



**STANDING COMMITTEE ON
PETROLEUM & NATURAL GAS
(2018-19)**

(SIXTEENTH LOK SABHA)

MINISTRY OF PETROLEUM & NATURAL GAS

[Action Taken by the Government on the recommendations contained in the Twenty Fourth Report (Sixteenth Lok Sabha) of the Standing Committee on Petroleum and Natural Gas (2017-18) on the subject Safety, Security and Environmental Aspects in Petroleum Sector]

TWENTY SIXTH REPORT



**LOK SABHA SECRETARIAT
NEW DELHI**

January, 2019/Pausha, 1940 (Saka)

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PETROLEUM & NATURAL GAS
(2018-19)****(SIXTEENTH LOK SABHA)****MINISTRY OF PETROLEUM & NATURAL GAS**

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Presented to Lok Sabha on 07.01.2019

Laid in Rajya Sabha on 07.01.2019



**LOK SABHA SECRETARIAT
NEW DELHI**

January, 2019/Pausha, 1940 (Saka)

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**COMPOSITION OF THE STANDING COMMITTEE ON PETROLEUM & NATURAL
GAS (2018-19)**

Sl. No.

Names of Members

LOK SABHA

Shri Pralhad Venkatesh Joshi - Chairman

2	Shri Rajendra Agrawal
3	Dr. Ravindra Babu Pandula
4	Dr. Parayamparambil Kuttappan Biju
5	Shri Kalikesh Narayan Singh Deo
6	Smt. Rama Devi
7	Shri Elumalai V.
8	Shri Naranbhai Bhikhabhai Kachhadiya
9	Dr. Thokchom Meinya
10	Smt. Pratima Mondal
11	Shri Ashok Mahadeorao Nete
12	Smt. Jayshreeben Patel
13	Shri A.T. (Nana) Patil
14	Shri Arvind Ganpat Sawant
15	Shri Raju alias Devappa Anna Shetti
16	Vacant
17	Shri Ravneet Singh
18	Shri Rajesh Verma
19	Shri Om Prakash Yadav
20	Shri Laxmi Narayan Yadav
21	Shri Santosh Kumar

RAJYA SABHA

22	Shri Bhubaneshwar Kalita
23	Shri Om Prakash Mathur
24	Smt. Ranee Narah
25	Shri Bhaskar Rao Nekkanti
26	Shri Narayan Lal Panchariya
27	Shri Ahmed Patel
28	Shri V. Lakshmikantha Rao
29	Shri Kanakamedala Ravindra Kumar
30	Shri A. Vijayakumar
31	Ch. Sukhram Singh Yadav

SECRETARIAT

1	Shri Ganapati Bhat	-	Additional Secretary
2	Dr. Ram Raj Rai	-	Director
3	Shri H. Ram Prakash	-	Additional Director

INTRODUCTION

I, the Chairperson, Standing Committee on Petroleum & Natural Gas having been authorised by the Committee to submit the Report on their behalf, present this Twenty Sixth Report on Action Taken by the Government on the recommendations contained in the Twenty Fourth Report (Sixteenth Lok Sabha) of the Committee on the subject 'Safety, Security and Environmental Aspects in Petroleum Sector'.

2. The Twenty Fourth Report of the Standing Committee on Petroleum & Natural Gas was presented to Lok Sabha on 25.07.2018. The Action Taken Replies of the Government to all the recommendations contained in the Twenty Fourth Report were received on 17.10.2018.

3. The Standing Committee on Petroleum & Natural Gas (2018-19) considered and adopted the Report at their sitting held on 02.01.2019.

4. An analysis of the action taken by the Government on the recommendations contained in the Twenty Fourth Report (Sixteenth Lok Sabha) of the Standing Committee on Petroleum & Natural Gas is given in Annexure-II.

5. For facility of reference and convenience, the observations and recommendations of the Committee have been printed in bold letters in the body of the Report.

6. The Committee place on record their appreciation for the valuable assistance rendered to them by the officers of the Lok Sabha Secretariat attached to the Committee.

***New Delhi;
2 January, 2019
12 Pausha, 1940 (Saka)***

***PRALHAD VENKATESH JOSHI,
Chairperson,
Standing Committee on
Petroleum & Natural Gas.***

REPORT

CHAPTER I

This report of the Standing Committee on Petroleum and Natural Gas deals with the action taken by the Government on the recommendations contained in the Twenty Fourth Report (Sixteenth Lok Sabha) of the Standing Committee on Petroleum and Natural Gas (2017-18) on the subject 'Safety, Security and Environmental Aspects in Petroleum Sector', which was presented to Lok Sabha and laid in Rajya Sabha on 25.07.2018.

2. Action Taken Notes were received from the Ministry on 17.10.2018 in respect of all the 16 recommendations/observations contained in the report. These have been categorized as per the following:

- (i) Recommendations/Observations that have been accepted by the Government:- Reco. Nos. 2, 3, 4, 6, 7, 8, 11, 12, 13, 14, 15 and 16 (Total 12)
(Chapter- II)
- (ii) Recommendations/Observations which the Committee do not desire to pursue in view of the Government's replies:- Reco. Nos. Nil
(Chapter- III)
- (iii) Recommendations/Observations in respect of which replies of the Government have not been accepted by the Committee:- Reco. Nos. 1 and 9 (Total 2)
(Chapter- IV)
- (iv) Recommendations/Observations in respect of which final replies of the Government are still awaited:- Reco. Nos. 5 and 10 (Total 2)
(Chapter- V)

3. The Committee desire that the Action Taken Notes on the recommendations/observations contained in Chapter-I of this report and final replies in respect of the recommendations for which interim replies have been furnished by the Government (included in Chapter-V) should be furnished expeditiously.

4. The Committee will now deal with the action taken by the Government on some of its recommendations.

Recommendation 1

Safety, Security And Environmental Aspects in Petroleum Sector

5. The Committee had recommended as under:

"The Committee note that the petroleum and natural gas industry of the country comprises of three major streams namely exploration and production, refineries, marketing & distribution. The country has 23 refineries with installed capacity of 231 MMTPA, 15 gas processing plants, 4 LNG terminals, 680 oil and LPG installations and more than 39,000 KM cross country pipelines spread across the length and breadth of the country. In offshore exploration and production, there are 21 production complexes, 252 well platforms and 33 rigs while in on-land exploration and production, there are 301 production installations & 230 rigs. This industry handles highly inflammable hydrocarbons in all forms namely solid, liquid and gas and operates processes under high temperature and pressure. Moreover, Petroleum industry has a significant influence on the total pollution of the environment by exploration and production operations, oil spillage, gas flaring and oil refining operations. Therefore, the safety and security and environment protection in petroleum and natural gas industry is of paramount and vital importance and its operation in a safe mode is necessary both for the employees and the society at large. The hydrocarbons are essential for economic development and propriety of nation for decades to come. The Committee, therefore, desire that, the Ministry should accord the top priority to the safety, security and environmental aspects relating to the petroleum and natural gas industry. All these aspects should be continuously monitored and necessary changes in statutes, rules and regulations be made so that the legislations enforcing these measures are strengthened regularly to enhance the level of safety and security of the installations and minimize the adverse impact on environment from the activities at installations at par with the current global situation".

6. In this regard, the Ministry has submitted the following reply:

"Ministry of Petroleum and Natural Gas (MoP&NG) regularly monitors and reviews the various safety issues in the Oil & gas Sector and directs the oil companies from time to time to take suitable measures to ensure safety of these vital installations.

Safety, health and environmental aspects of the Oil & Gas installations is of paramount importance; and concerted efforts are being made by the Industry and MoP&NG to preserve such national assets without compromising the safety.

OISD, technical body under the Ministry, makes necessary Safety Standards depending upon the emerging needs of the safety of oil installations and these standards are adopted after a due process and included in various rules/regulations".

Comments of the Committee

7. The Committee had observed that since the petroleum industry handles highly inflammable products in its operations and transportations the safety, security and environmental protection is of paramount and vital importance both for the employees and the society at large. Therefore, the Committee had recommended that the Ministry of Petroleum and Natural Gas should accord top priority to safety, security and environmental aspects and should continuously monitor and bring in changes in statutes rules and regulations in order to enhance them at the petroleum installations from time to time at par with global standards.

The Ministry has submitted a too general action taken reply stating that the MoPNG regularly monitors and reviews various safety issues in oil and gas sector and directs oil companies to take suitable measures to ensure safety of the installations and efforts are made by the industry to preserve such national assets without compromising on safety. The Ministry has also stated that OISD, a technical body under the Ministry makes safety standards depending upon the emerging needs which are adopted after due processes and included in various rules and regulations. The Committee are not convinced with the reply of the Ministry as it does not mention about the availability of any mechanism for continuous monitoring and enhancing the level of safety and security of the installations. Moreover, the steps taken to study various safety aspects in other parts of globe as well as any institutionalized mechanism for regular interaction, coordination and cooperation with external agencies in these aspects have also not been spelt out in the reply this shows that the Ministry has not carried out any review exercise in the light of the observation of the Committee. In Committee's view OISD being a technical body under the Ministry and manned by the officials drawn from oil PSUs on deputation may not be able to effectively enforce the safety rules and regulations. The Committee, therefore, reiterate their recommendation that safety, security and environmental aspects in the oil and gas sector particularly in its various installations, plants, units etc. should be given utmost priority and direct the Ministry to take appropriate steps to institutionalize the review of rules and regulations governing the industry in a time bound manner so that their standards are at par with international standards.

Recommendation 3

Role of Safety Council

8. The Committee had recommended as under:

"The Committee note that OISD carries out investigations of all the process safety related major incidents to determine root causes and recommend corrective actions to eliminate or control these hazards. The accident data analysis submitted to the Safety Council by OISD, indicates that the major causes of the incidents / accidents across the oil and gas industry include not following the Standard Operating Procedures, violation of work permit system and knowledge gap. It has further been stated that maximum number of such incidents could be avoided by ensuring strict adherence to SOPs and proper supervision. The Committee note with concern that Safety Council, an apex body under MOP&NG have not played their regulatory role in safety matters and procedures in respect of hydrocarbon sector. They have not been even able to ensure that all the companies strictly comply with safety audit recommendations. In Committee's view, after observing the deviations of SOPs during safety audits, compliance should be sought within a fixed time frame followed by punitive action / penalty so that not only the objective nil fatalities but nil incidents is achieved. The Committee therefore, desire that Safety Council should ensure to liquidate all the pending recommendations made in all the audit reports carried out by OISD within a fixed time frame.

The Committee also find that there is no set procedure to fix the accountability for the accidents in oil and gas installations. The Committee feel that each major or minor incident should be taken seriously and any violation of SOPs should be dealt with firmly and decisively along with fixing of responsibility in each case. The Committee, therefore, recommend that the Ministry and other agencies entrusted with enforcement of safety rules and regulations should fix accountability for violation of SOPs whenever any violation takes place. The Committee would also like to be apprised of the causes of accidents in the oil industry during the last three years and the action taken against the erring officials".

