

## CHAPTER VIII

### *Oil and Natural Gas Corporation Limited*

#### **Exploration in shallow water blocks**

##### ***Executive Summary***

Oil and Natural Gas Corporation Limited (Company) has been carrying out activities relating to exploration and production of hydrocarbon since 1956. The Company has offshore shallow water blocks (water depth upto 400 metres) in five sedimentary basins.

Upto 1998, the Company was offered exploratory blocks on 'nomination basis' (nomination blocks). The policy for nomination blocks was also amended in March 2002. In 1999, the MoPNG implemented the New Exploration Licensing Policy (NELP) through the Directorate General of Hydrocarbons.

The Performance Audit covered performance of the Company during 2004-08 in 37 shallow water blocks comprising of 21 nomination blocks and 16 NELP blocks. Performance Audit revealed systemic and compliance deficiencies mainly relating to absence of norms for key activities, delays/failures in carrying out acquisition, processing and interpretation (API) of seismic data, delayed tendering, mismatch in planning of exploration activities including drilling of wells which resulted in unfruitful expenditure (Rs. 2,136.45 crore) and avoidable expenditure (Rs. 94.67 crore) besides entailing liability for payment of liquidated damages (Rs. 252.20 crore).

- In 7 of the 16 NELP blocks, the Company took 8 to 12 months in completion of Environment Impact Assessment (EIA) studies which had adverse impact on timely API of seismic data. In the absence of norms, the reasonableness of time taken in completion of EIA studies and API could not be ascertained in audit.
- The pace of completion of API was also very slow in a number of blocks with the result that exploration commitments in the nomination as well as the NELP blocks could not be completed in time. The slow pace coupled with the mismatch between rig deployment plan and availability/deployment of rigs affected in fulfilling the drilling commitments. This had cascading adverse impact as exploration blocks had to be surrendered after incurring substantial expenditure.
- There was no reserve accretion in any of the 16 NELP blocks as all the wells drilled were found to be dry. The Company had surrendered/proposed to surrender 10 of the 16 NELP blocks after incurring substantial expenditure of Rs. 1,461.36 crore over the period 2004-08 though the Company had bid for the blocks after analyzing their prospectivity.
- Some of the important recommendations made by Audit in the Report deserve attention of the Management towards (a) completion of exploration activities in a time bound manner to avoid surrender of blocks; (b) prescribing norms for EIA and determining average API cycle time to ensure their timely completion; (c)

initiation of tendering process well in advance so that survey vessels could be hired and deployed at the beginning of the fair weather season and; (d) ensuring availability of suitable rigs while finalising the rig deployment plan.

### **Summary of recommendations**

*The Company should:*

- (i) *Complete exploration activities in a time bound manner as re-grant for these blocks would not be available beyond the current re-grant cycle as per MoPNG Directive of 2002, to avoid surrender of nomination blocks without fully exploring their prospectivity.*
- (ii) *Determine the average API cycle time for each basin and monitor its adherence to ensure completion of the API cycle.*
- (iii) *Initiate the tendering process in advance so that the survey vessels could be hired and deployed at the beginning of the fair weather season.*
- (iv) *Observe its internal instructions relating to floating of a single consolidated tender for similar description/specification of work.*
- (v) *Initiate the process for pre-seismic EIA studies immediately after award of the blocks and also frame norms to ensure their timely completion.*
- (vi) *Ensure timely signing of rig deployment plans and service level agreements for effective utilisation of drilling resources.*
- (vii) *Ensure availability of suitable rigs while finalising the rig deployment plan.*
- (viii) *Release the locations on time considering the commitments scheduled in the PSC.*
- (ix) *Ensure soil investigation prior to rig movement.*
- (x) *Ensure reduction of non productive time by better coordination among the various service providers.*

### **8.1 Introduction**

Oil and Natural Gas Corporation Limited (Company) has been carrying out activities relating to exploration and production of hydrocarbon since 1956. Upto 1998, the Company was offered exploratory blocks on 'nomination basis' and was allowed to apply to the Ministry of Petroleum and Natural Gas (MoPNG) for grant of Petroleum Exploration Licence (PEL) in respect of the blocks and, hence, these blocks were called nomination blocks.

To accelerate the exploration of hydrocarbon resources in the Indian sedimentary basins<sup>1</sup>, the MoPNG in 1999 implemented the New Exploration Licensing Policy (NELP) through the Directorate General of Hydrocarbons (DGH) by offering the exploratory blocks to private as well as foreign players. Between 1999 and 2006, 50 shallow water blocks (water depth upto 400 metres) in five sedimentary basins<sup>2</sup> were offered under NELP I to VI rounds to private as well as public companies including joint ventures. The main

---

<sup>1</sup> *Sedimentary basins are depressions in the earth's crust where organic matters are deposited.*

<sup>2</sup> *1. Western offshore, 2. Krishna Godavari, 3. Cauvery, 4. Mahanadi-Bengal-Andaman and 5. Cambay.*

features relating to grant of the nomination and NELP blocks are given in *Annexure-XXV*.

Year-wise number of blocks held by the Company in five sedimentary offshore basins in the category of nomination as well as NELP blocks for the period from 2004-05 to 2007-08 were as under:

**Table 8.1**  
**Shallow water blocks with the Company during 2004-08**

Year	Nomination blocks			NELP blocks			
	Opening balance	Surrendered	Closing balance	Opening balance	Acquired	Surrendered	Closing balance
2004-05	21	-	21	12	-	1	11
2005-06	21	-	21	11	2	-	13
2006-07	21	1	20	13	-	4	09
2007-08	20	2	18	9	2	1	10

## 8.2 *Scope of audit*

The Performance Audit covered exploratory activities of the Company in 37 shallow water exploratory blocks (21 nomination blocks and 16 NELP blocks) for the period from 2004-05 to 2007-08. The activities covered under the performance audit included data acquisition, processing and interpretation (API), release of locations for drilling, drilling of exploratory wells and estimation of reserve accretion.

## 8.3 *Audit objectives*

The Performance Audit of the exploration in shallow water blocks was carried out keeping in view the criticality of the exploration activities in achieving the strategic pursuit of intensified exploration of the Company which aims to create new oil and gas assets on a continuous basis through reserve accretion. The main audit objectives were to assess that:

- Adequate exploratory efforts were made for nomination blocks in view of MoPNG Directive 2002;
- Minimum Work Programme (MWP) commitments made in the Production Sharing Contracts (PSCs) of NELP blocks were fulfilled within the prescribed time;
- Adequate and timely acquisition, processing and interpretation of data was done and suitable locations were released;
- Adequate drilling resources were hired and deployed in time for fulfilling the drilling targets;
- Targeted reserve accretion was achieved;
- Requisite environmental clearances were secured in time and were in compliance with statutory requirements; and

- Measures were taken to ensure safe and healthy working conditions of the employees.

#### **8.4 Audit criteria**

- Exploration of nomination blocks: Work commitments under nomination blocks.*
- Exploration of NELP blocks: PSCs and MWP commitments, policies of MoPNG/DGH as applicable.*
- Acquisition, processing and interpretation of data: Preparation of exploration work programme, applicable provisions of Material Management (MM) Manual/Corporate directions, last purchase price in respect of the contracts for API entered into by the Company during earlier period, market trend and conditions of contract.*
- Hiring of rigs and drilling: MWP, Service Level Agreement (SLA), Rig Deployment Plan (RDP), rig hiring contracts and well objectives.*
- Reserve accretion: Geo Technical Order (GTO), production testing, well completion, Five Year Plans (FYPs) and Annual Plans (APs).*
- Health, Safety and Environment (HSE) Management: Statutory requirements, and HSE policy of the Company.*

#### **8.5 Audit methodology**

Audit reviewed the records relating to acquisition of shallow water exploratory blocks besides contracts and payments for survey and interpretation of data, interpretation reports, planning and execution of deployment of rigs, well completion and reserve accretion and HSE management relating to these blocks. All the 37 blocks (21 nomination and 16 NELP blocks) were selected for reviewing activities relating to acquisition, processing and interpretation (API) of seismic data for the period from 2004-05 to 2007-08. Of the 78 exploratory wells drilled in 20 blocks, a sample of 41 wells was selected. This included six wells over six blocks where one well each had been drilled and 35 wells, about 50 per cent, selected on random sampling basis from 14 blocks where more than one well was drilled.

