BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL EASTERN ZONAL BENCH KOLKATA IN O.A. No. 154/2022/EZ (Execution Application No.2/2024/EZ)

IN THE MATTER OF:

Yodh Bdr. Thapa **...Applicant**

Versus

Bharat Petroleum Corp. Ltd. &Ors **....Respondent(s)**

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(Mantu Kumar Choudhury)
Scientist'F'& Regional Director
Central Pollution Control Board
Regional Directorate, Shillong 793001

Dated: 21st May, 2024
Place: Shillong

एम. के. चौधुरी/ M. K. Choudhury
वैज्ञानिक 'एफ'/ Scientist 'F'

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forest & Climate Change, Govt. of India)
क्षेत्रीय निदेशालय - शिलांग
Regional Directorate - Shillong
बी एस एन एल, एन ई - 1, टेलीकॉम सर्कल, सी टी ओ भवन, शिलांग – 793001
BSNL NE - 1, Telecom Circle, CTO Building, Shillong – 793001

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IN THE MATTER OF:

Yodh Bdr. Thapa ...Applicant

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REPLY ON BEHALF OF THE RESPONDENT NO. 3, CENTRAL POLLUTION CONTROL BOARD

I, Mantu Kumar Choudhury S/o Late A. C. Choudhury, aged about 59, by Occupation Service, having office at the Regional Directorate, Central Pollution Control Board, BSNL, CTO Building, Shillong-793001, do hereby state as under:

1. That I, in the capacity of Scientist 'F' & holding charge of Regional Director Shillong, Central Pollution Control Board (herein after referred as "CPCB"), have made myself acquainted with the facts and circumstances ofthe instant case due to the official capacity as mentioned above and on the basis of available records, I am well versed with the facts andcircumstances of the matter and as such competent & authorized to submitthis reply Affidavit on behalf of Respondent No. 3.

2. That w.r.t. order dated 18th April, 2024 passed by the Hon'ble National Green Tribunal (EZ), Kolkata in Execution Application No. 2/2024/EZ, it is respectfully submitted that the Hon'ble Tribunal in the matter of Original Application No.154/2022/EZ (I.A. No.236/2022/EZ) vide order dated 17.04.2023 had directed CPCB to prepare Standard Operating Procedure (SOP) for Petrol Depots.

3. That CPCB prepared the first draft of SOP for Petrol depots in the month of May 2023. The draft SOP was communicated to Ministry of Petroleumand Natural Gas (MoPNG) with a request to

SI/Instrument No 15
Date 21.5.2024

NOTARY GOVT OF MEGHALAYA MELARIKA LYNGWA EAST KHASI HILLS DISTRICT REGD. 009 21/5

एम. के. चौधरी/ M. K. Choudhury
वैज्ञानिक 'एफ' / Scientist 'F'

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
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provide their comments vide CPCB letter dated 18.07.2023 (**Annexure-I**). Further, CPCB sent a reminderletter dated 18.09.2023 to MoPNG to provide their comments (**Annexure-II**). MoPNG provided their comments vide office memorandum dated 13.11.2023 (**Annexure-III**) along with the comments of Oil India Safety Directorate (OISD), Petroleum and Natural Gas Regulatory Board (PNGRB) and Oil Manufacturing Companies (OMCs) and requested CPCB to conduct a meeting with all the stakeholders before finalization of SOP. Subsequently,CPCB organized a meeting with Officials/ Representatives of PNGRB, Oil Manufacturing Companies (IOCL, HPCL, BPCL, Nayara, RIL) on 04.12.2023. The minutes of meeting dated 04.12.2023 are enclosed (**Annexure-IV**). In the said meeting, it was decided that OMCs may provide further suggestions/ feedback regarding draft SOP. The draft SOP was further modified on the basis of discussions held during meeting and the comments/feedback/suggestions received from OISD, PNGRB, OMCs etc. The copy of the final draft SOP is attached at **Annexure-V**.

4. That it is respectfully submitted that CPCB has prepared final draft of SOP for Petrol depots and the final draft of SOP has been communicated to allState Pollution Control Boards (SPCBs) / Pollution Control Committees(PCCs) for providing their comments/suggestions within 01 month videCPCB letter dated 06.05.2024 (Annexure-VI). The final draft SOP has also been uploaded on CPCB's website at URL:**https://cpcb.nic.in/openpdffile.php?id=TmV3c0ZpbGVzLzEwN18xNzE1MTcxNzc0X21lZGlhcGhvdG8yMjk5Mi5wZGY** for comments/feedback/suggestions (if any) from stakeholderswithin one month by 06.06.2024.

5. In view of the submissions made in earlier Paras it is respectfully submitted that this Answering Respondent No. 3 shall abide by any order or direction passed by this Hon'ble Tribunal in the instant matter.

(Mantu Kumar Choudhury)
Scientist'F'& Regional Director
Central Pollution Control Board
Regional Directorate, Shillong793001

NOTARY
MELARKY KHONGWA
EAST KHASI HILLS DISTRICT
REGD. 009
GOVT OF MEGHALAYA

एम. के. चौधुरी/ M. K. Choudhury
वैज्ञानिक 'एफ'/ Scientist 'F'

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IN THE MATTER OF:

Yodh Bdr. Thapa ...Applicant

Versus

Bharat Petroleum Corp. Ltd. &Ors ....Respondent(s)

AFFIDAVIT

I, Mantu Kumar Choudhury S/o Late A. C. Choudhury, aged about 59, by Occupation Service, having office at the Regional Directorate, Central Pollution Control Board, BSNL, CTO Building, Shillong-793001, do hereby solemnly affirm and sincerely state as follows: -

1. That the accompanying reply may be read part and parcel of the present affidavit as I am competent to swear this affidavit.
2. That the contents of reply are true and correct on the basis of the record maintained during ordinary course of business of CPCB and available records and documents and the contents of the same are read over to meand are not repeated herein for the sake of brevity

DEPONENT

VERIFICATION

I, Mantu Kumar Choudhury, the above-named deponent do hereby verify that the contents of the above affidavit are true and correct to my knowledge based on official records, no part of it is false and nothing material has been concealed therefrom.

Verified at Shillong on this the 21st Day of May, 2024.

DEPONENT

NOTARY
MELARIA LYNGWA
EAST KHASI HILLS DISTRICT
REGD. 009
GOVT OF MEGHALAYA

एम. के. चौधुरी/ M. K. Choudhury
वैज्ञानिक 'ए' / Scientist 'A'
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
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केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT FOREST & CLIMATE CHANGE GOVT OF INDIA

Speed Post / Email

File No: CM-13014/1/2023-RD-RD-SHILLONG-RD (Shillong) 2495

18.07.2023

To

The Director,
Ministry of Petroleum & Natural Gas,
Shastri Bhavan,
New Delhi – 110001

Sub: Standard Operating Procedure (SOP) for Petrol Depots –reg.

Sir,

Hon'ble National Green Tribunal, Eastern Zone Bench, Kolkata in the matter of Original Application No.154/2022/EZ (I.A. No.236/2022/EZ) vide order dated 17.04.2023 directed Central Pollution Control Board (CPCB) to prepare Standard Operating Procedure (SOP) for Petrol Depots within three months. In this regard CPCB has drafted a SOP which is enclosed for your kind perusal. The SOP drafted by CPCB covers the environmental aspects. Ministry of Environment & Forests (now Ministry of Environment, Forests & Climate Change) has already notified standards for Petroleum Oil Refinery in March 2008 which cover the storage of volatile liquids (general petroleum products) and standards for equipment leaks.

Petroleum and Natural Gas Regulatory Board has notified Technical Standards and Specifications including Safety Standards for Petroleum Installations Regulations, 2020 which specify, layout, design, standard operating procedures, maintenance, inspection, competence assurance, fire protection, safety management plan and vehicle management system of Petroleum Installations. Through the Notification F.No. PNGRB/Tech/7-T4SPI/(1)/ 2022 dated 29th March, 2023, Petroleum and Natural Gas Regulatory Board has brought amendment that *"These regulations will apply to petroleum installations with aggregate above ground storage capacity equal to or more than 1000 KL"*

One of the functions of Petroleum and Natural Gas Regulatory Board is to lay down, by regulations, the technical standards and specifications including safety standards in activities relating to petroleum, petroleum products and natural gas, including the construction and operation of pipeline and infrastructure projects related to downstream petroleum and natural gas sector.

In view of above the following is requested:

1) To issue the guidelines / standards regarding siting and location of petrol depots specifying distance from inhabitations in the light of hazard assessment and safety issues.

2) To issue the guidelines on other matters viz. material of construction of tanks and piping, design etc. w.r.t. SOP drafted by CPCB.

Yours faithfully,

18/7/23

(Dinabandhu Gouda)
Director & DH IPC - I

Encl : As above

Copy to :

1) The Regional Director : To provide a copy of this letter and enclosures to the CPCB counsel
Central Pollution Control Board
"TUM-SIR", Lower Motinagar
Near Fire Brigade H.Q.,
Shillong – 793014

18/7/30

(Dinabandhu Gouda)

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
निर्गत No. 2017/2023

'परिवेश भवन' पर्वी अर्जुन नगर, दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032
दूरभाष/Tel: 43102030, 22305792, वेबसाईट/Website : www.cpcb.nic.in

एम. के. चौधुरी/ M. K. Choudhury
वैज्ञानिक 'एफ'/ Scientist 'F'

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
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(Ministry of Environment, Forest & Climate Change, Govt. of India)
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Annexure-II

Reminder

By Speed Post / Email

File No: CM-13014/1/2023-RD-RD-SHILLONG-RD (Shillong) 4198 18.09.2023

To

The Director
Ministry of Petroleum & Natural Gas
Shastri Bhavan,
New Delhi – 110001

Sub: Standard Operating Procedure (SOP) for Petrol Depots –reg.

Sir,

This has reference to the Hon'ble National Green Tribunal, Eastern Zone Bench, Kolkata order dated 17.04.2023 in the matter of Original Application No.154/2022/EZ (I.A. No.236/2022/EZ) directed Central Pollution Control Board to prepare Standard Operating Procedure (SOP) for Petrol Depots within three months. In this regard, kindly refer to the letter dated 18.07.2023 sent by Central Pollution Control Board wherein the following was requested:

1. To issue the guidelines / standards regarding siting and location of petrol depots specifying distance from inhabitations in the light of hazard assessment and safety issues.
2. To issue the guidelines on other matters viz. material of construction of tanks and piping, design etc. w.r.t. SOP drafted by CPCB.

The copy of aforementioned letter and draft SOP are enclosed for kind reference. However, CPCB still has not received any response/ reply in this regard.

It is requested to provide your opinion / inputs pertaining to the above by 15.10.2023.