9. In this regard, the Ministry has submitted the following reply:

"OISD carries out investigation of all the Process Safety related major incidents to determine root causes & recommend corrective actions to eliminate or control these hazards. All such significant incidents occurring in Petroleum & Natural Gas Industry are investigated in-depth by multi-functional OISD team to establish:

- The exact sequence of events leading to the incident
- The root cause of the incident
- Concomitant corrective and/or preventive measures to obviate recurrence in future.

Findings of the Investigation Committee is widely circulated not only to the concerned Industry establishment but also shared with all the industry members enabling them to take proactive measures. Further, the findings are

also utilized as a feedback mechanism for updation of OISD standards. Compliance report of all such incidents investigations recommendations is also regularly reviewed by OISD/MoP&NG.

Findings of root causes of incidents across the Industry segments i.e. Refineries & Gas Processing Plants, Marketing Installations (LPG/POL), Cross Country Pipelines and Exploration & Production reveal that majority of such accidents have occurred due to soft reasons like Disregard to established Standard Operating Procedures (SOPs), Violation of work permits, Poor Supervision, Non-compliance to Personal Protective Equipment (PPEs) etc. Most of these incidents could have been avoided as major root cause of the incidents, year on year basis, continues to be attributed to soft reasons. Industry and OISD is putting concerted efforts to review extant safety management system so that effective measures can be taken to avoid recurrence of avoidable incidents.

In the 33rd Safety Council meeting held on 07.06.2016 all Oil PSUs was instructed to view all pending OISD recommendations seriously and liquidate them on top most priority. Further, a meeting to review the pendency of Audit recommendation with Oil PSUs in the Ministry was held on 19.07.2018. wherein the Oil PSUs were instructed as follows:-

- (a) To fix responsibility for delay in implementation of safety audits recommendations which are pending for more than 3 years and action must be initiated against responsible officers , if no reasonable reason is present.
- (b) To submit a latest status with detailed action plan along with timelines for implementation of all the safety audits recommendations which are pending for more than three years.
- (c) OISD should prepare year wise compliance status of pending safety audits recommendations of more than 3 years in the forthcoming safety council meeting.

It was also decided to review of pending OISD safety audits recommendations on quarterly basis by Ministry.

Regarding action taken against errand officers during last 3 years, IOCL has informed that major penalty have been imposed on 2 employees and disciplinary action against 8 officers is in progress. Moreover, fine has been imposed on 6 contractors & 3 dealers as per contract conditions.

ONGC has informed that four officials were issued Memorandum against the failure to adhere to the Safe Operating Procedures (SOPs).

OIL has informed that punitive action have been taken against officers found responsible for the incident.

BPCL has informed that Show Cause Notice has been issued to 2 errand employees and Caution letter to 2 errand employees.

HPCL has informed that Major penalty has been imposed on two errand employees and penalty proceedings against three officer are in progress. Further, minor penalty has been imposed against 4 errand employees".

Comments of the Committee

10. The Committee in their report had recommended that the Safety Council under MOP&NG should ensure to liquidate all the pending recommendations made by OISD in the safety audit reports about oil installations within a fixed time frame. The Committee had further recommended that the Ministry and other agencies should fix accountability for violation of SOPs and take action against officials responsible for such violations during the last three years. The Committee are happy to note that as per the recommendation of the Committee, the Ministry has directed the oil PSUs to submit the latest status and action taken plan along with timelines for implementation of audit recommendations which are pending for the last three years and has also directed them to take action against the officers responsible for delay in implementation of safety audits recommendations. It has also been decided to review the pending OISD safety audit recommendations on quarterly basis and details of action taken against erring PSU officials. The Committee, however, note that the disciplinary action or penalty proceedings are in progress in certain cases. The Committee, therefore, would like to reiterate that the Safety Council / Ministry should analyse all the details received from the PSUs and OISD regarding implementation of safety audit recommendations and ensure the compliance by each PSU without delay. Further the Ministry should also fix the accountability and responsibility for the delays in implementation of safety audits recommendations and the Committee may be informed accordingly.

Recommendation 5

Safety of Pipelines

11. The Committee had recommended as under:

"The Committee note that OISD carries out periodic audits including pre-commissioning audit of cross country pipelines, other additional safety checks and measures to ensure protection of oil and natural gas pipeline network in the country. It includes monitoring of the pipeline through 'Pipeline Integrity Management System', Supervisory Control and Data Acquisition (SCADA), sustained ground patrolling, inspection of Right of Way (RoW), surge analysis etc. However, despite such measures in place, a major accident occurred in the GAIL pipeline at Nagaram in East Godavari District of Andhra Pradesh in the year 2014 which caused extensive damage to life and property. The

explosion and fire tragically claimed 22 lives. The cause of the accident was pipeline / equipment failure due to violations of SOPs. In this case it has been reported that wet gas was being carried in the pipeline meant for dry gas without taking adequate precautions like pigging of pipeline at regular intervals. The Committee are deeply anguished on this incident and feel that accident could have been prevented by following proper procedures in the first place. The Committee also note that in this case other safety measures also seem to have failed pointing towards the failure of monitoring system. The Committee note that the PESO has submitted its report on the incident to the MoEF for further action. The Committee, therefore, desire that MoP&NG should take up the matter with MoEF and ensure an action against those found responsible for lapses and negligence which caused the accident.

Looking at the serious impact of such incidents of leakage of gas, the Committee strongly recommend that there should be a fool proof mechanism for monitoring of pipeline infrastructure network of the country both through human and sensor based system and any deviations should be reported and preventive action initiated immediately. There should also be backup measures for operation of remote valves and these should be such that they are not damaged due to fire etc. The communications lines could be placed underground or away and secured from tampering. There should also be audible warning system to warn the people of leaks etc. so that they can take precautions. The Committee, further, note that the safety of the population that lives around those places where the oil and gas pipelines pass is the responsibility of the owner of the pipeline and should not be compromised in any way. Any report from the public about anything wrong like leaks in the pipeline or tampering should be taken seriously and investigated immediately to prevent any accident. Besides this, people should also be sensitized on the do's and don'ts in the event of any accident on the pipeline. The Committee may also be apprised of all the initiatives for safety of pipelines taken in this direction".

12. In this regard, the Ministry has submitted the following reply:

"Regarding action taken against officers responsible for major accident in the GAIL pipeline at Nagaram in East Godavari District of Andhra Pradesh in the year 2014 Gail has informed that based on assigned roles and responsibilities disciplinary proceedings were initiated against 5 officials. Penalty of non-consideration for promotion & withholding performance related payments was immediately imposed on charges officials with the initiation of disciplinary proceedings. Disciplinary authority has examined the submissions of charged officials which are yet to be concluded.

Further, each of the oil companies both in private and public sector are required to maintain highest level of safety standards for ensuring safe operations in the respective pipelines. Some of the major safety measures undertaken by the Oil & Natural Gas Industry include:

- Incorporation of in-built safety aspects in the i.e. during the design phase itself. These include process safety, instrumentation & safety interlocks, safety while design of equipment following the best International Standards, etc.

- Each installation has its own dedicated firefighting facilities which are equipped with gadgets, well trained crew to fight fire in case of any eventuality.
- The industry also carries out regular Internal Safety Audits and conducts periodic mock drills both on-site and off-site to ensure emergency preparedness. It has also developed its own Disaster Management Plan.
- For real time monitoring of movement of line Patrolmen through Global Positioning System (GPS) has been adopted by pipeline industry.
- Monitoring of Repeater-cum-Cathodic Protection Stations through Close Circuit Television (CCTV) based surveillance has been adopted by pipeline industry.
- OFC based Pipeline Intrusion detection system/ acoustic sensor based leak detection system is being implemented.
- Application software based Leaked Detection System (LDS) in liquid pipelines is implemented in liquid pipelines.
- Provision of remote operation of pipeline"s sectionalizing valves is kept for closing in case of any emergency.
- Provision of alternate communication means (in addition to OFC based communication/ radio communication) such as leased line /GSM network from telecom operators etc. as stand-by for closure of remote valves in case of OFC / radio communication failure.
- The pipeline is provided with electrical sirens of high range (3Km range) at all originating, intermediate pump / delivery stations, terminal station and all sectionalizing valve (SV) stations which are spread evenly along the length of pipeline.
- Toll free number on all route markers along the ROU of pipelines are provided.
- Regular interaction with villagers to sensitize them by conducting awareness programs like Hastakshar Abhiyaan/Sarpanch Meet/free medical check-up camps/Samyojak scheme/Sahyogi scheme etc.
- Regular interaction is being held with respective Police & District Administration.

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Comments of the Committee

13. The Committee had recommended for creation of a fool proof mechanism for monitoring of pipeline infrastructure network through both human and sensor based systems to ensure safety, security and also enable reporting of leakage incidents. Further, the Committee had desired that measures should be in place for the public to inform any leak, tampering etc. and the authorities of concerned companies should investigate these

incidents and take necessary action to prevent any accidents. In this regard, the reply of the Ministry has enumerated various safety measures taken by the oil and gas industry to maintain highest level of safety standards for ensuring safety operations of their respective pipelines. But the Ministry has not mentioned any specific precautions being taken to check and prevent the flow of wet gas in the pipelines meant for dry gas and for regular pigging of the pipelines for cleaning. The Committee, therefore, reiterate that the safety of pipelines should be accorded priority by all PSUs particularly to prevent incidents caused due to lack of checking for moisture in gas and cleaning of pipelines by the pigging process and desire that continuous measures should be taken to create sufficient awareness among the public and make them partners in their efforts to ensure collection of information about tampering, leakage, damage etc. of pipelines. The Committee may be apprised about all these measures.

The Ministry has also informed that in connection with accident in GAIL pipeline in East Godavari district in Andhra Pradesh in 2014, disciplinary proceedings were initiated against five officials and penalty was imposed on them immediately. However, the Committee note that the disciplinary authority has not yet concluded the issue and would like to await the outcome of the disciplinary proceedings and expect the Ministry/GAIL to conclude them at the earliest and apprise the Committee of the outcome.

Recommendation 8

Butcher Island Fire Incident

14. The Committee had recommended as under:

"The Committee note that the fire at one of the tank farms of BPCL situated at Butcher Island, near Mumbai on 06.10.2017 was the most recent major accident in the oil industry. There was no loss of life but one tank that was used for storing HSD was fully damaged. For fire fighting, High Volume Long Range Monitors - HVLR (2000 GPM) of tank number 13 was started and foam was also applied. Despite this the fire could not be put out and the HSD in the tank was allowed to burn in a controlled manner. The cause of the fire was attributed to intense Lightning strike. The Committee were informed that a Committee constituted by OISD to investigate the incident has concluded that roof plates of tank were thinned out / pitted which got punctured due to lightning strike. The tank was also inspected by BPCL officials before the incident and was certified for use. However, the Marine Oil Terminal (MOT) facilities at Butcher Island was not audited by OISD in the last External Safety

Audit (ESA) of BPCL, Mumbai Refinery on 26th – 30th September, 2016 and these facilities were not offered for safety audit. The Committee are of the view that the frequency of safety audits of tank farms should be reviewed in view of this incident. The Committee specifically desire that the frequency of ESA should be increased in those areas that are susceptible to particular vagaries of weather more often and preventive measures taken.