An entry conference with the Management was held on 21 January 2009 wherein the audit objectives, scope and methodology were explained. Audit findings and recommendations were discussed in the exit conference held on 3 December 2009.

#### **8.6 Acknowledgement**

Audit is thankful for the cooperation extended by the Management at all levels in providing information, records and clarifications to Audit from time to time and for arranging discussions with the concerned officers as and when required. Their cooperation facilitated the conduct of the review.

#### **8.7 Audit Findings**

Performance Audit revealed audit findings relating, mainly, to mismatch in planning of exploration activities, delays/failure in carrying out acquisition, processing and interpretation of seismic data and drilling of wells, surrender of blocks involving

unfruitful expenditure (Rs. 2,136.45 crore), avoidable expenditure (Rs. 94.67 crore) besides liability/payment of liquidated damages (Rs. 252.20 crore) due to systemic and compliance deficiencies. The audit findings are discussed in the succeeding paragraphs:

### **8.7 A Exploration of nomination blocks**

**8.7.1.1** The Company acquired 21 nomination blocks (*Annexure-XXVI*) in shallow waters between 1985 and 1999. These blocks were retained on re-grant obtained from MoPNG between 2001 and 2005. The Company could convert two nomination blocks<sup>3</sup> into Mining Lease (ML) and four<sup>4</sup> were relinquished on account of low prospectivity during the review period. Nine blocks<sup>5</sup> were in the last two years of the exploration cycle whereas the remaining six blocks<sup>6</sup> were in the fifth year of re-grant.

The Company had achieved the targets for 'acquisition, processing and interpretation' of seismic data and drilling of wells in four blocks<sup>7</sup>. However, exploratory efforts in respect of another five blocks (ED-A, WO-9, SWBH, KDGKH and C-OS-IX) were slow and only seven against the commitment of 13 wells were drilled.

Scrutiny in audit revealed that in the above five blocks the Company had taken more than two years to reprocess and interpret the seismic data. Acquisition of fresh data was also delayed which resulted in delay in release of locations and drilling of wells. The existing re-grant validity of the fifth year of KDGKH block expired in March 2009 and that of ED-A block was expiring in November 2009. The re-grant validity of the C-OS-IX block was upto December 2010. The Company approached (April 2009) MoPNG for further extension in ED-A and KDGKH blocks. The MoPNG granted (October 2009) further extension upto March 2011 for KDGKH block as a one time dispensation subject to production of bank guarantee equivalent to committed work programme, drilling of one well during the extended period and to pay liquidated damages in case the Company fails to complete the committed work programme within the permitted time. This condition was also made applicable to C-OS-IX block.

Thus, even after retaining the five blocks for more than ten years till April 2009 and incurring an expenditure of Rs. 390.67 crore (during 2004-08) on exploratory efforts, the Company was yet to explore their potential. Further, no extension had been granted for three blocks (ED-A, WO-9 and SWBH). In case no discovery is established during the current cycle, these three blocks will have to be surrendered as per MoPNG Directive 2002.

The Management while acknowledging (November 2009) the delays stated that the constraints like acquiring of 3D data with Ocean Bottom Cable (OBC) technology, drilling commitments *vis-à-vis* rig availability impacted the progress of exploration.

The reply is not satisfactory as not only was the Company's pace of acquisition of seismic data slow, the Company consumed more than two years of the re-grant period in interpretation of seismic data alone with the result that subsequent exploration activities

---

<sup>3</sup> *BOX-III and B-192-A.*

<sup>4</sup> *B-192, Kutch H Block I & II, C-OS-X and SM-86 (Annexure-II).*

<sup>5</sup> *ED-A, WO-9, SWBH, R6/R28, (BOFF-1/2/3), KDGKH, C-OS-IX, IF and IG (Annexure-II).*

<sup>6</sup> *Saurashtra Dahanu, Kutch BK-I, Kutch A&B, IA, IB and IE (Annexure-II).*

<sup>7</sup> *IF, IG, R6/R28 and BOFF-1/2/3.*

were also delayed and potential of the blocks had not been established as of September 2009 even after retaining them for more than 10 years.

**a) Non-achievement of exploratory objectives in WO-9 block**

WO-9 block having an area of 562 square kilometer (SKM) in Western Offshore basin (WOB) had been with the Company since December 1996. The first re-grant was obtained (December 2002) for four years (upto 2006) after relinquishing an area of 144 SKM. During the re-grant period, 135 Line Kilometer (LKM) of 2D data was acquired. Interpretation of 2D data and re-interpretation of 3D data (acquired in the original grant period) took almost three of the four years' re-grant period. Fresh 3D data was acquired during the fourth year of the re-grant period. However, no location was identified for drilling and extension for retaining the block was obtained upto December 2009. The Company acquired additional 3D data in February 2009 at a cost of Rs. 17.31 crore. Interpretation of the data for generating prospect was in progress (September 2009) whereas the current cycle of the re-grant was expiring in December 2009. Despite holding the block since 1996, the exploration in this block remained incomplete. The Company had incurred an expenditure of Rs. 34.86 crore in the block during 2004-05 to 2007-08. Though the Company had planned drilling of one well during the last year ending December 2009, the abnormally long time taken in acquisition of seismic data reduced the availability of time for processing and interpretation of the 3D data, generation and release of location to only three months as the re-grant period was expiring in December 2009.

The Management while accepting that the drilling priorities could have been improved, stated (November 2009) that the Company had been able to convert 135 SKM area of the block into mining lease by delineating the discoveries in blocks B-192 and B-45.

The fact remains that the Company had been retaining the block for the last 13 years and conversion of the area into mining lease was not as a result of exploratory efforts in WO-9 block. The Company may have to surrender remaining 283 SKM area of the block as it consumed three of the four years of the re-grant period in acquisition of data only and failed to establish the potential of the block.

**b) Relinquishment of prospective area in IB Block**

The Company was having IB block with an area of 1,187.5 SKM in Krishna Godavari basin since October 1986. One well (GS-29-1) drilled in GS structure in December 1992 indicated presence of oil and gas. The northern part of the block (246 SKM) was, however, surrendered during 1994 for development through a joint venture. The Company further surrendered 726.11 SKM of this block in August 1995 and retained only a net area of 165 SKM. It acquired additional 2D and 3D data in 1998-2004. Meanwhile, the second re-grant period expired in October 2004 and the Company had to relinquish (November/December 2004) 42 SKM area, being 25 *per cent* of remaining area due to insufficient coverage of 2D/3D data and non observance of interesting hydrocarbon zones. The Company further acquired 3D Q-marine data of 65.11 SKM and drilled (October 2004 and February 2005) two wells, of which one (GS-29-5) was gas bearing. Further processing of 3D Q-marine and GXT<sup>8</sup> data (December 2008) revealed

---

<sup>8</sup> A specialised survey for acquiring 2D long offset data.



that the deposits of ‘cretaceous period’<sup>9</sup> in the adjoining prospective blocks (*viz.* IG and IE) were extending through the surrendered area of 16.82 SKM of the IB block.

Audit observed that due to delay of 16 years (December 1992 to December 2008) in mapping and delineating the extension of discovery noticed in GS-29-I well, the Company had to relinquish 16.82 SKM prospective area.

In its reply (November 2009), the Management did not offer any comments.

***c) Acquisition of C-OS-X block in notified area leading to its surrender***

The Company acquired C-OS-X block (area 1,155 SKM) in Cauvery offshore for four years in January 1998. Against the commitment of ‘acquisition, processing and interpretation’ of 700 LKM of 2D data and drilling of four wells, the Company could acquire only 566 LKM of 2D data. No wells were drilled since Tamil Nadu Government (Forest Department) had denied (January 2002) permission for drilling of wells as the area fell within ‘Gulf of Mannar Biosphere’<sup>10</sup> Reserve’ water portion and drilling activities would have an adverse impact on the reserve. Subsequently, the Company obtained (May 2004) re-grant from MoPNG for an area of 866 SKM for another four years till December 2007.

