV	08.05.03	06.02.04	12	11	10	9	1	-	-
V	03.01.05	23.09.05	6	9	6	2	-	-	-
VI	23.02.06	08.02.07	24	21	21	12	-	-	-
Total			71	62	61	34	8	1	21

• As recognised by the DGH.

Chart 7.2



One block viz., KG-DWN-98/2, was acquired from Cairn Energy India Limited (CEIL) in March 2005 with 90 per cent participating interest (PI) of the Company. CEIL had drilled six wells of which four were hydrocarbon bearing. After acquisition of the block, the Company drilled seven wells of which six were found hydrocarbon bearing.

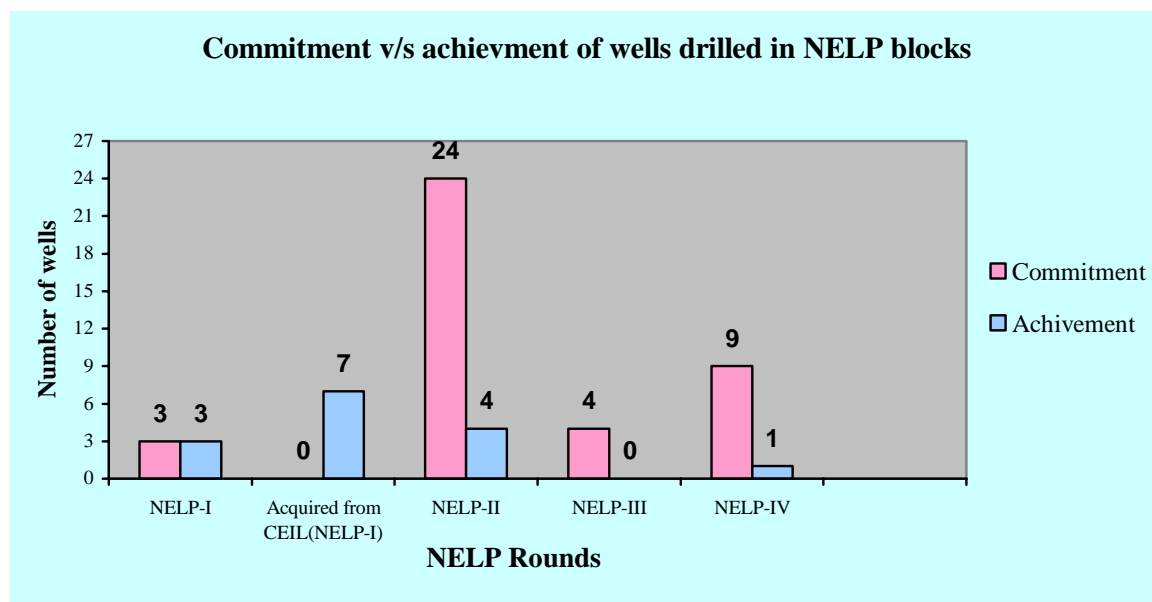
7.1.6 From 9th Five Year Plan (1997-2002) onwards, the Company started preparing Five Year Plans (FYP) incorporating therein its deep water exploration and production targets. The Company also entered into Memorandum of Understanding (MOU) with the Ministry of Petroleum and Natural Gas (MOP&NG) to achieve overall targets of reserve accretion and production depicted in the FYP.

7.1.7 Though the Company had been engaged in deep water exploration⁴ activity since 1970, it gained momentum with the introduction of project ‘Sagar Samriddhi’ in August 2003-04 which envisaged deep water exploration of 37 deep water wells and 10 delineation wells⁵ in the Company’s nominated as well as NELP blocks. The project was expected to be completed in 2006-07 which coincided with the end of the 10th FYP. The Company incurred an expenditure of Rs.5,769.12 crore on deep water exploration activities during this period. The phase wise Minimum Work Programme (MWP) commitments, actual work completed, cost incurred etc., up to March 2007 for 35 NELP blocks acquired by the Company, including that acquired from CEIL, is given in the *Annexure XXIII*. The achievement in terms of wells drilled in NELP blocks till March 2007 against the commitment within this period is given in Table-7.2 below:

Table-7.2: Shortfall in drilling of wells till the end of 10th FYP in NELP rounds 1 to IV

Particulars	NELP Rounds					Total
	I		II	III	IV	
	For all the three phases of the blocks awarded by the GOI	For 3 rd phase of one block acquired from CEIL in March 2005	(For 1 st and 2 nd phase)	(For 1 st phase)	(For 1 st phase)	
Commitment	3	Nil	24	4	9	40
Actual	3	7	4	0	1	15
Shortfall	0	0	20	4	8	32

Chart 7.3



⁴ Exploration involves conducting seismic surveys followed by drilling of wells.

⁵ Delineation well refers to the well drilled in unproved area to determine the boundaries or the extent of reservoir.

In the nomination blocks, the Company could drill 6 wells in the original grant period against the commitment of 16 wells. However, in the extended grant period, the Company drilled 18 additional wells as shown in *Annexure XXI*.

7.2 Scope of audit

Audit covered the review of the Company's transactions relating to deep water blocks; health, safety and environment (HSE) controls; internal controls and monitoring. The records and documents in the offices of the Company and of DGH, etc. from 2002-03 to 2006-07 were test checked. The review also covered the exploratory activities of nine nomination blocks and 35 NELP blocks in different Basins held by the Company in its individual capacity or with consortium partners.

7.3 Audit objectives

Performance Audit of deep water exploration was conducted to assess that:

- the Company had established systems and procedures for optimal data collection and its timely processing;
- the rig deployment plan was inclusive of the inputs provided by different Basins; was sufficient and met the MWP/Corporate targets;
- production testing, well completion and reserve estimation were in compliance with the prescribed procedure and schedules;
- all environmental clearances and statutory permissions were secured in time and were in compliance with procedural/statutory requirements;
- the measures taken to ensure safe and healthy working conditions of the employees and adherence to environmental safeguards involved in drilling were adequate; and
- monitoring was adequate and effective.

7.4 Audit criteria

The following criteria were used for the Performance Audit:

- i. Bidding for NELP and obtaining PEL: MWP committed in the PSCs and assessment of resources required to achieve corporate objectives of reserve accretion of hydrocarbon.
- ii. Survey, processing and interpretation of data: Applicable provisions of Material Management (MM) Manual/Corporate directions, last purchase price (LPP), market trend and cost of execution, planned period for data acquisition, processing and interpretation and conditions of contract.
- iii. Hiring of rigs and drilling: Minimum Work Programme, Bid Evaluation Criteria (BEC) for hiring rigs, MM Manual, the rig hiring contracts, well objectives, geological and geophysical data.
- iv. Production testing, well completion and reserve estimation: Five Year Plans, production test programmes.
- v. Safety, Health and Environment Management: Statutory requirements and international norms in this regard.

- vi. Monitoring and internal control: Prescribed monitoring mechanism and controls.

7.5 Audit methodology

Audit reviewed the records relating to acquisition of the blocks under nomination and NELP regime, contracts and payments for survey and interpretation of data, performance/interpretation reports of the blocks, hiring and deployment of rigs, production testing, well completion and reserve estimation, HSE management and internal control/monitoring, etc. Audit also checked as part of the current review records relating to similar aspects in deep water blocks awarded to the Company in earlier years.

Entry conference with the Management was held on 1 May 2006 wherein the audit objectives, scope and methodology were explained. Mid term review meetings were held during April 2007 and exit conference was held on 10 September 2007.

7.6 Acknowledgement

Audit is thankful for the co-operation received from the top and middle Management of the Company, Office of the DGH and MOP&NG in providing information, records and clarifications from time to time and for arranging discussions with the concerned officers as and when required. Their co-operation facilitated the conduct of the review within the given time frame.