While analyzing the quality of firefighting equipment the Committee feel that at Butcher Island it was inadequate to put out the tank fire. While the Ministry and PSUs claim their capabilities for managing the fire incidents have improved after the implementation of M.B. Lal committee recommendation, the way the fire incident in Butcher Island was handled belie this, even though the adjacent tanks in the site were safeguarded from Fire, the entire fuel in the storage tank was allowed to burn out instead of fire fighting to put out the fire.

The Committee, therefore, recommend that the firefighting capabilities at all the storage sites of petroleum products across the country be upgraded to ensure quick extinguishing of fire.' The Committee would like to be apprised of the further safety measures including the installation of advanced lightning protection system undertaken by the oil industry to prevent the recurrence of such incidents at par with the worldwide practices being followed to deal with such situation".

15. In this regard, the Ministry has submitted the following reply:

"Regarding reviewing the frequency of Safety Audits in Oil and Gas installations especially tank farm areas; the following steps have been taken by OISD:

- Central Tank Farms (CTFs) will be considered as standalone facilities and shall be audited at a frequency of 3 years from earlier 5 years
- For POL marketing installations having aggregate storage capacity of more than 1 Lac KL, the audit frequency is reduced to 5 years from earlier 7 years.
- Clubbing the external & Surprise Safety Audits of the installations in a particular city/ neighbouring locations so that coverage of audits increases. In the process, OISD has audited 112 locations in the year 2017-18 against the original plan of 70 numbers.

Regarding upgrading the fire fighting capabilities at all the storage sites of petroleum products across the country and to ensure quick extinguishing of fire, it is submitted that OISD has already taken initiatives for evaluation of functionality checks of the critical firefighting equipment like HVLRMs, ROSOVs, RSFPS, MEFG etc. at Marketing (POL) Installations. Presently, 115 (out of total 276 nos.) POL locations have already been covered & compliance being monitored for 100% accomplishment of functioning of such equipment.

Further, OISD has already undertaken revision of its Standard-180 on lightning protection through functional committee".

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Comments of the Committee

16. The Committee, while analyzing the fire incident at Butcher Island had pointed out that the fire fighting capabilities were found inadequate in dealing with the fire incident and had recommended that the fire fighting capabilities at all storage sights of petroleum products across the country be upgraded to ensure quick extinguishing of fire. As the lightning protection system was the main reason attributed to the fire incident at Butcher Island, the Committee had also desired that advance lightning protection system should be installed to prevent recurrence of such incidents. The Ministry in its reply has mentioned that OISD had already taken initiatives for evaluation of critical fire fighting equipment at marketing installations. Also, compliance is being monitored for hundred per cent accomplishment of functioning of such equipment. OISD has further undertaken to revise its Standard-180 on lightning protection through a functional committee. The Committee while expressing their satisfaction about the steps being taken would like to highlight that no commitment has been provided regarding the time by which upgradation of the lightning protection system at installations would be completed to prevent any Butcher Island type incident. Therefore, the Committee would like to reiterate that the steps may be taken by Ministry/PSUs to upgrade lightning protection system immediately at all the oil installations without waiting for the revision of OISD standard.

Recommendation 9

Setting up of Emergency Response Centres (ERCs)

17. The Committee had recommended as under:

"The Committee note that after the Jaipur major fire incident, the M.B. Lal Committee which investigated the incident had recommended for the setting up of Emergency Response Centre (ERCs) in the country to handle major oil fires like storage tank fire in fastest and specialized way.

The Committee also note that M.B. Lal Committee recommendations were approved by OMC and Ministry to be implemented immediately and all the recommendations including setting up of ERCs were to be completed by 2014. The Committee note that even after approval of the Ministry, the recommendation of setting up of ERCs is still pending.

The Committee further note that it has now been decided to set up five ERCs to be piloted by each of the oil companies at the following locations:

IOCL-Jaipur, HPCL-Vizag, BPCL-Manmad, ONGC-Hazira, and GAIL at Guna. The Fire Advisor, Ministry of Home Affairs too has recommended in 2006 & 2017 for establishing and positioning of ERCs at strategic locations. The Committee note that initially EIL was appointed as a consultant but was dropped due to high rates quoted by it, and now a global tender for appointment of consultant for Fire Expertise with PMC work for setting up of 5 ERCs has been floated. The Committee desire that engaging a Fire Consultant for setting up ERC before PMC work be expedited to ensure setting up of ERC, supply of equipment and operation of ERC at the earliest.

The Committee deplore the casual approach of the Ministry resulting in inordinate delay in the setting up of ERCs. It appears that the oil industry is waiting for another major disaster to happen to get on its feet. The Committee disagrees with the Ministry's contention that the firefighting capabilities of the industry is adequate to meet any major fire emergency and that the concept of ERC is a second line of defence in case of catastrophic events for which various other avenues like mutual aid partner industry, state fire brigade etc., are already in place. The Committee further note that an ERC would take up 3 to 4 years to be set up and any incident during the intervening period may cause huge losses. The Committee, therefore, strongly recommend that for the interim period the OMCs should procure required advanced firefighting equipments viz. robotic monitors, high capacity pumps with portable foam monitors, large hoses etc. for all the 22 locations for the proposed ERCs and later such equipments could become a part of the ERC. The Committee also desire that till the ERCs are set up, the OMCs should appoint an experienced agency on temporary basis who can provide 24x7 emergency firefighting services with advanced equipments as mentioned above immediately without any further delay.

The Committee agree with the views of the industry experts who deposed before them and are of the opinion that OMCs should consider procuring equipments/setting up of ERCs as they are an investment in safety. The Committee, therefore, desire the Ministry to take immediate action for the setting up of all 22 ERCs starting with 11 ERCs at strategic locations specially where there is cluster of oil companies/terminals to meet any disaster, taking into consideration the requirements of a rapidly growing industry".

18. In this regard, the Ministry has submitted the following reply:

"With the installation of state of the art equipment at installations of all the OMCs, the firefighting capability of our Oil & Gas Installations in the country is adequate to meet any major fire emergency arising out on account of routine operations. With in-plant firefighting facilities, all the OMCs are equipped with fire fighting facilities to handle emergency scenarios like tank fires, leakages etc. for a duration of four hours.

Further, in addition to the installed firefighting facilities, which are adequate for any operational related emergency as mentioned above, other avenues like mutual aid partner industries, state fire brigade etc. can also be pressed into service in case any catastrophic event occurs in these installations as a second line of defense. It may be reiterated that ERCs once available, shall also act as second line of defense to the installed firefighting facilities.

With regard to setting of ERCs in the country, it is mentioned that it has now been decided to set up five ERCs to be piloted by each of the oil companies at the following locations:

IOCL-Jaipur, HPCL-Vizag, BPCL-Manmad, ONGC-Hazira, GAIL, Dibiyapur (Earlier location Guna is changed).

It is submitted that for appointment of consultant for PMC for setting up 5 ERCs as above, a Global tender was floated but there was no response to get PMC services to establish 5 pilot ERCs by IOC/BPC/HPC/GAIL/ONGC. Based on inputs provided by prospective vendors during pre-bid meeting of the last tender, detailed **BQC (bid qualification criteria) and Tender scope** for engagement of PMC consultant have been finalized. To invite more no of bids, JVs/Consortium are being allowed in the new tender to have wider participation from prospective PMC consultants. Global/open tender is likely to float shortly".

Ministry of Petroleum & Natural Gas
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Comments of the Committee

19. The Committee had highlighted the need for setting up of Emergency Response Centres (ERCs) to handle major oil fires at petroleum installations in the country and had desired that Ministry to take immediate action to set up 22 ERCs starting with 11 ERCs at strategic locations especially where there is cluster of oil companies/terminals to meet any disaster. The Ministry in its reply has stated that ERCs shall act as a second line of defence along with mutual aid partner industry, state fire brigade etc., in addition to fire fighting facilities installed at installations. The reply also states that it has now been decided to set up 5 ERCs to be piloted by each of the oil companies and global tender for engagement of the PMC consultant for setting up of five ERCs are likely to be floated shortly.

The Committee are, however, dismayed with the reply of the Ministry particularly the line of approach being taken with regard to ERCs treating them as a second line of defence along with mutual aid partner and state fire brigade. The Committee would expect the Ministry to change this approach and make ERCs as one of the first and main line of defence in addition to fire fighting facilities available in the plants/units/installation in responding to major fire emergency arising out of routine operations at oil and gas installations. The Committee would also like to observe that the MB Lal Committee had also recommended setting up of ERCs which the Ministry was

to implement by 2014. The Ministry has not given any cogent reasons for rejecting the need to set up ERCs at 22 locations which have cluster of oil and gas installations in the country. The Committee, therefore, reiterate their recommendation and would like to point out that the process of appointment of PMC for setting up of ERCs have been dragging for too long and it would expect the Ministry to accord highest priority for the same and finalize the PMC for five ERCs at the earliest so that the process for setting up of 11 ERCs on priority may gain momentum and completed within the shortest possible time frame.

Recommendation 10

Formation of Unified Safety Board

20. The Committee had recommended as under:

"The Committee note that depending on the type of installations, there are various statutory authorities involved in the safety enforcement in the Petroleum and Natural Gas Industry. In the E&P onshore and offshore industry segments Exploration and Production the DGMS and OISD under the administrative Ministries of Labour and Employment and P&NG respectively have jurisdiction. In the Downstream & Gas (Natural) Processing Plants (GPP) segments the PESO and PNGRB under the administrative Ministries of Commerce & Industry and P&NG respectively are enforcing safety. The Committee also note that the proposal for having a unified Petroleum and Natural Gas Safety Board has been under consideration since the last four years and nothing has been finalised as yet. The Committee were informed that the matter was considered by the Committee of Secretaries (CoS) and they were of the view for strengthening the existing regulatory bodies over creation of a new organization. Thereafter, the recommendations of the CoS were considered by the Ministers of the Ministry of Petroleum and Natural Gas, Commerce and Labour. They have decided that a report should be prepared after studying the safety and security aspects keeping in view the international practice. The Committee are not satisfied with the current state of affairs as such an important issue is being unduly delayed. It appears that the three Ministries are reluctant to give up their role in the safety related aspects as they perceive it akin to losing power.