Audit observed that the area was notified as biosphere area in June 1989. Despite refusal (January 2002) by the Tamil Nadu Government to grant permission on the ground that the block fell in a biosphere reserve, the Company obtained (May 2004) re-grant without bringing out these facts in its application to MoPNG. The Ministry of Environment and Forest (MOEF) declined (March 2007) Environment Clearance (EC) for undertaking drilling operations in the block on the ground that the block was located in the biosphere reserve. Consequently, the Company could not undertake drilling operations in the block even during the extended grant period. One location GMS-9-1 in the block was drilled from land as an extended reach drill well to probe Nannilam and Bhuvanagiri formations. However, the target formations could not be penetrated due to complications. As MOEF declined to give EC for drilling operations in the block, the Company relinquished the block (July 2008) after incurring unfruitful expenditure of Rs. 23.26 crore on exploration activities.

The Management stated (November 2009) that awarding of the said block and subsequent re-grant by MoPNG for the same implied that exploration activities could be carried out in the area subject to fulfillment of necessary obligations/commitments. As the MOEF denied permission even after active pursuance by the MoPNG, there was no option for the Company but to surrender the block.

The reply indicates that both the MoPNG as well as the Company failed to ascertain whether the block was within the notified biosphere area at the time of initial grant. Even after noticing in January 2002 that the block was located in biosphere area and not fit for undertaking petroleum exploration activities, obtaining of re-grant from MoPNG in May 2004, and making attempts to obtain EC from MOEF for continuing drilling activities in such an area was not justified. This resulted in unfruitful expenditure.

---

<sup>9</sup> Refers to time period between 144 million and 66 million years ago.

<sup>10</sup> Biosphere is the ecological system integrating all living beings and their relationships, including their interaction with the elements of the lithosphere, hydrosphere and atmosphere.

### **8.7 B Exploration of NELP Blocks**

**8.7.1.2** At the time of bidding for 16 blocks (*Annexure-XXVII*) acquired under NELP I to NELP VI rounds, the Company had the data of 2D survey of 99,074 LKM, 3D survey of 450 SKM as well as data of 52 wells drilled, of which 45 wells were dry (*Annexure XXVIII*). The Company also had identified 89 prospects and 33 prospective leads in these blocks and had bid for these blocks after analysing their prospectivity, the project economics and MWP involved.

Audit observed that after acquisition of these blocks, the Company incurred an expenditure of Rs. 1,632.48 crore during 2004-05 to 2007-08 on surveys, drilling of wells etc. However, it could not make hydrocarbon discovery in any of the blocks and surrendered/proposed to surrender 10 blocks after incurring an expenditure of Rs. 1,461.36 crore (2004-05 to 2007-08) on the ground that the blocks were not prospective though the Company had bid for these blocks after analysing their prospectivity.

#### **8.7.1.3 Non completion of Minimum Work Programme leading to payment of penalty**

In the Minimum Work Programme (MWP) of Phase I of nine NELP blocks (*Annexure XXVII*), the Company committed to drill 28 wells besides acquisition, processing and interpretation (API) of 2D/3D seismic data on or before March 2009.

Audit observed that the Company could drill only seven wells leaving a shortfall of 21 wells in nine blocks. Consequently, the DGH raised a demand for Rs. 309.44 crore as liquidated damages, of which the Company had since paid Rs. 68.80 crore as of September 2009.

The Management stated (November 2009) that Phase I is primarily meant for data acquisition. In respect of the nine blocks commented upon, the entire Phase I period was consumed mainly for API of 2D or 3D surveys and the wells committed could not be completed, due to reasons beyond its control.

The reply is not tenable as the Phase I commitments in nine blocks included data acquisition as well as drilling of exploratory wells (one well each committed in four blocks and three to eight wells committed in the five blocks) which were not fulfilled. Further, the delays were avoidable as brought out in the subsequent paragraphs<sup>11</sup>.

#### **Recommendation No. 8.1**

*To avoid surrender of nomination blocks without fully exploring their prospectivity, the Company should complete exploration activities in a time bound manner as re-grant for these blocks would not be available beyond the current re-grant cycle as per MoPNG Directive of 2002.*

### **8.7.2 Acquisition, Processing and Interpretation of seismic data**

Geophysical survey - the prime activity in exploration of hydrocarbons is carried out both in nomination and NELP blocks wherein 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. Phase-wise MWP for the NELP

<sup>11</sup> Paragraph No. 8.7.2.1, 8.7.2.2, 8.7.2.2(iii), 8.7.2.3, 8.7.2.5, 8.7.3.3 (i) and 8.7.5.2



blocks under Production Sharing Contracts (PSCs) and the work commitments for the nomination blocks stipulated targets for acquisition of seismic data.

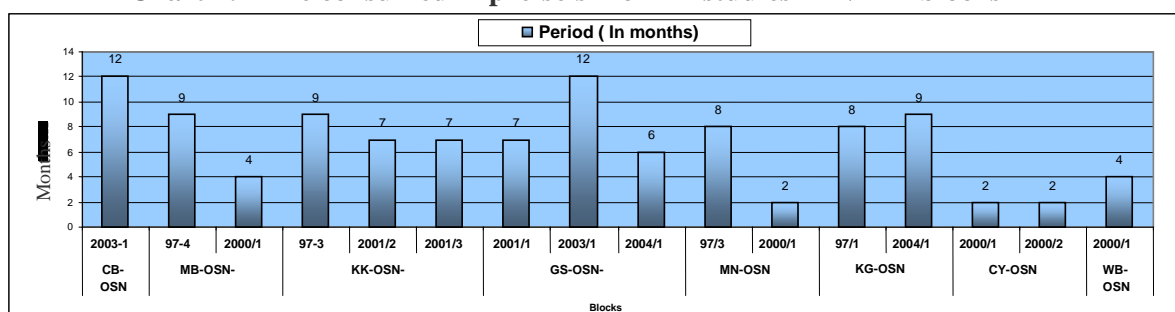
### 8.7.2.1 Time taken for pre-seismic Environment Impact Assessment (EIA) Studies

As per article 14.5 of the PSCs, the Company was required to carry out pre-seismic EIA studies before commencement of seismographic or other surveys. Pre-seismic EIA studies were assigned to National Environmental and Engineering Research Institute (NEERI)<sup>12</sup>.

Audit observed avoidable delays of upto eight months from the date of award of the blocks in issuing work orders to NEERI to get the pre-seismic EIA studies conducted. The **Chart 8.1** given below shows the time taken by the Company towards conducting pre-seismic EIA studies in 16 NELP shallow water blocks:

Chart 8.1

Chart 1: Time consumed in pre-seismic EIA studies in NELP blocks



In five NELP blocks, Phase I was for two years and in respect of 11 blocks it was three years within which the Company had committed API of seismic data and drilling of exploratory wells.

Considering that in Phase-I, the major time required was for API of seismic data followed by identification/release of locations and, in some cases drilling of wells, ideally the EIA studies should be completed within a reasonable time from the date of award of a NELP block. However, the Company took 2 to 12 months for conducting pre-seismic EIA studies. The references for the studies were made to NEERI with delays upto eight months from the date of award of the blocks. Thus, in 7 of the 16 blocks, EIA studies alone took 8 to 12 months which impacted adversely the time available for API of seismic data.

The Management assured (November 2009) that necessary care would be taken in future to avoid unreasonable delays.