Yours faithfully,

18/9/23

(**Dinabandhu Gouda**)
Sc. F & DH IPC –I

Encl : as above

Copy to :

1. Regional Director
   Central Pollution Control Board
   BSNL NE-1, Telecom Circle,
   CTO Building, Ground floor
   Shillong-793001

   For kind information to Hon'ble NGT through CPCB counsel and inform IPC-I regarding further directions of Hon'ble NGT

2. The Chairperson
   Petroleum and Natural Gas Regulatory Board
   Ist Floor, World Trade Centre, Babar Road,
   New Delhi – 110011

   With request to provide your inputs especially regarding siting and location of petrol depots

3. DH, Law Division, CPCB

18/9/23

(**Dinabandhu Gouda**)

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
निर्गत...Shillong.....
दिनांक...19/9/2023...

O/C

एम. के. चौधुरी/ M. K. Choudhury
वैज्ञानिक 'एफ'/ Scientist 'F'

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Annexure-III

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-110032
15 NOV 2023
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar

IMMEDIATE

M-11045/38/2023-Distribution-PNG
Government of India
Ministry of Petroleum and Natural Gas

Shastri Bhawan, New Delhi
Dated the 13th November, 2023

OFFICE MEMORANDUM

Subject: Standard Operating procedure for Petrol Depot-reg.

The undersigned is directed to refer to Central Pollution Control Board's letter dated 18.07.2023 on the above mentioned subject and to say that the matter has been deliberated with OISD/PNGRB/OMCs and it has been suggested that the draft SOP contains various technical issues which need further consultation before finalization and have informed that guidelines/SOPs may have financial implications and practical difficulty for implementation.

2. It is requested, therefore, that CPCB may ~~organise~~ a meeting with all related bodies/organisations before finalization of proposed SOPs. However, the point wise comments received from OISD/PNGRB/OMCs are attached herewith as annexure.

Encl.: As above

(A. K. Sinha)
Under Secretary to the Govt. of India
Tele no. 23070329

To
Ministry of Environment Forest & Climate Change
(Kind Attn.: Shri Dinabandhu Gouda, Director & DH IPC–I)
Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar
Delhi- 110032

please give a reply
17/11/23
SEE (AS)
M. attach in file
20.11.23
OA (Ridhi)

IPC-I

एम. के. चौधुरी/ M. K. Choudhury
वैज्ञानिक 'एफ'/ Scientist 'F'

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Annexure

Report Point No.	Point Description	Already in practice	New requirement	OISD Comments	PNGRB Comments	OMC Comments
A.	**General Compliance:**					
1	Petrol depots shall have to obtain Consent to Establishment prior to establishment and consent to Operate prior to starting operations from the concerned State Pollution Control Board / Pollution Control Committee (SPCB/ PCC).	Yes				No comments
2	Prior to commissioning, petrol depots shall take out one or more insurance policies in accordance with the stipulations of The Public Liability Insurance Act, 1991 as amended.	Yes		At corporate level. Needs suitable revision in SOP.		No comments
3	Prior to commissioning, Petrol depots shall provide a baseline monitoring data of ambient air, soil and groundwater quality (of the locations situated between the boundary of the planned storage and 50 m outwards) covering relevant pollutant parameters from any laboratory recognized under Environment (Protection) Act 1986 / laboratory accredited by National Accreditation Board for Testing and Callibration Laboratories (NABL) to concerened SPCB/ PCC		Yes	For existing depot, baseline data may not be available.		No comments
4	Any major leakage/spillage (of more than 165 litres) shall be reported by petrol depot to the concerned SPCB / PCC , Petroleum and Explosives Safety Organization (PESO) and District Administration under intimation to Central Pollution Control Board (CPCB) within 24 hours of occurrence.		Yes	Major spills are reported as per extant guidelines. However, 165 ltrs is new requirement. Please include OISD, PNGRB in the list of organisations to be intimated.		No comments
5	Petrol Depots shall construct groundwater monitoring wells for sampling and analysis of groundwater to detect any contamination. The wells must be positioned to maximize the likelihood of intercepting contaminated groundwater, if any leakage occurs in the underground petrol storage tanks. Groundwater monitoring		Yes	Needs further deliberation.		Should be applicable to new grassroots depot / terminal location planned.

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	wells should be installed along as well as opposite to the direction of groundwater flow. Preferably one groundwater well may be installed opposite to the direction of groundwater flow and two groundwater wells may be installed along the direction of groundwater flow.					
6	Groundwater monitoring wells should be monitored within 30 days of commissioning of the petrol depots. Thereafter, groundwater sampling and analysis should be undertaken annually. Groundwater should compulsorily be sampled and analysed under information to the concerned SPCB / PCC when any leakage occurs or suspected to have occurred.		Yes	Needs further deliberation.		No comments
7	Further, soil sample shall be collected from a borehole within the premises of the petrol depot adjacent to the underground storage tank or above ground storage tank. The depth of bore hole should be up to 1m below the bottom of the storage tank level.		Yes	Agreed.		No comments
8	Ground water and soil quality monitoring shall be conducted by petrol depots once a year through Environment (Protection) Act, 1986 approVed laboratories/ NABL accredited laboratories and the reports shall be submitted to concerned SPCB / PCC. The soil monitoring shall be done in first six months while groundwater monitoring shall be done in the next six months.		Yes	Agreed		No comments
9	In case of exceedance of screening by any parameter or; in case of any major deviation from the baseline data (which was submitted prior to commissioning of petrol depot) or; in case of leakage resulting in soil/groundwater contamination, the Petrol Depot shall immediately inform the concerned SPCB/ PCC and shall take immediate action to detect and prevent the leakage; and shall carry out further environmental remediation.		Yes	Agreed		No comments

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10	The petrol depots shall conduct ambient air monitoring w.r.t. notified ambient hydrocarbon parameters on six monthly basis from any laboratory approved under Environment (Protection) Act, 1986 / laboratory accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) to concerned SPCB / PCC.	Yes					No comments
11	Petrol depots shall compulsorily provide adequate Effluent Treatment Plant to treat any effluent generated because of tank cleaning or cleaning of storage area, contamination of storm water, any other effluent generating activity and shall ensure that the treated effluent complies with the prescribed standards.		Yes	Needs deliberation. Major installations based on tankage may only be categorised to provide ETP. Small or minor location should continue to have OWS which is allowed as per PNGRB regulations.			No comments
12	Petrol depots shall take necessary steps to prevent entry of storm water to the storage area. In case storm water gets contaminated, there must be adequate arrangements for collection and treatment of storm water prior to its discharge.	Yes					No comments
13	Petrol Depots shall obtain authorization for managing hazardous and other wastes under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 from the concerned SPCB / PCC. Storage, collection, handling and disposal of hazardous and other wastes generated because of tank cleaning, effluent treatment or other activities shall be strictly carried out as per stipulations of the aforementioned authorization.	Yes					No comments
B.	**Prevention of Leakage:**						
1	For preventing fugitive emissions and standards for equipment leaks, the petrol storage depots shall comply with the relevant stipulations stated in Section C (under subheading Fugitive Emissions and Standards for Equipment Leaks) of the		Yes	Needs deliberation.			No comments

एम. के. चौधुरी/ M. K. Choudhury
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	Petroleum Oil Refinery standards notified by Ministry of Environment and Forests vide Notification no. GSR 186 (E) dated 18.03.2008, as applicable (Annexed as Annexure —I)					
2	Petrol depots shall install hydrocarbon sensors along with alarming system at the leakage prone locations to detect any leakage at the earliest.	Yes				No comments
3	Petrol depots may install spill prevention equipment that will prevent release of product to the environment when the transfer hose is detached from the fill pipe (for example, a spill catchment basin); and overfill prevention equipment that will prevent overfiIling of the petrol storage tanks as per extant and applicable standards and guidelines.	Yes				No comments
4	The tanks and pipework of **underground petrol storage tanks** should meet the following requirements:					
i.	The material of construction and design of storage tanks and pipelines should be in accordance with the extant and applicable standards.	Yes			The underground storage tanks are manufactured as per IS:10987. Clause 4.1 of IS10987 states: "4.1 Underground Tank - A tank placed in earth, masonry or concrete pit and packed around with sand, earth or clay leaving no air space between the tank and the pit." Provision of double walled underground tanks or impermeable tank pit requires consulation and reference to International standards before finalization. In addition to underground storage tanks at Depots, there are underground petroleum storage tanks existing at Retail Outlets (apprx. 80,000) spread across the Country, which also requires consultation along with proposed SOPs for Petrol depots.	Should be applicable. to new projects to be undertaken. There should be a proven technology available to detect leakage from the outer wall and should be feasible to implement. It requires study.
ii.	The tanks and pipework of underground petrol storage tanks should be double walled and should have an interstitial space between the two walls of the tank or pipelines that is capable of being monitored for any breach or failure of the inner wall OR it should be installed in a tank pit which must be impermeable to petrol and may serve as a secondary containment to prevent release of any leakage to the environment.		Yes	Needs deliberation. Cost intensive. Under ground storage tanks undergo internal inspection as per T4S/ OISD standards.		
iii.	There should be adequate monitoring system to detect any leakage from the outer wall of the tank or pipelines.		Yes	Needs deliberation.		
5	The tanks and pipework of **above ground petrol storage tanks** should meet the following requirements:					Should be applicable to new projects to be undertaken. There should be a proven technology
i.	The material of construction and design of storage tanks and pipelines should be in accordance with the extant and applicable standards	Yes				

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ii.	Tanks should be installed within separate dyked area		Yes	Grouping of tanks in a single dyke is permitted in line with Petroleum Rules, 2002. SOP needs to be reviewed.			available to detect leakage from the outer wall and should be feasible to implement. It requires study.
iii.	Dyked area must have a capacity of at least 110% of the tank's volume.		Yes	Needs revision. As per Petroleum Rules 2002, Dyked enclosure shall be able to contain the complete contents of the ***largest tank*** in the dyke in case of any emergency.			
iv.	The separation between above ground petrol storage tanks shall be as per extant norms.	Yes					
6	**Secondary containment :**						
6.1	Secondary containment systems must be designed, constructed, and installed to contain leakage / spillage released from the storage tank until it is detected and removed and shall prevent the release of leaked petrol to the environment at any time during operational life of the storage tank system, and may be checked for evidence of any leakage at least every 30 days. Secondary containment can be provided by providing double walled tanks and pipings or by constructing concreted and impervious walls around storage tanks. Double walled tanks must be capable of: (1) Contain a leak from any portion of the inner tank within the outer wall; (2) Detect the failure / breach of the inner wall. There should be proper arrangements so that any leakage within the secondary containment area may be timely detected and disposed in an environmentally safe and sound manner.		Yes	Repeat at 6.2 and 6.3. (To be dropped)			No comments
6.2	**Secondary containment for underground tanks ;**						