7.7 Audit findings

7.7.1. Planning for exploratory activities

The Minimum Work Programme (MWP) in case of deep water exploration consisted of commitments made by the Company for each block in terms of extent of surveys to be conducted and wells to be drilled within an overall period of eight years divided into three phases. In the event of non-fulfilment of the MWP commitments for any phase as per schedule, the Company could be granted extension in the time schedule of a phase by the Managing Committee of the block or the GOI, for a period not exceeding six months subject to provisions of the PSC. Further extensions were as per the policy of the DGH which envisaged furnishing of a bank guarantee equal to the value of shortfall in achievement of MWP commitments besides payment of liquidated damages ranging from 10 to 30 per cent. In the event of non extension of the schedule of completion, the Company could offer the block for surrender or the GOI could also direct the Company to do the same.

The Company prepared FYPs and annual corporate plans for exploratory activities such as API of seismic data and drilling of wells to meet its obligations under the MWP and to achieve the overall objective of reserve accretion. As per the commitment made to MOP&NG in respect of the nominated blocks and to the DGH under MWP for the NELP blocks, total 51 wells (*Annexure XXIV* and *Annexure XXV*) were to be drilled during the 10th FYP period (11 wells in the nomination blocks and 40 wells under NELP blocks).

7.7.1.1 Planning for exploration in NELP blocks

(i) Deficiency in planning targets for the 10th Five Year Plan

In the 10th FYP, the Company envisaged drilling of 35 wells (including 11 wells of nomination blocks) and one well for ‘future acreage’⁶ (*Annexure XXVI*) to provide a cushion for additional drilling commitments in any block to be acquired in NELP rounds within the 10th FYP period. Audit observed that in respect of PSCs signed by the Company before commencement of 10th FYP it had committed to drill 27 wells under NELP blocks besides 11 wells under nomination blocks within the 10th FYP period. While four wells already committed to be drilled were not planned for, even the future acreage cushion of one well proved to be inadequate as the Company committed to drill 13 wells under the NELP rounds bid for during the 10th FYP period. Thus, planning for lesser number of wells than those committed under the PSCs and additional commitments made during the plan period resulted in non-completion of MWP. Five blocks under NELP-II on which the Company had incurred an expenditure of Rs.368.89 crore till March 2007 had to be surrendered for non-completion of MWP of Phase-I after paying Rs.114.13 crore as penalty to DGH. In addition, the Company paid an amount of Rs.10.02 crore to MOP&NG (November 2006) as penalty in respect of Phase-II of MN-DWN-98/3 block (acquired under NELP-I) for non-completion of the MWP of drilling one well. The shortfall in drilling of wells in respect of which the Company had to pay penalty is depicted in Table-7.3 below:

Table-7.3: Shortfall in drilling (number of wells) in NELP blocks

Blocks	NELP-I	NELP-II Surrendered blocks					Total
	MN-DWN-98/3	MB-DWN-2000/1	MB-DWN-2000/2	GS-DWN-2000/1	GS-DWN-2000/2	KK-DWN-2000/4	
Commitments	1	3	3	3	3	1	14
Actual	0	0	1	2	1	0	4
Shortfall	1	3	2	1	2	1	10

The Management replied (December 2007) that they had considered the commitment upto NELP-II, which was only 19 wells besides 11 wells in Nomination blocks making the total commitment during 10th FYP period to 30 wells. The wells committed in NELP block in a particular year were not due for planning in the same year. At the time of 10th FYP formulation only those wells in the already awarded NELP blocks could be considered which were likely to come during the plan period. As such only the wells committed up to NELP-II round were accommodated in the 10th FYP.

The reply is not tenable in view of the fact that there were 11 wells committed in MWP of Phase-II of NELP-II which was to terminate in August 2007 and were not considered. As such, the Management needed to plan for drilling of these wells during the 10th FYP. In fact, the Company had to surrender the NELP-II blocks in May 2006 due to non-completion of MWP. This indicated that the plans did not consider the commitments existing at the time of preparing the plan and also lacked sufficient provision for future acreages. Audit also examined the 11th FYP beginning from the year 2007-08 and noted

⁶ Future acreage refers to the acreage that the Company was expected to acquire in future for exploration.

that the wells planned to be drilled were 52 as against commitment of 66 wells (47 wells committed and 19 wells for future acreages). Further, the drilling of four wells⁷ in the Andaman block is anticipated to commence only in 2009-10, as against the commitments expiring between 2007 and 2009 as per the MWP.

(ii) Delays in commencing the exploratory activities due to not setting a time line

Article 5 of the PSC for NELP blocks provided that the contractor shall commence petroleum operations not later than six months from the effective date. Audit observed that the Company had not framed any time frame or guideline for initiating and completion of each activity required to achieve the MWP targets. As a result, there were delays ranging from 12 to 25 months in commencing the exploratory activities in four blocks as detailed in Table-7.4 below:

Table-7.4: Delay in commencing exploratory activities

Sl. No	Block	Date of signing the contract (1)	Date of obtaining PEL (Effective date.) (2)	Month of start of exploration (3)	Time lag months (2)-(3)
1.	CY-DWN-2001/1	04.02.03	12.03.03	Mar 04	12
2.	NEC-DWN-2002/2	06.02.04	17.03.04	April 05	13
3.	AN-DWN-2002/1	06.02.04	17.03.04	April 06	25
4.	AN-DWN-2002/2	06.02.04	17.03.04	April 06	25

The Management stated (June 2007) that the exploratory activities commenced within six months from the effective date of granting PEL by way of Environment Impact Assessments (EIA), reprocessing and interpretation of the available data, initiating correspondence with DGH for furnishing field seismic data acquired by DGH, etc. Commencement of MWP for acquisition of two dimensional (2D) data of 2000 LKM⁸ in block NEC-DWN-2002/2 could not be done in 2004-05 due to bad weather but three dimensional (3D) data for 988.1 sq. km. was acquired by the Company between March 2005 and February 2006.

The reply is not tenable as the commencement of EIA, reprocessing, correspondence with DGH, etc. do not constitute exploration activity as defined in the PSC. Though EIA is a pre-condition to commence the work committed, prudence and good planning dictates that it should have been conducted as soon as the blocks were awarded. The delays in commencement have a cascading effect on the work schedule and complying with MWP.

The Management further replied (December 2007) that the data acquisition started but had to be suspended for clearances from the Ministry of Defence. Moreover, the tendering process took time while fair weather window restricted operations from November to May end. Moreover, interpreting the existing seismic data is a pre requisite for planning future survey and that commenced immediately after the block was awarded. The Management further stated that EIA studies for seismic survey were also carried out immediately upon the grant of PEL in NEC-DWN-2002/1.

⁷One well committed to be drilled in Phase-I of NELP-IV ending 2007-08; two wells of Phase II NELP-IV and one well of Phase-I of NELP-V committed to be drilled by 2008-09.

⁸ Line Kilometre

The reply is not tenable as the factors cited are already known and should have been catered for and controlled through proper planning and monitoring, especially as the Company had commitments to adhere to. The interpretation of existing seismic data should also have been done within six months of the effective date of the block.

7.7.1.2 Planning for exploration under Nomination blocks

The Company drilled 6 of the 16 wells (*Annexure XXI*) committed in the original grant period of four years in nine nomination blocks. As a result, it had to apply for extension of time by paying PEL fees of Rs.15.08 crore. Despite taking repetitive extensions, the Company could not drill the committed number of wells in two blocks. In March 2007, the Company surrendered one of the two blocks after having incurred an expenditure of Rs.111.38 crore. As late as September 2007, the Company had not made any concrete plan for further exploration or surrender of the other block where there was backlog of wells drilled with reference to commitment. The extended period of the PELs for this block was due to expire by December 2009. The Management replied that due to inter block prospectivity, it was under achieving in certain blocks and over achieving in others. The Management's reply is not tenable as it should plan and monitor to avoid incurring unnecessary PEL fees and drilling expenditure.