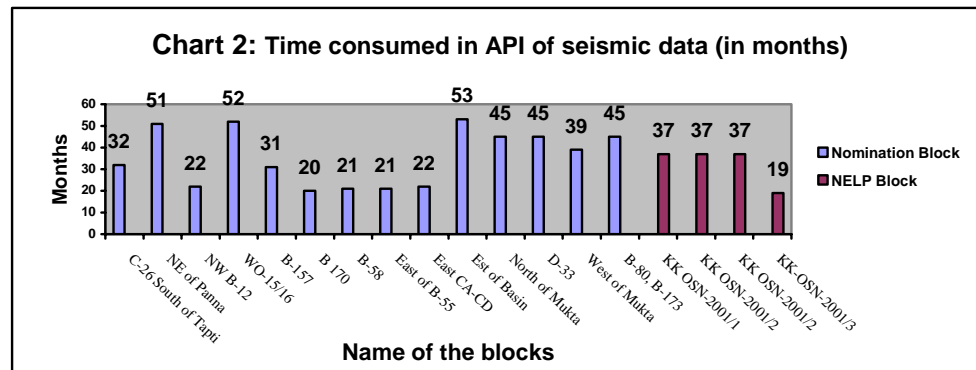
### 8.7.2.2 Delay in completion of API cycle

Acquisition, processing and interpretation (API) of seismic data is a crucial activity in petroleum exploration process as subsequent exploration activities for achievement of MWP/work commitments in the exploratory blocks depend on timely completion of API of the data and results thereof. API cycle includes planning also and the cycle ranges between three and ten months in offshore.

<sup>12</sup> NEERI is a Government agency to conduct such surveys in India.

Audit reviewed the time taken for API cycle in respect of 14 prospects in nomination blocks and four in NELP blocks and observed that the actual time taken by the Company varied from 20 to 53 months in case of nomination blocks and from 19 to 37 months in case of NELP blocks as can be seen from the following **Chart 8.2**:

**Chart 8.2**



Audit further observed that the Company had not fixed any norms for each stage of the API cycle in offshore in the absence of which the reasonableness of the actual time taken could not be ascertained in audit. Audit observations relating to API cycle are discussed in the succeeding paragraphs.

The Management assured (December 2009) to review the feasibility of formulating basin specific norms for the API cycle.

**(i) Relinquishment of prospective block due to delay in reprocessing and interpretation of data**

B-142 nomination block was granted to the Company in April 1991. The first re-grant was allowed for an initial period of four years extendable by two years upto 21 April 2003. During the extended period, the Company carried out interpretation and special processing of the existing 2D data acquired before 1997 and studies around the identified prospects. Two wells drilled during 2000-02 indicated presence of hydrocarbon. The Company obtained (22 April 2003) second re-grant for four years and planned for acquisition of 3D data in 2004-05. However, the data was acquired only during the fourth year (2006-07) of the second re-grant by Q-marine technology. One location was released for drilling on 4 February 2008. The well (B-17-B) on the location was originally planned to be drilled by a jack up rig which was changed (January 2008) to a floater rig after soil investigation<sup>13</sup>. By the time the floater rig could be deployed, fifth year of the re-grant period expired (21 April 2008). On the request (September 2008) of the Company, the MoPNG agreed for extension upto 21 December 2008. The well drilled (September 2008 to November 2008) was found to be dry. As there was no discovery in the current re-grant cycle (though in earlier re-grant cycle there was an indication of hydrocarbon), the Company had to surrender (18 February 2009) the block on the direction of DGH.

Audit observed that the Company took more than three years (April 2003 to 2007) in interpretation and re-processing of 2D data which resulted in surrender of the block.

<sup>13</sup> Study for determining the physical strength of soil for deploying the rig.

Therefore, due to delay in acquisition of 3D survey and slow progress of activities, a prospective block had to be surrendered after incurring an expenditure of Rs. 65.64 crore.

The Management stated (November 2009) that the Q-marine technology had been available since 2005. After its induction in other high priority areas, the same was introduced in the block in the field season 2006-07. This delay was also allowed by MoPNG and extension upto 21 December 2008 was granted.

The reply is not satisfactory as the Company was aware that the extended validity of the block was expiring in April 2008 and, hence, should have prioritised the acquisition of Q-marine data to pursue the leads obtained in October 2001. Though one well could be drilled in the extended period, the Company could not identify and drill any other location in the block during the re-grant period of five years to pursue the leads.

**(ii) *Slow exploratory efforts in the Kutch I A and B block despite obtaining hydrocarbon leads in an adjoining block***

Kutch I A&B block was granted (6 June 1998) to the Company for four years upto 5 June 2002 followed by two extensions of one year each. On the basis of hydrocarbon leads obtained in an adjoining block viz. Kutch block extension where a gas well produced 28197 cubic metre of gas per day, the Company carried out interpretation and re-interpretation of the existing 2D data in Kutch I A&B block during 1998-2003 to probe Mesozoic<sup>14</sup> sequence. The Company also acquired additional 2D data in Mesozoic sequence and 140 SKM of 3D data during 2003-04 and applied (April 2004) to MoPNG for re-grant to explore the area further. An Internal Report<sup>15</sup> recommended (May 2005) acquisition of long offset data (10 kilometers or more) to get a better picture of the Mesozoic sequence. The Company, however, took two years to implement the recommendation and placed LOA in September 2007 for acquisition of 2D long offset data. As a result, only acquisition and processing of data could be completed till June 2009. Meanwhile, the Company applied (March 2009) for extension of the block for the sixth year. The MoPNG was yet (November 2009) to grant the extension for the block. Validity of the block would expire in June 2010.

Audit observed that the Company took four years in acquiring 2D long offset data to explore the Mesozoic sequence. Due to delay in acquiring 2D long offset data, the time left to probe the Mesozoic sequence was extremely short. Further, in view of slow progress of the exploratory efforts, the Company could not generate prospect in the block even after retaining the block for more than 10 years. The Company spent Rs. 52.50 crore in this block during 2004-08 and in case no discovery is made, it has to relinquish the block as per MoPNG directive 2002, without exploring the Mesozoic sequence.

The Management stated (November 2009) that 2D long offset seismic survey (5,230 LKM) was awarded in 2004-05 which, however, did not materialise due to non-mobilisation of vessel by the contractor.

The reply does not address the delay of two years in awarding the contract and the slow progress in exploration as validity of block will expire by June 2010.

---

<sup>14</sup> *Mesozoic refers to the rocks/strata deposits during the time period between 240 to 66 million years ago.*

<sup>15</sup> *Internal Report on "Evaluation of Strati-Structural Prospects for Paleogene and Mesozoic sequences in Gujarat Kutch (GK) 28-41 Area (December 2004) and GK-3 area (May 2005)".*

(iii) Two blocks, KK-OSN-2001/2 and KK-OSN-2001/3, were awarded to the Company under NELP-III round with effect from 12 March 2003. In February 2006, the Company sought permission for extension of Phase I of MWP on the ground that available data from the already drilled wells in the area had cast doubts on the efficacy of the petroleum system in tertiary sediments and acquisition of 2D long offset data for probing the Mesozoic sequence was planned. The Company could not acquire the planned long offset seismic data for probing the Mesozoic sequence upto 10 August 2006 and sought another extension of Phase I after payment of Rs. 11.56 crore to the DGH.

Scrutiny in audit revealed that based on the wells drilled in this area, the Company had conducted a study in 1996 which indicated absence of source rock in the tertiary sediments. Despite having sufficient data for the area, the Company committed acquisition of the conventional 2D seismic data of 1,000 LKM in the block instead of 2D long offset data. Though the Company had awarded two contracts for acquisition of the long offset 2D data in 2004-05 and 2007-08, the requirement of acquisition of data in KK shallow water was not included in either of these contracts. Therefore, the Company had to seek second extension in Phase I till March 2007 after payment of LD of Rs. 11.56 crore in October 2006. The blocks were in possession of the Company till September 2009 when KK-OSN-2001/2 block was surrendered.

The Company did not make any efforts to induct the technology till September 2007 when it awarded a contract for induction of 2D long offset seismic data technology even though it had sought extension on the ground of its plans for induction of the technology in the blocks and paid LD.

The Management stated (November 2009) that the long offset technology was a new concept and its efficacy was unknown at the time of planning 2D data acquisition in this block. Further, Phase I of these blocks had expired by March 2007 with two extensions of six months each and, therefore, no provision was kept for long offset data while planning long offset survey in 2007-09.

The reply is not satisfactory as in September 2007 the blocks were valid and could have been included in the contract awarded for 2D long offset. The reply also does not explain the reasons for committing of acquisition of 1,000 LKM of conventional 2D data in Phase I even though inadequacy of this type of data in probing the Mesozoic sequence was known.