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		All the underground petrol storage tanks shall provide secondary containment system to prevent the leak to escape to the environment. The secondary containment can be provided through double walled tanks and double walled piping or by providing concreted walls around the storage tank that are impervious for petrol. Any material that is not inert towards petrol should not be used for providing secondary containment. Underground piping must be equipped with secondary containment. Underground piping conveying petrol under pressure must be equipped with an automatic line leak detector.	Yes	Needs deliberation. Cost intensive.	PNGRB (T4S for Petroleum Installation) Regulations 2020 prescribes the following provisions for Piping: 2.8.1 Piping: (1) Piping shall be designed for handling of hydrocarbon liquid as per "ASME B 31.3: Process Piping" or ASME B 31.4 (for cross country pipelines only entering the terminal) or API 5L or equivalent as applicable; (2) Pipe joints should be welded as far as practicable with full penetration weld and number of flanged or threaded joints should be kept to a minimum; (3) In case sampling point is provided on receipt line for operational requirement, the same should be provided outside of dyke in the manifold; (4) Sectionalizing of the pipelines with isolation valves and arrangements for injection or draining of water shall be provided for facilitating hydro-testing of the pipe lines; (5) Buried piping shall be protected against physical damage and corrosion with suitable protective coating; (6) At road crossings, in addition to protective coating, pipes should pass through secondary encasing with properly sealed at both the ends; (7) The pipelines should be provided with low point's drains and high point vents to facilitate emptying or hydro-testing and like other testings and ends of each drain point shall have provision of blind flange or capping arrangement; and (8) Jetty lines should be provided above ground properly spaced and approachable to maintain the lines. Above provisions are available for piping of Petrol depot. However, double walled underground piping or secondary containment for piping requires further consultation and reference to International standards before finalization.	Should be applicable to new projects to be undertaken. There should be a proven technology available to detect leakage from the outer wall and should be feasible to implement. It requires study and discussion on the industry level.
6.3	**Secondary containment for aboveground petrol tanks ;**						No Comments

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	All the above ground petrol storage depots shall provide secondary containment system to prevent the leaked petrol to escape to the environment. The secondary containment can be provided through double walled tanks and double walled piping or by constructing a dyked area. The dyked area must have a capacity of at least 110% of the tank's volume. Dyked area should prevent the interference of storm water or groundwater intrusion, should surround the tank completely and should be capable of preventing lateral as well as vertical migration of leaked petrol. **More than one tank in an above ground petrol depot should have separate dyked areas.**		Yes	Above ground storage tanks have secondary containment system by provision of impervious dyke. However, the condition to provide separate dyke area for each tank is not acceptable as grouping of tanks is permitted in statutory regulations in Petroleum Rules 2002.	PNGRB T4S for Petroleum Installation) Regulations 2020 prescribes the following main provisions for Dyke enclosures: (1) Petroleum storage tanks shall be located in dyked enclosures. Each dyke shall have roads all around for access for normal operation and maintenance as well as for emergency handling. Aggregate capacity (Combined safe capacity) of tanks located in one dyked enclosure shall not exceed following values, namely:- (i) 60,000 KL for a group of fixed roof tanks. (ii) 120,000 KL for a group of floating roof tanks Safe Capacity limits do not apply to a single tank in a dyke. Fixed cum floating roof tanks shall be treated as fixed roof tanks. but, in case these tanks are provided with windows opening on the shell and these windows will not get blocked in any case, then they shall be considered as floating roof tanks. If a group of tanks contains both fixed and floating roof tanks, then, it shall be treated as a group of fixed roof tanks for the purpose of above limits specified in clauses (i) and (ii). (2) Dyked enclosure shall be able to contain the complete contents of the largest tank in the dyke in case of any emergency. A free board of 200 mm above the calculated liquid level or 10% of calculated dyke capacity, whichever is higher, shall be provided for fixing the height and capacity of the dyke. Enclosure capacity shall be calculated after deducting the following volumes, namely: - (i) Volume of the tanks other than largest tank up to enclosure height without free board; (ii) Volume of all tank pads; (iii) Volume of fire breaks walls; and (iv) Volume of pipes/supports or steps and like other volume. Above provisions are available for dyke enclosures of Petrol depot. However, the suggested measures require further consultation before finalization.	No Comments
6.4	**Interstitial monitoring:**						
	Interstitial monitoring system having hydrocarbon sensors and alarming system shall be installed between the petrol storage tanks and secondary containment barrier to detect any leakage.		Yes	Already in practice for above ground tanks. (dyke is the secondary containment) The requirement			No Comments

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				of interstitial monitoring is not possible for existing underground tanks as there are no double wall tanks.			
6.5	**Vapour monitoring wells:**						
	In case interstitial monitoring (of underground tanks) is not feasible, vapour monitoring wells may be installed as alternative leak detection system that can be used either continuously or regularly to monitor for hydrocarbon vapours in the soil surrounding the tanks (beyond secondary containment). It should be ensured that the soil/ filler material between secondary containment and the vapour monitoring wells has a sufficient liquid/ vapour conductivity for passage of petrol vapours. The vapour monitoring system should not be affected by rainfall or moisture or any contamination which can interfere with monitoring.		Yes	Needs deliberation.			**Should be applicable to the newly planned projects.** There should be a proven technology available for vapor monitoring of wells. It requires study and discussion on the industry level.
6.6	Other routine leakage detection systems :						
	All new petrol storage tanks will have automation system (automatic tank gauging) installed which will provide reports on volume balance after every day operation and records shall be maintained. If feasible, manual gauging shall be done at least once in a month for determining the accuracy of Automatic Tank Gauging ; alternatively the automatic tank gauging system should be calibrated as per equipment manufacturer's guidelines. The automatic tank gauging system must be capable of detecting leakages 0.76 litres (or greater quantity) per hour, with at least 95% accuracy.		Yes	The practice is already in vogue for tank gauging accuracy and automatic as well as manual gauging are compared and corrective action taken. However, no such leakage detecting mechanism is feasible for leak detection of the level as mentioned. Needs deliberation.			Petrol expands and contract with change in temperature. Thus, Petrol storage tanks gauging keeps on varying with the change in temperature. Provision of a system on automatic tank gauging systems for detection of leakages @ 0.76 liters per hours, with at-least 95 % accuracy requires in-depth studies of the technologies available. The technology available if any should be feasible.

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6.7	All new petrol storage tanks shall install vapour recovery system to minimize losses during petrol transfer		Yes	During tank truck loading operation, the same is implemented. However, for IFR and EFR storage tanks, PV valves are provided. Provision of vapour recovery system for tanks needs deliberation.		The provision of Vapor Recovery System in Petrol Storage Tanks requires in-depth study and analysis of the available technologies. It requires study on Industry Level for applicability of technology and its feasibility.
6.8	Any major leakage/spillage (of more than 165 litres) shall be reported by petrol depot to the concerned SPCB / PCC , Petroleum and Explosives Safety Organization (PESO) and District Administration under intimation to Central Pollution Control Board (CPCB) within 24 hours of occurrence.		Yes	Repeat pioint of 4.		In case if above is found feasible, the same should be applicable to the newly planned grassroot projects.
6.9	In case of leakage resulting in soil/groundwater contamination:					No comments
i.	Concerned Petrol Storage Depot shall report to the concerned State Pollution Control Board / Pollution Control Committee, PESO and District Administration under intimation to CPCB within 24 hours of occurrence. Operation of such underground storage tank (UST) and its ancillary components shall be stopped immediately.		Yes	Same as 4. Please include OISD, PNGRB in the list of organisations to be intimated.		
ii.	Fuel shall be removed immediately from petrol storage tank to prevent further release to environment. Measures to prevent explosion due to vapors release due to leakage as recommended by PESO shall be implemented immediately.	Yes				
iii.	The petrol storage depot may be held liable for Environmental Compensation (imposed by concerned State Pollution Control Board / Pollution Control Committee) and environmental remediation.			As per statutory guidelines.		

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iv.	Operation of petrol storage tank and its ancillary components shall not be resumed till corrective measures to contain and stop leakages are implemented to the satisfaction of PESO and concerened state Pollution Control Board/ Pollution Control Committee.	Yes					
6.10	Equipment Integrity Test for underground petrol tanks:						Petrol Storage Tanks are designed as per API & routine inspections as per OISD 129 are ensured.
	The Equipment Integrity Test measures the containment integrity of the tanks, fittings and pipes. An EIT should be conducted to evaluate if an underground petrol storage tanks can cause any leakage to the environment and to evaluate if it can provide containment as required. An Equipment Integrity Test should be performed :						
i.	Before any new underground petrol storage tank is commissioned.	Yes					
ii.	After any modification or upgradation of underground petrol storage tanks.	Yes					
iii.	After any repair following the discovery of a leak in the system or replacement of tanks or piping.	Yes					
iv.	The Equipment Integrity Test should be done as per approved Indian or international procedure.	Yes					
C.	**For prevention of accidents:**						No comments
1	Subject to the quantity of petrol that may be stored in a depot and the threshold quantity specified for extremely flammable liquids in The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended, a petrol depot shall ensure compliance of the aforementioned rules including but not limited to						No comments
i.	General responsibility of the occupier during industrial activity ;			Needs deliberation.			No comments
ii.	Notification of Major accident;			Needs deliberation.			No comments
iii.	Approval and Notification of sites;			Needs deliberation.			No comments
iv.	Updating of the site notification following changes in the threshold			Needs deliberation.			No comments

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	quantity;					
v	Safety reports and safety audit reports and their updating ;			Needs deliberation.		No comments
vi	Preparation of on-site emergency plan and carrying out of mock drills;			Needs deliberation.		No comments
vii.	Information to be given to persons liable to be affected by a major accident etc.			Needs deliberation.		No comments
2	A petrol depot shall ensure compliance of all the provisions of The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended, as applicable.			Needs deliberation.		No comments
3	A petrol depot shall not commission without taking no objection certificate from the fire department.			Needs deliberation.		No comments
4	A petrol depot must invariably comply with the extant law concerned with safety or prevention of accidents issued by Ministry of Petroleum and Natural Gas / PESO/ any other statutory organization, as applicable.	Yes				No comments
5	In case, a major accident occurs, the petrol depot shall within 48 hours notify the concerned authority as identified in Schedule 5 (of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended) of that accident, and furnish thereafter to the concerned authority a report relating to the accidents in Schedule 6 (of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended)). However, the concerned authorities, local crisis group, District emergency authorities etc, have to be informed by the petrol depot as early as possible.	Yes				No comments
6	The petrol storage depots must provide fire breaking wall around its premises as per extant and applicable standards	Yes				No comments
7	The petrol storage depots must have alarming system to inform and alert the surrounding inhabitants in case of any accident or emergency.	Yes		Emergency siren is in place which can communicate the magnitude of emergency including disaster.		No comments

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8	The Petrol Depot shall ensure carrying out routine leakage detection and leakage monitoring in case of temporary shut down too.	Yes				No comments
D	**Location and Siting of Petrol Depot:**					
	The location and siting of petrol depot shall strictly be in accordance with the extant law / guidelines issued by Ministry of Petroleum and Natural Gas / PESO / any other statutory organization as applicable.	Yes				No comments
E	**Decommissioning of tanks:**					
1	In case any above ground or underground petrol storage tank has to be decommissioned, the following must be ensured :					No comments
i.	Removal of all petrol and its disposal in an environmentally sound manner.	Yes				
ii.	Removal of any residual flammable vapour and its safe disposal.	Yes				
iii.	Removal of any hazardous waste like tank sludge in an environmentally sound manner and its disposal as per extant hazardous waste management rules.	Yes				
2	Before decommissioning of tanks, the petrol depot shall take permission from the concerned statutory authority with information to the concerned SPCB / PCC		Yes	Needs deliberation.		
3	The petrol depot at the time of decommissioning must ensure that the site is investigated for any potential environmental contamination from an expert institution and submit the report to the concerned SPCB / PCC .		Yes	Needs deliberation.		