Recommendation No.7.1

The Company should prepare its FYPs taking into account its MWP commitments, backlogs and future acreages to avoid payment of penalty and surrender of blocks.

7.7.2 Acquisition, processing and interpretation (API) of seismic data

Geophysical survey, the prime activity in exploration of hydrocarbons is carried out in the first phase of exploration: 2D and 3D seismic data is acquired, processed and interpreted for analysing hydrocarbon accumulations. Prospects are thereby generated for release of locations for drilling of wells. MWP for the NELP blocks stipulated targets for API of seismic data generally in the first phase of the contract.

The Company started exploration activities in Krishna-Godavari, Mumbai offshore, Kerala-Konkan and Kutch-Saurashtra Basins as early as 1964-65 and had already acquired 2D data in various blocks of western offshore during the period from 1994 to 1999. The Company was further required to acquire seismic data as stipulated by the MWP of various phases of NELP contracts. Performance of the Company as regards API of data in various deep water blocks against the MWP targets is given in *Annexure XXIII*. As can be seen from *Annexure XXIII*, though the Company achieved the targets of areas to be surveyed during a Phase, there were delays in completing individual surveys with consequent delays in commencement of drilling activities that were to follow.

Audit noted delays by the Company in achievement of MWP targets on acquisition, processing and interpretation of seismic data in various deep water blocks as detailed below:

7.7.2.1 Delays due to late mobilisation of vessels and onset of monsoon

The acquisition of seismic data in offshore area is possible in a window of seven months in a year commencing from mid October of a year and ending in mid May of the following year due to onset of monsoon. This period is a field season (FS). As such, the

Letters of award (LsOA) asking the contractors for mobilisation of the vessels deployed for acquisition of seismic data are to be issued, to the extent possible, one to two months before the commencement of the field season so that it can be utilised optimally for acquisition of seismic data.

A review of the LsOA issued and contracts awarded by the Company to various contractors revealed loss of field period and delays in the cases noted below:

(i) Letters of awards were issued to the parties in the middle/at the fag end of the field season. As per the Management's assessment a 45 days' period was required by the contractor from the date of issue of an LOA for mobilisation of vessel. No latest date for mobilisation of the vessel was specified in the contracts. The Company awarded 10 contracts during the period from October 2001 to March 2007 for chartering vessels for seismic surveys in deep waters. Audit reviewed all the 10 contracts and noticed lack of foresight in chartering and mobilising the vessels which resulted in loss of limited field period and consequent delays in conducting API of data as given in Table-7.5 below:

Table-7.5: Field Season wasted due to late issue of LOA and delay in mobilisation

Contract Number	Date of LOA	Vessel No.	Mobilisation date	No. of days from the Field Season (FS) of 211 days wasted due to issue of LOA within the FS by ONGC and late mobilisation of vessel by the contractor
EB-2041	4.10.2001	2 nd vessel	26.01.2002	101
EB-2055	9.10.2002	1 st vessel	20.02.2003	134
		2 nd vessel	22.02.2003	136
		3 rd vessel	15.09.2003	All 211
EB-2068	1.10.2003	Only vessel	06.03.2004	157
EB-2077	25.8.2004	1 st vessel	13.11.2004	28
		2 nd vessel	28.11.2004	43
		3 rd vessel	14.12.2004	59
EB-2094	16.9.2005	2 nd vessel	29.12.2005	74
		3 rd vessel	15.01.2006	91
EB-2088	18.10.2005	Only vessel	24.01.2006	100

(ii) As per the terms of the LsOA contractors were allowed to accomplish the data acquisition job till the end of 15 June, *i.e.*, one month beyond the field season. This resulted in extra expenditure due to withdrawal of vessels prior to 15 June due to onset of monsoons and their remobilisation in the next field season.

Illustrative cases of avoidable extra expenditure and slippages in exploration activities as a result of the above practice adopted by the Company, as noticed by audit, are given below:

a) In two deep water blocks awarded (March 2003) under NELP-III, LOA for acquisition of 2D data was placed (October 2003) on M/s. LARGE, Russia, without specifying the mobilisation date in the contract (EB-2068). Since the vessel was

contracted out to another organisation, the contractor mobilised the vessel on 6 March 2004 when only 71 days of the field season were left. Acquisition of data could be completed in June 2004 i.e., after nine months from the date of issue of LOA. In the meantime, the contract was extended by the Company without levy of liquidated damages.

b) In August 2004, the Company awarded a contract (EB-2077) to M/s. CGG Marine for acquisition of 3D data with completion by 15 June 2005 i.e., beyond the normal date of closure of the field season. The contractor could not complete acquisition of data in block NEC-DWN-2002/2 of NELP-IV due to onset of monsoon. For completion of the work in the subsequent field season, the Company extended the contract and advised the contractor to complete the contract within 35 days by remobilising the vessel by the end of November 2005. The acquisition of data in the block could be completed only on 14 February 2006 i.e. one year and five months after the award of contract and a delay of eight months from the target set for the contractor. For completion of work in the next field season, the Company had to pay remobilisation charges of Rs.52.36 lakh (US\$ 116357) to the contractor.

c) Similarly under contract EB-2094, the acquisition of data in two blocks (KG-DWN-98/2 and MN-DWN-98/3) of NELP-I and one block (MN-DWN-2002/1) of NELP-IV was planned till 15 June. However due to onset of monsoons, the surveys had to be suspended and could be taken up again in the following field season resulting in delays of seven months in conducting the survey in one block and five months in two blocks. Consequently, there were delays in undertaking interpretation of data collected, identifying and release of locations and drilling. This delay should be viewed in the context that the four years period of Phase-I of MWP of the two NELP-IV blocks (NEC-DWN-2002/2 & MN-DWN-2002/1) was to expire during March 2008 whereas drilling of six wells in the area was still pending (September 2007).

The Management stated (September 2007) that most of the vessels under different contracts were mobilised in the month of November which was normal. The Management further stated (December 2007) that 45 days were an estimated average time by which time clearance from the Ministry of Defence (MOD) was available. It was not possible to mobilise vessels before 15 November since in some parts of the offshore area, weather/sea conditions often did not permit acquisition of good quality seismic data. Mobilisation of vessels was dependant upon the completion of their earlier engagement elsewhere. The contractors may load the price by the likely amount of liquidated damages (LD) on account of expected delay in mobilisation of the vessels due to earlier engagement elsewhere. Specifying date of mobilisation may result in restricted competition, no participation by the reputed geophysical contractors, besides higher pricing and could lead to re-tendering. However, the Management assured that based on the recommendations of audit, specifying date of mobilisation in the tenders was under their active consideration.

The Management's reply is not acceptable. As seen from Table-7.5 above, LsOA were not issued with proper planning to ensure that the 45 days period of mobilisation ended before 16 October and the field season be utilised optimally. Due to non-specification of the date of mobilisation, the contractors were not under obligation to make the vessel available in a time bound manner. There were delays in mobilisation of the vessels even

in some cases⁹ where the LsOA were issued before beginning of the field season. The Management's contention that specification of mobilisation date would restrict competition was not based on any experience of the Company. In fact, the Company had been specifying the date of mobilisation in contracts awarded for charter hiring of rigs and had not experienced lack of competition.

