

Chapter 6 Conclusion and Recommendations

6.1. Conclusion

ONGC is the largest producer of crude oil, accounting for 69 per cent of the country's production. Significant efforts and resources of the Company are deployed for augmenting production of crude oil from its offshore and onshore Assets. Accurate measurement and reporting of crude oil production by the Company is of critical importance to assess and monitor its performance.

Audit of the crude oil measurement and reporting system indicated that the Company was reporting partially stabilized crude oil as its crude oil production. This led to over-reporting of crude production by including items other than crude oil, *namely*, off-gas, BS&W and recoverable internal consumption. At the same time, the Company has reported 'condensate' production inappropriately as crude oil production, though both products were distinct and treated differently by the Company. A summary of the over-reporting and incorrect reporting in onshore and offshore areas is given below:

Table-6: Reported crude oil production *vis-à-vis* actual production

FY	Unit	Crude Production reported by the Company (including Condensate) as per MoU (R)	Quantity of BS&W in R	Quantity of off-gas in R	Quantity of recoverable internal consumption in R	Over-statement of R	Quantity of Condensate incorrectly included in production - R
		1	2	3	4	5= 2+3+4	6
2010-11	MT	27282278	1455148	268103	29073	1752324	1955360
2011-12	MT	26925347	1373034	263813	26302	1663149	2008340
2012-13	MT	26127115	655562	259128	39507	954197	2109810
2013-14	MT	25994106	843520	263717	32122	1139359	1828311
2014-15	MT	25942270	841871	271136	29671	1142678	1446798
Total	MT	132271116	5169135	1325897	156675	6651707	9348619
Other items reported as crude expressed as a percentage of reported crude oil production			3.91%	1%	0.12%	5.03%	7.07%

As seen from the table above, 12.1 *per cent* of reported crude oil production consists of items other than crude oil. Of this, basic sediment and water (3.91 *per cent*) has no financial value at all. The over-reporting and incorrect reporting of crude oil production has presented an inaccurate picture of performance of the Company on crude oil production and has led to the Company sharing an additional subsidy burden of ₹18,787.43 crore during the year from 2012 to 2015. Besides, over-reporting of crude oil production (inclusion of BS&W and off-gas) resulted in over payment of performance related pay (PRP) to the executive and staff of the Company as the MoU ranking of the Company for 2013-14 had improved from an actual 'Very Good' (where eligibility of PRP was 80 *per cent*) to 'Excellent' (where eligibility of PRP was 100 *per cent*) through over-reporting of crude oil production.

With ageing of fields (majority being more than 30 years old), there has been an increase in water cut. This coupled with lack of adequate handling/processing facilities at the production installations resulted in higher proportion of BS&W and off gas in the crude oil. The Company, however, reported crude oil production without adjusting these elements fully. Considering the fact that with progressive ageing of fields, the BS&W proportion is likely to increase, there is a need for adopting a suitable measurement system for crude oil so that these elements are suitably adjusted before crude oil production is reported.

Anomalies were also noticed in the measurement practices. In Western offshore, the reported production quantity measured at offshore platforms were higher than the actual sale quantity with the bulk of the differences in volume arising during transportation of crude oil in a closed pipeline. Where measurements have been taken at both ends of the pipeline under identical conditions of temperature, such differences are not expected to arise. Reasons for the differences should have been investigated and corrective action taken. No record of such action taken by the Company was provided to Audit. Besides, audit trail (either in electronic or in physical form) of reported production quantum from offshore Assets was not maintained by the Company and hence Audit could not verify the accuracy of these reported quantities. In onshore areas, it was noticed that to reconcile over-reported production, fictitious inflating of closing stock of crude oil, erroneous reporting of theft of crude oil and reporting non-existent pit oil as stock were adopted. The Company assured that corrective steps have been/ are being taken in this regard.

The measurement and metering system as well as the reporting system for crude oil production in the Company also had several infirmities. Audit noticed that the Company did not have a Standard Operating Procedure (SOP) for metering and measurement system and different Assets (particularly in Western onshore) followed different measurement practices. Though SCADA system was installed in all onshore production installations since 2010 with the objective of single point measurement through electronic instruments without manual intervention/changes and integration of acquired data with ICE-SAP ERP data, measurement continued to be carried out on the basis of manual dips of crude oil tanks. The accuracy of the

manual dips could not be ensured on account of the Company's non-adherence to the calibration schedule. In fact, instances were noticed where crude oil tanks installed in 1970 had not been cleaned yet or re-calibrated against the prescribed calibration schedule of five years. On being pointed out in Audit, the Company initiated corrective measures by formulating SOPs, operationalizing SCADA and integrating it with ICE-SAP ERP, and initiating repair, maintenance, cleaning and re-calibration of crude oil tanks.

6.2. Recommendations

- The loss/gain during transportation of crude oil through closed pipeline systems should be closely monitored to ensure that the variations are in normal range and identify abnormal loss/gain for corrective action. Such reconciliation and monitoring as well as corrective actions taken should be adequately documented.
- Asset-specific Standard Operating Procedures (SOPs) for measurement of crude oil production may be formulated and implemented in all onshore Assets in a time-bound manner to ensure that uniform measurement practices are followed across all production installations of the Company. Asset specific guidelines for segregating internal consumption of crude oil into 'recoverable' and 'non-recoverable' may be designed and 'recoverable' quantum may not be included as crude oil production. Norms for crude oil transit loss should be fixed and cases of abnormal transit loss should be investigated and remedial action taken to prevent revenue loss.
- The Company should strictly adhere to prescribed schedules laid down for calibration of all crude oil measuring devices, such as storage tanks and Mass Flow Meters, Turbine Meters, Auto Samplers, etc. in both offshore and onshore Assets to ensure accuracy of their measurement.
- Electronic and physical trails in support of measurement of crude oil at various stages of production should be maintained to derive assurance regarding their accuracy. SCADA installed in all production installations may be integrated with ICE-SAP ERP system for capturing data and to minimise manual intervention and improve accuracy of reported information. The production reports for onshore Assets should be generated through the SAP-PRA module, in line with the practice in offshore Assets, to preclude the possibility of their manual manipulation.
- The Company may report condensate as a separate stream as opined by the international consultant.

- The Company may ensure that items other than crude oil, namely, condensate, off-gas, basic sediment and water, etc., may not be reported as crude oil production. Considering the difficulties expressed by the Management/Ministry in accurately measuring the crude oil at the production point, there appears to be a case for shifting the production reporting point to a suitable location where stabilized crude (excluding BS&W, off-gas and condensate) can be accurately measured.



(H. PRADEEP RAO)

**Deputy Comptroller and Auditor General and
Chairman, Audit Board**

New Delhi

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Countersigned



(SHASHI KANT SHARMA)

Comptroller and Auditor General of India

New Delhi

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