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				No Comments provided	No Comments provided	As per Industry practice, Storage of Class A Petroleum Products is done in Floating Roof Tanks & Class B, C & Excluded Products in Cone Roof Tanks. The floating roof tanks are provided with PV Vents. In the event of Storage of Class A in Cone Roof Tanks (Ethanol – in general), Provision of Safety procedures as PV Vents has also been mandated. Petrol Storage Tanks are designed as per API & routine inspections as per OISD 129 are ensured. 1 to 5 requires deliberations and in-depth studies to analyze the technologies available. In case if it is found feasible, the same should be applicable to the newly planned grassroot projects.
	Fugitive Emissions : Annexure – 1					

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Annexure-IV

Email **parulshahi.cpcb@supportgov.in**

Minutes of meeting regarding Standard Operating Procedure (SOP) for Petrol Depot held on 04.12.2023

From : parulshahi cpcb <parulshahi.cpcb@supportgov.in> Fri, Dec 08, 2023 01:53 PM

Subject : Minutes of meeting regarding Standard Operating Procedure (SOP) for Petrol Depot held on 04.12.2023 1 attachment

To : CHAIRPERSON PNGRB <chairperson@pngrb.gov.in>, Deepak Srivastava <directorm1-png@gov.in>, RAJNISH VAID <rvaid.oisd@gov.in>, Ranjan Srivastava <rsrivastava.oisd@gov.in>, prashant gogate <prashant.gogate@ril.com>, jitendra2 tomar <jitendra2.tomar@ril.com>, Shekhar Padte <Shekhar.Padte@ril.com>, prabhanjan dixit <prabhanjan.dixit@nayaraenergy.com>, NIYANTHA@INDIANOIL.IN, cmd@bharatpetroleum.in, corphqo@hpcl.in, Pali, Rajesh (राजेश पाली) <rpali@indianoil.in>, dramarao@hpcl.in, lokendramodi@bharatpetroleum.in, krao@indianoil.in, bcjoshi@indianoil.in, rdaman@indianoil.in, shubhendupal@indianoil.in, julkas@indianoil.in, kavinash@indianoil.in

Cc : Dinabandhu Gouda <dinabandhu.cpcb@nic.in>, ashbir singh <ashbirsingh.cpcb@nic.in>, Richa Tuli <richatuli.cpcb@supportgov.in>

Sir/ Ma'am,

I'm directed to forward Minutes of meeting regarding Standard Operating Procedure (SOP) for Petrol Depot held on 04.12.2023, for kind information and necessary action please.

with regard

Parul
SRF
IPC-I Division
CPCB
HO-Delhi

एम. के. चौधुरी/ M. K. Choudhury
वैज्ञानिक 'एफ'/ Scientist 'F'

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forest & Climate Change, Govt. of India)
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Minutes of meeting regarding SoP for Petrol Depot.pdf
551 KB

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Minutes of meeting regarding Standard Operating Procedure (SOP) for Petrol Depot held on 04.12.2023

A meeting was held on 04.12.2023 to discuss the draft SoP for petrol depot. Officials/ Representatives of PNGRB, Oil Manufacturing Companies (IOCL, HPCL, BPCL, Nayara, RIL) attended the meeting.

Sh. Dinabandhu Gouda, Sc. 'F', DH IPC-I Division CPCB briefed the objective of the meeting. This SOP shall be applicable for Petrol Depots (other than Petro Pumps / Retail Outlets) having facilities for storing, handling, distribution, transportation, loading or unloading of petrol and that are liable to take approval / license from the Chief Controller of Explosives for storage of petrol.

Representative of OMCs informed that quantity of leakage/ spillage of fuel (of more than 165 liters) is very less w.r.t petrol depot and further leakage/spillage occurring outside depot may be considered. In this regard, it was discussed that the pertinent point shall be written as "Any *major leakage/spillage occurring outside petrol depot shall be reported by petrol depot to the concerned SPCB/ PCC, Petroleum and Explosive Safety Organization (PESO), OISD and District Administration under intimation to CPCB within 24 hours of occurrence."*

Petrol Depot representatives informed that they shall require permission from Central Ground Water Authority (CGWA) to construct groundwater monitoring wells. Further they informed that they may face difficulties to obtain permission in Central Ground Water Authority (CGWA) Red Zone area where water level is low, because CGWA may deny to give permission for construction of new groundwater wells. Further, it was discussed that Ground water sampling and monitoring for detection of any contamination shall be done through existing well/piezometer/bore well located downstream directions of groundwater flow of water within premises of petrol depot.

Petrol Depot representatives stated that only Total petroleum hydrocarbon (TPHs) and total Poly aromatic hydrocarbons(PAHs) parameter for monitoring of Groundwater may be considered, because that will indicate contamination of water and soil. However, CPCB informed that the parameters and standards that have been proposed in draft SOP are in accordance with the parameters and their standards/ screening values that are stated in guidelines for setting up of new petrol pumps issued by CPCB on 07.01.2020.

OMCs informed that petrol depot are having facilities of Oil and Water Separator which are efficient to treat any effluent generated. Regarding which it was discussed that Petrol depot shall provide either adequate ETP or Oil Water Separator to treat any effluent (wastewater) generated and that treated effluent should comply with the prescribed standards.

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All the OMCs should have developed baseline data w.r.t air,water including ground water and soil quality ,if it is not available, than start from the date of SOP .

Further regarding grouping of tanks in a dyke should be followed as per Petroleum rule 2002 or as per the extant rules and regulations notified by MoPNG/PNGRB(OISD 244).

At the end of the meeting, DH of IPC-I conclude that OMCs may provide further suggestions/ feedback regarding draft SOP so that the SOP may be finalized.

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Central Pollution Control Board
IPC-I Division

Notice for inviting comments of Public/ Stakeholders on the draft of SOP for Petrol Depots

Hon'ble National Green Tribunal, Eastern Zone Bench, Kolkata vide order dated 17.04.2023 in the matter of Original Application No.154/2022/EZ (I.A. No.236/2022/EZ) directed Central Pollution Control Board to prepare Standard Operating Procedure (SOP) for Petrol Depots. Therefore, CPCB has prepared draft of Standard Operating Procedure (SOP) for Petrol Depots in-consultation with different stakeholders including Ministry of Petroleum and Natural Gas.

In this regard, CPCB hereby invites comments from public/ stakeholders on the draft of SOP which is enclosed herewith.

The comments may be sent by E-mail to **dinabandhu.cpcb@nic.in** (Sh. Dinabandhu Gouda, Scientist 'F', IPC-I Division) and **ashbirsingh.cpcb@nic.in** (Sh. Ashbir Singh, Scientist 'D', IPC-I Division, CPCB) or through post to the aforementioned officials at the following address:

IPC-I Division
Central Pollution Control Board,
Parivesh Bhawan,
East Arjun Nagar,
Delhi- 11 00 32

The comments may kindly be provided by 06.06.2024.

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Standard Operating Procedure (SOP) for Petrol Depots

Background

Hon'ble National Green Tribunal, Eastern Zone Bench, Kolkata in the matter of Original Application No.154/2022/EZ (I.A. No.236/2022/EZ) vide order dated 17.04.2023 directed Central Pollution Control Board to prepare Standard Operating Procedure (SOP) for Petrol Depots within three months.

Accordingly, Central Pollution Control Board prepared Standard Operating Procedure (SOP) for Petrol Depots.

This SOP shall be applicable for Petrol Depots (other than Petro Pumps / Retail Outlets) having facilities for storing, handling, distribution, transportation, loading or unloading of petrol and that are liable to take approval / license from the Chief Controller of Explosives for storage of petrol.

Standard Operating Procedure (SOP) for Petrol Depots is as follows:

A. **General Compliance:**

1. Petrol depots shall have to obtain Consent to Establishment prior to establishment and Consent to Operate prior to starting operations from the concerned State Pollution Control Board / Pollution Control Committee (SPCB / PCC).

2. Prior to commissioning, petrol depots shall take out one or more insurance policies in accordance with the stipulations of The Public Liability Insurance Act, 1991 as amended.

3. Prior to commissioning, Petrol depots shall provide a baseline monitoring data of ambient air, soil and groundwater quality (of the locations situated between the boundary of the planned storage and 50 m outwards) covering relevant pollutant parameters; from any laboratory recognized under Environment (Protection) Act 1986 / laboratory accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) to concerned SPCB / PCC. The existing petrol depots may obtain baseline data from any earliest date within a year subsequent to issuance of this SOP.

4. Any major leakage/spillage occurring inside the petrol depot or around the petrol depot during transportation / supply of petrol / any other activity related to the concerned petrol depot shall be reported by petrol depot to the concerned SPCB/ PCC, Petroleum and Explosive Safety Organization (PESO), Oil Industry Safety Directorate and District Administration under intimation to CPCB within 24 hours of occurrence

5. Petrol Depots shall conduct groundwater monitoring for detection of contamination. Ground water sampling and monitoring for detection of any contamination shall be done through existing piezometer /bore well located within premises of petrol depot or within 50 m from petrol depot (in case no piezometer /bore well exists in petrol depot) at least in three different directions with reference to the expected point of groundwater contamination.

6. Groundwater monitoring wells should be monitored within 30 days of commissioning of the petrol depots. Thereafter, groundwater sampling and analysis should be undertaken annually. Groundwater should compulsorily be sampled and analyzed under information to the concerned SPCB / PCC when any leakage occurs or suspected to have occurred.

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The parameters for which groundwater samples shall be analyzed and their respective screening values are as follows:

Sr. No.	Parameter	Screening Values
1.	Total petroleum hydrocarbons (C_{10} - C_{40})	**0.6mg/L**
2.	Benzene , Toluene and Xylene	i. Benzene- **0.01mg/L** ii. Toluene- **0.7mg/L** iii. Xylene-**0.5mg/L**
3.	Methyl Tertiary Butyl Ether	**13µg/l**
4.	Total Polycyclic aromatic hydrocarbons (PAH)	**0.0001mg/l**

7. Further, soil sample shall be collected from a borehole within the premises of the petrol depot adjacent to the underground storage tank or above ground storage tank. The depth of bore hole should be up to 1m below the bottom of the storage tank level. The parameters for which soil samples shall be analysed and their respective screening values are as follows:

Sr. No.	Parameter	Screening Values(mg/kg)
1.	Total petroleum hydrocarbons (TPH)	**5000**
2.	Benzene	**5**
3.	Toluene	**30**
4.	Xylene	**50**
5.	Methyl Tertiary Butyl Ether	**100**
6.	Total PAH	**40**

7. Ground water and soil quality monitoring shall be conducted by petrol depots once a year through Environment (Protection) Act, 1986 approved laboratories / NABL accredited laboratories and the reports shall be submitted to concerned SPCB / PCC.