7.7.2.2 Delay in API process due to award of contract to a financially unsound party

The terms and conditions of the Notice inviting tender for charter hiring vessels for deep water seismic surveys did not require the bidder to disclose his financial position. Absence of such a condition led to the award of two of the ten contracts awarded during the period of review to a financially unsound party resulting in termination of the contract before completion of work as described below:

Blocks (NEC-DWN-2002/2 and MN-DWN-2002/2) under NELP-IV were awarded to the Company by the GOI in March 2004 for deep water exploration. The first phase was to be completed in three years. The Company awarded (March 2004 and July 2004) two different contracts to M/s. LARGE, Russia for acquisition of 2D data in Mahanadi and Andaman blocks. The contractor after acquisition of data in three blocks under one contract, failed to mobilise vessels and subsequently went into liquidation (3 December 2004) without completing the job. The acquisition of data in the second contract could not be undertaken. The Company terminated both the contracts in March 2005. Fresh indent for the abandoned work was initiated in May 2005. The work was awarded to another party in October 2005 and completed in June 2006. As such the field season ending mid-May of 2005 was lost. Audit observed that at the time of awarding the two contracts to M/s .LARGE, the Company was aware that during the course of execution of one of the Company's other contracts, M/s. LARGE had suffered huge loss due to sinking of streamers in January 2004. Thus, award of the contract to a party in disregard of its financial position led to a delay of more than two years in acquisition of 2D data. Consequently, till September 2007, the Company could not drill any well in the first phase (March 2004 to March 2008) of block MN-DWN-2002/2 against the commitment of two wells. Similarly, under block NEC-DWN-2002/2, the Company could drill one against commitment of four wells.

The Management stated (September 2007 and December 2007) that the performance of M/s. LARGE in previous two contracts was satisfactory and at the time of award of the contracts it could not be anticipated that M/s LARGE would go into liquidation and added that subsequent to the award of the contracts, the Company came to know in June 2005 that the contractor had been placed in creditors voluntary liquidation on 29 November 2004.

The reply is not tenable. The Company was aware of the huge financial losses sustained by the contractor in January 2004 and hence, it should have kept the financial condition of the contractor into consideration at the time of award of contract to M/s. LARGE in March and July 2004. Moreover, considering the narrow window of time (from mid October to mid May) available for conducting survey, the Company could have initiated steps for alternate arrangements under the fast track route which it had adopted in some other cases and awarded the contract within a month to avoid slippages in MWP

⁹ *Contract No. EB-2077 and EB-2094*

commitments. The indent, however, was raised only in May 2005 for fresh award of the work.

Recommendation No.7.2

The Company should

- (i) ensure that Letters of Award for seismic survey are issued prior to the onset of the field season and specify a firm date for vessel mobilisation for seismic survey; and***
- (ii) establish procedures to ensure that the financial capability of the contractor is evaluated/assessed before award of contract.***

7.7.3 Hiring and deployment of rigs for drilling of wells

7.7.3.1 Charter hiring of rigs

(i) Availability of rigs to meet the drilling commitments

Under the NELP, exploration blocks were awarded to those bidders who offered the most competitive physical programme in the form of MWP apart from the fiscal and other parameters. In MWP, phase-wise targets were committed for acquisition of seismic data and drilling of wells, which in turn was dependant on the availability of suitable rigs during the committed phase. Thus, the Company was to ensure availability of rigs to meet its commitments. The details of the rigs available with the Company and wells committed at each NELP bidding round are given in Table-7.6:

Table-7.6: Number of wells committed for drilling vis-à-vis rigs available

Sl. No.	Commitments			Previous backlog (No. of wells)		Number of rig(s) available for fulfilling the commitments alongwith the backlog
	NELP	Commitment Period	No. of wells committed	For Nomination blocks	For NELP blocks	
1	NELP-I, Phase-I	May 2000 to May 2003	0	12	0	One own rig viz. 'Sagar Vijay'(SV). The rig could drill one to two wells per year.
2	NELP-II, Phase-I	August 2001 to August 2005	13	14*	0	In addition to SV, two hired rigs viz. 'Belford Dolphin' (BD) and 'Discover Seven Seas', became available in November 2003 and February 2004.
3	NELP-III Phase-I	March 2003 to March 2007	4	13	0	No additional rig other than those stated above.
	NELP-I, Phase-II	May 2003 to May/Nov. 2006	3			
	<i>Total</i>		7			
4	NELP-IV Phase-I	March 2004 to March 2007	16	9	0	As above.
5	NELP-V Phase-I	December 2005 to December 2009	1	7	7	As above.
	NELP-II, Phase-II	August 2005 to August 2007	10			
	NELP-I, Phase-III	May/Nov. 2006 to May 2008	3			
	<i>Total</i>		14			
6	NELP-VI Phase-I	May 2007 to May 2012	4	2	11	SV and DSS were available. Rig BD was de hired in April 2007.
	NELP-III, Phase-II	March 2007 to March 2009	2			
	NELP-II, Phase-III	August 2007 to August 2009	11			
	<i>Total</i>		17			

* *The backlog of wells in NELP has been calculated on a conservative basis by evenly distributing committed number of wells over the ongoing phase period, excluding first two years of the 1st Phase for data API.*

The Company failed to ensure sufficient number of rigs in time to meet its commitments of drilling deep water wells. Audit observed that the main reasons were delay in finalisation of rig hiring contracts, non-availing of options to hire two additional rigs and delay in finalisation of renewal contract in respect of one rig (BD). These cases are discussed in the following paragraphs:

(ii) Inordinate delay in finalisation of tender for charter hiring of Rigs

The Company entered into two new contracts for charter hiring of deep water rigs during the five years from 2002-03 to 2006-07. Audit reviewed the contracting process and

found that the Company took 522 days in finalising the contracts indented in February 2002: The Materials Management (MM) Manual of the Company provided a period of 222 days from the date of indent upto the date of award of the contract. The extra 300 days taken to finalise the contract were mainly taken in firming up the Bid Evaluation Criteria (BEC) and specifications of the rigs. The Company had envisaged engaging consultants to assist the Company to finalise the tender documents and utilise their services for drilling. The consultants, however, were appointed on 7 August 2003 only after the contract for hiring of rigs had been awarded on 1 August 2003. Hence, the Company could not avail of the services of the consultant in finalisation of tender document and firming up of BEC and thereby save time. The inordinate delay in finalisation of contract for charter hiring of rigs resulted in postponement of drilling of eight wells¹⁰ during the 10th FYP.

The Management replied (August/December 2007) that since the hiring of deep-water rigs on an integrated basis was being done for the first time by the Company, firming up of the specifications/scope of work, etc., took time. It took the Company a period of 296 days between receipt of indent and NIT to finalise the manner of hiring of the services (integrated or stand alone) and finalisation of all different physical inputs and services for the various categories. These factors needed careful consideration and deliberations. The actual tendering process *i.e.* from NIT to LOA thereafter took 227 days only.

The reply is not tenable as the Management has calculated the days from NIT, where as audit has calculated the same from the date of receipt of indent from the user department as provided in the MM manual. Moreover, the proposal for hiring rigs (integrated services vis-à-vis stand alone basis) was first put up in tender committee on 27 May 2002 and approved by Executive Purchase Committee on 19 July 2002 or after 53 days and does not justify the delay of 300 days. Moreover, the Company was aware of its technical limitations in this area and had planned to engage a consultant to assist them, the appointment of which was however delayed and the Company had to grapple with the complexities on its own.

(iii) Non-achievement of drilling targets due to not hiring of additional rigs

The Company decided (March 2003) to hire four rigs of different capacities and in August 2003 hired two rigs with an option to hire two more in next six months. Audit observed that the option of hiring additional two rigs was not considered till the expiry (November 2006 and February 2007) of the existing contracts though there was a backlog of wells drilled *vis a vis* wells to be drilled under NELP and nominated wells. Excluding the backlog of 20 wells in respect of five NELP blocks that had to be surrendered by the Company due to not meeting the commitments, there was a backlog of 15 wells (13 in NELP and two in nomination blocks) at the end of 2006-07. Had all the four rigs been hired in April 2004 as envisaged, the additional two rigs could have drilled 40 wells till March 2007 at the rate of 54 days per well¹¹ and possibly, the backlog could have been cleared and the eventuality of forced surrendering of five NELP block could have been averted. As the Service Day Rates for the rig DSS under the renewed contract (2007-08 to 2009-10) increased to US\$ 357,000 from the earlier rate of US\$ 153,348, drilling the

¹⁰ Calculated based on the number of wells that were to be drilled each year by the rigs and o the period of delay.