The Committee have been informed that among the three bodies namely PESO, DGMS and OISD, almost 97 percent of the premises are regulated for safety by PESO and 2 percent by DGMS and 1 percent by OISD. PESO has been handling the safety regulations in hazardous premises like refineries, cross country pipelines, manufacturing, storage and transportation of exploring storage & use of explosives in oil mines, Auto LPG and CNG dispensing stations. The Committee feel that the MoPNG wants to retain its dominant role through the OISD. The Committee would like to point out here that the OISD has no permanent staff of its own and most of its officers are on deputation from the Oil Companies. Therefore, the concept of arm's length in

the safety aspect is certainly not fulfilled here. Due to conflict of interests, such officers cannot be expected to give adverse reports against their own employers. Therefore, in Committee's view, considering the capabilities, infrastructure and proportion of work administered in Hydrocarbon sector, PESO is more suitable body to reposition it to administer safety regulations in entire hydrocarbon sector. The Committee, therefore, strongly recommend that PESO may be empowered to work as a single framework for regulation of safety in entire hydrocarbon sector. For that purpose the capacity of PESO should be enhanced by providing it prosecution powers and strengthening the Human Resource and coordination with District authorities, upgradation of Research and Testing infrastructure and capacity building of external stakeholders".

21. In this regard, the Ministry has submitted the following reply:

"The Ministry has brought a proposal before the Committee of Secretaries (CoS) for establishment of Petroleum and Natural Gas Industry Safety Board (PNGISB) to regulate the safety of petroleum and Natural Gas Industry in the entire country. The proposal also envisage establishment of Directorate General of Natural Gas and Industry safety. Three meetings of the CoS have been held on 01.07.2014, 7.11.2014 and 19.08.2016. After detailed deliberations held in the third meeting of CoS on 19.08.2016, it was interalia decided that MoPNG may weigh the option of strengthening the existing upstream and mid/downstream regulators vis-à-vis, a single safety regulator for all segments and take a considered view in this regard.

In order to settle the issues an inter-ministerial meeting involving Ministry of Petroleum and Natural Gas (MoP&NG), Ministry of Labour and Employment (MoLE) & Ministry of Commerce & Industry was held on 20.12.2016 and it was agreed to examine further the issue of existing structure of Safety in Petroleum and Natural Gas Industry and also examining best practice of Safety issues in Hydrocarbon Industry in other countries.

OISD was requested on 06.04.2017 to examine the best practices of safety issues in the hydrocarbon industry in other countries and submit a report. OISD has since submitted a report in the matter.

Further, Performance Audit Report of PESO has been obtained. Forensic Audit report of DGMS has not been received from Ministry of Labour.

From above, it would be evident that inter-ministerial consultation is going on to settle the issue".

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Comments of the Committee

22. **The Committee had observed that various statutory authorities are involved in regulating different standards in petroleum and natural gas sector thereby causing difficulty in enforcement and compliance. Considering PESO**

as the most suitable body to administer the safety regulation in Hydrocarbon sector, the Committee, had recommended that it should be empowered to work as a single framework for regulation of safety in the entire hydrocarbon sector.

The Ministry in its reply has stated about the initiatives taken in the direction of establishment of Petroleum and Natural Gas Industry Safety Board (PNGISB) to regulate the safety of Petroleum and Natural Gas in the entire country and Directorate General of Natural Gas and industrial safety. It is stated that OISD had submitted a report on the best practices of safety issues in hydrocarbon industry in other countries. A performance audit report of PESO has been obtained and forensic audit report on DGMS has not been received from the Ministry of Labour. The Ministry has further stated that inter ministerial consultation is going on to settle the issue of establishment of PNGISB. However, the Committee are not satisfied with the reply as no meeting seems to have been held with the Ministries and organizations concerned after the presentation of the report by the Committee to expedite the matter. The last deliberation among the Ministries concerned was held on 20.12.2016 and two years have passed with little progress on the issue. The Committee therefore, reiterate their recommendation for the need of a single regulator on safety and other issues for the entire hydrocarbon industry with statutory powers and expect the Ministry to show pragmatism, accommodative spirit and farsightedness in order to consider the recommendation and accordingly, would expect the MoPNG to take the lead to settle the issue on priority.

Recommendation 12

Geo-physical Mapping of Potential Disasters

23. The Committee had recommended as under:

"The Committee have been informed that ONGC has developed an in-house GIS mapping of its pipelines laid in onshore locations and the mapping is nearly complete. ONGC is also undertaking a conceptual study in this regard. The Committee also note that no guidelines for GIS mapping of upstream assets has been brought out by OISD.

The Committee desire that all the oil and gas companies should mandatorily carry out GIS mapping of their assets. This will not only enable for tracking purpose both onshore and offshore but also as a tool for risk assessment of

the areas around petroleum and gas installations/pipelines during major accidents. The Committee recommend that the world wide practice should also be studied for adopting the same in the Indian scenario for advance planning to minimise damage and to deal with accidents efficiently and effectively".

24. In this regard, the Ministry has submitted the following reply:

"IOCL has informed that GIS based Pipeline Asset Integrity Management System has been implemented in new cross country pipelines. Maps indicating pipeline routes are shared with respective police stations/administration as part of Emergency Response Disaster Management Plan (ERDMP).

ONGC undertakes survey of all the offshore pipelines inclusive of GIS mapping once every five years. An in-house common portal has also been developed for mapping of the pipelines. GIS mapping is done regularly for the areas where seismic survey is carried out.

GAIL has mapped its existing pipelines assets on GIS platform. Further, with the expansion of the truck pipeline in other parts of the country including providing the last mile connectivity, the same will also be mapped on the platform periodically".

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Comments of the Committee

25. **The Committee in their report had observed that ONGC had developed in house GIS mapping of its pipelines at its onshore locations and undertaking a conceptual study and had pointed out no guidelines for mapping are available. As this practice helps in advance planning to minimize damage and deal with accidents, the Committee had desired that all oil and gas companies should mandatorily carry out GIS mapping of their assets. The Ministry in its reply has stated that IOCL has implemented a GIS based Pipeline Asset Integrity Management System and further, GAIL has mapped its existing pipelines Assets on GIS platform. Though the Committee are satisfied at the initiatives being taken by IOCL and GAIL, the reply remains silent on the work carried out by BPCL, HPCL and OIL in GIS mapping about their pipelines and other assets. The Committee therefore, would reiterate their recommendation and expect the Ministry/PSUs to undertake GIS mapping of their assets at the earliest and inform the Committee about the action taken by them in this regard.**

CHAPTER II

RECOMMENDATIONS/OBSERVATIONS WHICH HAVE BEEN ACCEPTED BY THE GOVERNMENT

Recommendation 2

Safety aspects in Petroleum sector

The Committee understands that oil installations handle hazardous and highly inflammable hydrocarbons. Therefore, safety of vital plants, installations, employees and public at large is accorded the highest priority. Safety Management System relating to oil wells, pipelines, refineries and oil marketing installations is governed by Safety Management Practices starting from careful selection of technology and design and incorporation of best engineering services and include well laid down systems and procedures for operation, maintenance, inspection, safety audits and fire protection systems. Despite, all these systems, accidents occur in oil sector causing significant damage to property / loss of lives. As per the data provided by the Ministry for the period 2014-17 (up to 30.11.2017) pertaining to both the upstream / downstream oil companies, a total number of 309 accidents took place in which there were 81 fatalities and 193 people were injured. The Committee although find that the number of accidents has come down in some of the PSUs but in HPCL and ONGC the numbers are still high which is alarming.

While going into the details of investigation process of accidents, the Committee note that the Oil Industry Safety Directorate (OISD) carries out safety audits and investigations and sends the report to the concerned company with recommendations for compliance. Besides this, the oil companies also carry out Internal Safety audit through their multi-disciplinary teams annually as per OISD standards. In addition to this, there are other statutory authorized Agencies like Directorate General of Mines Safety (DGMS), The Petroleum and Explosives Safety Organisation (PESO), Petroleum and Natural Gas Regulatory Board (PNGRB) who also have a mandate to oversee and enforce safety measures under various Acts and Rules in the oil and gas installations including pipelines and transport. The Committee, therefore, fail to understand that despite the provision of regular external and internal safety audits of installations and defined responsibilities of various enforcing organizations, the accidents keep recurring in the oil and gas sector installations. In Committee's view there should be zero tolerance towards fire incidents/accidents in oil and gas installations as the products are highly inflammable and any carelessness and casual approach may lead to serious problems. The Committee, therefore, recommend that the all concerned with safety of oil and natural gas sector installations should review the causes for accidents/ fire incidents and overcome the shortcomings identified in design, process, procedures, supervision, training, etc. so that safe working culture becomes a habit and the goal towards an accident free work is achieved.

REPLY OF THE GOVERNMENT

Any Safety related incident in the Oil & Gas Industry is taken very seriously and Industry at large has adopted a policy of zero tolerance towards such incidents. Ministry of Petroleum & Natural Gas, remains committed to ensure that the vital Oil & Gas installations in the country that provide security to the Nation and its safety are

given highest priority and focused attention that it deserves. Every incident which occurs in the Industry, be it small or major, is viewed very seriously by the Ministry and suitable measures are taken to ensure that companies concerned take adequate preventive measures so that such incidents do not occur again.

To identify root cause & prevent the recurrence of any incident, the concerned industry and OISD are advised to investigate all the major onsite incidents which occur in oil installations and follow-up action is taken on the findings of the investigation.

In the Safety Council meeting chaired by Secretary, P&NG, which is represented by CEOs of both PSU and Private sector Oil & Gas Companies, safety performance of the Industry is reviewed.

Further, it is mentioned that the number of incidents is showing decreasing trends for recent years. Nevertheless, MoP&NG is making all efforts for making Oil & Gas industries not only accident free but incident free by ensuring that industries are following all statutory guidelines & safe practices.

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Recommendation 3

Role of Safety Council

The Committee note that OISD carries out investigations of all the process safety related major incidents to determine root causes and recommend corrective actions to eliminate or control these hazards. The accident data analysis submitted to the Safety Council by OISD, indicates that the major causes of the incidents / accidents across the oil and gas industry include not following the Standard Operating Procedures, violation of work permit system and knowledge gap. It has further been stated that maximum number of such incidents could be avoided by ensuring strict adherence to SOPs and proper supervision. The Committee note with concern that Safety Council, an apex body under MOP&NG have not played their regulatory role in safety matters and procedures in respect of hydrocarbon sector. They have not been even able to ensure that all the companies strictly comply with safety audit recommendations. In Committee's view, after observing the deviations of SOPs during safety audits, compliance should be sought within a fixed time frame followed by punitive action / penalty so that not only the objective nil fatalities but nil incidents is achieved. The Committee therefore, desire that Safety Council should ensure to liquidate all the pending recommendations made in all the audit reports carried out by OISD within a fixed time frame.

The Committee also find that there is no set procedure to fix the accountability for the accidents in oil and gas installations. The Committee feel that each major or minor incident should be taken seriously and any violation of SOPs should be dealt with firmly and decisively along with fixing of responsibility in each case. The Committee, therefore, recommend that the Ministry and other agencies entrusted with enforcement of safety rules and regulations should fix accountability for violation of SOPs whenever any violation takes place. The Committee would also like to be apprised of the causes of accidents in the oil industry during the last three years and the action taken against the erring officials.