8. In case of exceedance of screening values for any parameter or ; in case of any major deviation from the baseline data or ; in case of leakage resulting in soil/groundwater contamination, the Petrol Depot shall immediately inform the concerned SPCB / PCC and shall take immediate action to detect and prevent the leakage ; and shall carry out further environmental remediation.

9. The petrol depots shall submit ambient air monitoring report w.r.t. notified ambient hydrocarbon parameters on half yearly basis from any laboratory approved under Environment (Protection) Act, 1986 / laboratory accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) to concerned SPCB / PCC.

10. Petrol depots shall provide adequate Effluent Treatment Plant or Oil Water Separator to treat any effluent generated because of tank cleaning or cleaning of storage area, contamination of

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storm water, any other effluent generating activity and shall ensure that the treated effluent complies with the prescribed standards.

11. Petrol depots shall take necessary steps to prevent entry of storm water to the storage area. In case storm water gets contaminated, there must be adequate arrangements for collection and treatment of storm water prior to its discharge.

12. Petrol Depots shall obtain authorization for managing hazardous and other wastes under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 from the concerned SPCB / PCC. Storage, collection, handling and disposal of hazardous and other wastes generated because of tank cleaning, effluent treatment or other activities shall be carried out as per stipulations of the aforementioned authorization.

13. All petrol depots shall install vapour recovery system w.r.t. directions issued by CPCB on 18.09.2020 for storage terminals.

Prevention of Leakage:

1. For preventing fugitive emissions and standards for equipment leaks, the petrol storage depots shall comply with the relevant stipulations stated in Section C (under subheading Fugitive Emissions and Standards for Equipment Leaks) of the Petroleum Oil Refinery standards notified by Ministry of Environment and Forests vide Notification no. GSR 186 (E) dated 18.03.2008 , as applicable (Annexed as Annexure –I) / any other applicable norms / guidelines issued by Ministry of Petroleum and Natural Gas / other statutory bodies.

2. Petrol depots shall install hydrocarbon sensors along with alarming system at the leakage prone locations to detect any leakage at the earliest.

3. Petrol depots may install spill prevention equipment that will prevent release of product to the environment when the transfer hose is detached from the fill pipe (for example, a spill catchment basin); and overfill prevention equipment that will prevent overfilling of the petrol storage tanks as per extant and applicable standards and guidelines.

4. The tanks and pipework of **underground petrol storage tanks** should meet the following requirements:

i. The material of construction and design of storage tanks and pipelines should be in accordance with the extant and applicable standards.

ii. Efficient secondary containment (as detailed in Section C) shall be provided to prevent release of any leakage to the environment.

iii. There should be adequate monitoring system to detect any leakage from the outer wall of the tank or pipelines.

The tanks and pipework of **above ground petrol storage tanks** should meet the following requirements:

i. The material of construction and design of storage tanks and pipelines should be in accordance with the extant and applicable standards

ii. The separation between above ground petrol storage tanks shall be as per extant norms.

iii. Efficient secondary containment (as detailed in Section C) shall be provided to prevent release of any leakage to the environment.

iv. There should be adequate monitoring system to detect any leakage from the outer wall of the tank or pipelines.

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C. **Secondary containment:**

Secondary containment systems must be designed, constructed, and installed to contain leakage / spillage released from the storage tank and shall have system to detect the failure / breach of the containment system and shall prevent the release of leaked petrol to the environment at any time during the operational life of the storage tank system; and may be checked for leakage regularly.

1. Secondary containment for underground tanks :

All the underground petrol storage tanks shall provide secondary containment system to prevent the leak to escape to the environment. The secondary containment can be provided through double walled tanks

OR

by providing concreted walls around the storage tank that are impervious for petrol.

Double walled tanks must be capable of containing leak from any portion of the inner tank within the outer wall and having system to detect the failure / breach of the inner wall. Any material that is not inert towards petrol should not be used for providing secondary containment. Piping must be equipped with secondary containment. In the new / upcoming petrol depots, the piping conveying petrol under pressure must be equipped with an automatic line leak detector.

2. Secondary containment for above ground petrol tanks:

All the above ground petrol storage depots shall provide secondary containment system to prevent the leaked petrol to escape to the environment. The secondary containment can be provided through double walled tanks or by constructing a dyked area. Double walled tanks must be capable of containing leak from any portion of the inner tank within the outer wall and detect the failure / breach of the inner wall. Dyked area should prevent the interference of storm water or groundwater intrusion, should surround the tank completely and should be capable of preventing migration of leaked petrol.

There should be proper arrangements so that any leakage within the secondary containment area may be timely detected and disposed in an environmentally safe and sound manner.

D. **Monitoring**

1. **Interstitial monitoring:**

Interstitial monitoring system having hydrocarbon sensors and alarming system shall be installed between the petrol storage tanks and secondary containment barrier to detect any leakage.

2. **Vapour monitoring wells:**

In case interstitial monitoring (of underground tanks) is not feasible, vapour monitoring wells may be installed as alternative leak detection system that can be used either continuously or regularly to monitor for hydrocarbon vapours in the soil surrounding the tanks (beyond secondary containment). It should

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be ensured that the soil / filler material between secondary containment and the vapour monitoring wells has a sufficient liquid / vapour conductivity for passage of petrol vapours. The vapour monitoring system should not be affected by rainfall or moisture or any contamination which can interfere with monitoring.

3. **Other routine leakage detection systems:**

All new petrol storage tanks will have automation system (automatic tank gauging) installed which will provide reports on volume balance after every day operation and records shall be maintained. If feasible, manual gauging shall be done at least once in a month for determining the accuracy of Automatic Tank Gauging; alternatively, the automatic tank gauging system should be calibrated as per equipment manufacturer's guidelines. The leakage detection system shall be provided any other applicable norms / guidelines issued by Ministry of Petroleum and Natural Gas / other statutory bodies.

4. **In case of leakage resulting in soil/groundwater contamination:**

i. Concerned Petrol Storage Depot shall report to the concerned State Pollution Control Board / Pollution Control Committee, PESO and District Administration under intimation to CPCB within 24 hours of occurrence. Operation of such underground storage tank (UST) and its ancillary components shall be stopped immediately.
ii. Fuel shall be removed immediately from petrol storage tank to prevent further release to environment. Measures to prevent explosion due to vapors release due to leakage as recommended by PESO shall be implemented immediately.
iii. The petrol storage depot may be held liable for Environmental Compensation (imposed by concerned State Pollution Control Board / Pollution Control Committee) and environmental remediation.
iv. Operation of petrol storage tank and its ancillary components shall not be resumed till corrective measures to contain and stop leakages are implemented to the satisfaction of PESO and concerned State Pollution Control Board / Pollution Control Committee.

Equipment Integrity Test for underground petrol tanks:

The Equipment Integrity Test (EIT) measures the containment integrity of the tanks, fittings and pipes. An EIT should be conducted to evaluate if an underground petrol storage tanks can cause any leakage to the environment and to evaluate if it can provide containment as required

An Equipment Integrity Test should be performed:

i. Before any new underground petrol storage tank is commissioned
ii. After any modification or upgradation of underground petrol storage tanks.
iii. After any repair following the discovery of a leak in the system or replacement of tanks or piping.

The Equipment Integrity Test should be done as per approved Indian or international procedure.

E. **For prevention of accidents:**

1. Subject to the quantity of petrol that may be stored in a depot and the threshold quantity specified for extremely flammable liquids in The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended, a petrol depot shall ensure compliance of the aforementioned rules including but not limited to:

i. General responsibility of the occupier during industrial activity:
ii. Notification of Major accident;
iii. Approval and Notification of sites;
iv. Updating of the site notification following changes in the threshold quantity;
v. Safety reports and safety audit reports and their updating;
vi. Preparation of on-site emergency plan and carrying out of mock drills;
vii. Information to be given to persons liable to be affected by a major accident etc.

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2. A petrol depot shall ensure compliance of all the provisions of The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended, as applicable.

3. A petrol depot shall not commission without taking no objection certificate from the fire department.

4. A petrol depot must invariably comply with the extant law concerned with safety or prevention of accidents issued by Ministry of Petroleum and Natural Gas / PESO / any other statutory organization, as applicable.

5. In case, a major accident occurs, the petrol depot shall within 48 hours notify the concerned authority as identified in Schedule 5 (of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended) of that accident, and furnish thereafter to the concerned authority a report relating to the accidents in Schedule 6 (of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended)). However, the concerned authorities, local crisis group, District emergency authorities etc. have to be informed by the petrol depot as early as possible.

6. The petrol storage depots must provide proper arrangements to prevent and contain the spread of fire / explosion, as per extant and applicable norms and guidelines.

7. The petrol storage depots must have alarming system to inform and alert the surrounding inhabitants in case of any accident or emergency.

8. The Petrol Depot shall ensure carrying out routine leakage detection and leakage monitoring in case of temporary shut down.

F. **Location and Siting of Petrol Depot:**

1. The location and siting of petrol depot shall strictly be in accordance with the extant law / guidelines issued by Ministry of Petroleum and Natural Gas / PESO / any other statutory organization as applicable.
2. The SPCBs / PCCs while granting Consent to Establish / Operate to new petrol depots shall give due consideration to the pollution causing potential and ecological sensitivity of the pertinent region as well as extant local government laws regarding setting of such major accident hazard industries and extant law / guidelines issued by Ministry of Petroleum and Natural Gas / PESO / any other statutory organization as applicable.
3. New / upcoming petrol depots shall be located at least 100 m away from the surface water bodies including lakes, ponds, streams, rivers, wetlands, canals and creeks and human habitation. In case of streams and rivers, the distance shall be considered from the floodway. In case, floodway is not defined, the distance shall be considered from firm banks / edges of the river.

G. **Decommissioning of tanks: In** case any above ground or underground petrol storage tank has to be decommissioned, the following must be ensured:

i. Removal of all petrol and its disposal in an environmentally sound manner.

ii. Removal of any residual flammable vapour and its safe disposal.

iii. Removal of any hazardous waste like tank sludge in an environmentally sound manner and its disposal as per extant hazardous waste management rules.

2. Before decommissioning of tanks, the petrol depot shall take permission from the concerned statutory authority if / as applicable and shall inform to the concerned SPCB / PCC.

3. The petrol depot at the time of decommissioning must ensure that the site is investigated for any potential environmental contamination from an expert institution and submit the report to the concerned SPCB / PCC.