¹¹ Average days per well in case of BD and DSS rigs.

backlog of 15 wells would require incurring of an additional expenditure of Rs.739.01 crore.

The Management replied (December 2007) that the option of hiring two additional rigs was kept for drilling of appraisal wells in case of early hydrocarbon discovery.

The reply is not tenable as it was decided in April 2003 in the meeting of Executive Purchase Committee (EPC) that the Company shall exercise the option to hire additional two rigs within a period of six months plus six weeks (to review the data generated during the six months period) from the date of commencement of rig operations. However, the option to enable the completion of MWP was not exercised.

(iv) Non availability of the rigs due to delay in awarding the contract

The Company hired the rig BD on a three years contract to expire in November 2006. In June 2005 the Company asked the contractor (M/s. Dolphin Drilling Limited) to submit a quote for further extension of three years. The contractor submitted his proposals on 4 July 2005 and after negotiations, offered the rig at the rate of US\$ 426,800 per day with validity for acceptance of the offer up to 2 September 2005. The consultant, M/s. Fearnley Offshore, also advised (July 2005) the Company that the availability of rigs was critical and if the Company decided to wait, rigs would not be available till first quarter of 2007. Despite the advice, the Company placed order on 5 October 2005 after the expiry of the offer. M/s. Dolphin Drilling Limited. declined (6 October 2005) the offer as the rig had been marketed elsewhere. Audit observed that the rates for deep water rigs quoted by the contractor were at par with the rates prevailing in October 2005. After the Company failed to avail of the offer of the contractor in September 2005, it initiated the process of re-tendering in February 2007 by which time the rig hire rates had gone up to US\$ 520,500 per day (January 2007) and the period of hire of BD rig had expired (November 2006). After sale of tender documents during February and March 2007 and holding pre-bid conference on 30 April 2007, the Company was contemplating (13 August 2007) certain changes to the tender condition, scope of work and specifications, etc. Even if the NIT is re-published in October 2007, and considering a period of 215 days for award of the contract from the date of publication of NIT (as per the MM Manual of the Company), and also allowing a period of six months for the contractor to mobilise the rig, the new rig would be available not earlier than end of 2008. Hence, seven wells of more than 1800m water depth in four blocks¹² required to be drilled before expiry of NELP phases of these blocks (March 2008) would not be drilled within the committed period and will have to be drilled at a higher cost. Further, had the Company finalised the contract for extension of the rig BD for a period of three years within the validity of the offer, it could have saved an amount of Rs.311.42 crore¹³ likely to be incurred in future.

¹² *NELP-I: One Block viz. KG-DWN-98/4, One well; NELP-IV: Three Blocks viz. KG-DWN-2002/1, One well; MN-DWN-2002/1, Three wells; MN-DWN-2002/2, Two wells.*

¹³ *Based on the rates available for similar rig in 'Rig Locator' during January 2007 (Mediterranean Africa rates US\$ 490000-Negotiated rates US\$ 426800 = US\$ 63200 x 3 years = US\$ 69,204,000 x 45/US\$.*

The Management stated (December 2007) that though the rates quoted by the contractor were close to October 2005 rates, the award of the contract required due diligence and negotiation with the contractor in view of the increase in the rates compared to ongoing contract.

The Management reply is not tenable as it ignored the advice of the consultant indicating criticality of rigs availability worldwide. The Management was also aware that volatility of oil prices in international market and demand /supply situation of the rigs had become critical during the year 2005 due to hurricane RITA and KATRINA in the Gulf of Mexico. The negotiation with the contractor were unduly prolonged in disregard of the time of validity of the offer. Negotiations could not fetch much advantage also in terms of reduction of rates. Considering the key factors, the Company should have acted well within time and taken proper action to keep the contractor under obligation to honour his offer.

7.7.3.2 Deployment of Rigs

(i) Non-fixation of norm for drilling activities

The Company hired deep water drilling rig BD and DSS on Integrated Well Completion (IWC) basis, wherein the rig contractor was to provide the rig alongwith the services at the rates, terms and conditions agreed by him with his service contractors. However, while entering into contracts, no time norms for completion of various activities of drilling were fixed.

Analysis by audit of actual time taken vis-à-vis estimated time as well as actual cost vis-à-vis estimated cost of drilling 35 wells revealed that time taken for drilling was 1.5 times and above the estimated time in case of 15 wells. The time taken was more than twice of the estimated time in case of five wells. The actual cost was 1.5 times the estimates in 13 wells, more than twice in five wells and more than three times in one well (*Annexure XXVII*). As against, the estimated cost of Rs.2,482.55 crore for drilling 35 wells, the actual cost was Rs.3,286.57 crore. Since the rates quoted by the rig/service provider were day rates, the absence of time norms for completion of activities weakened the internal control to monitor the time taken in completion and cost of drilling activities against pre-established benchmarks.

The Management stated (July 2007) that the deep water drilling was in an infancy stage in 2003 and the estimated time for each operation was very tentative and the operational speed mainly depends on the actual hole conditions. The Company further stated that cutting short the operation could lead to complications.

The reply is not tenable, as non-comparison and analysis of actual time with estimated time defeated the purpose of fixation of estimates and in the absence of norms for completion of drilling activities, the Company could not exercise effective control.

Management further replied (December 2007) that prior anticipation of all surprises was not possible since 'offset well'¹⁴ data was mostly scarce/absent in deep waters.

Audit noted that though the Company was using hired rigs since November 2003, it had not taken any step till the year 2007 to utilise its experience for fixation of performance norms to monitor drilling related activities.

¹⁴ *An existing well bore close to a proposed well.*

(ii) Loss due to inadequate contractual provision

Within a span of 22 months of hiring of rig DSS in February 2004, six major failures of Dynamic Positioning System (DPS) of the rig took place. Well KG-DWN-D-1 had to be abandoned on 13 September 2005 without carrying out production testing due to power failure on the rig resulting in abandonment of gas bearing well after spending Rs.48.01 crore. The Company could neither fix responsibility nor recover the amount from the contractor in the absence of any specific clause in the contract for recovery of loss due to defective equipments or services supplied by the rig contractor.

The Management while accepting (May 2007) non-existence of a provision in the contract for cost recovery on account of DPS related shutdown, stated that the Company was actively considering to include a 'Temporary Suspension' clause in the new contracts to ensure that no payment is made for idling of services beyond 72 hours in case of a break-down. The Management further replied (December 2007) that DPS failure was extremely rare and any equipment was prone to failure.

While that may be so, however, the flaw lay in the non inclusion of a suitable clause which in the event of abnormal suspension of operations due to equipment failure would safeguard the Company's interest in such situations.

(iii) Shortfall in deep water drilling due to deployment of Rig SV

During the period from 15 August 2005 to 25 November 2005 a hired rig (DSS) capable of drilling upto a water depth of 1800 m was deployed on two deep water locations (98/2D1 and 98/4 A1) requiring drilling in water depth upto a maximum of 778 m a depth which could have been drilled by the Company owned rig SV. On the other hand, SV upgraded in 1998 for a specific objective to drill upto a water depth of 900m was diverted to shallow water drilling during the same period. Diversion of an owned rig equipped to drill in deep water to drilling in shallow waters and deploying a hired rig to drill in the deep water resulted in extra expenditure of Rs.41.37 crore¹⁵. Instead of deploying SV in these two shallow locations, the Company could have deployed a shallow water hired rig by incurring an additional expenditure of Rs.13.62 crore¹⁶ which was a more economical option. The net saving forgone by the Company in diverting SV to shallow water locations instead of deploying a shallow water rig and utilising DSS on the locations where SV could have been deployed worked out to Rs.27.75 crore¹⁷.