REPLY OF THE GOVERNMENT

OISD carries out investigation of all the Process Safety related major incidents to determine root causes & recommend corrective actions to eliminate or control these hazards. All such significant incidents occurring in Petroleum & Natural Gas Industry are investigated in-depth by multi-functional OISD team to establish:

- The exact sequence of events leading to the incident
- The root cause of the incident
- Concomitant corrective and/or preventive measures to obviate recurrence in future.

Findings of the Investigation Committee is widely circulated not only to the concerned Industry establishment but also shared with all the industry members enabling them to take proactive measures. Further, the findings are also utilized as a feedback mechanism for updation of OISD standards. Compliance report of all such incidents investigations recommendations is also regularly reviewed by OISD/MoP&NG.

Findings of root causes of incidents across the Industry segments i.e. Refineries & Gas Processing Plants, Marketing Installations (LPG/POL), Cross Country Pipelines and Exploration & Production reveal that majority of such accidents have occurred due to soft reasons like Disregard to established Standard Operating Procedures (SOPs), Violation of work permits, Poor Supervision, Non-compliance to Personal Protective Equipment (PPEs) etc. Most of these incidents could have been avoided as major root cause of the incidents, year on year basis, continues to be attributed to soft reasons. Industry and OISD is putting concerted efforts to review extant safety management system so that effective measures can be taken to avoid recurrence of avoidable incidents.

In the 33rd Safety Council meeting held on 07.06.2016 all Oil PSUs was instructed to view all pending OISD recommendations seriously and liquidate them on top most priority. Further, a meeting to review the pendency of Audit recommendation with Oil PSUs in the Ministry was held on 19.07.2018. wherein the Oil PSUs were instructed as follows:-

- (a) To fix responsibility for delay in implementation of safety audits recommendations which are pending for more than 3 years and action must be initiated against responsible officers , if no reasonable reason is present.
- (b) To submit a latest status with detailed action plan along with timelines for implementation of all the safety audits recommendations which are pending for more than three years.
- (c) OISD should prepare year wise compliance status of pending safety audits recommendations of more than 3 years in the forthcoming safety council meeting.

It was also decided to review of pending OISD safety audits recommendations on quarterly basis by Ministry.

Regarding action taken against errand officers during last 3 years, IOCL has informed that major penalty have been imposed on 2 employees and disciplinary

action against 8 officers is in progress. Moreover, fine has been imposed on 6 contractors & 3 dealers as per contract conditions.

ONGC has informed that four officials were issued Memorandum against the failure to adhere to the Safe Operating Procedures (SOPs).

OIL has informed that punitive action have been taken against officers found responsible for the incident.

BPCL has informed that Show Cause Notice has been issued to 2 errand employees and Caution letter to 2 errand employees.

HPCL has informed that Major penalty has been imposed on two errand employees and penalty proceedings against three officer are in progress. Further, minor penalty has been imposed against 4 errand employees.

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Comments of the Committee
(Please see Para No. 10 of Chapter-I)

Recommendation 4

Training to workers handling risk operations

The Committee note that in the oil and gas industry several works are being done through the contractors. One of the important reasons of accidents at the oil installations has been found as the poorly trained personnel of these contractors and lack of their proper supervision. During the period 2014-17, 78 accidents were caused due to such workers of these contractors in which 43 contract workers lost their lives. The oil installations are hazardous work places and therefore, all the persons working here should be properly trained, skilled and alert at all times to prevent any accidents. Untrained workers and supervisors increases the risk of accidents due to human errors. The Committee note that as per OISD guidelines all the workers including the contract and security personnel involved in risk operations should be imparted regular training and refresher training. But such large number of incidents caused due to untrained contractual workers and loss of life creates an apprehension that whether OISD guidelines are being followed by the companies in letter and spirit or not. The Committee, therefore, strongly recommend that special attention should be paid for imparting regular training and refresher training of all the workers including contract workers and security personnel. OISD should also strictly check the aspect of training during their audits and fix the responsibility, if there is any gap in that regard. The Committee also desire that appropriate clauses regarding training to workers handling risk operations should be incorporated in the agreements with contractors and in case of violation, responsibility should be fixed against all the responsible persons either the contractor or PSU officials for any such violation.

REPLY OF THE GOVERNMENT

A number of training courses are being conducted by the Companies intended to develop the skills and safety consciousness of employees including of those on contract also.

As per stipulations laid down in OISD standards all the workers including the contract and security personnel involved in risk operations are imparted regular training and refresher trainings as per the guidelines prescribed in the standards i.e. OISD-STD-154, OISD-GDN-228, OISD-GDN-176, OISD-GDN-192 and OISD-GDN-207.

Monitoring of Compliance with OISD Standards by OISD

During External Safety Audits of the Oil & Gas Installation by OISD, efficacy of the trainings imparted is checked and gaps, if any, are recommended for corrective actions. Compliance of audits recommendations is monitored by OISD/MoP&NG on quarterly basis. All the clauses regarding incorporation of training to workers such clauses are already part of the contract agreement in the form of either General Contract Condition (GCC) or Special Contract Conditions (SCC) of the companies concerned.

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Recommendation 6

Safety during Transportation of Petroleum Products

Petroleum products viz. Petrol, Diesel, LPG etc. are distributed from refineries, bottling plants to retail outlets and LPG distributors by roads using trucks. Since they carry hazardous and inflammable material, their movement on road has to be done with utmost care and safety to avoid accidents. During the year 2014-15 there were 484 accidents, in 2015-16 it was 597 and in 2016-17, 517 accidents took place that involved trucks transporting petroleum products of the three major oil marketing companies viz. IOCL, BPCL and HPCL. The Committee note that various measures have been taken by oil marketing companies to prevent transportation related incidents. This includes the provision of Vehicle Tracking System (VTS), speed governors and fabrication drawing approved by PESO in the Tank Trucks and Lorries. The Committee desire that these measures should be enforced strictly for compliance to ensure safe and accident free transportation of petroleum products on road. The Committee, however, note that at present it is not mandatory to install GPS along with VTS in the tank trucks. The Committee, therefore, recommend that it should be made mandatory along with geo-fencing so that the movement of trucks is monitored in real time. PESO which is the nodal body should examine this matter and come out with appropriate rules / guidelines. The Committee, further, note that with the implementation of PMUY and proposed targets under the scheme would increase the number of consumers considerably. The Government also has ambitious targets for PNG and CNG consumers under city gas distribution network. Also the transportation, storage and usage of petroleum products in rural areas will also increase swiftly. The Committee desire that, therefore, consumers and other stakeholders like distributors, agencies, etc. should be educated for the safe handling of LPG cylinders in particular and other products like kerosene, petrol and diesel, PNG and CNG.

REPLY OF THE GOVERNMENT

The movement of the Petroleum products on road are done with utmost care and safety to avoid accidents. Transportation contract conditions stipulates that Carrier shall engage TT driver who has undergone training on transportation of hazardous goods as stipulated under the Motor Vehicle Acts/Rules. The driving license of the

driver should be endorsed by Road Transport Authorities to this effect. The tender document of OMC includes clauses for provision of “Any Vehicle Tracking System (VTS) (for e.g.: Global Tracking System) to track the movement of the Tank Truck”.

OISD, during the course of its audit of locations reviews the implementation of VTS and makes observations / recommendations on efficacy of the same. Training to consumers and other stakeholders like distributors, agencies etc. is undertaken by the respective Oil Companies. The officers are trained to provide knowledge on hazards associated with LPG sales and to evoke correct and prompt response in any emergency situation covers customer education on safety. The delivery boys are trained in safe handling of LPG cylinders and handling of emergencies covers safe handling of cylinders at customer’s premises and guidance to customer on safety aspects. OISD-STD-154 laid down detailed guidelines on preparation and execution of typical training programme, use of appropriate training technique of evaluation of the effectiveness of training programme.

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Recommendation 7

Pilferage from Pipelines

The Committee observe that pilferage from oil pipelines by anti-social elements is a major concern. Such instances pose a major hazard and such activities put the lives of many at risk. The Committee note that preventive measures include maintaining regular interaction with the civil administration, electronic surveillance, patrolling by local police. The Petroleum and Mineral Pipelines (Acquisition of Right of Use in Land) Act, 1962 has also been amended and made more stringent against the offenders. Despite all this, such pilferage from pipelines has not been stopped. The Committee, therefore, recommend that pilferage from the pipelines should be prevented by proper monitoring of the pipeline network especially in those areas from where the pipeline runs through vacant land. The Committee, further, desire that appropriate warning signages requiring dangers and punishment for tampering with the pipeline should also be put up along the pipelines and those found involved in such pilferage activities should be punished severely.

REPLY OF THE GOVERNMENT

Various safety measures taken by pipeline operators, including the steps to avoid pilferage, are already explained under the reply to observation/recommendation No 5 above. With regard to appropriate warning signages requiring dangers and punishment for tampering with the pipeline, it is mentioned that as on date all pipeline operators are installing warning boards as stipulated in OISD standard which informs the general public about dangers involved with hydro carbon pipeline. In all such signages and signboards punishment admissible under the Petroleum and Mineral Pipelines (Acquisition of Right of Use in Land) Act, 1962 is clearly mentioned.

Some of the other measures taken by industry to minimize pilferages are:

- Provision of Leak Detection System (LDS) for online monitoring and detection of any leakage in the pipeline.
- Provision of CCTVs at all Stations as well as SV/RCP stations.

- Carrying out night patrolling at all vulnerable pipeline stretches in addition to day patrolling.
- For better co-ordination and with law enforcing agencies, regular Oil Security Co-ordination Committee (OSCC) meetings are being held with top brass of each state police where all the oil industry members are being present.
- Implementation of installing Pipeline Intrusion Detection System (PIDS) phase wise in all the cross country pipelines to have early warning for any kind of pilferage activity and any leakage.

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Recommendation 8

Butcher Island Fire Incident

The Committee note that the fire at one of the tank farms of BPCL situated at Butcher Island, near Mumbai on 06.10.2017 was the most recent major accident in the oil Industry. There was no loss of life but one tank that was used for storing HSD was fully damaged. For fire fighting, High Volume Long Range Monitors - HVLR (2000 GPM) of tank number 13 was started and foam was also applied. Despite this the fire could not be put out and the HSD in the tank was allowed to burn in a controlled manner. The cause of the fire was attributed to intense Lightning strike. The Committee were informed that a Committee constituted by OISD to investigate the incident has concluded that roof plates of tank were thinned out / pitted which got punctured due to lightning strike. The tank was also inspected by BPCL officials before the incident and was certified for use. However, the Marine Oil Terminal (MOT) facilities at Butcher Island was not audited by OISD in the last External Safety Audit (ESA) of BPCL, Mumbai Refinery on 26th – 30th September, 2016 and these facilities were not offered for safety audit. The Committee are of the view that the frequency of safety audits of tank farms should be reviewed in view of this incident. The Committee specifically desire that the frequency of ESA should be increased in those areas that are susceptible to particular vagaries of weather more often and preventive measures taken.