### **8.7.2.3 Delays due to tendering processes**

As per the Company's Material Management Manual, the tender was to be finalised within 120 days for placement of Letter of Award (LOA). Sixty days were allowed for mobilisation of vessels. Considering the fair weather season from October to May and 60 days for mobilisation of the vessel, the tenders were to be finalised latest by the end of July each year. Audit observed that due to delay in finalising the tenders, the vessels could not be mobilised in time and the Company lost the fair weather season as discussed in the succeeding paragraphs:

(i) The proposal for acquisition of 3D data for the NELP blocks (GS-OSN-2001/1, KK-OSN-2001/2 and KK-OSN-2001/3) was approved on 21 May 2003. The tender was floated on 29 July 2003 and the LOA issued on 5 November 2003 *i.e.* after one month of the start of fair weather season. The contractor commenced work on 13 January 2004

after taking 60 days for mobilisation. Thus, the Company lost three months of fair weather season due to delay in finalisation of the tender. Further, due to bad weather conditions the acquisition work in block KK-OSN-2001/2 suffered and the work was suspended due to onset of monsoon. The Company obtained two extensions of six months each in this block by paying a penalty of Rs. 5.68 crore.

The Management stated (November 2009) that the tender was finalised on highest priority and the LOA was issued at the earliest.

The reply is not tenable as the tender was floated in July 2003 and LOA was awarded in November 2003. Hence, the contractor could commence work only in January 2004. As the Company was aware that the field season begins from October, the LOA should have been placed well in time so as to allow the contractor to commence work by availing the full field season.

(ii) M/s. Viking Maritime (contractor) submitted (25 October 2005) a proposal to carry out 3D seismic survey in the B-12-B area and West of Mukta in Bombay offshore 1/2/3 block. The Company took three months to analyse this proposal and asked the bidder to resubmit the proposal considering the streamer length of 6,000 metres for B-12-B and 5,000 metres for West of Mukta. The bidder submitted (24 February 2006) the technical details of two streamers, each of 4,950 metres length and proposed to complete the work by February 2007. The Company, however, placed the order on 12 April, 2006 with streamer length of 6,000 metres and 5,000 metres. The contractor informed that its offer was only for 2 X 4,950 metres which was valid upto 23 June 2006. The Company revised the streamer length to 5,000 metres and placed the revised order only on 23 August 2006, which was declined by the contractor due to expiry of the validity of the offer. Consequently the acquisition of the 3D data was delayed by one year as the Company got the work carried out through two different contracts during 2006-07.

The Management stated (November 2009) that the data was subsequently acquired for area B-12-B without extra expenditure.

The reply is silent regarding the lapse of the Management in overlooking the technical specifications submitted by the contractor and the consequent delay in acquisition of data.

#### **8.7.2.4 Delays in acquisition of data due to splitting up of order for hiring of survey vessels**

Instructions issued (April 2002) by the Company stipulated that for a given description/specification of work, a single consolidated tender be floated. Audit, however, observed that the instructions were not followed while hiring services for acquisition of seismic data through advanced technologies viz. Ocean Bottom Cable (OBC) and Q-marine mode for acquisition of 3D seismic data as discussed in the succeeding paragraphs:

(i) M/s Western Geco (contractor) offered (26 July 2004) Q-marine vessels for hiring on a long term basis for seismic surveys for one to three field seasons at US\$ 7.5 million per month with two *per cent* discount. The Company took ten months (till May 2005) to form a Committee to review the proposal. The Committee recommended (29 June 2005) for hiring of the vessels. After one year from the date of offer, the Company placed first LOA on 14 August 2005 on the contractor for one vessel each for field seasons 2005-06 and 2006-07 and second LOA on 26 August 2005 for another one vessel for field season

2005-06. Within a gap of nine months, the Company also placed (9 June 2006) a third LOA for one vessel for field season 2006-07 at higher rate (US \$ 8.75 million per month).

Audit observed that the Company failed to firm up the requirement for Q-marine survey though it took one year to finalise the proposal. Moreover, the blocks awarded for the field season of 2006-07 were available at the time of awarding the second LOA and could have been clubbed with the first two LOAs. Thus, failure of the Company to firm up the requirement at the time of finalising the contract resulted in an extra expenditure of Rs. 40.32 crore<sup>16</sup>.

The Management stated (November 2009) that as the Q-marine technology was totally new and to test its efficacy it was initially deployed in areas where conventional surveys had been done or discoveries had been made. The effectiveness of Q-marine technology could be established only after a certain period of time.

The reply that efficacy needed to be tested is not tenable, as the Company had been deploying the Q-marine technology in the blocks where conventional 3D data acquisition had not been done. It placed an order for three vessels in August 2005 which did not justify that order was for testing the efficacy. Moreover, the order placed in June 2006 was for only one vessel which could have been clubbed with that of August 2005.

(ii) The Company proposed (May 2004) acquisition of 1,176 SKM of 3D seismic data through OBC mode in the block Bombay offshore 1/2/3 block (covering North Mid-Tapti (NMT) and Navasari-Low) and ED-A during 2005-06. The Company awarded (July 2007) a contract for carrying out survey in NMT area and ED-A block at the rate of US \$ 84,844 (Rs. 34.17 lakh) per SKM and awarded (October 2008) the work relating to Navasari Low to the same contractor at the rate of US \$ 97,962 (Rs. 47.63 lakh) per SKM after a gap of more than a year. Audit observed that splitting of work into different contracts not only resulted in delay in acquisition of data in Navasari Low area by one year but also resulted in an extra cost of Rs. 25.07 crore<sup>17</sup>.

The Management stated (November 2009) that Navasari Low area was having stronger currents making the survey very difficult. The Management added that NMT area and ED-A block were included in one tender for likely acquisition of data in one field season and the contractor was not paid any de-mobilisation charges for Navasari Low area in the new contract.

The reply is not tenable as the audit observation related to splitting up of the requirement for similar description/specification of work and for floating a single consolidated tender, which has not been addressed by the Management. The extra expenditure of Rs. 25.07 crore could have been avoided by clubbing the requirement in July 2007.

#### **8.7.2.5 Data security**

DGH suggested (July 2005) reprocessing of 3D data of two locations viz. GMIO-3 and GS-OSN-A of GS-OSN-2001/1 block. However, the data tapes including the back up kept in the Panvel library were soaked due to the floods (July 2005) in Mumbai.

---

<sup>16</sup> US\$ 8,750,000 – (US\$ 7,500,000 minus 2 per cent discount) x 6 months x Rs.48/US\$.

<sup>17</sup> US\$ 97962 – US\$ 84844 x 393 x Rs.48.62/US\$=Rs.25.07 crore.



Audit observed that the Company lost four months in retrieval and reprocessing of data which had a cascading effect on drilling of four wells committed in the MWP of this block. As a result, the Company had to seek an extension of six months and the remaining work of drilling of four wells could be completed after payment of LD of Rs. 15.26 crore for obtaining two extensions of six months each.

The Management stated (November 2009) that the suggestion of audit regarding the storage of data tapes at two geographically different locations in Mumbai will be followed in future.

#### **8.7.2.6 Release of locations**

The locations are proposed by the concerned Basins<sup>18</sup> considering various aspects such as interpreted seismic data, data obtained from the wells drilled in the nearby areas and reports of the outside consultants/experts, if any. The prospect of the location is presented to the Regional Exploration Review Board (REXB)<sup>19</sup> and, if found suitable, recommended to the Director (Exploration) for release. Audit observed that the recommendations of the consultants were not given due consideration and locations were released despite adverse recommendations as discussed below:

(i) The Company appointed (December 2005) an independent consultant (M/s. K.K.Howes), for evaluation of the Kerala Konkan offshore area who observed (May 2006) that 'source rock' was the critical risk in the area followed by 'seal and trap' and that no drillable prospects were seen in KK-OSN-2001/2 and KK-OSN-2001/3 blocks. Despite the observations made by the consultant, the Company released (26 December 2006) a location in the block which was drilled (December 2008 to March 2009) at a cost of Rs. 143.02 crore but found to be dry mainly due to absence of interesting zones from hydrocarbon point of view and lack of source rock.