The Management replied (December 2007) that rig deployment plan was envisaged by the Basin group, based on the priority and available locations and the locations 98/2D1 and 98/4A1 were never planned for drilling by the rig SV.

The reply is indicative of weak planning in the deployment of resources. The rigs equipped for drilling in deep waters are specialised vessels which come with a high charter cost. The Company had upgraded its own rig SV for the specific purpose of

¹⁵ The extra expenditure of Rs.41.37 crore is the incremental expenditure of deploying hired rig DSS over the operating expenditure of owned rig SV.

¹⁶ The extra expenditure of Rs.13.62 crore is the incremental expenditure of deploying a hired shallow water rig after setting off the savings that would be made by releasing rig SV. The charter rate of shallow water rig is based on the rig locator rate for similar rig for the month of August 2005.

¹⁷ Lower the rate of hiring a shallow water rig more is the saving foregone. Audit has taken a higher rate for hired shallow water rig to be conservative to project the saving foregone.

deployment in deep water drilling. Rig DSS was also hired along with ancillary services under integrated well completion contract for drilling in locations upto a water depth of 1800 m. Its deployment at locations where rig SV could have served the purpose, was not appropriate. The economics of deployment of available resources should be an important consideration in the preparation, review and implementation of resource deployment plans.

7.7.3.3 Miscellaneous observations

(i) Loss due to non-availability of standby wellhead on the rig

As per clause 4.5 of the contract for the rig DSS, the contractor was required to ensure availability of a minimum of two well-heads¹⁸ on the rig. On 15 January 2005 a complication due to parting of 20" casing in well VA-1 developed and drilling of a new well could not be taken up for want of another well head. The well (VA-1) was abandoned on 23 January 2005 when another well head became available. The intervening period from 15 January 2005 to 23 January 2005 was spent by the Company in unsuccessful attempts to resolve the complication. The rig and services charges attributable to these nine days when the rig remained idle were Rs.11.05 crore.

The Management stated (December 2007) that the root cause behind going for a new well was casing parting and the availability or non-availability of a spare well head had possibly no bearing on this decision, since the existing well head was retrievable and re-usable for the fresh drilling. Availability or non-availability of a spare well head would have also nothing to do with the parting of casing.

The reply is not tenable. Though well head availability may have had nothing to do with casing parting but the Electrolog data in Well Completion Report (WCR) showed that casing had parted on 15 January 2005. Hence, decision to drill another well could have been taken on that day itself if the spare well head was available. WCR also indicated that attempt to liquidate the problem was made because no substitute well head was available. Drilling of a new well was taken up only on availability of a spare well head which the contractor was contractually obliged to keep available.

(ii) Extra expenditure due to lack of inter-discipline coordination

Deep water wells are drilled by Drilling Services (DS) group of the Company, which is a service provider to the Geological and Geophysical (G&G) group of the Basins, based on the parameters set by the G&G group. The decision to abandon a well either prematurely or after completion of the entire drilling schedule is taken by DS after the approval of G&G group. Audit observed that well GD-6-1 in the block KG-OS- DW- III drilled by the rig BD was terminated without the consent of G&G group by DS after placing three abandonment plugs. Since the decision to terminate drilling was not acceptable to the G&G group the plugs had to be drilled out and drilling resumed as instructed by G&G group. In the process of placing and removing three abandonment plugs, 187 rig hours were lost resulting in an unfruitful expenditure of Rs.11.06 crore.

The Management replied (December 2007) that even if G&G group had not agreed to the abandonment of the well, the plugs were necessary to be placed for safety reasons. The next course of action was to be decided subsequent to placement of plug. The action of

¹⁸ *A wellhead is that part of an oil well which terminates at the surface, whether on land or offshore, where petroleum or gas hydrocarbons can be withdrawn.*

placing the plugs did not necessarily imply permanent abandonment, but meeting a well security requirement.

The reply is not tenable since the activities among various services needed to be well coordinated to arrive at a final decision for abandonment or continuation of drilling to avoid extra expenditure in placing and removing of the plug. In the instant case, the same was not done despite there being a well established practice in this regard and a representative of the G&G group dedicated to the team drilling the well.

Recommendation No.7.3

The Company should

- (i) finalise the tenders for hiring rigs within the period prescribed in the Materials Management Manual;***
- (ii) consider the prevailing market rate/trends while finalising/extending the contracts for hiring rigs so as to establish the reasonability of the rates offered;***
- (iii) fix norms for time required to execute various activities of drilling while hiring rigs on integrated well completion basis so as to have an effective control on the performance of the contractors; and***
- (iv) incorporate clauses in the contract to protect its interest in the event of idling of services due to breakdown in one or more equipment supplied by a contractor under an integrated well completion contract.***

7.7.4. Production testing, well completion and reserve estimation

7.7.4.1 Non-achievement of reserve accretion targets

Since the introduction of NELP in 1999, the Company had been awarded 34 deep water blocks in which eight wells were drilled and in the block KG-DWN-98/2¹⁹ seven wells were drilled till March 2007. In Nomination blocks, 24 wells were drilled by that date. Unlike shallow water blocks, the Company had not fixed any firm target for reserve accretion for deep water blocks. Only an indicative target for Initial-in-Place (IIP) Hydrocarbon of 500 MMTOE from deep water was mentioned in 10th FYP without any year-wise breakup.

Audit observed that the Company had not made any estimate of firm reserve accretion for such a critical activity on which it spent Rs.5,769.12 crore during 10th FYP period (2002-03 to 2006-07). During this period, the Company was able to accrete only 172.17 MMTOE till March 2007, of which 73.70 *per cent* was from block KG-DWN-98/2 acquired from CEIL in March 2005 and the nomination blocks as detailed in the table below.

¹⁹ ***The block acquired from CEIL.***

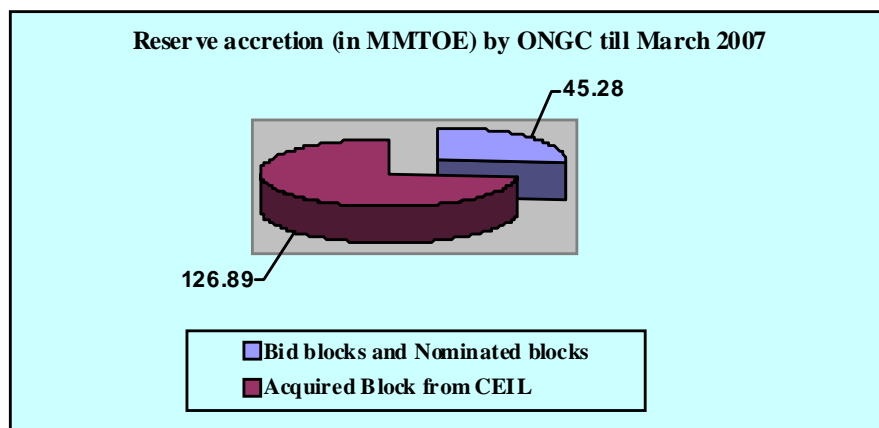
Table-7.7: Accretion to hydrocarbon reserves - Initial in place (IIP)

Particulars	Total	2002-03	2003-04	2004-05	2005-06	2006-07
Exploratory expenditure including API and drilling (Rs. crore)	5769.12	173.95	494.99	2111.37	1221.95	1766.86
Actual reserve accretion from the Company bid blocks and nominated blocks (MMT-OE)	45.28	2.98	22.02	9.98	9.00	1.30
Actual from KG-DWN-98/2 acquired by the Company from CEIL. (MMT-OE)	126.89	NA*	NA*	34.18	28.26	64.45

*Not Applicable as the block KG-DWN-98/2 was acquired by the Company in March 2005.