While analyzing the quality of firefighting equipment the Committee feel that at Butcher Island it was inadequate to put out the tank fire. While the Ministry and PSUs claim their capabilities for managing the fire incidents have improved after the implementation of M.B. Lal committee recommendation, the way the fire incident in Butcher Island was handled belie this, even though the adjacent tanks in the site were safeguarded from Fire, the entire fuel in the storage tank was allowed to burn out instead of fire fighting to put out the fire.

The Committee, therefore, recommend that the firefighting capabilities at all the storage sites of petroleum products across the country be upgraded to ensure quick extinguishing of fire.' The Committee would like to be apprised of the further safety measures including the installation of advanced lightning protection system undertaken by the oil industry to prevent the recurrence of such incidents at par with the worldwide practices being followed to deal with such situation.

REPLY OF THE GOVERNMENT

Regarding reviewing the frequency of Safety Audits in Oil and Gas installations especially tank farm areas; the following steps have been taken by OISD:

- Central Tank Farms (CTFs) will be considered as standalone facilities and shall be audited at a frequency of 3 years from earlier 5 years
- For POL marketing installations having aggregate storage capacity of more than 1 Lac KL, the audit frequency is reduced to 5 years from earlier 7 years.
- Clubbing the external & Surprise Safety Audits of the installations in a particular city/ neighbouring locations so that coverage of audits increases. In the process, OISD has audited 112 locations in the year 2017-18 against the original plan of 70 numbers.

Regarding upgrading the fire fighting capabilities at all the storage sites of petroleum products across the country and to ensure quick extinguishing of fire, it is submitted that OISD has already taken initiatives for evaluation of functionality checks of the critical firefighting equipment like HVLRLMs, ROSOVs, RSFPS, MEFG etc. at Marketing (POL) Installations. Presently, 115 (out of total 276 nos.) POL locations have already been covered & compliance being monitored for 100% accomplishment of functioning of such equipment.

Further, OISD has already undertaken revision of its Standard-180 on lightning protection through functional committee.

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**Comments of the Committee
(Please see Para No. 16 of Chapter-I)**

Recommendation 11

Creation of Buffer Zones around installations

The Committee note that one of the recommendations of the M.B. Lal Committee was to create a buffer zone around installations and regulating land use pattern around high hazard petroleum installations. Accordingly, all the Chief Secretaries of States/UTs were requested in April 2013 to ensure adequate provisions in their land allotment rules to prohibit habitations to come up within a band of at least 250-300 meters around the periphery of the oil installations and to maintain a buffer zone to minimize the impact on the surrounding areas in case of a major accident. In this regard, the Committee were informed that no feedback has been received from the state governments. The Committee understand that buffer zones around petroleum installations are an important aspect for maintenance of safety and therefore, desire that there should be no let-up in pursuing the matter with the States/UTs and the importance of creation of buffer zones should be impressed on them so that M.B. Lal Committee recommendation regarding safety of high hazard installations is implemented without any further delay.

REPLY OF THE GOVERNMENT

In order to regulate the land use around Oil installations, a communication was sent to all the Chief Secretaries of States/UT in the matter on 02.04.2013 wherein it was requested to issue appropriate instructions to the concerned authorities to make adequate provision under the relevant Acts and Rules to prohibit proliferation of unauthorized hutment, shops or residential houses within a band of at least 250-300 metres around periphery of the Oil installation. The communication was followed by a reminder on 20.01.2016. Reports were received only from 4 States/UTs. As

response was very poor, another communication has been sent to States/UT on 30.08.2018.

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Recommendation 12

Geo-physical Mapping of Potential Disasters

The Committee have been informed that ONGC has developed an in-house GIS mapping of its pipelines laid in onshore locations and the mapping is nearly complete. ONGC is also undertaking a conceptual study in this regard. The Committee also note that no guidelines for GIS mapping of upstream assets has been brought out by OISD.

The Committee desire that all the oil and gas companies should mandatorily carry out GIS mapping of their assets. This will not only enable for tracking purpose both onshore and offshore but also as a tool for risk assessment of the areas around petroleum and gas installations/pipelines during major accidents. The Committee recommend that the world wide practice should also be studied for adopting the same in the Indian scenario for advance planning to minimise damage and to deal with accidents efficiently and effectively.

REPLY OF THE GOVERNMENT

IOCL has informed that GIS based Pipeline Asset Integrity Management System has been implemented in new cross country pipelines. Maps indicating pipeline routes are shared with respective police stations/administration as part of Emergency Response Disaster Management Plan (ERDMP).

ONGC undertakes survey of all the offshore pipelines inclusive of GIS mapping once every five years. An in-house common portal has also been developed for mapping of the pipelines. GIS mapping is done regularly for the areas where seismic survey is carried out.

GAIL has mapped its existing pipelines assets on GIS platform. Further, with the expansion of the truck pipeline in other parts of the country including providing the last mile connectivity, the same will also be mapped on the platform periodically.

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Comments of the Committee
(Please see Para No. 25 of Chapter-I)

Recommendation 13

Onshore Security

The Committee note that the security for the on-shore installations is provided by the owner oil companies owned security staff along with the Central Industrial Security Force (CISF), through patrolling. Technology such as Intrusion Detection System (IDS), remote surveillance, GIS, GPS, is also extensively being used for monitoring security of installations and pipelines. There is an Onshore Security Committee Chaired by the DGPs which acts as an inter-state linkage. The same pattern is being

followed in securing the Oil & Gas installations in the North-Eastern region. The Committee desire that the security of such vital installations should be fool proof to deal with all possible types of threats in the current security scenario. Security audit should be carried out at periodic intervals to update and upgrade the security systems in all the oil and gas installations. Worldwide practices in this area should also be examined and adopted wherever feasible. Apart from the internal security mechanisms, the State Governments and the local administration also have a major role in the security of the oil & gas installations. Regular interaction with the state authorities should be an essential feature of the security system for sharing of information on threats and for timely action during an emergency. The illegal encroachments/construction around the periphery of the oil & gas installations and on the Right of Way (RoW) around pipelines should not be allowed to come up as they pose a security threat. In this regard the Committee desire that Central Industrial Security Force (CISF) should be empowered to register cases against violators. The Committee further desire that the security risk assessment of all the onshore oil and gas installations should be carried out and the security strengthened by addressing and filling the gaps found therein. The Committee further desire that the best of the equipment and technology is used by the oil industry to secure their installations.

REPLY OF THE GOVERNMENT

The security of all installations is being ensured by deploying unarmed and armed security guards 24x7 through CISF. The security audit of all the vital installations are carried out by Intelligence Bureau (MHA) and state Intelligence Bureau in coordination. Mock drills are also conducted periodically. Moreover internal security audits are also carried out by security in charge on regular intervals. All the locations are declared as „Prohibited Areas“ by administration and notices displayed along with peripheral patrolling and ROW patrolling. Provisions of technology-based devices including Intrusion Detection System, forced entry barriers, GPS/Rfid based patrolling monitors are in the process of implementation at critical installations.

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Recommendation 14

Offshore Security

The Committee note that Navy, Indian Coast Guard, Offshore Defence Advisory Group (ODAG) a dedicated group of the Navy, are presently engaged to provide security to the Western and Eastern Offshore Oil and Gas platforms. The on boat security is exclusively been done by ONGC. The state police or the coastal police looks after the security from onshore to 12 nautical miles. The Offshore Security Co-ordination Committee (OSCC) comprising of the members from the Indian Coast Guard, Navy and the Ministry of Shipping reviews the security issues. The Committee were further informed that the offshore activity of vessels both sea borne and air is closely monitored through the Vessel and Air Traffic Management System (VATMS), besides this the Navy, ODAG, and the Indian Air Force also keep a watch on the movement of vessels. The Immediate Support Vessels of the Navy carry out regular patrolling of the waters. The Committee also note that to address underwater threats a comprehensive security solution is also being developed.

The Committee are satisfied to note the present security mechanism in place for protection of offshore oil and gas installations, nevertheless, desire that the maritime security and surveillance should keep abreast with the latest technology and further enhanced with equipment that are required for the protection of important offshore assets of the nation.

REPLY OF THE GOVERNMENT

The Offshore Security Co-ordination Committee (OSCC) forum is utilized to review, explore and improve existing offshore security apparatus and introduction of new pragmatic methods. Being a multi agency forum, inputs and expertise from various agencies is discussed to evolve Credible Response Mechanism. The Comprehensive Security Solution is being developed by ONGC taking inputs from Indian Naval Specialists and other expertise to include latest technologies for security and surveillance.

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Recommendation 15

Environment Protection in and around oil refineries

Today India's oil refining capacity is of about 5 million barrels per day and it exceeds the countries demand of oil products resulting in exports of more than one million barrel per day. Efforts are also being made to develop India as a refining hub in coming years. Surging demands in domestic and export market offers at attractive growth for Indian refineries. The Committee, however, feel that the growth if the Indian's refinery industry and country's sustainable future are closely linked tightening emission standards of international levels. Refineries emit a wide variety of pollutants. Common air pollutants coming out of refineries are Sulphur Dioxide, Oxides of Nitrogen, Carbon Monoxide, green house gases and other carcinogenic air pollutants. Similarly, pollutants from the refineries are also responsible for pollution of water bodies and contamination of ground water. Noise pollution from the refineries is also cause of concern. All these pollutants have harmful health effects relating to respiratory system, heart, eyes, skin, digestion etc and other serious health disorders. Prevention and control of air, water and noise pollution is being done under various acts of environment protection. This includes water pollution, air pollution and noise pollution monitoring and control, developments of green belts and eco parks, carbon management, use of renewable and alternate energy and solid waste and e-waste management etc. The committee, however, are not sure whether refining emission standards are strictly being followed by the refineries and also whether the effluent treatment facilities in all the refineries are of global level because the population living around the refineries face respiratory and other problems and water bodies in the adjoining areas to the refineries are heavily polluted. There are refinery modernization/expansion projects in progress and in pipeline. The Committee caution the Ministry that such projects should not be undertaken at the cost of increase in pollution of environment and contamination of water. The committee desires, in view of global environment standards improvement, the environment management in Indian refineries also need shift from conventional to more pragmatic approaches. Refineries should ensure that there is a regular monitoring and control of environment pollution and the level is not disturbed further due to expansion/modernization of refineries. They should put in efforts for mitigating

environmental pollution using the latest and cleaner technology, recovery of the byproducts and resource conservation and effluent treatment facilities and all these factors should be monitored and upgraded regularly at par with the international standards. The committee may be apprised about the efforts made in this direction and the outcome thereof.