Audit observed that all the previous wells drilled in KK basin were found to be dry and had indicated absence of source rock in the tertiary sequences of the area. Therefore, the decision to release the location even after the adverse recommendations of the domain expert resulted in an unfruitful expenditure of Rs. 143.02 crore.

The Management stated (November 2009) that recommendation of the consultant regarding '*no immediate drillable prospect*' needs to be understood in the light of the fact that it was required to be bolstered with 3D data acquisition prior to any drilling.

The reply is not tenable as recommendation of the consultant for 3D data acquisition prior to drilling was for deep water areas and not for shallow water area. Further, the consultant had clearly stated that '*given the limited prospectivity of the area, exit strategy should be considered*'.

(ii) The Company engaged (September 2005) a consultant (M/s. Steve King) for an independent acreage appraisal as well as to review two identified locations (RRPA and RRPB) in MB-OSN-97/4 block. The consultant advised that the identified prospect areas suffered from lack of well defined reservoir and, consequently, had low probability of geological success. Despite the adverse recommendations, the Company drilled (October

---

<sup>18</sup> Basin is also referred to as an organisational unit engaged in exploration activities.

<sup>19</sup> REXB consists of experts from the Company's basins and its internal institutes viz. (i) Geo-data Processing and Interpretation Centre and (ii) Keshava Dev Malviya Institute of Petroleum Exploration at Dehradun.

2006 to December 2006) the location RRPA at a cost of Rs. 27.02 crore. The well was found to be dry. The main reason for the well being dry as given in the well completion report (WCR) was non existence of reservoir facies<sup>20</sup>, was the same as predicted by the consultant prior to drilling of the well.

Audit observed that though the recommendations of the consultant were discussed (January 2006) in the proposal submitted by the Region for release of location, the specific observation of the consultant that *'the two identified prospect areas appeared to suffer from a lack of well defined reservoir interval and as a consequence, had low probability of geological success'* was not included in the proposal.

The Management stated (November 2009) that the comments of the consultant related only to the generality of reservoir development and low probability of success. Further, no predictive tool existed for assessment of any elements of hydrocarbon accumulation.

The reply of the Management is imprecise as the consultant was specifically appointed to review the identified prospects and had stated that *'the two main prospects which were reviewed are considered to be high risk'*.

**Recommendation No. 8.2**

***The Company should:***

- (i) Determine the average API cycle time for each basin and monitor its adherence to ensure completion of the API cycle.***
- (ii) Initiate the tendering process in advance so that the survey vessels could be hired and deployed at the beginning of the fair weather season.***
- (iii) Observe its internal instructions relating to floating of a single consolidated tender for similar description/specification of work.***
- (iv) Initiate the process for pre-seismic EIA studies immediately after award of the blocks and also frame norms to ensure their timely completion.***

**8.7.3 Drilling of exploratory locations**

Annual Plan (AP) of the Company specifies the drilling targets for each basin. Annual Plan includes the number of locations to be drilled along with drilling meterage. On the basis of the AP, rig deployment plan (RDP) is prepared for each basin taking into account the MWP/work commitments in NELP/nomination blocks and availability of suitable drilling rigs. The RDP is signed between the Head- Drilling Services and the concerned Basin Manager so as to ensure availability of services as scheduled. To achieve the drilling targets, the Basin enters into service level agreement (SLA) with the service providers' viz. Drilling Services, Cementing Services, Logistic Services, Well Services, Mud Services, etc. for planned mobilisation of drilling resources.

Audit observed that there were delays in signing of RDPs and SLAs and in some cases these were not even signed by the concerned parties.

The Management assured (November 2009) to make all efforts to sign SLAs and RDPs in time.

---

<sup>20</sup> *The overall characteristics of a rock unit that reflect its origin and differentiate the unit from others around it.*

### 8.7.3.1 *Planned vis-à-vis actual drilling*

The basin-wise approved drilling programme indicating number of locations planned for drilling as per AP/RDP and actual locations drilled in shallow water areas for the period from 2004-05 to 2007-08 are given in *Annexure XXIX*. As seen from the Annexure, there was substantial shortfall in drilling activities. As against 128 locations and 130 locations planned for drilling as per AP and RDP respectively, only 76 locations were drilled by the Company resulting in a shortfall of 41 *per cent* in drilling.

### 8.7.3.2 *Mismatch between plan for drilling and availability of rigs*

The Company prepared basin-wise annual plan for deployment of rigs for the locations to be drilled keeping in view the work commitments under NELP and nomination blocks. For attaining the targets of drilling, it is necessary to assess availability of rigs correctly taking into account the owned rigs and make up the deficiency timely through hiring. However, audit observed mismatch between the rig deployment plan (RDP) and actual availability/deployment of rigs as discussed below:

(i) The Company planned drilling of one ultra shallow water location (NMT-A) during 2004-05, two high pressure high temperature (HPHT) locations (D-33 and B-12-O) in 2006-07 and two ultra shallow water locations (C-1-D and NMT-C) during 2007-08 in Bombay Offshore 1/2/3 block. These locations could not be drilled for want of HPHT and ultra shallow water rigs.

(ii) As per the work commitments in MBA basin, the Company was to drill 12 locations in three blocks<sup>21</sup> from July 2001 to August 2008. Audit observed that the Company invited the tender in July 2002 for hiring of one HPHT rig. Against the contract awarded in November 2004, the rig was mobilised in March 2005.

However, RDP of the basin for 2004-05, prepared in July 2003, considered availability of two rigs, though contract for the rig was awarded in November 2004 and no rig was likely to be available by the end of 2004-05. In the absence of the rig, the Company could not complete the MWP in time.

The Management accepted (November 2009) the above observations (i) and (ii) and assured that planning for induction of specialised rigs would be undertaken in future after due understanding of their deployment in other basins.

(iii) The Company planned drilling of four locations in KG Basin with rig 'Aban-II' during 2006-07, considering availability of the designated rig upto March 2007. The fact that the rig contract was valid only upto 4 November 2006 was overlooked which resulted in non-drilling of two locations.

The Management stated (November 2009) that it was aware of the rig contract validity and proposed (October 2004) to hire a mat supported rig for KG offshore.

The reply did not explain the basis on which availability of Aban II rig was considered in the RDP upto March 2007 when the contract was valid upto November 2006.

(iv) In MN-OSN-97/3 block, the Company availed of extensions of 18 months till 25 November 2006 to complete MWP of Phase II. These extensions were set off from Phase III (26 November 2006 to 18 May 2007) wherein the Company had committed drilling of

---

<sup>21</sup> *WB-OSN-2000/1, MN-OSN-97/3 and MN-OSN-2000/1.*

one well upto the target depth (TD) of 4,500 metres. The Company instead proposed to drill two wells MN-OS-J (TD 1,000m) and MN-OS-I (TD-2200m) and applied (6 February 2007) to the MOEF for EC which was granted on 15 May 2007. The above two locations were spudded on 25 May 2007 and 14 August 2007 respectively and completed on 21 June 2007 and 22 September 2007 respectively. The Company sought extension of 99 days as excusable delays (6 February 2007 to 15 May 2007) *i.e.* the period between application date for EC and the date on which the clearance was given to the Company due to delay in grant of EC. The matter was pending with MoPNG for decision (September 2009).

Audit observed that the Company did not have the rig to drill these two locations within the limited time of six months available under Phase III and the rig 'Nordic' was available with the Mahanadi basin only from 19 May 2007.

The Management stated (November 2009) that the Company had requested for 99 days' extension as excusable delay. Thus, Phase III in MN-OSN-97/3 block would get extended from 25 May 2007 to 1 September 2007.

The reply is not tenable as the permission of MOEF was received within the period of 120 days specified in the PSC, based on which the wells were drilled. Therefore, the contention of the Management regarding non-receipt of formal EC does not hold good. The reply was also silent on non-availability of the rig.