There was no significant accretion from the blocks acquired by the Company through NELP bidding. In fact, the eight wells drilled in the NELP blocks turned out to be dry.

Chart 7.4



The Management stated (September 2007) that the reserve accretion was an outcome of physical inputs which had a normal lag time. It could not be expected to achieve desired accretion in the first two years of 10th FYP. The upward trend from the third year onwards proved that the planning was in place and was proper.

The reply is not tenable as the Company commenced exploration in deep water from 1970 onwards and started drilling deep water wells having water depth more than 400 metres with the rig SV from 1998-99. The time lag has, therefore, to be counted from 1998-99 and not from the beginning of the 10th FYP. Further, the increase in accretion from 2004-05 onwards was also not due to exploration efforts of the Company in the Company bid blocks.

The Management further stated (December 2007) that the Company had planned the needed physical inputs required to meet the set target but no firm commitment of reserves accretion was made in the deep water sector. Only an indicative target of 500 MMTOE was set for the deep water sector and other frontier sectors combined. The Management also contended that after the initial set back in the west coast, the Company deliberately enhanced its exploratory inputs in the east coast mainly in the block KG-DWN-98/2

which had an estimated volume of 32.51 MMTOE of hydrocarbon, purely based on its prospectivity and the returns offered by the block.

The reply is not tenable as accretion of 500 MMTOE in the 10th FYP was envisaged mainly from deep water exploration. At the time of formulation of 10th FYP, the block KG-DWN-98/2 was not with the Company. Fixing of indicative targets showed that the Company had not properly planned for the returns expected of its huge investment.

7.7.4.2 Non-fixation of norms for testing wells

To arrive at the Initial in Place (IIP) reserve, the hydrocarbon indicative wells are tested to establish presence of hydrocarbon. Under the IWC contracts for the rigs BD and DSS, the Company did not prescribe any norms for tests in terms of number of days to be spent per object of testing.

Audit observed that the testing days per object varied from five to seventeen days during the period from 2002-03 to 2006-07 as indicated in Table-7.8 below:

Table-7.8: Deepwater wells tested conventionally

Sl. No.	Well Name	RIG	Block: NELP or Nomination	Water depth (meters)	No. of Objects tested	Actual days taken for testing	Actual days per object
1.	KD-2-1	DSS	Nomination	1464	4	22	5.5
2.	VA-1	DSS	Nomination	553	1	17	17
3.	VA-2	DSS	Nomination	689	2	10	5
4.	GD-2-1	SV	Nomination	653	1	24	24
5.	G-4-2	SV	Nomination	429	1	14	14
6.	G-4-3	SV	Nomination	525	1	15	15
7.	G-4-4	SV	Nomination	335	2	30	15
8.	98/2-W-1	BD	Nomination	1263	1	10	10
9.	98/2 A-1	DSS	NELP	706	1	08	8
10.	98/2-U-1	BD	NELP	1265	1	12	12

The Management stated (December 2007) that there was no way to prescribe norms for testing days in deep water wells by the Company as deep water testing had been undertaken by it for the first time, comparable figures were not available, different operators had been using different types of equipments in testing and the pattern of production testing days also varied with water depth.

The reply is not tenable as the Company had been in deep water drilling since 1999. The Company could have benchmarked the testing time on the basis of past experience, as the norms had been set in case of shallow water wells. Further, as contended by the Management, no pattern or relationship could be noticed from the data given in Table-7.8 between water depth and production testing days taken.

7.7.4.3 Avoidable production testing in the well interpreted to be devoid of hydrocarbon

Deep water wells are tested for presence of hydrocarbons through Modular Dynamic Tester (MDT) or conventional testing. The conventional method of production testing being longer one in terms of number of days, MDT is generally resorted to, before conducting production testing.

The Company while testing well GD-2-1A carried out conventional production testing of two objects²⁰ at a cost of Rs.9.13 crore without carrying out MDT despite the drilling logs indicating that the entire section was devoid of hydrocarbons. Both the objects proved to be water bearing. Audit observed that by adopting the interpretation of the recorded logs and MDT, which required only a few hours to conduct, the conventional test and resultant expenditure could have been avoided.

The Management accepted (December 2007) that the recorded logs were not interesting from the hydrocarbon point of view and carrying out of MDT could have avoided conventional testing but justified the same to rule out possibility of missing any kind of potential zone. Further Management stated that caved hole precluded the feasibility of carrying out a valid MDT.

The reply is not tenable as recorded logs suggested that the well was devoid of hydrocarbon and the Company could have confirmed this at the most by carrying out MDT being economical compared to conventional testing.

7.7.4.4 Discovery claimed by the Company not acknowledged by MOP&NG /DGH

i) As per the conditions for allotment of nominated blocks, the Company had to issue a strike note on discovery of hydrocarbon in the nominated blocks to the MOP&NG, for the discovery to be considered and recorded by MOP&NG. Audit observed that out of five discoveries made by the Company in the nominated blocks (*Annexure XXVIII*), only two appeared in the records of DGH. The Management contention that remaining three wells were delineation wells was not available on record.

ii) As per Article 10.2 of the PSC, if the contractor determines to conduct a drill stem for production test in open hole or through perforated casing with regard to any exploration well, it shall notify the Government of the time of such test at least 48 hours prior to the proposed test, and the Government shall have the right to have representative present during such test. Audit observed that in NELP blocks, out of six discoveries claimed by the Company as at the end of March 2007, only four were acknowledged as discoveries by the DGH. In the remaining two cases (D-1 and DWN-E-1), the wells were tested only by MDT whereas PSC required it to be tested through Drill Stem Test (DST).

The Management replied (December 2007) that in case of D-1 well, testing was done through MDT and conventional testing (DST) was planned to be notified to DGH but the well was abandoned due to technical problems. In case of DWN-E-1, an interim discovery report was issued to DGH based on the MDT. In this case also, the DGH desired carrying out of DST for notifying discovery. The DGH also clarified that the MDT could be considered for future discoveries, if notified. The matter regarding the two wells was still pending with the DGH (August 2007).

The reply is not tenable as the Company did not inform DGH about MDT and its inability to conduct conventional test due to well collapse. In case of DWN-E-1, the Company neither conducted conventional testing as required in Article-10.2 of PSC, nor invited DGH representatives. Even after the DGH insisted, the Company did not carry out conventional testing whereas in the four cases acknowledged by DGH, the Company had

²⁰ *Object is an interval or section of a well which indicates a likely presence of oil/gas through drilling data as well as study of logs. This section is generally a reservoir under different sedimentary environments and holds hydrocarbon pools.*

conducted conventional production test. As a result, both these discoveries had not been accepted by the DGH. Non recognition of discovery in the NELP blocks may delay further development plan of the field under Article 10 of PSC.

Recommendation No. 7.4

- (i) ***The Company should expedite API of seismic data, plan drilling of sufficient number of wells and test the wells as per procedures prescribed by the DGH.***
- (ii) ***The Company should fix norms for testing of wells in terms of number of days per object by giving due weightage to the subsurface conditions of various Basins.***

7.7.5 Health, Safety and Environment

7.7.5.1 Health and Safety - Occurrence of accidents

Audit observed that in respect of deep water drilling rigs, one incidence of equipment damage in September 2002, one incidence of major injury in March 2005 and three incidences of minor injury between February and October 2005 were reported at the Company owned deep water drilling rig SV. Further, one major incidence occurred at rig BD in March 2005 and one fatal accident was reported in February 2006 at rig DSS.