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Section C (under subheading Fugitive Emissions and Standards for Equipment Leaks) of the Petroleum Oil Refinery standards notified by Ministry of Environment and Forests vide Notification no. GSR 186 (E) dated 18.03.2008

Fugitive Emission

Storage of Volatile Liquids: General Petroleum Products

1. Storage tanks with capacity between 4 to 75 m^3 and total vapour Pressure (TVP) of more than 10 kpa should have Fixed Roof Tank (FRT) with pressure valve vent.
2. Storage tank with the capacity between 75 to 500 m^3 and total vapour Pressure (TVP) of 10 to 76 kpa should have Internal Floating Root Tank (IFRT) of External Floating Root Tank (EFRT) or Fixed Roof Tank with vapour control or vapour balancing system.
3. Storage tanks with the capacity of more than 500 m^3 and total vapour Pressure (TVP) of 10 to 76 kpa should have Internal Floating Roof Tank or External Floating Roof Tank or Fixed Roof Tank with vapour control system.
4. The tanks with the capacity of more than 75m^3 and total vapour Pressure (TVP) of more than 76 kpa should have Fixed Root Tank with vapour control system.
5. Requirement for seals in Floating Roof Tanks:

(i) a) IFRT and EFRT shall be provided with double seals with minimum vapour recovery of 96%.

b. Primary seal shall be liquid or shoe mounted for EFRT and vapour mounted for IFRT. Maximum seal gap width will be 4 cm and maximum gap area will be 200 cm^2/m of tank diameter.

c. Secondary seal shall be rim mounted. Maximum seal gap width will be 1.3 cm and maximum gap area will be 20 cm^2/m of tank diameter.

d. Material of seal and construction shall ensure high performance and durability.

(ii) Fixed Roof Tanks shall have vapour control efficiency of 95% and vapour balancing efficiency of 90%.

iii. Inspection and maintenance of storage tanks shall be carried out under strict control. For the inspection, API RP 575 may be adopted. In-service inspection with regard seal gap should be carried out once in every six months and repair to be implemented in short time. In future, possibility of on-stream repair of both seals shall be examined.

Storage of Volatile Liquids: Benzene Storage

(1) FRT with vapour to incineration with 99.9% of removal efficiency for volatile organic compounds (VOC) shall be provided.

(2) IFRT/EFRT with double seals, emission-reducing roof fitting and fitted with fixed roof with vapour removal efficiency of at least 99% shall be provided.

Solvents for Lube-Base Oil production (Furfural, NMP, MEK, Toulene and MIBK)

IFRT with double seals and inert gas blanketing with vapour removal efficiency of at least 97% shall be provided.

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Emission control for Road tank truck/Rail Tank wagon loading			
	Loading of Volatile Products	Gasoline and Naphtha : i. VOC reduction, % ii. Emission, gm/ m^3	 i. 99.5 ii. 5
		Benzene : i. VOC reduction, % ii. Emission, mg/ m^3	 i. 99.99 ii. 20
		Toluene/Xylene : i. VOC reduction, % ii. Emission, mg/ m^3	 i. 99.98 ii. 150
		Note : i. It shall be applicable for Gasoline, Naphtha, Benzene, Toluene and Xylene loading ii. Road tank Truck shall have Bottom loading and Rail tank wagon shall have Top submerged loading. iii. Annual leak testing for vapour collection shall be done.	

Standards for Equipment Leaks

1. Approach: Approach for controlling fugitive emissions from equipment leaks shall have proper selection, installation and maintenance of non-leaking or lea-tight equipment. Following initial testing after commissioning, the monitoring for leak detection is to be carried out as a permanent on-going Leak Detection and Repair (LDAR) programme. Finally detected leaks are to be repaired within allowable time frame.

   (2) Components to be Covered: Components that shall be covered under LDAR programme include (i) Block Valves; (ii) Control Valves; (iii) Pump seals; (iv) Compressor seals; (v) Pressure relief valves; (vi) Flanges - Heat Exchangers; (vii) Flanges - Piping; (viii) Connectors - Piping; (ix)
   Open ended lines; and (x) Sampling connections. Equipment and line sizes more than 1.875 cm
   or ¾ inch are to be covered.

3. Applicability: LDAR programme would be applicable to components (given at 2 above) for following products/compounds: (i) hydrocarbon gases; (ii) Light liquid with vapour pressure @ 20 °C > 1.0 kPa; and (iii) Heavy liquid with vapour pressure @ 20 °C between 0.3 to 1.0 kPa.

4. While LDAR will not be applicable for heavy liquids with vapour pressure < 0.3 kPa, it will be desirable to check for liquid dripping as indication of leak.

5. Definition of Leak: A leak is defined as the detection of VOC concentration more than the values (in ppm) specified below at the emission source using a hydrocarbon analyser according to measurement protocol (US EPA-453/R-95-017, 1995 Protocol for equipment leak emission estimates may be referred to:

Component	**General Hydrocarbon (ppm)**		**Benzene (ppm)**	
	Till 31st Dec. 2008	w.e.f. January 01, 2009	Till 31st Dec., 2008	w.e.f. January 01, 2009
Pump/Compressor	10000	5000	3000	2000
Valves/Flanges	10000	3000	2000	1000
Other Components	10000	3000	2000	1000

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6. In addition, any component observed to be leaking by sight, sound or smell, regardless of concentration (liquid dripping, visible vapour leak) or presence of bubbles using soap solution should be considered as leak.

7. Monitoring Requirements and Repair Schedule: Following frequency of monitoring of leaksand schedule for repair of leaks shall be followed:

Component	Frequency of monitoring	Repair schedule
	Quarterly (semi-annual after two consecutive periods with < 2% leaks and annual after 5 periods with < 2% leaks)	Repair will be started within 5 working days and shall be completed within 15 working days after detection of leak for general hydrocarbons. In case of benzene, the leak shall be attended immediately for repair.
Pump seals	Quarterly	
Compressor seals	Quarterly	
Pressure relief devices	Quarterly	
Pressure relief devices (after venting)	Within 24 hours	
Heat Exchangers	Quarterly	
Process drains	Annually	
Components that are difficult to monitor	Annually	
Pump seals with visible liquid dripping	Immediately	Immediately
Any component with visible leaks	Immediately	Immediately
Any component after repair/replacement	Within five days	-

8. The percentage leaking components should not be more than 2% for any group of components, monitored excluding pumps/compressor. In case of pumps/compressors, it should be less than 10% of the total number of pumps/compressors or three pumps and compressor, whichever is greater.

9. Emission Inventory: Refinery shall prepare on inventory of equipment components in the plant. After the instrumental measurement of leaks, emission from the components will be calculated using stratified emission factors (USEPA) or any other superior factors. The total fugitive emission will be established.

10. Monitoring following types of monitoring methods may be judiciously employed for detection of leaks: (i) instrumental method of measurement of leaks; (ii) Audio, visual and olfactory (AVO) leak detection; and (iii) Soap bubble method.

11. Data on time of measurement and concentration value for leak detection; time of repair of leak; and time of measurement & concentration value after repair of leak should be documented for all the components.

12. Pressure relief and blow down systems should discharge to a vapour collection and recovery system or to flare.

13. Open-ended lines should be closed by a blind flange or plugged.

14. Totally closed-loop should be used in all routine samples.

15. Low emission packing should be used for valves.

16. High integrity sealing materials should be used for flanges.

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Annexure-VI

By Speed Post/ Email

B-29016/ IPC-I 510-545 May 06, 2024

To

The Member Secretary
(All SPCBs/ PCCs)
List enclosed

Sub: Standard Operating Procedure (SOP) for Petrol Depots –reg.

Sir,

Hon'ble National Green Tribunal, Eastern Zone Bench, Kolkata vide order dated 17.04.2023 in the matter of Original Application No.154/2022/EZ (I.A. No.236/2022/EZ) directed Central Pollution Control Board to prepare Standard Operating Procedure (SOP) for Petrol Depots. Therefore, CPCB has prepared Standard Operating Procedure (SOP) for Petrol Depots in-consultation with different stakeholders including MoPNG.

In this regard, it is requested to provide comments / inputs (if any) to the draft SOP by 05 June, 2024 positively, so that the SOP may be finalized.

Yours faithfully,

(**Dinabandhu Gouda**)
Sc. F & DH IPC -I

Encl : as above

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निर्गत Nsingh
दिनांक 8/5/2024

c/c

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List of SPCBs/ PCCs

1. The Member Secretary
   Andhra Pradesh State Pollution Control Board
   D.No. 33-26-14 D/2, Near Sunrise Hospital,
   Pushpa Hotel Centre, Chalmvari Street,
   Kasturibaipet, Vijayawada- 520010, Andhra Pradesh

2. The Member Secretary
   Arunachal Pradesh State Pollution Control Board
   'Paryavaran Bhavan', Yupla Road,
   Pappu Nallah,
   Naharlagun – 791110, Arunachal Pradesh

3. The Member Secretary
   Assam State Pollution Control Board
   Bamunimaidan,
   Guwahati – 781021, Assam

4. The Member Secretary
   Bihar State Pollution Control Board
   Parivesh Bhawan, Plot No.N-B/2,
   Patliputra Industrial Area, Patna-800023

5. The Member Secretary
   Chhattisgarh Environment Conservation Board
   Paryavaran Bhawan, North Block Sector-19
   Naya Raipur – 492 099, Chhattisgarh

6. The Member Secretary
   Goa State Pollution Control Board
   Nr. Pilerne Industrial Estate,
   Opp. Saligao Seminary,
   Saligao - Bardez Goa - 403511

7. The Member Secretary
   Gujarat State Pollution Control Board
   Sector 10-A, Gandhi Nagar – 382043, Gujarat

8. The Member Secretary
   Haryana State Pollution Control Board
   C-11, Sector 6, Panchkula, Haryana 134109

9. The Member Secretary
   Himachal Pradesh State Pollution Control Board
   Him Parivesh, Phase-III, Below BCS,
   New Shimla, Himachal Pradesh 171009

10. The Member Secretary
    J&K State Pollution Control Board,
    Shiekh-ul-Campus, behind Govt. Silk
    Factory, Raj Bagh, Srinagar.
    Jammu and Kashmir

11. The Member Secretary
    Jharkhand State Pollution Control Board
    T.A Building, HEC Campus, P.O. Dhurwa
    Ranchi – 834004, Jharkhand

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12. The Member Secretary
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13. The Member Secretary
Kerala State Pollution Control Board
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Thiruvananthapuram-695 004

14. The Member Secretary
Maharashtra Pollution Control Board,
Kalpataru Point, 2nd – 4th Floor
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15. The Member Secretary
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Bhopal – 462016, Madhya Pradesh

16. The Member Secretary
Manipur State Pollution Control Board
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West D.C. Office Complex – 795004, Manipur

17. The Member Secretary
Meghalaya State Pollution Control Board
Arden, Lumpyngngad,
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18. The Member Secretary
Mizoram State Pollution Control Board
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19. The Member Secretary
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20. The Member Secretary
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21. The Member Secretary
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22. The Member Secretary
Rajasthan State Pollution Control Board
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23. The Member Secretary
Sikkim State Pollution Control Board,
Department of Forest, Environment &
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24. The Member Secretary
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25. The Member Secretary
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26. The Member Secretary
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27. The Member Secretary
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28. The Member Secretary
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29. The Member Secretary
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30. The Member Secretary
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31. The Member Secretary
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32. The Member Secretary
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34. The Member Secretary
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35. The Member Secretary
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Standard Operating Procedure (SOP) for Petrol Depots

Background

Hon'ble National Green Tribunal, Eastern Zone Bench, Kolkata in the matter of Original Application No.154/2022/EZ (I.A. No.236/2022/EZ) vide order dated 17.04.2023 directed Central Pollution Control Board to prepare Standard Operating Procedure (SOP) for Petrol Depots within three months.