(v) MN-OS-G location in MN-OSN 97/3 block was released on 16 August 2005 and was planned to be drilled by the rig 'Sagar Vijay' which was drilling locations in KG basin. Thereafter, the rig was to be sent for dry dock in November 2005. In the absence of rig 'Sagar Vijay', the Company decided to drill the location by rig 'Nordic' which was released for the location on 23 February 2006. The rig, however, could move only on 21 May 2006 due to stuck up of leg. Meanwhile, due to disagreement with DGH regarding payment of LD for the extensions of exploration phase as per the Extension Policy of 2006, the Company postponed drilling of MN-OS-G location and decided to move the rig to KG basin to drill the unplanned location YSAF.

Decision of the Company to move the rig to YSAF was taken without assessing the suitability of the rig for its deployment. The rig was under movement from 3 June 2006 till receipt of soil investigation report (13 June 2006). Based on the soil investigation report, the surveyor rejected (15 June 2006) the proposal of deployment of the rig at YSAF. By the time, the Company had incurred an expenditure of Rs. 23.53 crore<sup>22</sup> on the movement of the rig to YSAF. The Company decided to move the rig back to the location MN-OS-G. This proposal was also not agreed to by the surveyor due to onset of monsoon and non availability of shelter location. The rig was again kept waiting (14 June 2006 to 20 June 2006) at an intermediate location. The Company decided (20 June 2006) to move the rig to another location GS-15-DA in the KG Basin. The rig was kept waiting at the intermediate location for 14 days (23 June to 6 July 2006) as the sea bed survey was in progress. As a result, the Company incurred an expenditure of Rs. 5.75 crore<sup>23</sup> on idling of the rig.

The Company could finally spud the location GS-15-DA on 25 August 2006. Meanwhile, DGH informed (24 August 2006) regarding expiry of the contract (18 November 2005)

---

<sup>22</sup> *Rig hire charges (25 May 2006 to 20 June 2006) and other associated expenditure.*

<sup>23</sup> *US\$ 70515 x 17 days, US\$ =Rs 48.*

and directed the Company to pay penalty equivalent to the cost of the unfinished work programme. To avoid relinquishment of the block, the Company paid the penalty of Rs. 19.48 crore towards extensions of exploration phase and moved the rig back to MN-OS-G by temporarily abandoning the location GS-15-DA (5 September 2006). The location MN-OS-G was spudded on 25 November 2006 and drilling was completed on 9 February 2007.

Audit observed that the decision to drill the location MN-OS-G by rig 'Sagar Vijay' was incorrect as the Company was aware of the fact that during June to September 2005, the rig was to drill two locations in KG Basin and was due for scheduled dry dock in November 2005. Further, the rig 'Nordic' was diverted to KG Basin to drill an unplanned location, without assessing the suitability for drilling which resulted in an unfruitful expenditure of Rs. 29.28 crore.

The Management while agreeing that the rig 'Nordic' could move to the location MN-OS-G only on 21 May 2006 due to stuck up leg, stated (November 2009) that the rig 'Sagar Vijay' was utilised for drilling one location in KG basin. However, considering the mandatory dry dock repairs and critical time-schedule for drilling of location MN-OS-G, it was decided to deploy the rig 'Sagar Vijay' in KG basin. Further, the well could not be drilled due to disagreement with the DGH regarding the payment of penalty for the extension of exploration phase. As substantial investment had been made for generating the location, the Company was of the view that third extension of six months might be allowed for drilling by the DGH.

The reply is faulty as the rig 'Sagar Vijay' was never planned to be deployed for the block MN-OSN-97/3 but was to be deployed in KG basin. The decision to oppose the terms of Extension Policy of 2006 was also injudicious considering the fact that the MoPNG had introduced the Extension Policy only after due consideration of the constraints brought out by various operators. At the same time, the Company had availed of the benefit of excusable delays in respect of blocks for which extensions were pending during formulation of Extension Policy.

Thus, improper planning in deployment of rig led to avoidable movement of the rig, thereby incurring an unfruitful expenditure of Rs. 29.28 crore.

#### **8.7.3.3 Drilling of wells after expiry of the contract period**

(i) In WB-OSN-2000/1 block, drilling of four wells besides acquiring of seismic data was committed by the Company in Phase I. However, due to delay in hiring of a rig, an extension of 18 months upto 29 January 2006 was availed of in Phase I. The first well (WB-OS-1) was spudded in March 2005 and completed in February 2006.

As there was a delay in grant of EC and in communication of excusable delay related thereto, another extension of 285 days (upto 10 November 2006) with special dispensation for 164 days (17 September 2007 to 27 February 2008) was granted by the MoPNG. The Company conveyed a meeting (23 September 2007) with the drilling contractor and warranty surveyor for identifying rigs for the remaining three locations wherein the surveyor communicated that the rig could be deployed only during January 2008 to April 2008.

As the Company had only two drilling months to drill three locations, it diverted two rigs from KG basin so as to undertake the drilling operation in the block. The first location

was drilled during the period from 30 January 2008 to 11 February 2008 and the second location was spudded on the last day (27 February 2008) of the extended Phase I. The Company applied (12 April 2008) for merger of Phase I and Phase II under the Merger Policy (*Annexure-XXV*) and spudded the well in third location on 13 April 2008 *i.e.*, after expiry of the contract period. The MoPNG rejected (16 January 2009) the merger proposal and directed the Company to pay the LD of Rs. 194.75 crore towards the cost of unfinished work programme and relinquish the block with effect from 27 February 2008. The block was surrendered on 28 February 2008 without paying LD. DGH asserted<sup>24</sup> (November 2009) that the Company was liable to pay the damages.

Audit observed that the Geological and Geophysical (G&G) study of the block was completed by April 2003 and the Company had also obtained (December 2003) a second opinion from an expert on the prospectivity of the locations. The two locations were, however, released (12 September 2006) nearly after three years and the remaining one location was released in January 2008.

The Management stated (November 2009) that the two locations were released in 2006 after considering the complications of the first well, special processing/reinterpretation of data and review of the same by the consultant. These locations were, however, rejected (14 January 2008) by the Kolkata Port Trust, which compelled the Company to release substitute location. Accordingly, the location WB-OS-09 was released on 28 January 2008 (before the expiry of special dispensation period) and the Geo Technical Order was issued on 7 April 2008.

The reply is not tenable as the Company took three years to release the locations after G&G studies (April 2003) by which time all the four locations should have been drilled. Due to delay in release of WB-OS-09 location, the well was drilled after expiry of the extended contract period. The reply is also inaccurate as the Company had applied to the Kolkata Port Trust only on 9 January 2008.

Thus, failure to release the locations on time resulted in non completion of MWP within the contract period.

(ii) The Company carried out MWP under Phase I of KG-OSN-97/1 block within the stipulated period. During Phase II, the Company availed of six months extension (19 May 2005 to 18 November 2005) to drill one committed well. As no significant zones of interest were observed, the well was abandoned without testing. The Company again requested for a second extension of six months under Phase II to carry out additional G&G studies which were not committed under MWP. The DGH, however, sought 100 *per cent* bank guarantee and 10 *per cent* LD for the unfinished work as per the Extension Policy of 2006. The Company did not agree to it and entered into Phase III (5 July 2006 to 4 January 2008). Meanwhile, the MoPNG allowed the time lost between 19 November 2005 and 4 July 2006 as excusable delay, being the time taken for formulating the Extension Policy 2006, without setting it off from the Phase III.

The Company released the location in August 2007 and the well was spudded on 3 January 2008 *i.e.* one day before expiry of the contract period. As no significant zones of interest were observed, the well was abandoned and the block relinquished (31 March 2008) after incurring an expenditure of Rs. 85.73 crore. Since the Company had carried out the drilling activities beyond the contractual period stipulated in the PSC, it requested

---

<sup>24</sup> *Economic Times of 16 November 2009.*



(January 2008) for extension in Phase III (upto 31 March 2008). The extension had not been accorded by the MoPNG till September 2009.

Audit observed that the Company took 20 months (from December 2005 to July 2007) for carrying out additional G&G studies, as against the envisaged time of six months. Hence, it was not able to complete the MWP within the contract period.

The Management stated (November 2009) that the Company had initially disagreed with the conditions of Extension Policy of 2006 and request for extensions of Phase III was made to allow completion of drilling as per the provisions of Article 3.6 of PSC. The Management also stated that G&G studies were conducted by utilising extension of time (November 2005 to July 2006) and MWP commitments were completed within the provisions of PSC.