Apart from the above, fifty cases of 'near misses' were reported in annual report of Drilling Services for 2005-06 only, at SV covering almost every month of the year. This indicated the high possibility of 'near misses' converting into high risk incidences. Non-reporting of 'near misses' in earlier years deprived the Management from taking precautionary measures on safety aspect.

In the 5th HSE sub-committee meeting of the Company's Board held in December 2005, major accidents involving contract workers during 2004-05 were discussed, wherein it was observed from investigated incidences that the contract workers were not aware of hazards associated with oil industry. Therefore, a 'Total Productivity Management Program' to ensure incident free operations was advised.

The Management stated (December 2007) the reporting of accidents/incidents or near misses had started in the Company on daily basis. The clauses regarding reporting have been incorporated in the contract.

However, the above incidences of accidents indicate that the 'goal zero' of corporate environmental management which includes zero accidents, lost man days and facilities was not fulfilled.

7.7.5.2 Environment

(i) Delay in carrying out Environmental Impact Assessment studies

According to Article 14.5 of the PSC, the Company was required to carry out environment impact studies through persons having special knowledge on environment matters in order to determine the prevailing environment, human beings and local communities situation at the time of studies and establish the likely effect exploration activities on the same. The time taken for completion of Environment Impact Assessment (EIA) studies are given in **Annexure XXIX**.

Audit noticed that the time taken for pre-drilling EIA studies ranged from 20 to 56 months from the date of signing respective PSC. In respect of NELP- I and II blocks, three to four years were taken for completion of pre-drilling EIA studies from date of signing the PSC, whereas Phase I of NELP-I block itself was for four years.

The Management stated (December 2007) that one block was not found to be prospective after exploratory survey and was being relinquished without entering drilling phase. So no pre drill EIA studies had been conducted for this block. Pre-drill EIA studies were initiated after establishing prospectivity of the blocks and finalisation of tentative drilling plans. In the blocks KK-DWN-2002/2 and KK-DWN-2002/3, under NELP-IV, there was no drilling in MWP of Phase I. The drilling had been planned in phase II of these blocks from the year 2009-10 and last quarter of 2008-2009 respectively. Therefore, the process for pre-drill EIA studies and environmental clearance had been initiated just then.

The reply of the Management is not factual since in respect of NELP I, III and IV the pre-drill EIA studies were conducted and environmental clearances (ECs) obtained prior to data processing. In NELP-IV, for two blocks in possession, though phase-I had been completed by March 2007, pre-drilling EIA studies were initiated in December 2007. The Management, however, did not clarify reasons for not initiating process of EIA studies and EC for other two blocks.

ii) *Non-establishment of Environment Management Cell*

The Company had a separate Corporate Health, Safety and Environment set up headed by in-charge HSE in each Basin, Asset and Services. However, the monitoring of adherence to EC conditions was not carried out by in-charge HSE and its functions were limited to obtaining environmental clearance and reporting on accidents, safety drills, coordinating in revalidation of certificates, *etc.* One of the general conditions of EC was establishment of ‘a separate Environment Management Cell with full fledged laboratory facilities to carry out various environmental management and monitoring functions under the control of a senior executive’. However, there was no mechanism in place to obtain compliance and test reports regularly from implementing sections by HSE to verify the compliance.

The Management stated (December 2007) that ONGC’s Regional Laboratories can take up the analysis of samples and for specialised analysis, it has MOU with expertise agencies like NEERI and NIO.

The reply of the Management indicates the absence of monitoring mechanism in HSE group. Therefore, compliance to the various requirements/agencies was diluted. The Management did not offer any comments on the aspect of separate Environment Management Cell.

Recommendation No.7.5

The Company should

- (i) initiate environment impact assessment studies in time so as to avoid delays in the MWP and consequential penalties;***
- (ii) strengthen the mechanism of monitoring by HSE as stipulated in environmental clearances; and***
- (iii) establish systems and strengthen procedures to ensure incident free operations for its Total Productivity Management Programme.***

7.7.6 Internal Control and Monitoring System

7.7.6.1 Absence of guidelines/procedures for planning activities in deep water blocks

Production Sharing Contracts signed for the deep water blocks prescribed time period for completion of MWP of each phase. Audit observed that the Company had not prescribed policy guidelines for completion of each activity in order to achieve the MWP targets. The Company also did not prepare separate budget for deep water exploration in their annual corporate plans so as to monitor the physical and financial progress of the project.

The Management stated (December 2007) that Operating Committee and Management Committee resolutions involving budgetary approvals in NELP blocks of all physical programmes for a given year as well as MOUs with MOP&NG for the acreage to be explored besides the review during Quarterly Progress Review Meetings and bi-annual reviews were multi-faceted control elements for the organisation in terms of both guidelines and monitoring.

The reply is not tenable as the wells planned in the 10th plan were only 35 instead of commitments to the extent of 51 wells. DGH imposed penalty in respect of five blocks and the blocks had to be relinquished. If the monitoring system as stated were in place then such situations could have been avoided.

Recommendation No.7.6

The Company should

- (i) prescribe policy guidelines for planning activities in deep water exploration to ensure completion of each activity as per MWP targets; and**
- (ii) prepare activity-wise separate budget for deep water exploration project in their annual corporate plans for monitoring the physical and financial progress of the project.**

7.7.6.2 Delay in assigning technical audit of exploration process

The exploration process followed by the Company is explained in **Annexure XXX**. To facilitate in taking stock of existing practices, making improvements for mitigation of exploration risk, improving the overall success ratio and adding value to investment, the Company decided (June 2005) to engage a technical auditor for conducting technical audit of exploration process within a period of 12 days. The work to be commenced from 20 August 2007 and completed by 4 September 2007 was, however, assigned to a party on 14 July 2007. Thus, the advantage of taking corrective actions to avoid cost and time overruns during the two year period was lost.

Management stated (December 2007) that Exploration Process Auditing has no direct relationship with project 'Sagar Samriddhi' because the objective of the audit process was to understand whether the Company had adopted the optimal acquisition, processing and interpretation process for generation of prospects or not. This was applicable to onland areas, shallow water areas and also for deep water areas.

The reply is contradictory. Once it was accepted that the EPA was applicable to deep water exploration, its inapplicability to Sagar Samriddhi project was a logical conclusion as it is a project for deep water exploration.

Recommendation No.7.7

The Company should ensure that technical audit of exploration process of each block under deep water is conducted timely.

7.8. Conclusion

- The Company envisaged (2003) four billion tons of hydrocarbon reserve from deep water prospects in its 20 -year perspective plan and decided to pursue aggressive exploration campaign in deep waters. The Company has been in deep water exploration since 1970. However, it had not set any firm reserve accretion target from deep water blocks. During 10th FYP, and even after spending over Rs.5,769.12 crore in deep water exploration, the Company could add only 172.17 MMTOE to IIP reserve out of which nearly 74 *per cent* was from one block acquired by it from CEIL.
- Five year plan and annual plans did not cover adequately the number of wells to be drilled as committed for nomination blocks and in MWP of various NELP PSCs. In the 10th FYP, the Company planned only 35 wells against the commitment of 51 wells, resulting in non-achievement of MWP targets. As a result the progress of deep water exploration was slow and the Company had to relinquish five blocks after paying penalty to GOI for unfinished work.
- Non-consideration of the financial condition of the contractor at the time of award of contract, non specifying date of mobilisation of vessels and consequently, non completion of data acquisition due to onset of monsoon had resulted in delays in completion of MWP targets.
- Delay in finalisation of contracts as well as non-consideration of scarcity of deep water rigs in the market resulted in non acquisition of rigs for drilling of committed number of wells in four blocks.
- Pre drilling EIA studies took very long time ranging from 21 to 56 months. In some cases EIA studies were not completed even after completion of Phase-I of MWP.
- Monitoring of planning, the tender process, drilling operations and HSE policy implementation was weak.

The matter was reported to the Ministry in February 2008; reply was awaited.