Accordingly, Central Pollution Control Board prepared Standard Operating Procedure (SOP) for Petrol Depots.

This SOP shall be applicable for Petrol Depots (other than Petro Pumps / Retail Outlets) having facilities for storing, handling, distribution, transportation, loading or unloading of petrol and that are liable to take approval / license from the Chief Controller of Explosives for storage of petrol.

Standard Operating Procedure (SOP) for Petrol Depots is as follows:

A. **General Compliance:**

1. Petrol depots shall have to obtain Consent to Establishment prior to establishment and Consent to Operate prior to starting operations from the concerned State Pollution Control Board / Pollution Control Committee (SPCB / PCC).

2. Prior to commissioning, petrol depots shall take out one or more insurance policies in accordance with the stipulations of The Public Liability Insurance Act, 1991 as amended.

3. Prior to commissioning, Petrol depots shall provide a baseline monitoring data of ambient air, soil and groundwater quality (of the locations situated between the boundary of the planned storage and 50 m outwards) covering relevant pollutant parameters; from any laboratory recognized under Environment (Protection) Act 1986 / laboratory accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) to concerned SPCB / PCC. The existing petrol depots may obtain baseline data from any earliest date within a year subsequent to issuance of this SOP.

4. Any major leakage/spillage occurring inside the petrol depot or around the petrol depot during transportation / supply of petrol / any other activity related to the concerned petrol depot shall be reported by petrol depot to the concerned SPCB/ PCC, Petroleum and Explosive Safety Organization (PESO), Oil Industry Safety Directorate and District Administration under intimation to CPCB within 24 hours of occurrence

5. Petrol Depots shall conduct groundwater monitoring for detection of contamination. Ground water sampling and monitoring for detection of any contamination shall be done through existing piezometer /bore well located within premises of petrol depot or within 50 m from petrol depot (in case no piezometer /bore well exists in petrol depot) at least in three different directions with reference to the expected point of groundwater contamination.

6. Groundwater monitoring wells should be monitored within 30 days of commissioning of the petrol depots. Thereafter, groundwater sampling and analysis should be undertaken annually. Groundwater should compulsorily be sampled and analyzed under information to the concerned SPCB / PCC when any leakage occurs or suspected to have occurred.

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The parameters for which groundwater samples shall be analyzed and their respective screening values are as follows:

Sr. No.	Parameter	Screening Values
1.	Total petroleum hydrocarbons (C_{10} - C_{40})	**0.6mg/L**
2.	Benzene , Toluene and Xylene	i. Benzene- **0.01mg/L** ii. Toluene- **0.7mg/L** iii. Xylene-**0.5mg/L**
3.	Methyl Tertiary Butyl Ether	**13µg/l**
4.	Total Polycyclic aromatic hydrocarbons (PAH)	**0.0001mg/l**

7. Further, soil sample shall be collected from a borehole within the premises of the petrol depot adjacent to the underground storage tank or above ground storage tank. The depth of bore hole should be up to 1m below the bottom of the storage tank level. The parameters for which soil samples shall be analysed and their respective screening values are as follows:

Sr. No.	Parameter	Screening Values(mg/kg)
1.	Total petroleum hydrocarbons (TPH)	**5000**
2.	Benzene	**5**
3.	Toluene	**30**
4.	Xylene	**50**
5.	Methyl Tertiary Butyl Ether	**100**
6.	Total PAH	**40**

7. Ground water and soil quality monitoring shall be conducted by petrol depots once a year through Environment (Protection) Act, 1986 approved laboratories / NABL accredited laboratories and the reports shall be submitted to concerned SPCB / PCC.

8. In case of exceedance of screening values for any parameter or ; in case of any major deviation from the baseline data or ; in case of leakage resulting in soil/groundwater contamination, the Petrol Depot shall immediately inform the concerned SPCB / PCC and shall take immediate action to detect and prevent the leakage ; and shall carry out further environmental remediation.

9. The petrol depots shall submit ambient air monitoring report w.r.t. notified ambient hydrocarbon parameters on half yearly basis from any laboratory approved under Environment (Protection) Act, 1986 / laboratory accredited by National Accreditation Board for Testing and Calibration Laboratories (NABL) to concerned SPCB / PCC.

10. Petrol depots shall provide adequate Effluent Treatment Plant or Oil Water Separator to treat any effluent generated because of tank cleaning or cleaning of storage area, contamination of

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(पर्यावरण वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(Ministry of Environment, Forest & Climate Change, Govt. of India)
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storm water, any other effluent generating activity and shall ensure that the treated effluent complies with the prescribed standards.

11. Petrol depots shall take necessary steps to prevent entry of storm water to the storage area. In case storm water gets contaminated, there must be adequate arrangements for collection and treatment of storm water prior to its discharge.

12. Petrol Depots shall obtain authorization for managing hazardous and other wastes under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 from the concerned SPCB / PCC. Storage, collection, handling and disposal of hazardous and other wastes generated because of tank cleaning, effluent treatment or other activities shall be carried out as per stipulations of the aforementioned authorization.

13. All petrol depots shall install vapour recovery system w.r.t. directions issued by CPCB on 18.09.2020 for storage terminals.

Prevention of Leakage:

1. For preventing fugitive emissions and standards for equipment leaks, the petrol storage depots shall comply with the relevant stipulations stated in Section C (under subheading Fugitive Emissions and Standards for Equipment Leaks) of the Petroleum Oil Refinery standards notified by Ministry of Environment and Forests vide Notification no. GSR 186 (E) dated 18.03.2008 , as applicable (Annexed as Annexure –I) / any other applicable norms / guidelines issued by Ministry of Petroleum and Natural Gas / other statutory bodies.

2. Petrol depots shall install hydrocarbon sensors along with alarming system at the leakage prone locations to detect any leakage at the earliest.

3. Petrol depots may install spill prevention equipment that will prevent release of product to the environment when the transfer hose is detached from the fill pipe (for example, a spill catchment basin); and overfill prevention equipment that will prevent overfilling of the petrol storage tanks as per extant and applicable standards and guidelines.

4. The tanks and pipework of **underground petrol storage tanks** should meet the following requirements:

i. The material of construction and design of storage tanks and pipelines should be in accordance with the extant and applicable standards.

ii. Efficient secondary containment (as detailed in Section C) shall be provided to prevent release of any leakage to the environment.

iii. There should be adequate monitoring system to detect any leakage from the outer wall of the tank or pipelines.

The tanks and pipework of **above ground petrol storage tanks** should meet the following requirements:

i. The material of construction and design of storage tanks and pipelines should be in accordance with the extant and applicable standards

ii. The separation between above ground petrol storage tanks shall be as per extant norms.

iii. Efficient secondary containment (as detailed in Section C) shall be provided to prevent release of any leakage to the environment.

iv. There should be adequate monitoring system to detect any leakage from the outer wall of the tank or pipelines.

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C. **Secondary containment:**

Secondary containment systems must be designed, constructed, and installed to contain leakage / spillage released from the storage tank and shall have system to detect the failure / breach of the containment system and shall prevent the release of leaked petrol to the environment at any time during the operational life of the storage tank system; and may be checked for leakage regularly.

1. Secondary containment for underground tanks :

All the underground petrol storage tanks shall provide secondary containment system to prevent the leak to escape to the environment. The secondary containment can be provided through double walled tanks

OR

by providing concreted walls around the storage tank that are impervious for petrol.

Double walled tanks must be capable of containing leak from any portion of the inner tank within the outer wall and having system to detect the failure / breach of the inner wall. Any material that is not inert towards petrol should not be used for providing secondary containment. Piping must be equipped with secondary containment. In the new / upcoming petrol depots, the piping conveying petrol under pressure must be equipped with an automatic line leak detector.

2. Secondary containment for above ground petrol tanks:

All the above ground petrol storage depots shall provide secondary containment system to prevent the leaked petrol to escape to the environment. The secondary containment can be provided through double walled tanks or by constructing a dyked area. Double walled tanks must be capable of containing leak from any portion of the inner tank within the outer wall and detect the failure / breach of the inner wall. Dyked area should prevent the interference of storm water or groundwater intrusion, should surround the tank completely and should be capable of preventing migration of leaked petrol.

There should be proper arrangements so that any leakage within the secondary containment area may be timely detected and disposed in an environmentally safe and sound manner.

D. **Monitoring**

1. **Interstitial monitoring:**

Interstitial monitoring system having hydrocarbon sensors and alarming system shall be installed between the petrol storage tanks and secondary containment barrier to detect any leakage.

2. **Vapour monitoring wells:**

In case interstitial monitoring (of underground tanks) is not feasible, vapour monitoring wells may be installed as alternative leak detection system that can be used either continuously or regularly to monitor for hydrocarbon vapours in the soil surrounding the tanks (beyond secondary containment). It should

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be ensured that the soil / filler material between secondary containment and the vapour monitoring wells has a sufficient liquid / vapour conductivity for passage of petrol vapours. The vapour monitoring system should not be affected by rainfall or moisture or any contamination which can interfere with monitoring.

3. **Other routine leakage detection systems:**

All new petrol storage tanks will have automation system (automatic tank gauging) installed which will provide reports on volume balance after every day operation and records shall be maintained. If feasible, manual gauging shall be done at least once in a month for determining the accuracy of Automatic Tank Gauging; alternatively, the automatic tank gauging system should be calibrated as per equipment manufacturer's guidelines. The leakage detection system shall be provided any other applicable norms / guidelines issued by Ministry of Petroleum and Natural Gas / other statutory bodies.

4. **In case of leakage resulting in soil/groundwater contamination:**

i. Concerned Petrol Storage Depot shall report to the concerned State Pollution Control Board / Pollution Control Committee, PESO and District Administration under intimation to CPCB within 24 hours of occurrence. Operation of such underground storage tank (UST) and its ancillary components shall be stopped immediately.
ii. Fuel shall be removed immediately from petrol storage tank to prevent further release to environment. Measures to prevent explosion due to vapors release due to leakage as recommended by PESO shall be implemented immediately.
iii. The petrol storage depot may be held liable for Environmental Compensation (imposed by concerned State Pollution Control Board / Pollution Control Committee) and environmental remediation.
iv. Operation of petrol storage tank and its ancillary components shall not be resumed till corrective measures to contain and stop leakages are implemented to the satisfaction of PESO and concerned State Pollution Control Board / Pollution Control Committee.