REPLY OF THE GOVERNMENT

The pollution levels are monitored and meet the MoEF&CC & Pollution Control Board's stipulations and are online uploaded to the CPCB/KSCB servers. As per the Hazardous waste and other (Management and Trans boundary Movement) Rules, 2016 and consent to operate, low oily sludge is treated by adopting bioremediation using bacteria specialized for oil degradation with faster rate and thereby converting the low oily sludge into fertile soil.

All continuous air monitoring stations have been upgraded. Additional analyzers for monitoring of parameters namely Ozone, Benzene, Ammonia and H₂S have been added along with new Sox and NO_x analyzer. Data from these stations have been uploaded on Central Pollution Control Board website.

The refineries have various Environmental system and procedures in place to control and mitigate significant aspects and their impacts. State of the art New Integrated Effluent Treatment Plant consisting of primary, secondary and tertiary treatment section has been in operation consistently. The technology confirms to existing MINAS (Environmental Standards) and can also cater to further stringent standards in the future.

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Recommendation 16

Incidents of Oil Spill

The Committee notes that oil spill is a major problem in hydrocarbon sector which adversely effects the environment. There have been few incidents of oil spill, notably the recent one in Chennai coast in January, 2017 due to the collision of the two vessels. Similarly many incidents of the oil spill due to accidents involving vessels, oil platforms/rigs/pipelines etc have happened in the past in Indian coast. As the country has long coast both on the Eastern and Western side, there has to be an effective monitoring mechanism to avoid such incidents.

The Committee note that oil spill causes enormous impact on environment on marine life as well as to environment along with the economic cost associated with the cleaning and treating oil sludge. The management of oil spill involves significant financial, technical and human resource. The Committee are surprised to note that oil companies have not undertaken any serious R&D activities to develop the best capabilities in this regard. Therefore, the Committee recommends that the Ministry should coordinate with other agencies like NDMA, Indian Coast Guard, Ministry of Environment, Forest and Climate change, Ministry of Shipping, etc. to monitor and enhance the indigenous capabilities of managing the oil spill effectively.

REPLY OF THE GOVERNMENT

Indian Coast Guard (ICG) is the nodal agency for dealing with the incidents of oil spill within territorial limits of India. It has established Pollution Response Team (PRT) at Mumbai, Chennai and Port Blair. ICG has commissioned three dedicated pollution control Vessels based at Porbandar, Mumbai and Vizag. ICG regularly interacts with Oil Handling Agencies. The ICG has prepared Nation Oil Spill Disaster Contingency Plan (NOS-DCP) for oil spill response. Further, ICG is entrusted with responsibility of surveillance of Maritime Zones and coordinating authority for combating oil pollution against oil spills, combating oil spills (except for water in ports and within 500 meters of off-shore exploration and production platforms, coastal refineries and associated facilities), implementing NOS-DCP which obliges all ports (Major and Non-major ports), oil equipment for tier-I response (i.e. Oil spills up to 700 tons) & coastal State Administration to be suitably equipped for undertaking shoreline clean-up in their area of responsibility and conducting regular training and national level pollution response exercise with active participation of stakeholders viz. Ports, Oil handling agencies. Further, the International Convention for Prevention of Pollution from Ships (MARPOL) is being implemented by Ministry of Shipping.

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CHAPTER III

**RECOMMENDATIONS/OBSERVATIONS WHICH THE GOVERNMENT DO NOT
DESIRE TO PURSUE IN VIEW OF THE GOVERNMENT'S REPLIES**

-NIL-

CHAPTER IV**RECOMMENDATIONS/OBSERVATIONS IN RESPECT OF WHICH REPLIES OF THE GOVERNMENT HAVE NOT BEEN ACCEPTED BY THE COMMITTEE****Recommendation 1****Safety, Security And Environmental Aspects In Petroleum Sector**

The Committee note that the petroleum and natural gas industry of the country comprises of three major streams namely exploration and production, refineries, marketing & distribution. The country has 23 refineries with installed capacity of 231 MMTPA, 15 gas processing plants, 4 LNG terminals, 680 oil and LPG installations and more than 39,000 KM cross country pipelines spread across the length and breadth of the country. In offshore exploration and production, there are 21 production complexes, 252 well platforms and 33 rigs while in on-land exploration and production, there are 301 production installations & 230 rigs. This industry handles highly inflammable hydrocarbons in all forms namely solid, liquid and gas and operates processes under high temperature and pressure. Moreover, Petroleum industry has a significant influence on the total pollution of the environment by exploration and production operations, oil spillage, gas flaring and oil refining operations. Therefore, the safety and security and environment protection in petroleum and natural gas industry is of paramount and vital importance and its operation in a safe mode is necessary both for the employees and the society at large. The hydrocarbons are essential for economic development and propriety of nation for decades to come. The Committee, therefore, desire that, the Ministry should accord the top priority to the safety, security and environmental aspects relating to the petroleum and natural gas industry. All these aspects should be continuously monitored and necessary changes in statutes, rules and regulations be made so that the legislations enforcing these measures are strengthened regularly to enhance the level of safety and security of the installations and minimize the adverse impact on environment from the activities at installations at par with the current global situation.

REPLY OF THE GOVERNMENT

Ministry of Petroleum and Natural Gas (MoP&NG) regularly monitors and reviews the various safety issues in the Oil & gas Sector and directs the oil companies from time to time to take suitable measures to ensure safety of these vital installations.

Safety, health and environmental aspects of the Oil & Gas installations is of paramount importance; and concerted efforts are being made by the Industry and MoP&NG to preserve such national assets without compromising the safety.

OISD, technical body under the Ministry, makes necessary Safety Standards depending upon the emerging needs of the safety of oil installations and these standards are adopted after a due process and included in various rules/regulations.

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**Comments of the Committee
(Please see Para No. 7 of Chapter-I)**

Recommendation 9

Setting up of Emergency Response Centres (ERCs)

The Committee note that after the Jaipur major fire incident, the M.B. Lal Committee which investigated the incident had recommended for the setting up of Emergency Response Centre (ERCs) in the country to handle major oil fires like storage tank fire in fastest and specialized way.

The Committee also note that M.B. Lal Committee recommendations were approved by OMC and Ministry to be implemented immediately and all the recommendations including setting up of ERCs were to be completed by 2014. The Committee note that even after approval of the Ministry, the recommendation of setting up of ERCs is still pending.

The Committee further note that it has now been decided to set up five ERCs to be piloted by each of the oil companies at the following locations:

IOCL-Jaipur, HPCL-Vizag, BPCL-Manmad, ONGC-Hazira, and GAIL at Guna. The Fire Advisor, Ministry of Home Affairs too has recommended in 2006 & 2017 for establishing and positioning of ERCs at strategic locations. The Committee note that initially EIL was appointed as a consultant but was dropped due to high rates quoted by it, and now a global tender for appointment of consultant for Fire Expertise with PMC work for setting up of 5 ERCs has been floated. The Committee desire that engaging a Fire Consultant for setting up ERC before PMC work be expedited to ensure setting up of ERC, supply of equipment and operation of ERC at the earliest.

The Committee deplore the casual approach of the Ministry resulting in inordinate delay in the setting up of ERCs. It appears that the oil industry is waiting for another major disaster to happen to get on its feet. The Committee disagrees with the Ministry's contention that the firefighting capabilities of the industry is adequate to meet any major fire emergency and that the concept of ERC is a second line of defence in case of catastrophic events for which various other avenues like mutual aid partner industry, state fire brigade etc., are already in place. The Committee further note that an ERC would take up 3 to 4 years to be set up and any incident during the intervening period may cause huge losses. The Committee, therefore, strongly recommend that for the interim period the OMCs should procure required advanced firefighting equipments viz. robotic monitors, high capacity pumps with portable foam monitors, large hoses etc. for all the 22 locations for the proposed ERCs and later such equipments could become a part of the ERC. The Committee also desire that till the ERCs are set up, the OMCs should appoint an experienced agency on temporary basis who can provide 24x7 emergency firefighting services with advanced equipments as mentioned above immediately without any further delay.

The Committee agree with the views of the industry experts who deposed before them and are of the opinion that OMCs should consider procuring equipments/setting up of ERCs as they are an investment in safety. The Committee, therefore, desire the Ministry to take immediate action for the setting up of all 22 ERCs starting with 11 ERCs at strategic locations specially where there is cluster of oil companies/terminals to meet any disaster, taking into consideration the requirements of a rapidly growing industry.

REPLY OF THE GOVERNMENT

With the installation of state of the art equipment at installations of all the OMCs, the firefighting capability of our Oil & Gas Installations in the country is adequate to meet any major fire emergency arising out on account of routine operations. With in-plant firefighting facilities, all the OMCs are equipped with fire fighting facilities to handle emergency scenarios like tank fires, leakages etc. for a duration of four hours.

Further, in addition to the installed firefighting facilities, which are adequate for any operational related emergency as mentioned above, other avenues like mutual aid partner industries, state fire brigade etc. can also be pressed into service in case any catastrophic event occurs in these installations as a second line of defense. It may be reiterated that ERCs once available, shall also act as second line of defense to the installed firefighting facilities.

With regard to setting of ERCs in the country, it is mentioned that it has now been decided to set up five ERCs to be piloted by each of the oil companies at the following locations:

IOCL-Jaipur, HPCL-Vizag, BPCL-Manmad, ONGC-Hazira, GAIL, Dibiyapur (Earlier location Guna is changed).

It is submitted that for appointment of consultant for PMC for setting up 5 ERCs as above, a Global tender was floated but there was no response to get PMC services to establish 5 pilot ERCs by IOC/BPC/HPC/GAIL/ONGC. Based on inputs provided by prospective vendors during pre-bid meeting of the last tender, detailed BQC (bid qualification criteria) and Tender scope for engagement of PMC consultant have been finalized. To invite more no of bids, JVs/Consortium are being allowed in the new tender to have wider participation from prospective PMC consultants. Global/open tender is likely to float shortly.

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Comments of the Committee
(Please see Para No. 19 of Chapter-I)

CHAPTER V**RECOMMENDATIONS/OBSERVATIONS IN RESPECT OF WHICH FINAL
REPLIES OF THE GOVERNMENT ARE STILL AWAITED****Recommendation 5****Safety of Pipelines**

The Committee note that OISD carries out periodic audits including pre-commissioning audit of cross country pipelines, other additional safety checks and measures to ensure protection of oil and natural gas pipeline network in the country. It includes monitoring of the pipeline through 'Pipeline Integrity Management System', Supervisory Control and Data Acquisition (SCADA), sustained ground patrolling, inspection of Right of Way (RoW), surge analysis etc. However, despite such measures in place, a major accident occurred in the GAIL pipeline at Nagaram in East Godavari District of Andhra Pradesh in the year 2014 which caused extensive damage to life and property. The explosion and fire tragically claimed 22 lives. The cause of the accident was pipeline / equipment failure due to violations of SOPs. In this case it has been reported that wet gas was being carried in the pipeline meant for dry gas without taking adequate precautions like pigging of pipeline at regular intervals. The Committee are deeply anguished on this incident and feel that accident could have been prevented by following proper procedures in the first place. The Committee also note that in this case other safety measures also seem to have failed pointing towards the failure of monitoring system. The Committee note that the PESO has submitted its report on the incident to the MoEF for further action. The Committee, therefore, desire that MoP&NG should take up the matter with MoEF and ensure an action against those found responsible for lapses and negligence which caused the accident.