The reply is not tenable as the time taken for G&G studies was 20 months against the six months envisaged and the extension of time granted by DGH from November 2005 to July 2006 was for drilling of location and not for G&G studies. The applicability of Article 3.6 of PSC was for extension within the exploration phases and not beyond the contract period. Further, as per Article 3.9, the PSC would be terminated if no commercial discoveries were made by the end of the contract period.

#### **8.7.3.4 Non productive rig time**

As per the service level agreements, the target for rig down time was fixed at less than 10 *per cent* of actual rig availability during the year. The details of the productive and non-productive time of rigs for the period from 2004-08 are given in **Annexure XXX**.

Audit observed that during the period from 2004-05 to 2007-08 the non productive time was much higher (30.50 *per cent* of available rig time) than the internal norm of the Company. Audit also observed that as per the International standard the norm for non-productive time is less than five *per cent* (excluding complications it is less than three *per cent*).

The Management stated (November 2009) that all efforts are being made to reduce the non productive time.

#### **Recommendation No. 8.3**

##### ***The Company should:***

- (i) Ensure timely signing of rig deployment plans and service level agreements for effective utilisation of drilling resources.***
- (ii) Ensure availability of suitable rigs while finalising the rig deployment plan.***
- (iii) Release the locations on time considering the commitments scheduled in the PSC.***
- (iv) Ensure soil investigation prior to rig movement.***
- (v) Ensure reduction of non productive time by better coordination among the various service providers.***

**8.7.4. Reserve Accretion**

The Company fixed targets for reserve accretion for the basin as a whole including onshore, shallow and deep water areas. The position of reserve accretion targets (initially in place) projected by the Company and actual reserve accretion thereagainst during the 10 Five Year Plan (FYP) and 2007-08 in respect of five basins is given in the following **Table 8.2:**

**Table 8.2**  
**Position of reserve accretion during 2002-03 to 2007-08**

*(Units in Million Metric Tonne Oil Equivalent (MMTOE))*

Name of the basin	Projections by the Company		Actual accretion		Percentage of achievement	
	X Plan	2007-08	X Plan	2007-08	X Plan	2007-08
Western Offshore basin	302.00	60.50	261.15	71.54	86.47	118.25
Krishna Godavari basin	64.00	22.50	109.93	13.83	171.77	61.47
Cauvery basin	26.00	5.50	29.10	2.00	111.92	36.36
Mahanadi-Bengal-Andaman (MBA) basin	0.00	8.00	0.00	0.00	0.00	0.00
Western Onshore basin	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>392.00</b>	<b>96.50</b>	<b>400.18</b>	<b>87.37</b>	<b>102.09</b>	<b>90.54</b>

**8.7.4.1** As seen from the above table, the reserve accretion in Krishna Godavari (KG) basin exceeded the targets during the 10<sup>th</sup> FYP period. However, in 2007-08 the target could not be achieved. Audit observed that only 7.22 MMTOE could be accreted to the reserves from the shallow water blocks in this basin due to delays in API of data and drilling of locations as mentioned in preceding paragraphs 8.7.7.2 and 8.7.7.3. The Company also could not achieve the reserve accretion targets in respect of Western Offshore basin (WOB) during the 10<sup>th</sup> FYP.

The Management stated (November 2009) that reserve accretion cannot be judged on a block/basin/year specific manner and target achievement in respect of a basin should be reviewed over a longer period of time. The Management, however, agreed that the Company was not able to achieve the reserve accretion targets in WOB as there was a deliberate shift in exploratory efforts to KG basin in the light of the discoveries.

The reply is not acceptable as even in KG basin, the Company failed to achieve the drilling targets and there was a shortfall of 18 wells during 2004-08. Further, as the Company had fixed basin-wise targets, the same should have been compared for evaluating the basin-wise achievements.

**8.7.4.2** Audit also observed that no reserve accretion was envisaged in the 10<sup>th</sup> FYP in respect of three shallow water blocks of MBA basin though these blocks were with the Company since May 2000, July 2001 and August 2001 respectively. There was no reserve accretion in the 16 NELP blocks acquired by the Company through bidding in NELP round as all the wells drilled were found to be dry.

The Management while accepting that there was no reserve accretion in NELP blocks assured (November 2009) that in future the accretion targets would be fixed for the blocks in MBA basin.

#### **8.7.5 Health, Safety and Environment**

The Company had an established system of monitoring the Health, Safety and Environment (HSE) aspects. The system includes a documented policy on HSE; issue of safety alerts on each accident; internal audit of Quality Health Safety Environment audit of rigs by the Company as well as Oil Industry Safety Directorate (OISD); review meetings in respect of the minor and major accidents on a weekly basis and reporting of near misses as part of measures to minimise such incidents *etc.* The audit observations are discussed in succeeding paragraphs:

##### **8.7.5.1 Health and Safety**

The Company started giving details about the near miss accident cases from the year 2005-06 which were discussed in the weekly drilling review meetings and the same were distributed to all rigs to prevent reoccurrence. Since 2006-07, the 'Potential Near Miss' cases were also discussed.

Audit observed that though the number of accidents and 'near miss' cases had reduced, the Company could not achieve its 'goal zero' of corporate environmental management in any of the years during the period 2004-08. The details of accidents and near miss reports are given in *Annexure XXXI*. Major injury/serious injury cases occurred in all the three years. Such cases also increased from one case in 2005-06 to six cases during 2007-08. Further, 18 near miss cases were reported during the year 2005-06 on the rig 'Frontier Ice' and 11, 10 and 13 cases were reported on the rig 'Sagar Gaurav' during the years 2005-06, 2006-07 and 2007-08 respectively and 16 cases on the rig 'Sagar Bhushan' during 2007-08.

The Management stated (November 2009) that the Company is QHSE certified and had taken initiatives such as internal and external HSE audit for containing accidents.

##### **8.7.5.2 Drilling of wells without environmental clearance**

NELP block CY-OSN-2000/2 in Gulf of Mannar, Cauvery basin was granted from 16 August 2001. The Company committed acquisition of fresh 2D and 3D data and drilling of three wells in Phase I. The Company identified (May 2003) three locations (GM-6, GM-5 and GM-F-1) for drilling and submitted pre-drill EIA report to the MOEF and sought environmental clearance (EC) on 10 October 2003. MOEF denied EC on 8 November 2004. After further follow up by the MoPNG and the Company, MOEF finally granted EC on 16 September 2005.

Audit observed that the Company had, however, drilled two locations during the period February 2004 to September 2004 before the grant of EC which was in contravention of the provisions of the PSC and MOEF guidelines.

The Management stated (November 2009) that to avoid the huge cost involved in idling of offshore drilling rig, the drilling was undertaken in anticipation of the EC and that no drilling activities were carried out after denial of EC.

The reply confirms that the location was spudded before the grant of EC. The Company had, thus, violated the PSC provision.

### **8.8 Conclusion**

The Company had to relinquish prospective areas of nomination blocks due to delays in exploration and failure to pursue the leads. Exploratory efforts in the five nomination blocks which were in the last two years of exploration cycle were slow. The Company had identified 89 prospects and 33 prospective leads in 16 shallow water NELP blocks. However, even after incurring an expenditure of Rs. 1,632.48 crore, no hydrocarbon discovery was made. The achievement of MWP committed in the Phase I was incomplete in 9 out of 16 NELP blocks and the entire Phase I was consumed mainly for API of seismic data and the wells committed in respect of nine blocks were not completed. Consequently, the Company surrendered/proposed to surrender 10 NELP blocks after incurring expenditure of Rs. 1,461.36 crore. The time taken for pre-seismic EIA studies ranged between 2 and 12 months in respect of the 16 NELP blocks which had a cascading effect on the overall schedule of the exploratory phases. As against 128 and 130 planned locations for drilling as per the AP and RDP respectively, only 76 locations were drilled resulting in a shortfall of 41 *per cent*. There were delays in release of location and mismatches in deployment of rig with reference to availability of suitable rigs which resulted in non fulfilment of the MWP within the contract period

The matter was reported to the Ministry in January 2010; their reply was awaited (February 2010).