Equipment Integrity Test for underground petrol tanks:

The Equipment Integrity Test (EIT) measures the containment integrity of the tanks, fittings and pipes. An EIT should be conducted to evaluate if an underground petrol storage tanks can cause any leakage to the environment and to evaluate if it can provide containment as required

An Equipment Integrity Test should be performed:

i. Before any new underground petrol storage tank is commissioned
ii. After any modification or upgradation of underground petrol storage tanks.
iii. After any repair following the discovery of a leak in the system or replacement of tanks or piping.

The Equipment Integrity Test should be done as per approved Indian or international procedure.

E. **For prevention of accidents:**

1. Subject to the quantity of petrol that may be stored in a depot and the threshold quantity specified for extremely flammable liquids in The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended, a petrol depot shall ensure compliance of the aforementioned rules including but not limited to:

i. General responsibility of the occupier during industrial activity:
ii. Notification of Major accident;
iii. Approval and Notification of sites;
iv. Updating of the site notification following changes in the threshold quantity;
v. Safety reports and safety audit reports and their updating;
vi. Preparation of on-site emergency plan and carrying out of mock drills;
vii. Information to be given to persons liable to be affected by a major accident etc.

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2. A petrol depot shall ensure compliance of all the provisions of The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended, as applicable.

3. A petrol depot shall not commission without taking no objection certificate from the fire department.

4. A petrol depot must invariably comply with the extant law concerned with safety or prevention of accidents issued by Ministry of Petroleum and Natural Gas / PESO / any other statutory organization, as applicable.

5. In case, a major accident occurs, the petrol depot shall within 48 hours notify the concerned authority as identified in Schedule 5 (of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended) of that accident, and furnish thereafter to the concerned authority a report relating to the accidents in Schedule 6 (of the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 (as amended)). However, the concerned authorities, local crisis group, District emergency authorities etc. have to be informed by the petrol depot as early as possible.

6. The petrol storage depots must provide proper arrangements to prevent and contain the spread of fire / explosion, as per extant and applicable norms and guidelines.

7. The petrol storage depots must have alarming system to inform and alert the surrounding inhabitants in case of any accident or emergency.

8. The Petrol Depot shall ensure carrying out routine leakage detection and leakage monitoring in case of temporary shut down.

F. **Location and Siting of Petrol Depot:**

1. The location and siting of petrol depot shall strictly be in accordance with the extant law / guidelines issued by Ministry of Petroleum and Natural Gas / PESO / any other statutory organization as applicable.
2. The SPCBs / PCCs while granting Consent to Establish / Operate to new petrol depots shall give due consideration to the pollution causing potential and ecological sensitivity of the pertinent region as well as extant local government laws regarding setting of such major accident hazard industries and extant law / guidelines issued by Ministry of Petroleum and Natural Gas / PESO / any other statutory organization as applicable.
3. New / upcoming petrol depots shall be located at least 100 m away from the surface water bodies including lakes, ponds, streams, rivers, wetlands, canals and creeks and human habitation. In case of streams and rivers, the distance shall be considered from the floodway. In case, floodway is not defined, the distance shall be considered from firm banks / edges of the river.

G. **Decommissioning of tanks: In** case any above ground or underground petrol storage tank has to be decommissioned, the following must be ensured:

i. Removal of all petrol and its disposal in an environmentally sound manner.

ii. Removal of any residual flammable vapour and its safe disposal.

iii. Removal of any hazardous waste like tank sludge in an environmentally sound manner and its disposal as per extant hazardous waste management rules.

2. Before decommissioning of tanks, the petrol depot shall take permission from the concerned statutory authority if / as applicable and shall inform to the concerned SPCB / PCC.

3. The petrol depot at the time of decommissioning must ensure that the site is investigated for any potential environmental contamination from an expert institution and submit the report to the concerned SPCB / PCC.

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Section C (under subheading Fugitive Emissions and Standards for Equipment Leaks) of the Petroleum Oil Refinery standards notified by Ministry of Environment and Forests vide Notification no. GSR 186 (E) dated 18.03.2008

Fugitive Emission

Storage of Volatile Liquids: General Petroleum Products

1. Storage tanks with capacity between 4 to 75 m^3 and total vapour Pressure (TVP) of more than 10 kpa should have Fixed Roof Tank (FRT) with pressure valve vent.

2. Storage tank with the capacity between 75 to 500 m^3 and total vapour Pressure (TVP) of 10 to 76 kpa should have Internal Floating Root Tank (IFRT) of External Floating Root Tank (EFRT) or Fixed Roof Tank with vapour control or vapour balancing system.

3. Storage tanks with the capacity of more than 500 m^3 and total vapour Pressure (TVP) of 10 to 76 kpa should have Internal Floating Roof Tank or External Floating Roof Tank or Fixed Roof Tank with vapour control system.

4. The tanks with the capacity of more than 75m^3 and total vapour Pressure (TVP) of more than 76 kpa should have Fixed Root Tank with vapour control system.

5. Requirement for seals in Floating Roof Tanks:

(i) a) IFRT and EFRT shall be provided with double seals with minimum vapour recovery of 96%.

b. Primary seal shall be liquid or shoe mounted for EFRT and vapour mounted for IFRT. Maximum seal gap width will be 4 cm and maximum gap area will be 200 cm^2/m of tank diameter.

c. Secondary seal shall be rim mounted. Maximum seal gap width will be 1.3 cm and maximum gap area will be 20 cm^2/m of tank diameter.

d. Material of seal and construction shall ensure high performance and durability.

(ii) Fixed Roof Tanks shall have vapour control efficiency of 95% and vapour balancing efficiency of 90%.

iii. Inspection and maintenance of storage tanks shall be carried out under strict control. For the inspection, API RP 575 may be adopted. In-service inspection with regard seal gap should be carried out once in every six months and repair to be implemented in short time. In future, possibility of on-stream repair of both seals shall be examined.

Storage of Volatile Liquids: Benzene Storage

(1) FRT with vapour to incineration with 99.9% of removal efficiency for volatile organic compounds (VOC) shall be provided.

(2) IFRT/EFRT with double seals, emission-reducing roof fitting and fitted with fixed roof with vapour removal efficiency of at least 99% shall be provided.

Solvents for Lube-Base Oil production (Furfural, NMP, MEK, Toulene and MIBK)

IFRT with double seals and inert gas blanketing with vapour removal efficiency of at least 97% shall be provided.

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Emission control for Road tank truck/Rail Tank wagon loading			
	Loading of Volatile Products	Gasoline and Naphtha : i. VOC reduction, % ii. Emission, gm/ m^3	i. 99.5 ii. 5
		Benzene : i. VOC reduction, % ii. Emission, mg/ m^3	i. 99.99 ii. 20
		Toluene/Xylene : i. VOC reduction, % ii. Emission, mg/ m^3	i. 99.98 ii. 150
		Note : i. It shall be applicable for Gasoline, Naphtha, Benzene, Toluene and Xylene loading ii. Road tank Truck shall have Bottom loading and Rail tank wagon shall have Top submerged loading. iii. Annual leak testing for vapour collection shall be done.	

Standards for Equipment Leaks

1. Approach: Approach for controlling fugitive emissions from equipment leaks shall have proper selection, installation and maintenance of non-leaking or lea-tight equipment. Following initial testing after commissioning, the monitoring for leak detection is to be carried out as a permanent on-going Leak Detection and Repair (LDAR) programme. Finally detected leaks are to be repaired within allowable time frame.

   (2) Components to be Covered: Components that shall be covered under LDAR programme include (i) Block Valves; (ii) Control Valves; (iii) Pump seals; (iv) Compressor seals; (v) Pressure relief valves; (vi) Flanges - Heat Exchangers; (vii) Flanges - Piping; (viii) Connectors - Piping; (ix)
   Open ended lines; and (x) Sampling connections. Equipment and line sizes more than 1.875 cm
   or ¾ inch are to be covered.

3. Applicability: LDAR programme would be applicable to components (given at 2 above) for following products/compounds: (i) hydrocarbon gases; (ii) Light liquid with vapour pressure @ 20 °C > 1.0 kPa; and (iii) Heavy liquid with vapour pressure @ 20 °C between 0.3 to 1.0 kPa.

4. While LDAR will not be applicable for heavy liquids with vapour pressure < 0.3 kPa, it will be desirable to check for liquid dripping as indication of leak.

5. Definition of Leak: A leak is defined as the detection of VOC concentration more than the values (in ppm) specified below at the emission source using a hydrocarbon analyser according to measurement protocol (US EPA-453/R-95-017, 1995 Protocol for equipment leak emission estimates may be referred to:

Component	General Hydrocarbon (ppm)		Benzene (ppm)	
	Till 31st Dec. 2008	w.e.f. January 01, 2009	Till 31st Dec., 2008	w.e.f. January 01, 2009
Pump/Compressor	10000	5000	3000	2000
Valves/Flanges	10000	3000	2000	1000
Other Components	10000	3000	2000	1000

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6. In addition, any component observed to be leaking by sight, sound or smell, regardless of concentration (liquid dripping, visible vapour leak) or presence of bubbles using soap solution should be considered as leak.

7. Monitoring Requirements and Repair Schedule: Following frequency of monitoring of leaksand schedule for repair of leaks shall be followed:

Component	Frequency of monitoring	Repair schedule
	Quarterly (semi-annual after two consecutive periods with < 2% leaks and annual after 5 periods with < 2% leaks)	Repair will be started within 5 working days and shall be completed within 15 working days after detection of leak for general hydrocarbons. In case of benzene, the leak shall be attended immediately for repair.
Pump seals	Quarterly	
Compressor seals	Quarterly	
Pressure relief devices	Quarterly	
Pressure relief devices (after venting)	Within 24 hours	
Heat Exchangers	Quarterly	
Process drains	Annually	
Components that are difficult to monitor	Annually	
Pump seals with visible liquid dripping	Immediately	Immediately
Any component with visible leaks	Immediately	Immediately
Any component after repair/replacement	Within five days	-

8. The percentage leaking components should not be more than 2% for any group of components, monitored excluding pumps/compressor. In case of pumps/compressors, it should be less than 10% of the total number of pumps/compressors or three pumps and compressor, whichever is greater.

9. Emission Inventory: Refinery shall prepare on inventory of equipment components in the plant. After the instrumental measurement of leaks, emission from the components will be calculated using stratified emission factors (USEPA) or any other superior factors. The total fugitive emission will be established.

10. Monitoring following types of monitoring methods may be judiciously employed for detection of leaks: (i) instrumental method of measurement of leaks; (ii) Audio, visual and olfactory (AVO) leak detection; and (iii) Soap bubble method.

11. Data on time of measurement and concentration value for leak detection: time of repair of leak; and time of measurement & concentration value after repair of leak should be documented for all the components.

12. Pressure relief and blow down systems should discharge to a vapour collection and recovery system or to flare.

13. Open-ended lines should be closed by a blind flange or plugged.

14. Totally closed-loop should be used in all routine samples.

15. Low emission packing should be used for valves.

16. High integrity sealing materials should be used for flanges.

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