Looking at the serious impact of such incidents of leakage of gas, the Committee strongly recommend that there should be a fool proof mechanism for monitoring of pipeline infrastructure network of the country both through human and sensor based system and any deviations should be reported and preventive action initiated immediately. There should also be backup measures for operation of remote valves and these should be such that they are not damaged due to fire etc. The communications lines could be placed underground or away and secured from tampering. There should also be audible warning system to warn the people of leaks etc. so that they can take precautions. The Committee, further, note that the safety of the population that lives around those places where the oil and gas pipelines pass is the responsibility of the owner of the pipeline and should not be compromised in any way. Any report from the public about anything wrong like leaks in the pipeline or tampering should be taken seriously and investigated immediately to prevent any accident. Besides this, people should also be sensitized on the do's and don'ts in the event of any accident on the pipeline. The Committee may also be apprised of all the initiatives for safety of pipelines taken in this direction.

REPLY OF THE GOVERNMENT

Regarding action taken against officers responsible for major accident in the GAIL pipeline at Nagaram in East Godavari District of Andhra Pradesh in the year 2014 Gail has informed that based on assigned roles and responsibilities disciplinary proceedings were initiated against 5 officials. Penalty of non-consideration for

promotion & withholding performance related payments was immediately imposed on charges officials with the initiation of disciplinary proceedings. Disciplinary authority has examined the submissions of charged officials which are yet to be concluded.

Further, each of the oil companies both in private and public sector are required to maintain highest level of safety standards for ensuring safe operations in the respective pipelines. Some of the major safety measures undertaken by the Oil & Natural Gas Industry include:

- Incorporation of in-built safety aspects in the i.e. during the design phase itself. These include process safety, instrumentation & safety interlocks, safety while design of equipment following the best International Standards, etc.
- Each installation has its own dedicated firefighting facilities which are equipped with gadgets, well trained crew to fight fire in case of any eventuality.
- The industry also carries out regular Internal Safety Audits and conducts periodic mock drills both on-site and off-site to ensure emergency preparedness. It has also developed its own Disaster Management Plan.
- For real time monitoring of movement of line Patrolmen through Global Positioning System (GPS) has been adopted by pipeline industry.
- Monitoring of Repeater-cum-Cathodic Protection Stations through Close Circuit Television (CCTV) based surveillance has been adopted by pipeline industry.
- OFC based Pipeline Intrusion detection system/ acoustic sensor based leak detection system is being implemented.
- Application software based Leaked Detection System (LDS) in liquid pipelines is implemented in liquid pipelines.
- Provision of remote operation of pipeline's sectionalizing valves is kept for closing in case of any emergency.
- Provision of alternate communication means (in addition to OFC based communication/ radio communication) such as leased line /GSM network from telecom operators etc. as stand-by for closure of remote valves in case of OFC / radio communication failure.
- The pipeline is provided with electrical sirens of high range (3Km range) at all originating, intermediate pump / delivery stations, terminal station and all sectionalizing valve (SV) stations which are spread evenly along the length of pipeline.
- Toll free number on all route markers along the ROU of pipelines are provided.
- Regular interaction with villagers to sensitize them by conducting awareness programs like Hastakshar Abhiyaan/Sarpanch Meet/free medical check-up camps/Samyojak scheme/Sahyogi scheme etc.
- Regular interaction is being held with respective Police & District Administration.

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Comments of the Committee
(Please see Para No. 13 of Chapter-I)

Recommendation 10

Formation of Unified Safety Board

The Committee note that depending on the type of installations, there are various statutory authorities involved in the safety enforcement in the Petroleum and Natural Gas Industry. In the E&P onshore and offshore industry segments Exploration and Production the DGMS and OISD under the administrative Ministries of Labour and Employment and P&NG respectively have jurisdiction. In the Downstream & Gas (Natural) Processing Plants (GPP) segments the PESO and PNGRB under the administrative Ministries of Commerce & Industry and P&NG respectively are enforcing safety. The Committee also note that the proposal for having a unified Petroleum and Natural Gas Safety Board has been under consideration since the last four years and nothing has been finalised as yet. The Committee were informed that the matter was considered by the Committee of Secretaries (CoS) and they were of the view for strengthening the existing regulatory bodies over creation of a new organization. Thereafter, the recommendations of the CoS were considered by the Ministers of the Ministry of Petroleum and Natural Gas, Commerce and Labour. They have decided that a report should be prepared after studying the safety and security aspects keeping in view the international practice. The Committee are not satisfied with the current state of affairs as such an important issue is being unduly delayed. It appears that the three Ministries are reluctant to give up their role in the safety related aspects as they perceive it akin to losing power.

The Committee have been informed that among the three bodies namely PESO, DGMS and OISD, almost 97 percent of the premises are regulated for safety by PESO and 2 percent by DGMS and 1 percent by OISD. PESO has been handling the safety regulations in hazardous premises like refineries, cross country pipelines, manufacturing, storage and transportation of exploring storage & use of explosives in oil mines, Auto LPG and CNG dispensing stations. The Committee feel that the MoPNG wants to retain its dominant role through the OISD. The Committee would like to point out here that the OISD has no permanent staff of its own and most of its officers are on deputation from the Oil Companies. Therefore, the concept of arm's length in the safety aspect is certainly not fulfilled here. Due to conflict of interests, such officers cannot be expected to give adverse reports against their own employers. Therefore, in Committee's view, considering the capabilities, infrastructure and proportion of work administered in Hydrocarbon sector, PESO is more suitable body to reposition it to administer safety regulations in entire hydrocarbon sector. The Committee, therefore, strongly recommend that PESO may be empowered to work as a single framework for regulation of safety in entire hydrocarbon sector. For that purpose the capacity of PESO should be enhanced by providing it prosecution powers and strengthening the Human Resource and coordination with District authorities, upgradation of Research and Testing infrastructure and capacity building of external stakeholders.

REPLY OF THE GOVERNMENT

The Ministry has brought a proposal before the Committee of Secretaries (CoS) for establishment of Petroleum and Natural Gas Industry Safety Board (PNGISB) to regulate the safety of petroleum and Natural Gas Industry in the entire country. The proposal also envisage establishment of Directorate General of Natural Gas and Industry safety. Three meetings of the CoS have been held on 01.07.2014, 7.11.2014 and 19.08.2016. After detailed deliberations held in the third meeting of

CoS on 19.08.2016, it was interalia decided that MoPNG may weigh the option of strengthening the existing upstream and mid/downstream regulators vis-à-vis, a single safety regulator for all segments and take a considered view in this regard.

In order to settle the issues an inter-ministerial meeting involving Ministry of Petroleum and Natural Gas (MoP&NG), Ministry of Labour and Employment (MoLE) & Ministry of Commerce & Industry was held on 20.12.2016 and it was agreed to examine further the issue of existing structure of Safety in Petroleum and Natural Gas Industry and also examining best practice of Safety issues in Hydrocarbon Industry in other countries.

OISD was requested on 06.04.2017 to examine the best practices of safety issues in the hydrocarbon industry in other countries and submit a report. OISD has since submitted a report in the matter.

Further, Performance Audit Report of PESO has been obtained. Forensic Audit report of DGMS has not been received from Ministry of Labour.

From above, it would be evident that inter-ministerial consultation is going on to settle the issue.

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Comments of the Committee
(Please see Para No. 22 of Chapter-I)

New Delhi;
2 January, 2019
12 Pausha, 1940 (Saka)

PRALHAD VENKATESH JOSHI,
Chairperson,
Standing Committee on
Petroleum & Natural Gas.

MINUTES
STANDING COMMITTEE ON PETROLEUM AND NATURAL GAS
(2018-19)
FOURTH SITTING
(02.01.2019)

The Committee sat on Wednesday, the 2 January, 2019 from 1500 hrs. to 1530 hrs. in Committee Room 'D', PHA, New Delhi.

PRESENT

Sh. Pralhad Venkatesh Joshi - Chairperson

MEMBERS

LOK SABHA

- 2 Shri Rajendra Agrawal
- 3 Shri Kalikesh Narayan Singh Deo
- 4 Smt. Rama Devi
- 5 Shri Naranbhai Bhikhabhai Kachhadiya
- 6 Dr. Thokchom Meinya
- 7 Smt. Pratima Mondal
- 8 Smt. Jayshreeben Patel
- 9 Shri Arvind Ganpat Sawant
- 10 Shri A.T. (Nana) Patil
- 11 Shri Laxmi Narayan Yadav

RAJYA SABHA

- 12 Shri Bhubaneswar Kalita
- 13 Smt. Raneer Narah
- 14 Shri V. Lakshmikantha Rao
- 15 Shri Kanakamedala Ravindra Kumar
- 16 Shri A. Vijayakumar

SECRETARIAT

1. Shri H. Ram Prakash - Additional Director
2. Shri Vinay Pradeep Barwa - Deputy Secretary
3. Shri Mohan Arumala - Under Secretary

2. At the outset, the Hon'ble Chairperson welcomed the Members of the Committee to the sitting. Thereafter, the Committee took up the draft Action Taken Report on the recommendations contained in Twenty Fourth Report (Sixteenth Lok Sabha) on the subject 'Safety, Security and Environmental Aspects in Petroleum Sector', for consideration and adopted the same without modification.

3. The Committee, thereafter, authorised the Chairperson to present/lay the Report in both the Houses of Parliament.

The Committee then adjourned.

Annexure II

(Vide Para 4 of the Introduction)

ANALYSIS OF THE ACTION TAKEN BY THE GOVERNMENT ON THE RECOMMENDATIONS CONTAINED IN THE TWENTY FOURTH REPORT (SIXTEENTH LOK SABHA) OF THE STANDING COMMITTEE ON PETROLEUM AND NATURAL GAS (2017-18) ON THE SUBJECT 'SAFETY, SECURITY AND ENVIRONMENTAL ASPECTS IN PETROLEUM SECTOR'.

I	<u>Total No. of Recommendations</u>	16
II	Recommendations/Observations which have been accepted by the Government (Vide Recommendations Nos. 2, 3, 4, 6, 7, 8, 11, 12, 13, 14, 15 and 16)	12
	Percentage to Total	75%
III	Recommendations/Observations which the Committee do not desire to pursue in view of Government's (Vide Recommendations No. NIL)	NIL
	Percentage of Total	0
IV	Recommendations/Observations in respect of which replies of the Government have not been accepted by the Committee (Vide Recommendations Nos. 1 and 9)	2
	Percentage of Total	12.50%
V	Recommendations/Observations in respect of which final replies of the Government are still awaited (Vide Recommendations Nos. 5 and 10)	2
	Percentage of Total	12.50%